TABLE OF CONTENTS
Part II

Preface
List of Abbreviations
Notes
Countries and areas of the Western Pacific Region

Part 1: WHO in the Western Pacific Region: The first 50 years

Chapter 1. International public health organizations before WHO
Chapter 2. Founding of WHO
Chapter 3. Establishment of the Regional Office and postwar reconstruction (1948-1955)
Chapter 4. Basic health services era (1956-1977)

Part 2: Health services

Chapter 7. Organization of health systems
Chapter 8. Human resources for health
Chapter 9. Nursing
Chapter 10. Pharmaceuticals
Chapter 11. Health information
Chapter 12. Health research
Chapter 13. Traditional medicine

Part 3: Communicable disease prevention and control

Chapter 14. Acute respiratory infections
Chapter 15. Dengue
Chapter 16. Diarrhoeal diseases, including cholera
Chapter 17. Japanese encephalitis
Chapter 18. Lymphatic filariasis
Chapter 19. Hepatitis
Chapter 20. Influenza
Chapter 21. Leprosy
Chapter 22. Malaria
Chapter 23. Measles
Chapter 24. Poliomyelitis
Chapter 25. Schistosomiasis
Chapter 26. Sexually transmitted disease, including HIV/AIDS
Chapter 27. Smallpox
Chapter 28. Trachoma and other causes of blindness
Chapter 29. Tuberculosis
Chapter 30. Typhoid
Chapter 31. Yaws (endemic treponematosis)
Chapter 32. Emerging and re-emerging communicable diseases

Part 4: Control of noncommunicable diseases

Chapter 33. Cancer
Chapter 34. Cardiovascular diseases
Chapter 35. Diabetes mellitus

Part 5: Promotion and protection of health

Chapter 36. Reproductive, child and women's health
Part 6: Future

Chapter 43. The next 25 years

Annexes
Annex 1. Regional directors
Preface

The World Health Organization formally came into existence on 7 April 1948 when the 26th ratification of the WHO Constitution was received. Two years later, the Regional Office for the Western Pacific was established, first in Bangkok and then in Hong Kong. In 1951, in response to an invitation from the Philippine Government, the Regional Office moved to Manila and in 1959 it was established in its current location.

This book is the story of WHO’s first 50 years in the Western Pacific Region. It is a story of adapting to changing circumstances and of responding to the health needs of the countries and areas of the Region. Above all, it is a story of how WHO in the Western Pacific Region has sought to remain relevant to the needs of a region that has changed out of all recognition in the last half century.

Health status

Looking back in 1965, the first Regional Director of the Western Pacific Region, Dr I.C. Fang, described the health situation of the Region when the Regional Office started work.

"In 1950, almost all countries in the Region, even the well-off, were gradually recovering from the effects of a terrible war….

In most countries health services consisted mainly of emergency or simple medical care. There was no public health authority as such within the ministries of health, and hence there was inadequate provision for preventive and social medicine. There was a great lack of trained personnel of all categories.

Malaria was widespread. Tuberculosis was rampant over almost the entire Region. Yaws and venereal diseases constituted an important public health problem. Leprosy - to a greater or lesser extent - was also a problem in almost all countries. Trachoma …[and] smallpox [were] threats. The vigorous fight against bilharziasis with environmental sanitation measures was just starting…

As regards environmental health, the situation could be described as follows: only a few urban communities had water supplies and facilities for sanitary disposal of human wastes; most rural dwellers utilized suspect water; soil pollution and contamination of drinking water were evident in almost all rural areas; housing, refuse disposal, rodents and flies were not controlled, or only partially.

Maternal and child health services were almost entirely limited to emergency curative treatment, and did not include preventive care - which is paramount in maternal and child health….

Nutritional deficiencies, particularly lack of proteins and calories, were aggravating most infectious conditions."

In many ways the situation today is greatly improved. The most striking progress can be seen in health services. While there are significant variations, for example between the sophisticated health services available in the developed countries of the Region and those of the smaller island countries of the Pacific, throughout the Region the basic health infrastructure is now place. The countries themselves deserve most of the credit for this, but WHO, which has provided technical support, particularly in the area of human resources, for half a century has also made a major contribution.

The disease profile too has changed significantly. Nutritional deficiencies are not nearly as widespread as they were 50 years ago. Smallpox, poliomyelitis, leprosy, trachoma and yaws have been reduced to very low levels or eradicated. Noncommunicable diseases, which were not regarded as common in developing countries of the Region in the 1950s, are now a major public health issue throughout the Region. Cancer, for example, is now one of the five leading causes of death in 26 countries and areas of the Region. The Region is also threatened by a number of emerging and re-emerging diseases. HIV/AIDS is the most well-publicized of these, but hepatitis C, dengue and tuberculosis are all either new threats or have re-emerged with a new virulence.
In other ways, however, the public health issues that attract attention today are not so different from those of yesterday. For example, the six priorities identified by the First World Health Assembly in June 1948 were:

1. malaria, maternal and child health, tuberculosis, venereal diseases, nutrition and environmental sanitation;
2. public health administration;
3. parasitic diseases;
4. viral diseases;
5. mental health;
6. other activities.

Can we say that any of these issues have been resolved? I don’t think so. Far from disappearing, these early priorities remain at or near the top of WHO’s agenda. This highlights one of the values of a book such as this. As public health practitioners we cannot afford to ignore the past, since so many of the same problems are encountered from generation to generation. I hope that this book will help all of us to take from the past what is useful, while at the same time we constantly search for new cures, new ways of delivering health care and new methods of promoting positive health.

Fifty years in the Region

The first session of the Regional Committee in May 1951 was attended by representatives of eight countries within the Region and a further four countries responsible for areas within the Region. By contrast, in 1998 the Region consists of 27 Members within the Region, one Associate Member and four Members with seats of government outside the Region. To respond to this growth in geographical coverage, WHO itself has grown. Our Regional Office in Manila has been at its present site for almost 40 years. Staffing levels have increased greatly. At country level we have 16 offices from Mongolia to Samoa. In terms of technology, we make use of the most up-to-date electronic communications to retain regular contact with countries and with our offices in the Region and to disseminate information, including details of disease outbreaks.

However, more important than size is the maintenance of quality. Our Member States have a right to expect the very highest level of support from WHO. I think this book shows that the Western Pacific Region can take some justifiable pride in what it has achieved over 50 years. As well as providing guidance for future public health practitioners in the Region, this history will, I hope, be one way of paying tribute to the many men and women who have participated in the work of the World Health Organization in the Western Pacific Region over the last 50 years, often in difficult and dangerous circumstances.

Fifty years of WHO in the Western Pacific Region has been published in response to a decision by the Regional Committee at its forty-eighth session in 1997. It is intended to be both a record of the collaboration between WHO and Member States over the last 50 years and a history of public health in the Western Pacific Region. I hope it goes some way towards fulfilling these objectives.

Regional Director
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
</tr>
<tr>
<td>ADAB</td>
<td>Australian Development Assistance Bureau</td>
</tr>
<tr>
<td>ADR</td>
<td>Adverse drug reaction</td>
</tr>
<tr>
<td>AFP</td>
<td>Acute flaccid paralysis</td>
</tr>
<tr>
<td>AHE</td>
<td>Ageing and health programme</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired immunodeficiency syndrome</td>
</tr>
<tr>
<td>ARI</td>
<td>Acute respiratory infections</td>
</tr>
<tr>
<td>ANP</td>
<td>Applied nutrition programme</td>
</tr>
<tr>
<td>ARS</td>
<td>ASEAN reference standards</td>
</tr>
<tr>
<td>ASEAN</td>
<td>Association of South-East Asian Nations</td>
</tr>
<tr>
<td>ASR</td>
<td>Age-specific incidence rates</td>
</tr>
<tr>
<td>AusAID</td>
<td>Australian Agency for International Development</td>
</tr>
<tr>
<td>BCG</td>
<td>Bacille Calmette-Guérin</td>
</tr>
<tr>
<td>BSIP</td>
<td>British Solomon Islands Protectorate</td>
</tr>
<tr>
<td>CAC</td>
<td>Codex Alimentarius Commission</td>
</tr>
<tr>
<td>CDD</td>
<td>Control of diarrhoeal disease</td>
</tr>
<tr>
<td>CDR</td>
<td>Diarrhoeal and acute respiratory disease control programme</td>
</tr>
<tr>
<td>CFR</td>
<td>Case fatality rate</td>
</tr>
<tr>
<td>CHIPS</td>
<td>Country health information profiles</td>
</tr>
<tr>
<td>CVD</td>
<td>Cardiovascular diseases</td>
</tr>
<tr>
<td>DALYs</td>
<td>Disability-adjusted life years</td>
</tr>
<tr>
<td>DANIDA</td>
<td>Danish International Development Agency</td>
</tr>
<tr>
<td>DAP&amp;E</td>
<td>Diploma in applied parasitology and entomology</td>
</tr>
<tr>
<td>DDS</td>
<td>Dapsone</td>
</tr>
<tr>
<td>DDT</td>
<td>Dichlorodiphenyltrichloroethane</td>
</tr>
<tr>
<td>DEC</td>
<td>Diethylcarbamazine</td>
</tr>
<tr>
<td>DF</td>
<td>Dengue fever</td>
</tr>
<tr>
<td>DHF</td>
<td>Dengue haemorrhagic fever</td>
</tr>
<tr>
<td>DNA</td>
<td>Deoxyribonucleic acid</td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly-observed treatment, short course</td>
</tr>
<tr>
<td>DTU</td>
<td>Diarrhoeal training unit</td>
</tr>
<tr>
<td>EHC</td>
<td>Environmental Health Centre</td>
</tr>
<tr>
<td>EHRC</td>
<td>Environmental Health Research Centre</td>
</tr>
<tr>
<td>EHS</td>
<td>Environmental Health Service</td>
</tr>
<tr>
<td>EHIA</td>
<td>Environmental health impact assessment</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental impact assessment</td>
</tr>
<tr>
<td>EMC</td>
<td>Division of Emerging and Communicable Diseases Surveillance and Control</td>
</tr>
<tr>
<td>EPI</td>
<td>Expanded programme on immunization</td>
</tr>
<tr>
<td>FAO</td>
<td>Food Agriculture Organization</td>
</tr>
<tr>
<td>FNRI</td>
<td>Food and Nutrition Research Institute</td>
</tr>
<tr>
<td>GEIC</td>
<td>Gilbert and Ellice Islands</td>
</tr>
<tr>
<td>GLRA</td>
<td>German Leprosy Relief Association</td>
</tr>
<tr>
<td>GMP</td>
<td>ASEAN Good Manufacturing Practices</td>
</tr>
<tr>
<td>Acronym</td>
<td>Full Form</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>GPA</td>
<td>Global Programme on AIDS</td>
</tr>
<tr>
<td>HA</td>
<td>Hepatitis A</td>
</tr>
<tr>
<td>HB</td>
<td>Hepatitis B</td>
</tr>
<tr>
<td>HBsAg</td>
<td>Hepatitis B surface antigen</td>
</tr>
<tr>
<td>HBV</td>
<td>Hepatitis B virus</td>
</tr>
<tr>
<td>HCV</td>
<td>Hepatitis C virus</td>
</tr>
<tr>
<td>HEE</td>
<td>Health of the elderly</td>
</tr>
<tr>
<td>HFRS</td>
<td>Hæmorrhagic fever with renal syndrome</td>
</tr>
<tr>
<td>HIV</td>
<td>Human immunodeficiency virus</td>
</tr>
<tr>
<td>HLA</td>
<td>Human leukocyte antigen</td>
</tr>
<tr>
<td>HRC/AB</td>
<td>Health research councils on analogous bodies</td>
</tr>
<tr>
<td>HRH</td>
<td>Human resources for health</td>
</tr>
<tr>
<td>HSR</td>
<td>Health systems research</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>ICD-9</td>
<td>International Classification of Diseases, Injuries and Causes of Death</td>
</tr>
<tr>
<td>ICN</td>
<td>International Council of Nurses</td>
</tr>
<tr>
<td>ICNND</td>
<td>Interdepartmental Committee on Nutrition for National Defense</td>
</tr>
<tr>
<td>IDD</td>
<td>Iodine deficiency disorders</td>
</tr>
<tr>
<td>IDDM</td>
<td>Insulin-dependent diabetes</td>
</tr>
<tr>
<td>IDRC</td>
<td>International Development Research Centre</td>
</tr>
<tr>
<td>IEC</td>
<td>Information, education and communication</td>
</tr>
<tr>
<td>IHR</td>
<td>International health regulations</td>
</tr>
<tr>
<td>ILA</td>
<td>International Leprosy Association</td>
</tr>
<tr>
<td>IMCI</td>
<td>Integrated management of childhood illness</td>
</tr>
<tr>
<td>IMR</td>
<td>Infant Mortality Rate;</td>
</tr>
<tr>
<td></td>
<td>Institute for Medical Research</td>
</tr>
<tr>
<td>INH</td>
<td>Isoniazid</td>
</tr>
<tr>
<td>IPPF</td>
<td>International Planned Parenthood Federation</td>
</tr>
<tr>
<td>IPV</td>
<td>Inactivated poliovirus vaccine</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous rehydration</td>
</tr>
<tr>
<td>JE</td>
<td>Japanese encephalitis</td>
</tr>
<tr>
<td>JPMA</td>
<td>Japan Pharmaceutical Manufacturers Association</td>
</tr>
<tr>
<td>JSIF</td>
<td>Japan Shipbuilding Industry Foundation</td>
</tr>
<tr>
<td>KNCV</td>
<td>The Royal Netherlands Tuberculosis Association</td>
</tr>
<tr>
<td>KNTA</td>
<td>Korean Anti-Tuberculosis Association</td>
</tr>
<tr>
<td>LAN</td>
<td>Local area network</td>
</tr>
<tr>
<td>LEC</td>
<td>Leprosy elimination campaign</td>
</tr>
<tr>
<td>MB</td>
<td>Multibacillary</td>
</tr>
<tr>
<td>MCH</td>
<td>Maternal and child health</td>
</tr>
<tr>
<td>MDA</td>
<td>Mass drug administration</td>
</tr>
<tr>
<td>MDT</td>
<td>Multidrug therapy</td>
</tr>
<tr>
<td>MEDLARS</td>
<td>Medical Literature Analysis and Retrieval System</td>
</tr>
<tr>
<td>MMR</td>
<td>Maternal mortality rate</td>
</tr>
<tr>
<td>MONICA</td>
<td>Monitoring of cardiovascular diseases</td>
</tr>
<tr>
<td>NCD</td>
<td>Noncommunicable diseases</td>
</tr>
<tr>
<td>NGOs</td>
<td>Nongovernmental organizations</td>
</tr>
<tr>
<td>NIDDM</td>
<td>Non-insulin-dependent diabetes</td>
</tr>
<tr>
<td>NIDs</td>
<td>National immunization days</td>
</tr>
<tr>
<td>NPC</td>
<td>Nasopharyngeal carcinoma</td>
</tr>
<tr>
<td>NSL</td>
<td>Netherlands Leprosy Relief Association</td>
</tr>
<tr>
<td>NTP</td>
<td>National tuberculosis programmes</td>
</tr>
</tbody>
</table>
nvCJD New variant of Creutzfeldt-Jakob disease
OIH Office International d’Hygiène Publique
OPV Oral poliovirus vaccine
ORS Oral rehydration salts
PACNET Pacific Health Surveillance Network
PAHO Pan American Health Organization
PASB Pan American Sanitary Bureau
PASC Pan American Sanitary Conference
PB Paucibacillary
PC Pacific Community
PEPAS Western Pacific Centre for the Promotion of Environmental Planning and Applied Studies
PHC Primary health care
PIC Pacific island countries
PLF Pacific Leprosy Foundation
PRA Programme for Research on Ageing
QALYs Quality-adjusted life years
RF/RHD Rheumatic fever and rheumatic heart disease
RIS Regional information system
RIT Research Institute of Tuberculosis
SAPEL Special action project for the elimination of leprosy
SCC Short-course chemotherapy
SEAMEO Southeast Asian Ministers of Education
TROPMED Organization - Tropical Medicine Programme
SMHF Sasakawa Memorial Health Foundation
SNIDs Subnational immunization days
SPA Special Programme on AIDS
SPC South Pacific Commission
SPEC South Pacific Bureau for Economic Cooperation
SPPS South Pacific Pharmaceutical Services
SPRA Special programme for research on ageing
STDs Sexually transmitted diseases
TAG Technical Advisory Group on the EPI and Poliomyelitis Eradication
TAT Interregional Treponematosis Advisory Team
TBA Traditional birth attendant
TDR Special Programme for Research and Training in Tropical Diseases
TGA Therapeutic Goods Administration
THELEP Therapeutic leprosy
TTI Transmission of transfusion-associated infections
UATLD International Union against Tuberculosis and Lung Disease
UNAIDS Joint United Nations Programme on AIDS
UNCED United Nations Conference on Environment and Development
UNDP United Nations Development Programme
UNESCO United Nations Educational, Scientific and Cultural Organization
UNESA United Nations Educational, Scientific and Cultural Organization
UNFPA United Nations Population Fund
UNIC United Nations Information Centre
UNICEF United Nations Children’s Fund
UNRRA United Nations Relief and Rehabilitation Administration
USAID United States Agency for International Development
VD Venereal diseases
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDT</td>
<td>Venereal diseases and treponematosis</td>
</tr>
<tr>
<td>VITTEP</td>
<td>Vietnamese Institute of Tropical Technology and Environmental Protection</td>
</tr>
<tr>
<td>WER</td>
<td>WHO Weekly Epidemiological Record</td>
</tr>
<tr>
<td>WPACMR</td>
<td>Western Pacific Advisory Committee on Medical Research</td>
</tr>
<tr>
<td>WRs</td>
<td>WHO Representatives</td>
</tr>
</tbody>
</table>
NOTES

Structure

This book is divided into six parts. Part 1 presents a chronological history of the World Health Organization in the Western Pacific Region. It begins by describing international public health organizations before WHO. It then covers the founding of WHO and the establishment of the Regional Office. The 50 years that have passed since the founding of WHO are broken down into four chapters: establishment of the Regional Office and postwar reconstruction (1948–1955); basic health services era (1956–1977); primary health care and the Global Strategy for Health for All (1978–1993); and New horizons in health (1994– ).

The heart of the book contains an analytical review of WHO’s main areas of activity. Each chapter follows the same format: then and now (the situation in 1948 is compared with that today); WHO activities; achievements; underachievements; and the future.

Part 2 describes WHO’s support for health services. It ranges from an analysis of the organization of health systems to traditional medicine.

Part 3 is devoted to communicable disease prevention and control. The diseases range from those that have been eradicated or virtually eliminated (such as smallpox and yaws) to new threats such as HIV/AIDS and other emerging and re-emerging diseases.

Part 4 covers three noncommunicable diseases that are posing ever-increasing threats to the Region’s health: cancer, cardiovascular diseases and diabetes mellitus.

Part 5 deals with promotion and protection of health, a subject that is becoming increasingly central to WHO’s mission.

Part 6 presents some broad anticipated trends in public health over the next 25 years.

Acknowledgement

Numerous individuals and institutions contributed to this book. Although they are too numerous to list by name, their contributions are gratefully acknowledged.
Countries and areas of the Western Pacific Region

- American Samoa
- Australia
- Brunei Darussalam
- Cambodia
- China
- Cook Islands
- Fiji
- French Polynesia
- Guam
- Hong Kong, China
- Japan
- Kiribati
- Lao People’s Democratic Republic
- Macao
- Malaysia
- Marshall Islands
- Micronesia, Federated States of
- Mongolia
- Nauru
- New Caledonia
- New Zealand
- Niue
- Northern Mariana Islands, Commonwealth of the
- Palau
- Papua New Guinea
- Philippines
- Pitcairn Islands
- Republic of Korea
- Samoa
- Singapore
- Solomon Islands
- Tokelau
- Tonga
- Tuvalu
- Vanuatu
- Viet Nam
- Wallis and Futuna

Member States responsible for areas in the Western Pacific Region

<table>
<thead>
<tr>
<th>China</th>
<th>France</th>
<th>Portugal</th>
<th>United Kingdom</th>
<th>United States of America</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong Administrative Region</td>
<td>French Polynesia</td>
<td>Macao</td>
<td>Pitcairn Islands</td>
<td>American Samoa</td>
</tr>
<tr>
<td></td>
<td>New Caledonia</td>
<td></td>
<td></td>
<td>Guam</td>
</tr>
<tr>
<td></td>
<td>Wallis and Futuna</td>
<td></td>
<td></td>
<td>Northern Mariana Islands, Commonwealth of the</td>
</tr>
</tbody>
</table>
Chapter 1. International public health organizations before WHO

Early initiatives in international health cooperation were motivated by a desire to contain plague and cholera (which had arrived in Western Europe twenty years before the first International Sanitary Conference was convened in 1851). These early discussions were lent urgency by two developments that greatly increased the risk of large-scale international epidemics; the 19th century transportation revolution and the overcrowded living conditions that characterized the industrial revolution.

International sanitary conferences and conventions

International public health in Europe can be said to have officially begun with the first International Sanitary Conference, convened in Paris, France, from July 1851 to January 1852. The objective of the Conference was very limited; to harmonize and reduce the numerous quarantine requirements of different European countries. These requirements were directed particularly against the importation of plague, although national quarantine measures were subsequently taken against yellow fever and, later still, against the first invasion of cholera in Europe. The Conference was "not an isolated example of international cooperation, but rather one of many symptoms of a new international movement – a movement born, in an age of nationalism, as a necessary adjunct to the enormous growth of international intercourse and commerce which had been made possible by developments in transport and communications."

The next five International Sanitary Conferences failed to agree on an International Sanitary Convention. At the seventh International Sanitary Conference, held in Venice, Italy, in 1892, an International Sanitary Convention restricted to cholera was finally ratified. Cholera was also the subject of additional conventions that resulted from the eight and ninth conferences in Dresden, Germany, in 1893 and Paris, France, in 1894. The tenth International Sanitary Conference, in Venice in 1897, adopted an international convention referring solely to plague.

These four separate International Sanitary Conventions – the first three concerned with cholera and the fourth with plague – were consolidated into a single International Sanitary Convention at the eleventh conference in Paris in 1903. A further International Sanitary Convention was held in 1926. This resulted in a revised convention that for the first time included provisions against smallpox and typhus. In 1933, agreement was reached, without a conference, on an International Sanitary Convention for aerial navigation, which came into force in 1935.

The 19th and early 20th centuries also witnessed regional public health initiatives in what were to become the Eastern Mediterranean and Americas Regions of WHO. Four intergovernmental health councils were established in the Eastern Mediterranean before the end of the 19th century in Alexandria, Egypt; Constantinople, Turkey; Tangiers, Morocco; and Tehran, Persia. Of these, the Egyptian Quarantine Board in Alexandria, which eventually handed its functions and building to the new WHO Regional Office for the Eastern Mediterranean, was the most significant.

The International Sanitary Bureau (later renamed the Pan American Sanitary Bureau [PASB] and eventually the Pan American Health Organization [PAHO]) was established in Washington, D.C., United States of America, in 1902. By the time WHO was formed in 1948, the PASB was already a very active organization and the negotiations at the Technical Preparatory Committee and World Health Conference to determine
its role vis-à-vis the new global organization were protracted. Eventually on 1 July 1949 an agreement between the two organizations came into force and the PASB assumed the role of WHO Regional Office for the Americas.

**Office International d’Hygiène Publique, 1907–1948**

At the eleventh International Sanitary Conference in 1903 it was agreed that a permanent health bureau should be created. At a meeting of government representatives in Rome, Italy, in 1907, the final decision was taken to set up an international public hygiene office, known as the Office International d’Hygiène Publique (OIHP), in Paris, France, in 1909. The OIHP was to have a permanent secretariat and a committee of senior public officials from member governments. The original 12 signatories were eventually joined by nearly 60 other countries including British India and other non-sovereign states.

Although the OIHP had no authority to do field work within a particular country, even at that country’s request, it did develop an effective organization for disseminating knowledge on communicable diseases and their control, as well as on a variety of other health problems. Its permanent committee first met in late 1908, and every two years thereafter, except for a five-year hiatus during the First World War. The OIHP did the preparatory work for the 1911–1912 International Sanitary Conference and was responsible for revising the 1912 International Sanitary Convention in 1926. Its functions were gradually taken over by WHO in the period 1946–1948.

The OIHP had to reflect fundamental shifts in perceptions of the role of international public health that were taking place during the first half of the 20th century. The President of the Permanent Committee of the OIHP, Professor Rocco Santoliquido, expressed the evolving approach to international public health at the first meeting after the First World War:

The chief guarantee of international security from diseases lay, he said, in the standard of the public health of each national unit. The idea of erecting barriers against diseases was outmoded, and the concept of quarantine should be regarded as an obsolete scientific superstition. Endemic foci of communicable disease should be circumscribed and obliterated, and such action presupposed a considerable and rational development of national health services. The health measures must be adapted to local circumstances, and what was suited to a large town would not be applicable to a small rural community. But it was not sufficient that the health services should be developed and reorganized. The masses must accept the necessity for measures taken. This implied that they must understand them, and understanding could come only by education of the public.

In the words of the official history of the first ten years of WHO: "Thus were formulated for the first time in an intergovernmental meeting, on 3 June 1919, the precepts which have since become a corner-stone of international health work."

**Health Organisation of the League of Nations, 1921–1948**

The League of Nations was created after the First World War. One of its tasks was to "endeavour to take steps in matters of international concern for the prevention and control of disease." However, despite the crucial role of President Woodrow Wilson in establishing the new body, the United States of America never joined the League. Thus, in the interwar years there were two entirely independent global health organizations (the OIHP in Paris, France and the Health Organisation of the League of Nations in Geneva, Switzerland), one regional health organization in the Americas (the PASB, later to become the Pan American Health Organization, PAHO) and another in Alexandria. The Health Organisation of the League of Nations, the OIHP and the PASB had consultative and cooperative arrangements, but the United States opposed any formal linkages. For example, on 27 April 1921 the President of the Permanent Committee of the OIHP wrote to the Secretary-General of the League, explaining that participation on a joint committee was not possible, adding that: "the opinion of the Delegates was greatly influenced by a telegram, communicated by the Representative of France, according to which the Government of the United States could not consent to any International Organization of which it is a member being combined within the League of Nations." The OIHP retained responsibility for the administration and revision of the International Sanitary Conventions.

The need to establish an international public health structure was lent urgency by several serious global epidemics in the immediate postwar period. It has been estimated that the global influenza pandemic of 1918–1919 killed 15–18 million people. During 1919–1920, a large typhus epidemic swept through parts of eastern Europe: nearly a quarter of a million cases of typhus were reported in Poland in 1919, and in Russia the number reached more than 1.6 million. In 1921, the fledgling Health Organisation of the League of Nations attempted to form a cordon sanitaire from the Baltic to
the Black Sea. However, the outbreak was not contained until the chief medical officer of the League's Health Section, Dr Ludwik Rajchman, managed to negotiate a Sanitary Convention between Russia and Poland. This convention was widely regarded as the turning point in preventing typhus from engulfing all of Europe.

As well as taking actions to contain outbreaks of communicable diseases, the Health Secretariat of the League of Nations also "organized international commissions and conferences on common health problems; solicited the financial support of organizations such as the Rockefeller Foundation; advised certain countries, notably China, on how to run public health services; and established a skeleton of international order in disease control". Two such commissions were the Malaria Commission and Cancer Commission, both of which were established in 1923.

The Health Organisation was funded by the League of Nations and its budget was fixed by the League’s Assembly. Its programme focused on three areas:

- **Epidemiology**, including an epidemic information service, in which particular attention was paid to Asia. In 1925, a Far Eastern Epidemiological Intelligence Bureau was established in Singapore (later known simply as the Eastern Bureau), thus realizing a proposal that had been made almost half a century before at the International Sanitary Conference of 1881.

- **Technical studies**, including international standardization. The Health Organisation introduced the technique of assembling "expert committees" composed of international experts to advise on how to narrow the gap between advances in medical science and application of new knowledge to particular health problems.

- **Technical advice** in the field, by providing study opportunities for national staff, or through direct help in the form of consultations and visits by experts in coping with individual national health problems. Study tours and exchanges were arranged to enable medical officers to learn the latest developments in various specialties; special attention was directed to postgraduate education in public health through the organization of a series of conferences of directors of schools and institutes of hygiene.

The end of the Second World War and the era of "temporary" relief and reconstruction

With the outbreak of the Second World War in 1939, international public health work virtually ceased and the Health Organisation of the League restricted its activities to producing the *Weekly epidemiological record* and responding to requests for information. In 1942 the activities of the Eastern Bureau were also suspended. The next international public health initiative came in 1941–1942, when the British Prime Minister, Winston Churchill, and the United States President, Franklin D. Roosevelt, and their aides advanced proposals that resulted in the creation in 1943 of the United Nations Relief and Rehabilitation Administration (UNRRA). The mission of UNRRA was to provide support to countries once the war had ended. In November 1943, 44 allied and associated nations signed an agreement establishing this "United Nations" agency, which in effect became the first truly international relief agency in world history. Its member countries ultimately increased to 48.

Until August 1946, UNRRA operated what was termed "the most gigantic relief programme the world had ever known", providing support for hundreds of millions of people in around 25 countries. It was active throughout Europe and in China, Ethiopia, the Philippines and the Republic of Korea. At the peak of its operations in 1945–1946, UNRRA had an international staff of 15,000, plus 35,000 local employees, and had spent nearly US$ 4000 million. By early 1946, "UNRRA was moving essential relief supplies to over twenty countries on a scale that exceeded even the movement of munitions by Allied forces during the war." The range of those supplies was staggering, encompassing food, clothing, medical supplies, sewing machines, locomotives, railroad cars, fishing trawlers and nets.

UNRRA became very actively involved in combating disease in war-stricken countries and in providing health care to displaced persons. In June 1945, it provided 450 teams, including 380 doctors and 435 nurses, to care for the health of millions of the displaced. It quickly went to work to put to use the new tools that had become available for preventing and coping with epidemic diseases.

UNRRA was particularly successful in controlling typhus and cholera. An epidemic of cholera that broke out in China in 1946 was halted earlier than expected by a UNRRA expedition from the United States. When a serious cholera epidemic struck Egypt in 1947, the Chinese Government was able to supply Egypt with cholera vaccine made with UNRRA equipment.

In addition to its engagement in these and other health activities, UNRRA assumed responsibility for
administering the International Sanitary Conventions and handling epidemiological intelligence. The resulting reports were subsequently handed over to the Interim Commission of WHO in late 1946.

UNRRA was disbanded in 1946, somewhat earlier than anticipated. Its early and somewhat sudden demise was in large part due to the first stirrings of the Cold War. Nevertheless, UNRRA laid invaluable foundations for the World Health Organization and international public health organizations. In the words of the historian of the Regional Office for the Eastern Mediterranean, Dr Alexander Manulla: "Beyond any question, public health and the medical profession were one of the greatest victors of the war and post-war period. UNRRA had a part in that victory. In every country in which UNRRA had a medical programme, it left a bequest of advanced knowledge, equipment and pharmaceuticals, and of expanded and improved health facilities."

The Second World War was to prove a catalyst for international health in many ways. First, as has already been seen, the pre-war public health organizations had virtually ground to a halt during the war, leaving the field relatively clear for bold new initiatives. Second, the carnage provoked by extreme nationalism encouraged a new spirit of internationalism. This new spirit was primarily motivated by the desire to avoid further world wars (the opening paragraph of the preamble to the United Nations Charter read "We the Peoples of the United Nations, determined to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind...""). However, it also had a more positive aspect, expressed in the desire to cooperate internationally in areas such as education and science, food and agriculture, finance and health. Third, two outstanding wartime scientific discoveries, penicillin and dichlorodiphenyl-trichloroethane (DDT), completely transformed the outlook for the control and prevention of communicable diseases. It was in this favourable context that the negotiations to form a new international body for health were conducted.
Chapter 2. Founding of WHO

Like the other United Nations agencies that were created after the Second World War, the World Health Organization was both a rejection of the extreme nationalism that had prevailed during the war and an affirmation of a belief in a more humane future. In the words of a memorandum from the Brazilian delegation at the United Nations Conference on International Organization, "Medicine is one of the pillars of peace."


The United Nations Conference on International Organization was convened in San Francisco, the United States of America, on 25 April 1945 to draft the Charter of the United Nations. The Charter was signed on 26 June 1945 and entered into force on 24 October 1945. This conference not only laid the groundwork for the United Nations, it also reflected the waning power of Europe in international affairs; of the fifty states that attended, only nine continental European states west of the Union of Soviet Socialist Republics were represented. The four sponsoring powers of the Conference included one from the Western Pacific, China. As we shall see, one member of the China Delegation, Dr Szeming Sze, was to play a pivotal role in the negotiations that led to the establishment of the World Health Organization.

The first draft of the United Nations Charter made no specific reference to "health" as one of the concerns of the new international organization. According to Dr Sze, this was because: "Before the conference opened, the United States of America and the United Kingdom of Great Britain and Northern Ireland delegations had consulted each other and had agreed that no questions in the field of health would be on the conference agenda." Whatever the reason for the omission, Dr Sze and Dr Geraldo de Paula Souza of Brazil presented a joint declaration recommending that "a general conference be convened within the next few months for the purpose of establishing an international health organization". The negotiations that preceded the drafting of the declaration are described in Dr Sze's memoir of the Conference, including the procedural advice he received from the American Secretary-General of the conference, Alger Hiss. The declaration was unanimously approved by the Conference and, on 15 February 1946, the First General Assembly of the United Nations adopted a resolution: "to call an international conference to consider the scope of, and the appropriate machinery for, international action in the field of public health and proposals for the establishment of a single international health organization of the United Nations." The resolution went on to set up a Technical Preparatory Committee.

Technical Preparatory Committee, Paris, 1946

In order to prepare for the international conference, a Technical Preparatory Committee held its first meeting at the Hotel du Palais d'Orsay in Paris, France, on 18 March 1946. Of the 16 members, only one, Dr Sze, came from the Western Pacific Region. Three members were to go on to play important roles in the WHO secretariat: Dr Brock Chisholm, a Canadian psychiatrist, was elected first Director-General of WHO in 1948; Dr Chandra Mani of India was elected as the first Regional Director of the South-East Asia Region in 1948; and Dr Aly Tewfik Shousha of Egypt became the first Regional Director of the Eastern Mediterranean Region in 1949. The Chairman of the Technical Preparatory Committee was Dr René Sand of Belgium.

The Committee's main task was the drafting of a constitution for the proposed organization. Dr Sze recounts his role in drafting the famous definition of health in the Constitution's preamble:

"I have mentioned my friendly cooperation with Brock Chisholm in the work of the subcommittee on the Preamble. I remember particularly... his supporting my proposal to include the following phrase which I felt to be a positive statement and which has been so much quoted in later years: "Health is a state of physical fitness and of mental and social well-being, not only the absence of infirmity and disease." (Later, this was improved at the International Health Conference as follows: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease.")"

The Committee agreed on a name for the new organization: the World Health Organization. In so
doing it chose a different path from some other agencies (e.g. United Nations Educational, Scientific and Cultural Organization, UNESCO) by not including "United Nations" in its title and not limiting membership to members of the United Nations. It also drew up an annotated agenda for the proposed health conference and a series of draft resolutions. The importance of the 22 meetings that were held between 18 March and 5 April 1946 cannot be overestimated:

Of all the thousands of conferences and other formal meetings that WHO has held … none would seem to equal in importance the sessions of the Technical Preparatory Committee; the most obvious contender for this honour being the International Health Conference, prepared by the Technical Committee and held three months later in New York. But the conference was a large gathering with a crowded agenda and little time for in-depth thinking and pondering.

It was also during the Preparatory Committee Meeting that the question of creating a single worldwide health organization which should absorb all existing organizations was raised. The problem of integrating the Pan American Sanitary Bureau (PASB) with the projected global organization became acute: "A difference of opinion was revealed between those who wished for immediate and complete absorption and those who were chary of exchanging the substance of an old, regional and effective organization, the result however favoured integration. The Preparatory Committee decided by a majority of nine to six that existing regional organizations like PASB/PAHO should become as soon as possible regional offices of the new organization."

The twelfth Pan American Sanitary Conference (PASC) in 1947 accepted the principle of integration and temporary working arrangements came into effect on 1 March 1949. On 24 May 1949, the Director-General of WHO and the Director of PASB signed the agreement implementing Article 54 of the WHO Constitution which had been approved by the First World Health Assembly and the Directing Consul of Pan American Sanitary Organization the previous year. The agreement took effect on 15 July 1949. Under this agreement, the PASC through the Pan American Sanitary Council and the PASB "shall serve respectively as the Regional Committee and the Regional Office of the WHO for the Americas."

World Health Conference, New York

The International Health Conference (later to become known as the World Health Conference) was the first global health conference, as opposed to the previous International Sanitary Conferences. It was also the first international conference held under the auspices of the United Nations. Of the current 37 countries and areas of the Western Pacific Region, only Australia, China, New Zealand and the Philippines attended. The conference lasted four and a half weeks, its main items of business being the WHO Constitution; a protocol turning over the functions of the Office International d’Hygiène Publique (OIHP) to WHO; and the setting up of an Interim Commission to prepare for the First World Health Assembly. The question of whether to include "United Nations" in the title of the organization recurred at this meeting and was put to a vote, the conference deciding by 30 votes to 17 with 1 abstention not to include United Nations in the title. The conference did not, however, reach a decision on the politically sensitive question of the choice of site for the headquarters of the future organization. That decision was left to the First World Health Assembly.

The Final Acts of the International Health Conference were signed on 22 July 1946 by 61 states. China and the United Kingdom of Great Britain and Northern Ireland signed without reservations and therefore may be regarded as the first members of WHO.

Interim Commission

The Constitution had to await ratification by 26 Member States before it entered into force. Therefore in the period between the World Health Conference and receipt of the 26th ratification on 7 April 1948 an Interim Commission was established to make provisions for the First Health Assembly. Of the 18 countries empowered to send one person to serve on the Interim Commission, Australia and China were the only representatives from the Western Pacific Region. However, four other states represented on the Commission - France, the Netherlands, the United Kingdom of Great Britain and Northern Ireland and the United States of America - were responsible for conducting the foreign policy of territories within what was to become the Western Pacific Region.

Aware both that the Executive Secretary of the Commission would probably go on to become Director-General of WHO and that the site of the Commission would probably influence the eventual site of
WHO, there was intense lobbying on both counts. In the event, Dr Brock Chisholm of Canada (who was supported by the British) was elected Executive Secretary of the Commission and duly went on to become the first Director-General of WHO. The Interim Commission met five times; the first meeting was held in New York, the United States of America, and the next four in Geneva, Switzerland (in the former League of Nations building, the Palais des Nations).

With regard to the eventual site for WHO Headquarters, a special committee of the Interim Commission undertook studies on Geneva, New York, Paris and a city in the United Kingdom. The final choice between Geneva, New York and Paris was left up to the First World Health Assembly (the United Kingdom having withdrawn its offer). India also offered to host the headquarters of the organization, although that invitation was also subsequently withdrawn. Of the states that responded to the Interim Commission’s circular enquiry before the First World Health Assembly, eighteen expressed a preference for Geneva, which was also the second choice of one state; four for New York; one for Paris; one for Washington, D.C.; and one for a site in Europe.

The Interim Commission also consulted governments for their views on the site of regional offices. Two cities from what was to become the Western Pacific Region were mentioned; two states proposed Singapore and one Shanghai, China. In the event, the debate in the Committee on Headquarters and Regional Organization was relatively brief, but not without a touch of transatlantic rivalry. Arguing against Geneva as a site, the delegate of the United States of America, said that: "the headquarters of the Organization should be placed preferably where there was an active medical centre, in order to keep in touch with the progress of medical science. Geneva could hardly be said to qualify." In reply, the delegate of the Netherlands disagreed, pointing out that Geneva was "situated in the centre of Europe, it had access to active medical centres, institutions, libraries and so forth". The committee drafted a resolution that "Geneva be made the permanent headquarters of the World Health Organization." The resolution was adopted at the Tenth Plenary Meeting without debate.

Among the Interim Commission’s tasks was the assumption of the surviving functions of the Health Organisation of the League of Nations (including the League’s Eastern Bureau in Singapore) and the OIHP. The Weekly epidemiological record published by the Commission included the notifications previously published by the OIHP. Epidemiological and field work functions of the United Nations Relief and Rehabilitation Administration (UNRRA) were also assumed by the Interim Commission. The UNRRA China programme was particularly important, with 30 of the 46 staff taken over from UNRRA being in the China programme. Previous work carried out by the Health Organisation of the League of Nations on biological standardization, international classification of diseases and causes of death, narcotic drugs and an international pharmacopoeia was also resumed, as was administration of the International Sanitary Conventions of 1926.

The Interim Commission was at the outset largely dependent on the United Nations for personnel. However, by the time WHO was established in 1948 the Interim Commission’s own staff had grown to about 200 persons distributed between the New York and Geneva offices, the Singapore station and the field missions.

The Interim Commission ceased to exist at midnight on 31 August 1948 by a resolution of the First World Health Assembly. Its property, records, assets, liabilities, responsibilities and obligations, and all rights and interests pertaining thereto, were transferred to the World Health Organization, as were most of its staff.

First World Health Assembly, Geneva, 1948

The 26th ratification of the WHO Constitution was received on 7 April 1948, making it possible to convene the First World Health Assembly. Since that date 7 April has been celebrated as World Health Day and 7 April 1998 was therefore the fiftieth anniversary of the World Health Organization.

The First World Health Assembly began on 24 June 1948. In its programme of work it established six priorities (listed in order):
1. malaria, maternal and child health, tuberculosis, venereal diseases, nutrition and environmental sanitation;
2. public health administration;
3. parasitic diseases;
4. viral diseases;
5. mental health;
6. other activities.

The First World Health Assembly adopted a decentralized structure for the new organization that is unique among United Nations specialized agencies. Each of the six regions of WHO – Africa, the Americas, the Eastern Mediterranean, Europe, South-East Asia and the Western Pacific – has its own governing body, composed of representatives of the Member States within each region, and its own regional office, the embodiment of WHO in the region. Each regional office is headed by a regional director, "appointed by the Executive Board in agreement with the Regional Committee". This is in contrast to other United Nations agencies, which deal directly with Member States through their headquarters.

Thus, while there is central control at WHO (the regional offices are "subject to the general authority of the Director-General" and "carry out within the region the decisions of the World Health Assembly and the [Executive] Board"), regional offices have their own budgets and the regional committees have a large degree of autonomy in formulating regional policies.

The merits and demerits of the regional structure were strongly argued during the Assembly. The delegate of Ceylon argued that regional offices would be more responsive to the populations they served and that "The solution that has been found in the West may not be the solution in the East. On the other hand, fears were raised about the nature of the relationship between the central organization and the regions. In the end, no one could be certain how the proposed structure would work. As Dr C. Mani, the first Regional Director of the South-East Asia Region and one of the chief proponents of the regional concept pointed out: "Broad ideas were laid down, but how these ideas would work out in practice could only be surmised..."

As the delimitation of the six Regions, this had been carefully examined by the Interim Commission and its recommendations were accepted without amendment by the First World Health Assembly. However, before delimitations of the regions reached the plenary session, an argument in favour of a region based on pan-Malay unity was made by the delegate of the Philippines, who urged: "that a regional organization should be set up comprising the area inhabited by Malays, such as Borneo, Java, the Malay States, the Philippines, Sumatra, and nearby islands in the Pacific. He pointed out that people of different races reacted differently to diseases and to treatment, and that a regional organization was necessary to take these factors into account and to achieve the full cooperation of people." This suggestion does not seem to have been supported.

The original delimitation was as follows:

1. Eastern Mediterranean Area: Aden, Cyprus, Egypt, Eritrea, Ethiopia, Greece, Iran, Iraq, Lebanon, Pakistan, Palestine, Saudi Arabia, British Somaliland, French Somaliland, Syria, Transjordan, Tripolitania, Turkey, Yemen.
2. Western Pacific Area: Australia, China, Indo-China, Indonesia, Japan, New Zealand, the Philippines, the Republic of Korea, and provisionally the Malay Peninsula.
3. South-East Asia Area: Afghanistan, Burma, Ceylon, India, Siam; the inclusion of the Malay Peninsula to await the definite decision of this area as to which regional organization it desired to join.
4. European Area: The whole of Europe.
5. African Area: A primary region was suggested for all Africa south of the 20 degree N parallel of latitude to the western border of the Anglo-Egyptian Sudan, to its junction with the northern
border of Belgian Congo, thence eastwards along the northern borders of Uganda and Kenya; and thence southwards along the eastern border of Kenya to the Indian Ocean.

4. American Area: Comprising the Americas.

The delegates of both Australia and New Zealand expressed some caution about joining the proposed regional organization and delayed their decision over whether or not to join the Region.

The area that became known as the Western Pacific Region was originally called the Far East. Its name was changed after a prescient intervention from Dr Chisholm, the Executive Secretary of the Assembly. The summary records of the Committee on Headquarters and Regional Organization recorded his intervention as follows:

He regretted very much to see the Committee continuing with an old confusion in regard to the human race. He did not see the rationale of calling Western Pacific area the Far East – East of what? It seemed to him that the whole spirit of the constitution of WHO implied a reorientation towards the human race. He suggested calling the areas such names as the Western Pacific area, Southern Asia area, Eastern Mediterranean or Red Sea area, or something relevant to the real situation, which did not spring from an ancient orientation that should now be forgotten.

The final decision on the site of the Regional Office for the Western Pacific was not to be taken until the first session of the Regional Committee almost three years later (see below). However, the working party for the Far East area (as it was still called) reported that a number of sites had been discussed:

Concerning a site for regional headquarters, the delegate of China offered Shanghai as a central location with excellent facilities. The delegate of the Philippines reported official instructions from his government to offer Manila as a site centrally located and having adequate facilities. The delegate of the Netherlands expressed a preference for Manila and the observer for the Republic of Korea a preference for Shanghai.

Representation of the different regions on the first Executive Board was to prove a divisive issue. It had been agreed that there would be 18 members of the Board and the General Committee of the World Health Assembly presented a list of 18 proposed members. Two were from the Western Pacific Region, Australia and China (at this stage only four countries from the Region had ratified the Constitution, the others being New Zealand and the Philippines). Eight members were proposed from Europe because that region contained the largest number of countries to have ratified the Constitution. 24. The delegate of Switzerland politely observed that: "Article 24 of our Constitution states that the Assembly shall ‘elect’ its delegates. Now, we consider that the proposal that we should adopt a complete list outright puts rather restricted interpretation on the word ‘elect’. As an alternative, he proposed that membership of the Executive Board be allocated according to regions, which was in fact to become the eventual method of selecting members. His proposal was supported by the delegate of the Philippines, among others. After a lengthy debate which had to be extended into the Saturday, with a vote being taken on the Monday, the General Committee’s list of countries was accepted by 39 votes to 10.

Structure of WHO

The World Health Assembly is the main policy-making organ of WHO. It meets annually and is composed of delegates representing Member States. Its functions include naming Member States entitled to designate a person to serve on the Executive Board; appointing the Director-General; and approving the budget.

The Executive Board consists of 32 persons (originally 18) designated by as many Members. It should meet at least twice a year; in practice it meets just after the World Health Assembly in May and then again in January. Persons appointed by Members should be "technically qualified in the field of health who may be accompanied by alternates and advisers". Members are elected for three years. The Executive Board acts as the executive organ of the World Health Assembly and its main function is “to give effect to the decisions and policies of the Health Assembly. The status of Members of the
Executive Board was clarified at the Fifty-first World Health Assembly.

The Secretariat comprises the Director-General "and such technical and administrative staff as the Organization may require". As of 7 April 1998, the fiftieth anniversary of WHO, the Organization had approximately 3719 members of staff worldwide. At that date the number of staff in the Western Pacific Region was 324, made up of 91 professional staff and 233 general service staff. Of these, 258 were based in the Regional Office and 66 were in the field.

The First World Health Assembly empowered the regions to establish regional committees and regional offices. The regional organizations came into being within a period of some three-and-a-half years after the First World Health Assembly. The South-East Asia Region was the first to come into existence. Its Regional Committee met a few months after the First World Health Assembly, in October 1948. At that session New Delhi, India, was chosen as the site of the Regional Office. Work began on 1 January 1949. Later in 1949 the regional organizations for the Eastern Mediterranean and the Americas were in operation. The African and the Western Pacific Regions were both to wait until 1951 before their organizations were fully constituted. The final regional organization, Europe, began work on 1 February 1952.
Chapter 3. Establishment of the regional office
and postwar reconstruction

Membership of the Western Pacific Region

The delineation of the Region that was proposed at the First World Health Assembly in 1948 (see Chapter 2) was never intended to be complete or final. Many countries and areas have subsequently been added or taken away from this list. Of the countries included in the original delineation, Australia joined WHO on 2 February 1948, Japan on 16 May 1951, New Zealand on 10 December 1946 and the Philippines on 9 July 1948.

As has already been noted, as one of only two states to sign the WHO Constitution without reservations, China was one of the first full Members of the World Health Organization. China attended the First World Health Assembly, but, due to the civil war, not the Second or Third. The Third World Health Assembly adopted a resolution in which it resolved "that the resumption by China of full participation in the work of the Organization will be welcomed". China was represented at the Regional Committee for the Western Pacific by China (Taiwan) from the second session in September 1951 until the twenty-second session in 1971. The Twenty-fifth World Health Assembly declared that, with effect from 10 May 1972, the People's Republic of China should represent China at the Organization. Since the twenty-fourth session of the Regional Committee in 1973, China has been represented at the Regional Committee by the People's Republic of China (see also Chapter 4).

Hong Kong Island was ceded to Britain after the first and second Anglo-Chinese Wars by the Treaty of Nanking in 1842 and the Convention of Peking in 1860. Northern Kowloon was leased to Britain for 99 years by China in 1898. Until 30 June 1997, Hong Kong was under British administration (except for December 1941 to August 1945 when it was under Japanese occupation). From the fortieth session of the Regional Committee in 1989 to the forty-seventh in 1996, Hong Kong attended sessions of the Regional Committee in its own name. With effect from the forty-eighth session in 1997, Hong Kong has attended the Regional Committee as Hong Kong, China.

The island of Macao was leased to the Portuguese as a site for a trade factory in 1557. On 13 April 1987 the China-Portugal agreement on the transfer of Macao determined that Macao should be returned to China on 20 December 1999.

The "Indo-China" states of Cambodia, Laos (now the Lao People's Democratic Republic) and Viet Nam joined WHO on 17 May 1950. At the time of their joining, they were Associate States of the French Union. Since then these three countries have undergone several changes of name, reflecting the complex history of the Indo-China peninsula in the post-colonial era.

Since 2 September 1945, the Korean peninsula has been divided into two administrations along the 38th parallel. The Republic of Korea was one of the founder members of the Western Pacific Region, having joined WHO on 17 August 1949. The Democratic People's Republic of Korea became a member of WHO on 19 May 1973 and joined the South-East Asia Region.

Two developments in the early years of the Region had important implications for membership of the Western Pacific Region. First, Indonesia was transferred at its own request to the South-East Asia Region in May 1950. Second, in May 1953 the Sixth World Health Assembly "without prejudice to any questions regarding sovereignty" assigned provisionally to the regions a number of territories, responsibility for whose external relations was vested in other Member States. Areas assigned to the Western Pacific Region by the Sixth World Health Assembly were:

- American Samoa
- British Solomon Islands Protectorate
- Brunei
- Fiji
Regional Office

In July 1948, the first session of the Executive Board noted that both China and the Philippines had requested that the Regional Office be established in their respective countries. A building in Shanghai was even identified as the proposed site of the Regional Office. However, the Civil War in China from 1945 to 1949 made the establishment of the Regional Office in Shanghai problematic. Perhaps surprisingly, the first location of the Regional Office was Bangkok, Thailand although it was based there only from July to August 1950, before moving to Hong Kong, where it was to remain for the next 12 months. At that time the staff consisted of the Chief of the Temporary Office (Dr I.C. Fang, who subsequently became the first Regional Director); a Deputy Chief; three technical advisers in maternal and child health (MCH), tuberculosis and nursing; an administration and finance officer; and a secretary. It can be assumed that most of the work during this year was largely preparatory in nature, although the first Report of the Regional Director, which covers this period, describes activities directed against malaria, tuberculosis, diphtheria and yaws, among others.

One of the most important tasks of the first session of the Regional Committee in May 1951 in Geneva, Switzerland, was to select the site for the Regional Office. In addition to Manila, two other cities were mentioned as possible sites, Seoul and Singapore. However, Manila was chosen by 7 votes to none, with 4 abstentions.

Therefore in late August 1951 the Regional Office moved to space made available to it by the Philippine Government at 25th Street, Port Area, Manila. The office was a two-storey concrete building and, although the first Report of the Regional Director optimistically noted that a “small structure next to this and in the same compound offers room for expansion”, the abiding memory of staff who worked at this site is of tremendous overcrowding, particularly towards the end of WHO’s seven-year stay. In picturing the early days of the Regional Office, we should remember that Manila was one of the most bombed cities in the Second World War and the first Regional Office was in one of the most damaged parts of the city. Nevertheless, 25th Street was to remain the home of the Regional Office until it moved to its current site in February 1959. Figure 3.1 shows the organizational structure when the Regional Office was first established in Manila.

In addition there were 20 staff assigned to a number of field programmes.

Sessions of the Regional Committee

It was not until the Fourth World Health Assembly that authority could be given at the request of the majority of Members of the Region for the convening of the first session of the Regional Committee. The first session of the Regional Committee therefore took place in Geneva, Switzerland on 18 May 1951, during the Fourth World Health Assembly and eight months after the establishment of the temporary office in Hong Kong. It was attended by representatives of the following countries with
seats of government located within the Region: Australia, Cambodia, Japan, Laos, New Zealand, the Philippines, the Republic of Korea and Viet Nam. Four countries responsible for areas within the Region also attended: France, the Netherlands, Portugal, the United Kingdom of Great Britain and Northern Ireland. The office bearers were: Dr Padua of the Philippines (Chairman), Dr Phan Huy Dan of Viet Nam (Vice-Chairman), and Mr Souvannavong of Laos (Rapporteur). The two main pieces of business were the decision to recommend to the Executive Board that the Regional Office be located in Manila, the Philippines, and the nomination of Dr I.C. Fang as the first Regional Director.

Figure 3.1 Organizational structure of the Western Pacific Regional Office when it was first established in Manila

<table>
<thead>
<tr>
<th>Office of the Director</th>
<th>Regional Director</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Information Officer</td>
</tr>
<tr>
<td></td>
<td>Administrative Assistant</td>
</tr>
<tr>
<td>Office of Health Services</td>
<td>Director of Health Services</td>
</tr>
<tr>
<td></td>
<td>Public Health Administrator</td>
</tr>
<tr>
<td></td>
<td>Regional Adviser in Maternal and Child Health</td>
</tr>
<tr>
<td></td>
<td>Regional Adviser in Nursing</td>
</tr>
<tr>
<td></td>
<td>Regional Adviser in Malaria</td>
</tr>
<tr>
<td></td>
<td>Regional Adviser in Tuberculosis</td>
</tr>
<tr>
<td>Office of Administration and Finance</td>
<td>Administration and Finance Officer</td>
</tr>
<tr>
<td></td>
<td>Budget and Finance Officer</td>
</tr>
<tr>
<td></td>
<td>Personnel Officer</td>
</tr>
<tr>
<td></td>
<td>General Services Officer</td>
</tr>
<tr>
<td></td>
<td>Accounts Officer</td>
</tr>
</tbody>
</table>

The second session of the Regional Committee took place just four months later, from 18 to 21 September 1951, in Manila. Almost immediately, the representatives were engaged in a debate that raised fundamental questions about the nature of the support provided by WHO to Member States. The representative of Laos requested WHO, instead of sending two international teams, one for malaria and one for venereal diseases, to send only one and to spend the funds saved on more equipment and supplies. The Regional Director explained to the representative of Laos, and later that week to the representative of the Philippines, that "WHO was not primarily a supply organization". Nevertheless, the Representatives pressed for a greater level of flexibility in WHO’s interpretation of its role, arguing that "the greatest need of countries in the Region was for material assistance". The session eventually passed a resolution requesting the Regional Director to bring this matter to the attention of the Director-General.

The issue of the role of supplies and equipment was to re-surface at the third session of the Regional Committee, which was held in Saigon, Viet Nam, in 1952. The Regional Director reported that, following similar resolutions on supplies and equipment adopted by the Regional Committees for Africa and South-East Asia, the Executive Board had asked the Director-General to request the Technical Assistance Board to give greater discretion with regard to the provision of supplies and equipment. The Technical Assistance Board subsequently decided that rules governing supplies and equipment should be "generously interpreted". Thus, for one of the first but not for the last time, the Regional Committees were able to effect a significant change in WHO policy-making.

By the sixth session of the Regional Committee, which was held in Singapore from 13 to 19 September 1955, there was a quantitative change in the activities of the Regional Office. In the opening words of the Regional Director’s Report: "Expansion, both in breadth and in depth, of the activities of the Regional Office for the Western Pacific has been the characteristic of the period from 1 July 1954 to 30 June 1955 which is covered by this report." At the same session, the Regional Committee recommended to the Executive Board that Dr Fang’s term of office be extended for a further five years. Dr Fang’s second and third terms and the two-and-half terms of his successor as Regional Director, Dr F.J. Dy, represented a phase of consolidation, a phase that was not to end until the establishment of the Global Strategy for Health for All in 1978. This period, from the mid-1950s to the late 1970s is the subject of the next chapter.

Health status of the Region

The Second World War in the Asia-Pacific officially ended in 1945 when the Government of Japan held separate surrender treaties with General Douglas MacArthur on behalf of the Allied Powers on 2 September and with China on 9 September. The human and material costs of the war were enormous and long-lasting, particularly in China, Japan, the Philippines and the Malay Peninsula. The period from 1945 to 1955 can therefore be broadly described as one of postwar
reconstruction in which WHO, in concert with national governments and other agencies, sought to mitigate the impacts of epidemics, famine and, in some countries, civil unrest and continued warfare. The effects of these continuing wars on the health status and health services of affected countries should not be underestimated. In the Republic of Korea, for example, it was estimated that in 1951 80% of the hospitals had been destroyed by the civil war and that the conflict had created 3 million refugees.

In the words of an early information booklet produced by the Regional Office, "There are very few health problem in the world which are not to be found in some part of the Western Pacific Region". Malaria was widespread. Tuberculosis affected virtually every country and area. Yaws and what were then termed venereal diseases constituted important public health problems. Leprosy was prevalent in almost all countries of the Region. Cholera, plague and bilharziasis posed threats in some countries. The low level of hygiene in many parts of the Region manifested itself in high prevalence rates of trachoma, a disease of the eyes, the severity of which ranges from bloodshot eyes to complete arrest with permanent scarring. For example, in 1951 trachoma prevalence rates were estimated to be 30% in southern Viet Nam, 55% in central Viet Nam and 65% in northern Viet Nam. If this estimate was accurate, the national case load was a staggering 9 million. Similarly high rates of trachoma were also found in China. Ruth Ingram, a nurse who worked with UNRRA and WHO in China from 1945 to 1950 commented that: "The buildings and premises were kept spotlessly clean and neat but water was so scarce in that town, so five little girls usually used the same basin of water to wash their faces. It was therefore not at all a surprise to find that 105 girls out of 110 had pretty bad cases of trachoma and almost as many were suffering from scabies."

Regional infant mortality rates, which ranged from 24 to 168 per 1000 population, were a major concern. The median life expectancy was only between 40 and 50 years. The crude death rate ranged from 8 to 18 per 1000 population.

Nutritional deficiencies, particularly lack of proteins and calories, were aggravating most infectious conditions. Many cases of malnutrition were reported under other disease headings. Mortality and morbidity at all ages were mostly due to preventable causes – mainly of an infectious and or nutritional origin.

With regard to environmental health, the situation in 1950 was described by the Regional Director of the time as follows: "only a few urban communities had water supplies and facilities for sanitary disposal of human wastes; most rural dwellers utilized suspect water; soil pollution and contamination of drinking water were evident in almost all rural areas; housing, refuse disposal, rodents and flies were not controlled, or only partially."

Health services in the Region were small, inadequate and, even by 1950, "consisted mainly of emergency or simple medical care". There was a chronic shortage of trained personnel of all categories. When the Regional Office was founded in 1950 there were 68 medical schools in the Region, some of which had been badly damaged during the Second World War. Looking back after a period of 10 years, the Regional Director observed:

"There was one problem which most of the countries and territories had in common - the lack of trained personnel of all categories. For instance, in some countries, the nurse, as we understand it in the modern sense did not even exist. In another there were less than 20 qualified physicians in a population of four million."  

Midwifery was almost entirely in the hands of traditional, unqualified birth attendants. Maternal and child health (MCH) services were mainly limited to emergency curative treatment with almost no resources being devoted to preventive care.

Activities carried out by WHO in the Region
What did the fledgling Regional Office do to improve the health of the people of the Western Pacific Region in the first few years of its existence? Many of its activities were reactive, as Dr Fang and his staff tried to provide support to countries to combat outbreaks of communicable diseases and, as far as possible, to initiate preventive health programmes. Nevertheless, from the outset, the Regional Office was well aware that supporting health services was an important part of its mission. The first Regional Director's Report, for example, recognized the need to think long-term: "Because of the state of economic under-development of some of the countries of the Region, and also because of the ravages of the recent wars, long-term plans have been found necessary in many areas...". It is significant that "Public health administration" was the first programme to be listed under the "General Statement of Programme" that was submitted to the second session of the Regional Committee. This document gives a number of other clues as to the Region's other early priorities. MCH, for example, is described as "one of the most, if not the most, important functions of a health service in any country".

The need to improve maternity care services was a very real one in many parts of the Region. From 1950 to 1957, WHO, often acting in concert with the United Nations Children's Fund (initially known as the United Nations International Children's Emergency Fund, UNICEF, hence the acronym), provided support for nursing and midwifery education in almost every country and territory in the Western Pacific. In addition to supporting countries to increase the number of trained professional and auxiliary midwives, UNICEF and WHO also helped to develop training programmes for traditional birth attendants. As Dr Fang pointed out:

"This serves a double purpose: it is an interim measure to provide better care at the time of delivery until sufficiently trained staff are available and it provides a useful link between the health services and the community where the traditional birth attendant often holds a position of considerable prestige and influence."

Efforts to strengthen MCH services started through demonstration projects. Among the first to develop such projects were Brunei, Cambodia, China (Taiwan), Malaysia, the Philippines and Viet Nam. MCH services also operated vertically and in a number of instances facilities for MCH even outnumbered basic health services facilities.

Provision for MCH was made for a number of countries in the Region. In Cambodia, for example, provision was made for an MCH specialist, an MCH Education and Service Demonstration Centre, and two fellowships (one for a doctor in paediatrics and the other for midwifery with an emphasis on its social aspects). In China (Taiwan), provision was made for three fellowships (one for a doctor for MCH with an emphasis on social and administrative aspects, one for health education and one for social medical work).

In Hong Kong, there was provision for a paediatrician, a public health nurse and a paediatric nurse, to collaborate in the education and training programme for doctors, nurses and students.

In Japan, provision was made for a doctor and a nurse to undertake specialist training in the care of premature infants and for the promotion of a premature infant care programme.

Other countries and areas receiving support for MCH-related projects included Borneo, the Philippines, the Republic of Korea, Sarawak, Singapore and Viet Nam.

In these early years, many of WHO's activities were concerned with information-gathering. The early documentation frankly acknowledges the Regional Office's ignorance of much basic data: comments such as "basic information regarding yaws is still lacking" and "assistance of WHO in this field will have to take the form of short-term consultants to survey the nature and extent of their problems" were common. Thus when we come to look at what money was actually spent on in the early 1950s,
we find that many projects were exploratory: a doctor surveying the MCH needs in Cambodia, epidemiological studies of cancer in Japan, a comprehensive survey of schistosomiasis in the Philippines, to take just three examples from the early records. However, where possible, the Regional Office carried out practical work, even in the earliest days. The speed with which Dr Fang and his small team were able to implement a wide range of programmes is extremely impressive and no doubt led to the saving of many lives and the alleviation of much suffering. As examples, one could choose a two-year malaria control project in Brunei the establishment of tuberculosis clinics in Malaya and the carrying out of curative and preventive MCH activities in Viet Nam. All of these were initiated within the first two years of the establishment of the Regional Office.

Another problem faced by the Regional Office in the early years was that many countries of the Region were completely unaware of WHO or of what it could do for them. In such cases the Regional Office adopted what it called a "spearhead" approach. This involved proving the worth of WHO collaboration through specific projects and using these to initiate further collaboration. The yaws campaign in the South Pacific is a good example:

In 1951, the governments of the territories [of the South Pacific] knew little about WHO. Since yaws was prevalent in every island, WHO started an intercountry yaws control programme. The success of the programme has been so complete that there is now little hesitation on the part of the South Pacific governments in requesting WHO assistance in public health programmes.

Sensitivity to local custom and practice has always been essential in international health work. This is well demonstrated by an early example of how WHO came to act as a catalyst in an environmental health project in Japan. "Night soil", or human excrement, had traditionally been used as an agricultural fertilizer in Japan. However, its widespread use and transportation through densely populated areas posed a significant health risk. WHO supported the Government of Japan in designing and building a composting plant in which refuse and human excrement could decompose at an accelerated rate. First a small plant and then a full-scale prototype proved that fermentation generated enough heat to sterilize all disease-carrying organisms. The Ministry of Health and Welfare promptly budgeted a sum equivalent to more than US$ 1 million to subsidize similar composting plants in 10 Japanese cities.

Another example of a sensitive approach to local customs is domiciliary midwifery, which was proposed for people in rural regions of the Western Pacific. In such areas, most mothers deliver their children in their homes, usually without skilled help at the actual time of birth or with assistance from untrained and unqualified personnel or traditional midwives (like the hilot in the Philippines or bidan in Malaysia). These traditional midwives share with their clients a complex set of fundamental beliefs and customs. These include, among others, conceptions of proper and improper foods during the maternity-cycle which amount to reduction of the mother's consumption of meat, eggs and fresh fruits and vegetables. In some areas, there is a widespread belief that a pregnant woman should sleep far less than usual, she should go to bed late and, under no circumstances, take a nap during the day; otherwise, the fetus will grow unduly or will adhere to the womb. Others have a customary practice of wearing a tight abdominal binder during pregnancy "to reduce the danger of miscarriage". WHO's approach has been to teach rural health workers to know the people first and to take into account cultural factors in planning domiciliary midwifery projects. While native midwifery is inadequate in technical terms, it is rich in its provisions for the mother's psychological security. The culture generates certain standardized anxieties about birth, but it also provides its own standardized means of allaying them. Modern domiciliary midwifery would be unlikely to appeal to village mothers if it addressed only the issues of technical health and hygiene and disregarded the complexities of psychological stress and reassurance.

What approach did WHO take to this delicate area? The first step was to organize training. In the Philippines for example, an in-service midwifery training programme was started by a WHO nurse-
midwife consultant in 1954. Five sessions of four weeks each were held for the training of nurse supervisors, 56 of whom completed the course. On return to her station, each supervisor gave practical training to groups of ten hilots (untrained midwife of either sex) once a week for 12 weeks. A total of 548 hilots in different provinces received this training. Rural midwives in Brunei, many of whom were unable to read and write, were given one year’s training. Village midwives in North Borneo received less training than their district counterparts, and examinations were oral and practical only. Vocational training of rural midwives in Viet Nam began in 1952. Training of all midwives in domiciliary midwifery has been compulsory in Malaysia since 1954.

An early example of effective disease control can be found in the malaria eradication programme in China (Taiwan) where two annual residual sprayings in the early 1950s interrupted transmission in most parts of the island. The results were striking: in 1951 there were 1 200 000 cases of malaria resulting in 12 000 reported deaths; in 1956 there were only 492 cases with no deaths.

Then, as now, cross border and cross regional control programmes were fundamental to the regional malaria eradication drive. Mention should therefore be made of two early initiatives in this respect: the Anti-Malaria Co-ordination Board with representatives from Burma, Cambodia, Laos, the Federation of Malaya, Thailand and Viet Nam and the Borneo Conference, covering Brunei Darussalam, North Borneo and Sarawak.

The First Asian Malaria Control Conference held in Bangkok, Thailand in September 1953 was devoted chiefly to the organizational and administrative aspects of malaria control. The second Asian Malaria Control Conference was held in Baguio City, the Philippines, in November 1954 and was attended by 42 participants from 13 different countries. This conference was devoted chiefly to technical discussions. After the conference, a visit was made by about 20 participants to the malaria project in Taiwan, China.

A malaria conference was held in Phnom Penh, Cambodia, in January 1956 which was attended by representatives of the Governments of Cambodia, Laos, Thailand and Viet Nam. This was followed in February 1956 by the First Borneo Malaria Conference in Kuching attended by representatives of Brunei, North Borneo and Sarawak, and a representative of UNICEF. These conferences stressed the importance of intercountry coordination of anti-malaria programmes.

The global campaign against yaws was one of the early successes of WHO. It has been estimated that when WHO was established, some 50 million people were afflicted by this disease. Virtually unknown outside the tropics, yaws is a crippling and disfiguring disease caused by a treponeme, an infectious agent of the same family as that which causes syphilis. However, yaws is spread not sexually but by poor hygiene. It particularly affects children. Aided by the discovery in 1948 of long-acting penicillin (a single shot of which was enough to effect a cure), WHO doctors had provided support to yaws teams in 49 countries throughout the world by the early 1960s. By the middle of that decade the disease had not been eradicated, but its burden was reduced to almost nil. The first yaws campaign in the Region was launched by the Government of the Philippines in 1951. By 1962 the yaws campaign had covered 11 countries and areas in the Region and examined about 16 million people, treating those affected by the disease.

In the first few years, as now, a significant portion of the Regional Office’s time and money was spent on training programmes in order to allow the people of the Western Pacific Region to manage their own health services. The Fellowship Programme, which remains a crucial element of WHO’s service to the Member States, dates back to the earliest days of the organization. Again, a sample of the early fellowships indicates that, in this area at least, the early priorities were much the same as those that pertain today. Thus in the second report of the Regional Director, we find a fellowship granted to a doctor in Malaya to "provide leadership, coordination and continuation of the [MCH] programme" and to a Hong Kong doctor to study paediatrics outside the Region.

As well as sponsoring individuals from within the Region, the Regional Office was involved in the early stages of what were to become major educational initiatives at the institutional level. In the early 1950s, WHO provided support to the University of Malaya in Singapore (eventually to become the National University of Singapore) to establish a Diploma of Public Health. Seven lectureships were funded by WHO and the first students began the course in September 1953. WHO’s links with the University of Malaya were consolidated in 1955, when the fifth session of the Regional Committee was held on the university’s campus in Singapore. With its support for the public health programme at the University of Malaya, WHO began a policy of supporting medical schools in the Region, support which continues to this day with the Organization’s support for the Fiji School of Medicine, among others.
The new Regional Office benefited greatly from being able to draw on support from other parts of the UN system. In the 1950s this primarily meant collaboration with UNICEF. In fact collaboration with UNICEF even preceded the foundation of the Regional Office, as joint WHO/UNICEF projects were being directed from Geneva before the office could be established. In the early 1950s, UNICEF and WHO collaborated on BCG projects in China (Taiwan), the Federation of Malaya, the Philippines and Singapore and promotion of MCH care and welfare in Brunei, North Borneo, Malaya, the Philippines and Sarawak. The successful global yaws campaign referred to above was carried out in collaboration with UNICEF. In fact:

The invaluable contributions made by WHO and UNICEF during the first decade of their collaboration ranged over practically every subject of importance for child health: tuberculosis, syphilis in pregnant women and children, malaria, training and fellowships, maternal and child health, nutrition, environmental health, sanitation, health education, milk hygiene – the list is a very long one.

UNICEF and WHO are still close partners in health. Recent initiatives have included the WHO/UNICEF Expanded Programme on Immunization and joint activities to promote breast-feeding.

In the early 1950s, WHO also collaborated with the Food and Agriculture Organization of the United Nations in nutrition programmes, although this collaboration was not really to become extensive until the 1960s.

WHO’s collaboration has not been limited merely to other international organizations, or even to national health organizations. From the outset WHO worked to establish strong and mutually reinforcing relations with professional and charitable organizations (now known as nongovernmental organizations or NGOs) with compatible aims. By the end of its first decade of existence WHO had established official relations at the global level with 40 such bodies. At the regional level too, WHO recognized that many NGOs pursued complementary aims and even the early sessions of the Regional Committee featured the involvement of such organizations as the International Council of Nurses, the International Federation of Gynaecology and Obstetrics, the International Paediatric Association, and numerous other bodies.

By the mid-1950s, the Regional Office was well established. Major programmes in such areas as nursing, malaria, maternal and child health and fellowships were already in place by this period. Negotiations to move into more spacious premises in Manila had already begun. However, it was increasingly acknowledged that, without basic health services in place, many initiatives promoted by WHO would be unlikely to succeed. The campaign to establish these basic services is the theme of the next chapter.
Chapter 4. Basic health services era (1956-1977)

This chapter covers the period from the mid-1950s to the International Conference on Primary Health Care held in Alma-Ata in September 1978 and the launching of the Global Strategy for Health for All in May 1979. In this period many of the seeds sown in the first few years came to fruition, new programmes were begun and the health status of almost all countries and areas in the Region underwent steady (and in some cases dramatic) improvements.

This was a period in which the establishment of basic health services in the Region became a priority. In the words of a Regional Director’s Report from the mid-1960s:

There is a general recognition of the importance of these basic services, not only as an essential factor in national, social and economic development, but as a means of supporting and maintaining the objectives of specific campaigns aimed at the control or eradication of specific communicable diseases.

Basic health services were aimed at providing protection to the majority of the population—from the promotion of health to prevention of disease and curative and restorative medicine in all its aspects. This meant supporting every country and area to strengthen their national health services, including:

a. establishment and development of vital and health statistics services; collection and
b. analysis of epidemiological data and other pertinent information as the bases of national health planning and evaluation;
c.
d. prevention and control (and in some instances, the eradication) of communicable diseases of major importance; the development of medical care programmes, particularly hospital planning, organization and administration; immunization is also of paramount importance;
e. strengthening of health laboratory services;
f. the development of maternal and child health care, with adequate provisions for promoting the physical, mental and social well-being of the child, combating malnutrition, support of other maternal and child health projects, including those for handicapped children, school health programmes and the control of helminthic infestations; and family planning;
g. the education and training of various categories of professional and auxiliary health personnel, particularly in the nursing and midwifery disciplines, and support in the drafting of new or revised legislation which will help to establish or maintain adequate standards;
h. the promotion of activities in the field of environmental health, with particular emphasis on the development of programmes for an adequate and safe water supply, waste disposal and food hygiene;
i. the establishment of an adequate health education programme as an integral part of the general health plan under well-qualified health education leadership, including provisions for health education in medical and health workers training programmes, particularly with respect to postgraduate programmes for health education specialists and the development of school health education in teacher training and school health programmes.

The Region was able to achieve so much in this regard yet it was also realistic enough to recognize that the demand for more and better services was never ending. On the occasion of the Organization’s 25th anniversary in 1973, Dr F.J. Dy proudly, yet cautiously, declared: “I feel the health authorities and particularly those in the developing countries can look back with pride on what they have managed to do despite the many constraints which face them.” However, he also reminded readers of the tasks ahead: “existing resources, both in manpower and funds, must be studied, needs assessed, priorities established, realistic plans drawn up for the future, and determined efforts made to implement these plans... so that health services can be brought nearer to all people in this region.”

Membership of the Western Pacific Region
On 31 August 1957, Malaysia (which at that time was called the Federation of Malaya and included only modern-day peninsular Malaysia) achieved independence. It joined WHO on 24 April 1958. On 16 September 1963 the Federation of Malaysia was formed, uniting Malaya, Singapore and British Borneo, (i.e. the current East Malaysian States of Sabah and Sarawak) excluding Brunei.

The next country from the Western Pacific Region to join WHO was Samoa on 16 May 1962. In 1889 a tripartite treaty between Germany, the United Kingdom of Great Britain and Northern Ireland and the United States of America had divided Samoa into the German Protectorate of Western Samoa and American Samoa (containing the eastern islands). From 1946 to 1961 Western Samoa was administered by New Zealand under a United Nations Trusteeship Agreement. Western Samoa achieved independence on 1 January 1962 and is now referred to simply as Samoa.

The United States Congress enacted legislation confirming American Samoa as a United States territory in 1929. Until 1951, Samoa was administered by a governor appointed by the United States Department of the Interior. The United States remains responsible for American Samoa’s defence and foreign affairs and represents American Samoa at the Regional Committee.

Although Singapore was technically a member of WHO while it belonged to the Federation of Malaysia, it left the Federation on 9 August 1965 to become an independent sovereign state. The following year, on 25 February 1966 it joined WHO in its own right.

On 25 October 1971, the United Nations General Assembly decided "to restore all its rights to the People’s Republic of China and to recognize the representatives of its Government as the only legitimate representatives of China to the United Nations, and to expel forthwith the representatives of Chiang Kai-shek from the place which they unlawfully occupy at the United Nations and in all the organizations related to it." The Twenty-fifth World Health Assembly duly restored all its rights to the People’s Republic of China on 10 May 1972 and on 28 August 1973 representatives from the People’s Republic of China attended a session of the Regional Committee for the first time (see also Chapter 3).

Fiji joined the Organization on 1 January 1972, having been a colony of Britain since 10 October 1874. Fiji proclaimed its independence on 10 October 1970.

Tonga was under a British protectorate from 1900 to 4 June 1970, the date that independence was restored. Tonga is one of the few sovereign nations that are not members of the United Nations. It became a full member of WHO on 14 August 1975.

Papua New Guinea joined WHO on 29 April 1976. When Australia hosted the Regional Committee in Port Moresby in 1963, Papua New Guinea was a Trust Territory administered by Australia on behalf of the United Nations. In December 1973, the territory of Papua New Guinea became internally self-governing, and on 16 September 1975 became the independent nation of Papua New Guinea.

**Regional Office**

From the mid-1950s, the Philippine Government and the Regional Office held discussions about the possibility of WHO moving from its cramped quarters at 25th Street into more permanent and spacious offices. The first steps were taken in June 1955, when the Government decided to donate land for a new building. The following year, the Regional Director was able to report to the Regional Committee that the Philippine Government had provided a new site for the Regional Office and 500,000 pesos towards the estimated construction costs of 1 million pesos. The one-hectare site was on the corner of Taft Avenue and Isaac Peral Street (later to be re-named UN Avenue in recognition of the WHO building). The land had formerly been a part of the 10-hectare compound occupied by the University of the Philippines.
Building work began in 1957 and was finally completed in February 1959. The building had floating foundations (designed to make it earthquake-proof), an innovative feature for the time. The conference hall, which is able to accommodate 200 people, was completed in time for the ninth session of the Regional Committee in September 1958. On 26 September of that year, Philippines President Carlos P. Garcia formally inaugurated the new building and on 20 February 1959 the staff moved in. The new offices accommodated not only the staff of the Regional Office, but the country office of the United Nations Children’s Fund (UNICEF), the United Nations Technical Assistance Resident Representative in the Philippines and the United Nations Information Office. UNICEF and the United Nations Information Centre were to share the offices with WHO until November 1972, when they moved to another part of Manila. The conference hall was used mainly for WHO meetings and workshops (as well as for sessions of the Regional Committee when they were held in Manila) but it was also used for "meetings of an international character", such as UNICEF meetings.

The building that houses the Regional Office has grown over the years, as WHO has assumed more responsibilities. One annex was added in 1978 and another in 1992. Manila’s notorious flooding (which halted a session of the Regional Committee in 1970) led to the construction of flood prevention measures at the entrances to the grounds in 1972. On 17 October 1977 a “United Nations tree” (a narra tree) was planted on the front lawn.

The WHO building has been a feature of downtown Manila for almost 40 years. Many of the current staff who grew up in Manila can remember the impression that the neatly ordered lawns and lines of flags made on them as children. Over the years the Regional Office has sought to use its central location in one of Asia’s major cities to promote the image of the United Nations. Open days and educational meetings have helped to introduce several generations of Filipino schoolchildren to the workings of the United Nations and of its work in promoting health and combating disease.

As the Regional Office assumed more functions, so its budget grew. Figure 4.1 shows the obligations incurred by the Regional Office in the period from 1956 to 1975. As can be seen, United Nations Development Programme (UNDP) and to a lesser extent United Nations Population Fund (UNFPA) financing of WHO programmes has always been an important supplement to funding from the regular WHO budget. In 1952, for example, UNDP funding even exceeded that from the Regular Budget. Figure 4.2 shows in diagrammatic form the obligations incurred from 1950 to 1975.

In common with other regional offices of WHO, the Regional Office for the Western Pacific grew steadily during the Organization’s second decade. Figure 4.3 compares the number of staff employed by the Regional Office in 1957 and 1967. In percentage terms, the staff of the office increased by 42% from 1960 to 1969 and by 47% from 1970 to 1977.

**Figure 4.1 Obligations incurred by the WHO Western Pacific Region, 1956–1975 (millions of US$)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Regular UNDP budget</th>
<th>UNFPA</th>
<th>Total</th>
<th>Year</th>
<th>Regular UNDP budget</th>
<th>UNFPA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1956</td>
<td>0.75</td>
<td>0.54</td>
<td>1.29</td>
<td>1966</td>
<td>3.58</td>
<td>1.06</td>
<td>4.64</td>
</tr>
</tbody>
</table>

*Figures are in millions of US dollars.*
Figure 4.2 Obligations incurred by the WHO Western Pacific Region, 1950–1975 (millions of US$)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1.05</td>
<td>1.54</td>
<td>1.94</td>
<td>2.15</td>
<td>2.19</td>
<td>2.44</td>
<td>2.59</td>
<td>2.84</td>
<td>3.14</td>
</tr>
<tr>
<td>UNFPA</td>
<td>0.57</td>
<td>0.69</td>
<td>0.62</td>
<td>0.60</td>
<td>0.54</td>
<td>0.84</td>
<td>0.74</td>
<td>0.90</td>
<td>0.81</td>
</tr>
<tr>
<td>UNICEF</td>
<td>1.62</td>
<td>2.23</td>
<td>2.56</td>
<td>2.75</td>
<td>2.73</td>
<td>3.28</td>
<td>3.33</td>
<td>3.74</td>
<td>3.95</td>
</tr>
<tr>
<td>UNFPA</td>
<td>0.75</td>
<td>1.13</td>
<td>0.79</td>
<td>0.82</td>
<td>0.84</td>
<td>0.71</td>
<td>0.96</td>
<td>0.95</td>
<td>0.97</td>
</tr>
<tr>
<td>Total</td>
<td>4.80</td>
<td>5.52</td>
<td>5.69</td>
<td>5.33</td>
<td>6.16</td>
<td>7.20</td>
<td>7.97</td>
<td>10.69</td>
<td>12.70</td>
</tr>
</tbody>
</table>


Figure 4.3 Number of staff employed by the Regional Office for the Western Pacific (1957 and 1967)

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of staff at 31 December</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional office (including regional advisers):</td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>21</td>
</tr>
<tr>
<td>Locally recruited</td>
<td>50</td>
</tr>
<tr>
<td>WHO representatives’ offices:</td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>3</td>
</tr>
<tr>
<td>Locally recruited</td>
<td>15</td>
</tr>
<tr>
<td>Field staff:</td>
<td></td>
</tr>
<tr>
<td>Internationally recruited</td>
<td>59</td>
</tr>
<tr>
<td>Locally recruited</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>148</td>
</tr>
</tbody>
</table>
The functional structure of the Regional Office has remained reasonably consistent over the years and it is likely that a staff member from the late 1950s or 1960s would recognize the post descriptions in the current Regional Office quite easily. Most countries’ first contact with is with the “country offices”, which play a key role in implementing WHO policy and liaising with health officials in national health administrations. Determining regional strategies in particular areas has usually been carried out by Regional Advisers, based in Manila but travelling frequently to supervise existing programmes and to initiate new ones. Supporting these two functions is the administrative apparatus, primarily based in Manila but also performing essential roles in the larger country offices. Regional policy-making functions are carried out by WHO Representatives at country level, directors of groups of programmes at the Regional Office, the Director for Administration and Finance, the Director of Programme Management and, overseeing all of these, the Regional Director.

WHO appointed the first three "area representatives" (now called WHO Representatives, or WRs) in 1956. These positions were created "with a view to creating more effective assistance to governments in determining their needs and in planning for programmes which would strengthen the services at all levels" (see Figure 4.4).

In 1959, an area representative for China (Taiwan), Guam, Hong Kong, Japan, Macau, the Republic of Korea, and the Trust Territories of the Pacific Islands was appointed, based in Taipei, China (Taiwan). The Regional Director’s Report for that year commented that this meant for the first time that all areas of the Region were covered. A fifth WHO Representative was appointed for Cambodia in October 1968. Cambodia had previously been covered by the Saigon office.

Figure 4.4 Area representatives in 1956

<table>
<thead>
<tr>
<th>Location</th>
<th>Date established</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saigon (Cambodia, Laos, Viet Nam)</td>
<td>March 1956</td>
<td>I - Medical Officer</td>
</tr>
<tr>
<td>Singapore (Brunei, Federation of Malaya, North Borneo, Sarawak, Singapore)</td>
<td>May 1956</td>
<td>I - Medical Officer</td>
</tr>
<tr>
<td>Sydney (South Pacific area)</td>
<td>June 1956</td>
<td>I - Medical Officer</td>
</tr>
</tbody>
</table>

I - Internationally recruited  L - Locally recruited

Continuing war in both Cambodia and Viet Nam led to particular problems for WHO’s country offices in these countries. In 1965–1966 the "special difficulties" in Viet Nam were blamed for recruitment problems and in 1976 the Regional Director’s Report noted that the posts of WHO Representatives in Khmer Rouge controlled Democratic Kampuchea and in South Vietnam had been abolished "in view of developments in those two countries".

The following year it was reported that the Office of the WHO Representative was being transferred from Ho Chi Minh City to Hanoi and that a new Representative would take up his post in July 1977. Following the closure of the WHO Representative’s Office in Cambodia, relations with that country were in abeyance for many years and it was not until February 1991 that full relations were re-established.

One further organizational development from this period is worth mentioning here. To this day, many visitors to the Regional Office comment on the early start that is made to every working day. This was one of the first administrative changes to be introduced by Dr F.J. Dy following his appointment as Regional Director in 1966. Within his first month of taking charge of the Regional Office in July 1966, Dr Dy altered the office times from 8 a.m.–12 noon and 1 p.m.–5 p.m. to 7 a.m.–3.30 p.m., with half an hour for lunch. There were two reasons for this, the first was to enable staff to avoid Manila’s notorious morning and evening rush hours and the second was to allow some overlap with the working days in the countries and areas in the east of the Region. The new hours were put to a vote among the staff, which resulted in more than 90% voting for the new arrangements.

Sessions of the Regional Committee

Dr I.C. Fang’s second term as Regional Director began with his nomination for re-appointment at the sixth session of the Regional Committee. The method of electing Regional Directors was discussed two years later in Hong Kong. The representative of New Zealand argued that giving the Regional Committee the power to nominate candidates to the Executive Board (which is still how Regional
Directors are appointed) meant that "under this system there would be pressure groups operating". Other representatives spoke in favour of the existing system. In the event the Regional Committee was split and unable to agree on a resolution to forward to the Director-General. The minutes of the debates were forwarded instead. Three years later at the eleventh session in Manila, the Philippines, Dr Fang was again nominated to for re-appointment. This was to be his final term and in 1965 at the sixteenth session of the Regional Committee he retired.

The sixteenth session forwarded two candidates to the Executive Board to replace Dr Fang as Regional Director, Dr F.J. Dy (the Philippines) and Dr R.W. Greville (Australia). Dr F.J. Dy, a former Regional Adviser for Malaria, was duly elected as Regional Director for five years with effect from 1 July 1966. He was to be re-elected twice, first for another five-year term from 1971 and then, for a further three years, from 1976 to 1979.

The nineteenth session in 1968 endorsed the concept of long-term planning in the field of health, biennial programming and improvement of the evaluation processes. This meant that the future programme and budget estimates would include a projection for an additional year. Furthermore, the new system of planning and programming required that a functional relationship between existing or future national health plans and the new General Programme of Work be established. It likewise proposed standard contents, presentation and guidelines in planning and drawing up a programme. It emphasized the following points in making long-term plans: the socioeconomic aspect of the plan, machinery, definition of responsibilities and priorities, human resource requirements, training budget, evaluation procedures and contingency. The same session also reaffirmed the principle approved at its fourth session: that any extra costs above those normally incurred when a Regional Committee session was held in Manila should be borne by the host government.

One of the most historic sessions of the Regional Committee was held in Wellington, New Zealand, from 28 August to 4 September 1973. The twenty-fourth session was the first to be attended by the People’s Republic of China. China’s seat on the Committee having been previously occupied by China (Taiwan). One consequence of this was that, for the next two years, the civil wars in Cambodia and Viet Nam were to have a more direct bearing on the debates at the Regional Committee. China objected strongly to the presence of representatives of the Lon Nol regime in Cambodia and of the Republic of Viet Nam (i.e. the US-backed government in the south of the country). China’s protests were recorded in the records of both the twenty-fourth and twenty-fifth sessions. However, by the twenty-sixth session in Manila in September 1975, the controversy had been overtaken by events in Viet Nam and Cambodia. On 1 May 1975, the war in Vietnam ended with the reunification of what came to be called the Socialist Republic of Viet Nam.

The complex history of Cambodia in the 1970s and 1980s is reflected in the names of state as it appears in the records of Regional Committee meetings. Until 1970, representatives from that country came from Cambodia; from 1971 to 1974 from the Khmer Republic; in 1980, 1987 and 1988 from Democratic Kampuchea; and from 1992 to 1997 from Cambodia. There was no representation in 1975–1979, 1982–1986 or 1989–1991. Numerous attempts were made by WHO to contact the Khmer Rouge controlled Government of Democratic Kampuchea, but, as far as one can tell from the official records, no such contact was established.

The frequency of sessions of the Regional Committee came under close scrutiny in 1975–1976. At the twenty-sixth session, the representative of Australia queried whether sessions of the Regional Committee might be held every other year. The representatives of Japan, New Zealand and the United States of America agreed that this proposal merited consideration and a background document was accordingly prepared by the secretariat for discussion at the session the following year. As was pointed out in the background document, the main difficulty was the need to coordinate the work of the Regional Committee with that of the Executive Board and World Health Assembly.

...one of the functions which the Director-General has requested that Regional Committees perform, i.e. review of the proposed regional programme budget prepared by the Regional Director, makes it necessary that sessions of the Committee be scheduled so that it can carry out the task entrusted to it in the year before the Executive Board and the World Health Assembly consider the Organization’s proposed biennial programme budget, in which the Director-General incorporates the regional proposals, as reviewed by the Committee.

In the mid-1970s, the situation was complicated by the fact that at the global level WHO was in the process of switching from annual to biennial programme budgeting. This change required amendments to Articles 34 and 55 of the Constitution, amendments which had not entered into force at the time the Regional Committee considered this question (i.e. the World Health Assembly still had to consider the financial aspects of the biennial programme budget annually). The Regional
Committee therefore adopted a resolution deciding to maintain the status quo, but not before the representative of Malaysia put the case forcefully for annual sessions, arguing that the financial savings would be largely offset by the need for longer sessions.

As will be discussed in the next chapter, the adoption of the Global Strategy for Health for All in 1979 marked the end of the second consolidation phase of WHO. For the Western Pacific Region too, the late 1970s saw the ending of an era, with the retirement of Dr F.J. Dy as Regional Director on 30 June 1979. Dr Dy had worked for the Regional Office for 29 years, the last 13 years as Regional Director. Dr Dy was elected Regional Director Emeritus, a position he holds to this day. It was to be left to his successor, Dr Hiroshi Nakajima of Japan, to manage the implementation of the Global Strategy for Health for All in the Western Pacific Region.

Health status of the Region

In most countries and areas of the Region during this time communicable diseases remained a significant public health issue. This was true into the 1960s and beyond. A Regional Director’s Report from 1968, i.e. the middle of the period covered by this chapter, shows the continuing impact of a range of communicable diseases.

Unfavourable environmental conditions, the difficulty of changing the habits, customs and mores of the people, plus other complex factors, have favoured the continuous presence or the introduction of communicable diseases in many countries in the Region. Cholera has remained endemic in the Philippines and Viet Nam; new outbreaks of the disease have occurred in Cambodia, Malaysia and Singapore. Plague continues to be present in Viet Nam and the threat of its potential spread remains a source of apprehension in nearby countries. A severe typhoid fever epidemic occurred in Samoa. Although the mortality of this infection is low, its incidence still appears to be quite high in a number of countries. The mosquito-borne viral infections, Japanese encephalitis and haemorrhagic fever (dengue type), still represent important causes of morbidity among children in some countries. Filariasis remains a problem in the South Pacific and in other areas, such as Malaysia and the Philippines. The venereal diseases are reported to have reached epidemic proportion in areas where there are many military personnel and disturbed social conditions. Malaria still represents a major health and socioeconomic problem in a number of countries.

Seven years later in 1975, the Report sounded a note of discouragement:

it is disheartening to note that, despite efforts and investments, year in and year out, communicable diseases remain major public health problems, particularly in the developing countries of the Region.

As well as the “traditional” communicable diseases that affected the Region – malaria, sexually transmitted diseases, filariasis, etc. – in the early 1960s the Western Pacific Region experienced a major cholera epidemic as El Tor cholera swept through the Region. Although the epidemic was centred on the Philippines and, from 1964, Viet Nam, 13 countries and areas reported cases and deaths during the period 1961–1965.

Viet Nam in particular has a long history of cholera. In 1850 it was estimated that there were 2 million cases and in 1865 a further 1.5 million. It can be assumed that the mortality rate during these early outbreaks was extremely high. As in most cholera outbreaks, the El Tor epidemic of the 1960s primarily affected lower socioeconomic groups living in unsanitary conditions. In both the Philippines and Viet Nam the El Tor outbreak began in the cities and quickly spread to provincial centres of population. In the Philippines the first cases were reported in Manila, but by 1965 cases had been reported from “practically all provinces and cities”. Dr Truong, the representative of Viet Nam, provided the sixteenth session of the Regional Committee with a graphic description of how the outbreak had begun in his country:

On 7 January 1964, a twenty-eight year old nurse had been admitted into the Hospital of Infectious Diseases in Cholon [the Chinese city that borders what is now Ho Chi Minh City] but had died two hours later after profuse diarrhoea and vomiting but no fever. This case had not been bacteriologically confirmed by the Pasteur Institute. In fact it had been difficult to prove that the first case had been an imported one [cholera had earlier been reported from Cambodia]. On 12 January the hospital had admitted two new cases, one of which had died ten hours after having been admitted. On 13 January the Pasteur Institute had isolated the first vibrios. The patient came from the Hospital of Infectious Diseases in Cholon. Shortly thereafter there had been an avalanche of cases. Patients had come by the tens to the hospital. The mortality rate during this initial period was relatively high, 23%. Then
came the critical period between 23 and 30 January when every day hundreds of cases were registered. The peak point was around 28 January when more than 300 cases were reported.

Cholera was to remain a very significant problem in both the Philippines and Viet Nam throughout the 1960s and into the 1970s. Figure 4.5 shows the regional distribution of cases in 1969–1970.

**Figure 4.5 Cholera cases in the Western Pacific Region (1969–1970)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Date of occurrence</th>
<th>Number of cases/deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>June 1969</td>
<td>9</td>
</tr>
<tr>
<td>Macao</td>
<td>September 1969</td>
<td>13</td>
</tr>
<tr>
<td>Singapore</td>
<td>July, August 1969</td>
<td>8/3</td>
</tr>
<tr>
<td></td>
<td>December 1969</td>
<td>3/1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>November 1969</td>
<td>56/5</td>
</tr>
<tr>
<td>Laos</td>
<td>July 1969</td>
<td>484/35</td>
</tr>
<tr>
<td>Republic of Viet Nam</td>
<td>1969–1970</td>
<td>Suspected 2759; confirmed 152a/3</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>July, August 1969</td>
<td>1396/125</td>
</tr>
<tr>
<td>Japan</td>
<td>July 1969</td>
<td>8 carriers found, only on ships</td>
</tr>
<tr>
<td>Philippines</td>
<td>June 1969–May 1970</td>
<td>Confirmed 1169/90</td>
</tr>
<tr>
<td>Brunei</td>
<td>January 1970</td>
<td>29</td>
</tr>
<tr>
<td>Sarawak (East Malaysia)</td>
<td>February–March 1970</td>
<td>26</td>
</tr>
</tbody>
</table>


a Bacteriological confirmation not done routinely. El Tor cholera remained endemic in the Philippines, but by 1975 the number of new cases had dropped to the lowest level since the disease invaded the country in 1961. There were sporadic self-limited outbreaks in Malaysia. Isolated cases occurred in Singapore but secondary cases were prevented. Despite the abolition of the vaccination requirement for international travel, there was no apparent spread of the disease in the Region.

Cholera was not the only epidemic to hit the Region during this period. In 1957, for example, there was an influenza epidemic that spread from China to Hong Kong and the Philippines and then from Australia to New Zealand. In 1971–1972 alone, poliomyelitis outbreaks were reported from Malaysia; cholera in the Philippines and Viet Nam; influenza in Fiji; dengue fever/dengue haemorrhagic fever in the Malaysian state of Sabah; Japanese encephalitis in China (Taiwan), Japan and the Republic of Korea; and viral hepatitis in Australia and New Zealand.

Malnutrition was a continuing problem in the Western Pacific Region throughout the period. Protein and calorie deficiencies, vitamin A deficiency, nutritional anaemias, goitre, growth retardation, high infant mortality rates and poor patterns of infant feeding were the chief problems. In the Pacific islands, the problem was often overconsumption of foods rich in carbohydrates. As a result, two out of five Polynesians in the 1970s suffered from metabolic disease: arterial hypertension, coronary cardiomyopathy, diabetes, obesity, respiratory insufficiency, renal insufficiency or gout. In such communities life expectancy in the 1970s was 52 years for women and 53 years for men.

By the end of the second decade of WHO, a pattern was beginning to emerge which, to a certain extent, persists to this day. The Second Ten Years of the World Health Organization, published in 1968, observed that:

In Australia, Japan and New Zealand, noncommunicable diseases of later life cause the highest mortality. In China (Taiwan), Hong Kong, Malaysia, the Philippines and Singapore, infectious and parasitic diseases continue to be the leading causes of death, but degenerative diseases and accidents are becoming important. There is a third group of countries and territories in which most of the illnesses and deaths can be ascribed to infectious and parasitic diseases.

The growing importance of noncommunicable diseases was recognized in the Regional Director's Report covering the period 1968–1969, which noted the rise in cardiovascular diseases, cancer and
road accidents. To a greater or lesser extent these are diseases related to modern lifestyles, as is drug abuse, a problem that was first covered in any depth by the Regional Committee in 1972.

Activities carried out by WHO in the Region

By the end of the first decade of the Regional Office for the Western Pacific: "The emphasis [had] gradually shifted from projects for the control of communicable diseases such as malaria, yaws, tuberculosis and diphtheria, to programmes for training of health workers." While many of the early activities of the Regional Office had yielded excellent results, others had foundered owing to inadequate infrastructures at the country level. As Dr Fang pointed out in his report for 1960, WHO’s support for countries rested on the belief that: “no logical and rapid development of health services will be possible without technically strong central administrations.” This was particularly true in less-developed rural areas where help was needed most. While acknowledging the importance of such services, another Regional Director’s Report from this period frankly queried how much could realistically be achieved in such communities: "it must be realized that the extent to which rural health services can be developed in areas where a subsistence economy predominates in many districts cannot as yet be fully assessed." The state of many health services in the Region posed further problems for WHO. First, "shortages of suitable counterpart personnel" meant that "WHO field personnel still have to shoulder administrative responsibilities on behalf of the government". Second, there was often little continuity of staff in national health services: "programmes have been retarded by the frequent changes in the national staff and the importance of maintaining continuity of staff cannot be over-emphasized."

What actions did WHO take during this period to bolster the health services of the Region? First and foremost it continued to provide educational support for the training and retraining of health service personnel, both globally and in the Region. At the global level, fellowships almost tripled in the second decade of the Organization. Fellowships ranged from short observation visits for senior staff (up to six weeks) to long-term awards of up to six years for basic medical studies.

In addition to fellowships, WHO continued to provide support for medical educational establishments. Eight new schools were formed in the decade 1958–1968, bringing the total in the Region to eighty-three.

Following a recommendation by the Executive Board, a major effort was made in the early 1960s to encourage governments to formulate and implement 10-year health plans. By 1962, government initiatives, often supported by WHO, were starting to have some positive effects. The Regional Director’s Report for that year observed that: "Efforts to stimulate and support national health planning have continued and ... have in general made considerable progress along the lines foreseen and, in some cases, have exceeded expectations."

WHO’s support for health services in the Region had a broader, albeit indefinable, effect. The period saw numerous low- and high-intensity conflicts, including the Korean War and the Viet Nam War (known as the American War in Viet Nam). Throughout, WHO made a determined effort to encourage the development of health services not only as a way of delivering care, but as a possible bridge between warring peoples.

In Viet Nam for example, despite travel restrictions, training courses were organized for doctors, paediatric nurses, supervisory midwives and midwifery tutors during the 1960s. Special attention was given to home-visiting services and the assessment of the work performed in the suburban centres. More than 20 schools for rural midwives were reorganized. National staff gradually took over the planning, implementation and supervision of maternal and child health activities.

In 1964, the campaign against tuberculosis was intensified in Viet Nam (as it was in Australia, the Lao People’s Democratic Republic, Malaysia, New Zealand and the Republic of Korea) under the slogan “No Truce for Tuberculosis”. The Hong Bang Tuberculosis Centre in Saigon was reorganized and a separate control tuberculosis service set up in the Ministry of Health. Rural midwives were trained in preparation for a nationwide BCG vaccination campaign. Similar tuberculosis centres were set up in Can-Tho and the centre in Huế was reorganized and strengthened.
Despite the enormous improvements to health services that were made during the period, progress globally still fell short of expectations. Thus in 1973 a report from the Executive Board concluded there was widespread dissatisfaction with health services. Radical changes were needed. Among other measures, the Twenty-sixth World Health Assembly decided that WHO should collaborate with, rather than assist its Member States in developing practical guidelines for national health care systems. This was more than a semantic point. It indicated a reorientation of approach towards a more genuine partnership between WHO and its Member States. Director-General Halfdan Mahler explained this partnership in a 1975 speech to the Regional Committee:

The provision of external experts to solve specific national problems is rapidly becoming outmoded. Indeed, it is often counterproductive. Genuine collaboration implies joint review of problems with countries and WHO can bring to this review information on the scientific knowledge and practical experience of countries all over the world and thus open up horizons with respect to possible solutions. It can also be active in coordinating the flow of external funds into health programmes that are of real importance to countries. This it will do at the request of countries wherever this approach is likely to be successful, as an international coordinating body functioning at all organizational levels, in no circumstances will it trespass on national authority, here or elsewhere.

An important strategy that was a part of WHO’s earliest activities but became more pronounced in the 1960s was the use of specialized projects to spearhead the building of comprehensive local health services. This was particularly true of maternal and child health activities which, in a number of areas, especially in the South Pacific, stimulated the development of rural health services. As was noted above, two of the most encouraging trends of this period were the falling maternal mortality ratios and infant mortality rates. WHO’s extensive support for maternal and child health projects, often in very remote locations, can claim some of the credit for this.

By this period WHO was starting to learn from some of its early underachievements. One area where this was particularly notable was in the field of nursing training. An official document from this period observed that: “Pressure for more nursing care has sometimes resulted in the implementation of unsatisfactory training programmes to meet the demands for more nurses. The need to achieve a balance between the numbers of nurses and the quality of nursing is a problem throughout the Region.”

Demands for nurses in all fields of practice exceeded supply, and shortages were reported everywhere. There were many reasons for this. One was that training programmes had become more academically oriented. The uneven distribution of the nursing and midwifery population makes the shortage felt more keenly in rural areas. Misuse of training is another factor. Different types of education programmes – vocational, diploma, degree – produce practitioners with different levels and kinds of competence. Another kind of misuse of nursing skills which is costly for the patient is the utilization of nursing personnel for non-nursing functions or functions for which they have not been prepared.

Poor standards of pay were a deterrent to attracting young, well-educated people into the profession. In fact an exodus of qualified nurses in some countries was seen throughout the 1960s, with new graduates often opting to work abroad.

The high demand for nurses and midwives sometimes resulted in implementation of unsatisfactory training programmes. Likewise, it created unprecedented demands for qualified nurses and midwives for teaching, administrative and supervisory positions. Many programmes for the preparation of teachers and supervisors were short of qualified nursing faculty. In many countries, basic nursing education programmes were hospital-centred.

In the light of these problems, WHO’s support for nursing led to an expansion in the number of nurses and midwives for leadership positions on one hand, and an increase in the kind of nursing and midwifery personnel who would be engaged in direct patient care on the other.

In countries where the level of education was high, it was possible to develop professional basic nursing education programmes, some of them at the baccalaureate level. In countries where the level...
of general education was low and/or where educational facilities for girls were limited, basic nursing education programmes remained at vocational level.

In the early years of WHO, medical research was primarily the responsibility of WHO Headquarters. However, in the late 1970s the World Health Assembly pushed for the regionalization of research. At this time research was being done mainly in developed countries and it was felt that research capability should be strengthened in developing countries where tropical diseases were common. In the Western Pacific Region, a number of important research projects had already begun; for example a study on the effectiveness of cholera vaccines that was conducted in the 1960s in the Philippines in collaboration with the Government of Japan and WHO. However, a structured medical research programme for the Region did not really begin until the formation of the Western Pacific Advisory Committee on Medical Research in September 1975.

An important initiative in the field of environmental health was made in 1977, when the Regional Committee approved the establishment of a Western Pacific Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS) in Malaysia. Modelled closely on a WHO/PAHO Centre in Lima, Peru, the objectives of the new Centre were to foster collaboration and self-reliance in the field of environmental health management. It was estimated that the costs of running the Centre would rise to US$ 581 000 by 1981, its third full year of operation. The establishment of the PEPAS was not without its critics. When the issue was discussed in 1976 at the Regional Committee, the representative of Australia commented that his country "doubted whether the proposed centre could achieve anything that could not be done equally well by existing mechanisms". The representative of France was also sceptical, saying that "optimal use of the data received in Geneva, Switzerland, from the existing Centres in the Region would provide all the information required." The Government of Australia was, however, won round by the feasibility study, leaving only France to oppose the measure the following year. The case for the Centre was forcefully put by China:

The present pollution and destruction of the environment was deeply rooted in internal oppression, outside aggression and colonialism. The colonial powers, for instance, had taken their own pollution to the countries they exploited ... The Third World countries would have to solve the environmental problems arising in the development of their national economies on a basis of self-reliance.

The location of the Centre was also a matter of some debate, with Guam, Japan, the Philippines and the Republic of Korea being considered alongside the eventual site of the Centre, Malaysia. The Centre was eventually located at the University of Agriculture in Malaysia until budget cutbacks and programme restructuring forced its closure in 1997.

Although WHO was increasingly involved in what would now be called "capacity building" through its health services programmes, the Regional Office still had to meet the challenges posed by outbreaks of communicable diseases. However, activities to mitigate the effects of the El Tor cholera outbreak were hindered by the ineffectiveness of available vaccines. Classic cholera vaccine conferred only 48% protection for a period of three months. An oil adjuvant vaccine had "shown remarkable results in terms of protective value" but had led to severe reactions in 96% of people who received it. As one representative to the Regional Committee put it: "No population would volunteer willingly and cooperatively to assist in a mass vaccination campaign if they were left with sore arms for weeks or months afterwards." The fight against cholera was a global one and activities at the Regional Office were closely coordinated with both WHO Headquarters and other regions. Reports on the occurrence of cholera were sent by WHO Headquarters to governments by means of daily epidemiological radiotelegraphic bulletins, or WHOGRAMS. An interregional cholera research team worked on studies of the efficacy of different cholera vaccines and clinical aspects, especially the treatment of cholera in children.

During the 1950s and 1960s, the Regional Office made a substantial contribution to malaria control. The International Malaria Eradication Training Centre, a joint venture of the Philippine Government, the United States Agency for International Development (USAID) and WHO was re-established in
October 1963 and operated until the mid-1970s. The Centre provided skills in the formulation and management of malaria eradication programmes.

By the 1960s the Western Pacific Region was no longer seriously affected by smallpox and therefore was not a major participant in the smallpox eradication campaign. Nevertheless, large parts of the Region had suffered serious smallpox epidemics into the 1950s. Viet Nam, for example, had suffered a serious epidemic between 1935 and 1959 with 62,713 cases and 18,013 deaths. However, compulsory vaccination had been carried out since 1954 and a representative at the 1965 session of the Regional Committee was able to report that since 1959 there had not been a single case.

The global eradication of smallpox is undoubtedly one of the World Health Organization’s major achievements. However, it is an achievement that must be set in historical context. As the representative of the United States of America pointed out at the sixteenth session of the Regional Committee, the vision of a world free from smallpox had been anticipated in a letter from the second President of the United States of America, Thomas Jefferson, in a letter to Edward Jenner. President Jefferson had predicted that the discovery of a vaccine against smallpox would lead to its eradication from the world. As the representative of the United States of America pointed out, “It was rather remarkable that even so far ago this vision could be seen and it was possibly a rather sad commentary that it had taken so long to begin to do it seriously on a global basis”.

Following the end of the war in Viet Nam in 1975, WHO initiated a major series of programmes in the Lao People’s Democratic Republic and Viet Nam. The campaign was originally intended to include the Democratic Republic of Kampuchea, but, as noted above, it was not possible to establish contact with that country. The programmes were sanctioned at both global and regional levels. The Vice-Minister of Health of the Democratic Republic of Viet Nam informed delegates at a WHO-sponsored meeting in Manila, the Philippines, in March 1976 that 7.6 million tons of bombs (three and a half times the total amount dropped during the Second World War) had destroyed or heavily damaged 350 hospitals and 1500 dispensaries. He explained that 60% of central and provincial medical institutions, comprising hospitals, research institutes, and medical schools had been destroyed, as had 30% of the district medical establishments.

The Lao People’s Democratic Republic was in a similar state and a 1976 report opened with the observation that: “Thirty years of uninterrupted war have left the Lao People’s Democratic Republic underdeveloped and largely destroyed.”

In 1976, the government of the Lao People’s Democratic Republic submitted a request for US$2,046,000, broken down into: basic health services (US$416,317), hospital services (US$344,451), health laboratory services (US$36,264), health education (US$12,821), health manpower development (US$16,161), immunization (US$21,768) and drug production (US$1,200,000). Some of these requests were met from the 1976 regular budget, others from bilateral donations.

Support for Viet Nam came from, among others, Denmark, Japan, Malaysia, the Netherlands, the Philippines and Switzerland. One of the largest bilateral donors was the Netherlands Government which, at the twenty-seventh session of the Regional Committee, announced its intention to contribute US$2.8 million for a tuberculosis control project and for equipment at the National Institute of Hygiene. Denmark also supported the tuberculosis project with a donation of US$500,000. Switzerland provided US$156,608 for leprosy and another US$250,000 for malaria.

Countries recovering from extended periods of warfare have very particular needs. For example, it was pointed out at one session of the Regional Committee that in Saigon, Viet Nam, in 1975 there were between 800,000 and 1,500,000 orphans. Thus, “While recognizing the superiority of breast-feeding, authorities in the Republic of South Viet Nam were faced with a situation in which it was often impossible to advocate it.”

WHO continued to work closely with other parts of the United Nations system during this period. UNICEF was still WHO’s main partner, but FAO and WHO were to form a close alliance in encouraging the establishment of national food and nutrition committees. In surveying WHO’s work in the Region in the pre-Health for All era, we can see a growing realization that success in one area (for example, improved infant mortality rates) would count for little if children faced a high probability of suffering another preventable condition (for example, malnutrition) if they survived infancy. At the same, it was appreciated that, more than ever, WHO needed to collaborate with as many other actors as possible if its programmes were to be truly effective. Thus, a programme to develop an applied nutrition programme in Fiji involved not only the Government, FAO and WHO, but the South Pacific Commission, UNICEF and local communities.
This chapter has covered the period from the mid-1950s to the mid-1970s. At the beginning of this period “development” was interpreted to mean assistance from the rich developed world to the nations of “the South”. However, by the end of the period new ways of looking at global politics were gaining currency. This redefinition of the role between the richer nations and developing countries culminated in the publication of the Report of the Independent Commission on International Development Issues, commonly known as the Brandt Report, in 1980. WHO’s response to this plea for an end to global inequality was the Global Strategy for Health for All, which was to radically change the orientation of WHO programmes at both global and regional levels. The formulation of the strategy and its implementation are the subject of the next chapter.

The period covered by this chapter is defined by the conclusions reached at the International Conference on Primary Health Care at Alma-Ata, in the former Union of Soviet Socialist Republics in 1978 and at the Thirty-second World Health Assembly in 1979, which launched the Global Strategy for Health for All. This chapter covers the period from the adoption of the strategy at the thirty-first session of the Regional Committee in 1980 to the publication of the regional refinement of the strategy, *New horizons in health*, in 1994. Before looking at how the concepts of primary health care and health for all were worked out in actual programmes, it is important that the terms be defined clearly. Primary health care in the Western Pacific Region

"Primary health care" had been practised in some form in almost all countries of the Western Pacific Region long before the Alma-Ata Conference in 1978. Perhaps the most famous proponents of primary health care were the "barefoot doctors" of China. In 1975 the representative of China to the Regional Committee reported that there were over 1,300,000 barefoot doctors and 3,600,000 health workers and midwives in China. These barefoot doctors "were mostly selected, upon recommendation of the masses, from among the youth of poor and lower-middle peasant origin." The doctors' role reflected the strongly politicized nature of Chinese society:

Firstly, political ideological education was given prominence... the peasants who had suffered in the old society were invited to report on past bitterness and present happiness. In that way political consciousness was continuously built up. Barefoot doctors were also taught to participate constantly in agricultural labour, receiving their income according to the collective distribution system. The training encouraged them to maintain a spirit of hard struggle and devotion, to keep close ties with the masses, who welcomed them, and to be mentally oriented towards work in the countryside.

China's was undoubtedly the largest primary health care programme in the world, but most of the countries of the Western Pacific Region had experience of some form of health service delivery that could be classified as primary health care. Such traditional forms of primary health care often reflected the particular circumstances of the country. In Samoa, for example, over 300 women's committees play an important role in the development of services. In the Lao People's Democratic Republic, "An inhabitant of the house – called the pilot house – in which hygienic measures had been best applied, was chosen as health "animator" for a group of five to 10 houses."

China has a long tradition of primary health care

This person, trained by the village nurse, to whom he reported daily, received no salary. He was responsible for circulating the directives of the Health Department and for collaborating with the village nurse in carrying out minor tasks of a preventive and curative character." By the dawning of the health-for-all era there was growing realization that such "traditional" health services might have something to offer that "modern medicine" could not provide. This was brought out in a technical presentation by the Director, Division of Strengthening of Health Services, WHO Headquarters, at the twenty-seventh session of the Regional Committee:

In New Zealand Maori areas and elsewhere in Polynesia there used to be no clearly specified health workers. A birth was assisted by the husband and certain female relatives. The resident multi-purpose professional was the "tohunga" who was health worker, adviser upon the planting of crops or the catching of fish, and even th
arbiter of what was anti-social behaviour. There were community concerns about health but there was no health service. Health and ill-health was thought of in a wide way and included many aspects of living, including what you ate and how you behaved as well as the inexplicable disasters of infection, accident or acute or chronic illness. I postulate that maybe we are turning a full-circle and are beginning to understand that our present views are fully compatible with such thinking from our past. I may even go further and say that the linkages which have now been described between the multiple primary causes of illness and their ultimate expression, plus the knowledge we have gained upon how to prevent and treat health failures, reinforce the idea that unless we adopt such a wide philosophy of health our other efforts will surely fail. We must be careful not blindly to accept the criticism that such a change is a step backwards rather than forwards as it is probable that some of the fundamental truths springing from our own societies have evolved over time with good cause and we can only ignore them at our peril.

What then is primary health care? Dr H. Mahler, the Director-General at the time of the adoption of health for all, defined it in a report on primary health care to the World Health Assembly:

Primary health care is taken to mean a health approach which integrates at the community level all the elements necessary to make an impact upon the health status of the people. Such an approach should be an integral part of the national health care system. It is an expression or response to the fundamental human needs of how can a person know of, and be assisted in, the actions required to live a healthy life and when can a person go if he/she needs relief from pain or suffering. A response to such needs must be a series of simple and effective measures in terms of cost, technique and organization, which are easily accessible to the people in need and which assist in improving the living conditions of individuals, families and communities. These include preventive, promotive, curative and rehabilitative health measures and community development activities.

In short, while basic health services were "vertical" programmes (i.e. policy in a particular area was determined at national level and implemented at the local level), primary health care involved much greater decentralization. District level services were not merely to be implementors, but, in conjunction with the communities they served, to play a role in determining the content of the services they offered. Broad parameters were established in such areas as:

1. health education;
2. food and nutrition;
3. safe water and basic sanitation;
4. maternal and child care/family planning;
5. immunization;
6. prevention and control of local endemic diseases;
7. treatment of common diseases and injuries; and
8. provision of essential drugs.

In the Western Pacific Region, the concept was to have a particular resonance since, despite the rapidly growing mega-cities in the Region, by far the majority of people, including those in most desperate need of care, lived in rural areas. In 1976, Dr Dy spelled out the advantages of this approach:

The primary health care (PHC) approach promoted by WHO is now recognized by decision-makers as being particularly effective in health service delivery. It permits wide, or even total coverage by health services, with active participation of the communities concerned; and it enables the health authorities to understand and meet the people's real needs, above all in rural areas where most of them live.

Yet primary health care was not only to be applied in the countryside. A Regional Conference on Primary Health Care held in Manila, the Philippines, in 1977 pointed out that "Primary health care issues are as relevant to urban problems as to rural ones". Managing the diverse rural/urban mix in the Region has always posed particular challenge. In China, for example, 80% of the population lived in rural areas in 1985. However, in Brunei Darussalam 60% of the population lived in the capital city, while in Hong Kong and Singapore, the rural populations were negligible. Yet while the diversity of the Western Pacific Region raised particular problems for the implementation of primary health care strategies it also represented an opportunity: "Of all the WHO regions, the Western Pacific Region, with its mixture of developed, developing and less developed nations, was best suited to take the lead [in implementing health for all]."

Primary health care was not without its critics, some of whom argued that developing countries were being asked to accept inferior solutions. This was rejected by Dr Mahler: "It is not health technology per se that is being questioned. WHO will continue to collaborate in the transfer of so-called modern technology wherever
seems reasonable and significantly useful." If it were to be successful, primary health care should combine th best and most appropriate health technologies with the active involvement of the community that was bein served.

**Health for all**

"Health for all" is not distinct from "primary health care". On the contrary, the tenth and final clause of th Declaration of Alma-Ata explicitly put forward a vision of health for all by the year 2000. Health for all is define as follows:

In 1977 the Thirtieth World Health Assembly decided that the main social goal of governments and WHO in th coming decades should be the attainment by all the people of the world by the year 2000 of a level of healt that would permit them to lead a socially and economically productive life. This goal is commonly known as a ‘health for all by the year 2000’. The process itself will be interpreted differently by each country in the light of its social and economic characteristics, the health status and morbidity patterns of its population, and the stat of development of its health system. However, there is a health baseline below which no individuals in an country should find themselves; all people in all countries should have a level of health that will permit them to work productively and to participate actively in the social life of the community in which they live.

Health for all does not mean that in the year 2000 doctors and nurses will provide medical care for everybody i the world for all their existing ailments and that nobody will be sick or disabled. It does mean that health begin and is fostered or endangered at home, in school and in factories, where people live and work. People will us better approaches than they do now for preventing disease and alleviating unavoidable illness and disability and have better ways of growing up, growing old and dying in dignity.

Essential health care will be accessible to all individuals and families, in an acceptable and affordable way, an with their full involvement. There will be an even distribution among the population of whatever resources fr health are available and people will realize that they themselves have the power to shape their lives and th lives of their families, free from the avoidable burden of disease, and aware that ill-health is not inevitable.

**Membership of the Western Pacific Region**

Solomon Islands joined WHO on 4 April 1983. Previously known as the British Solomon Islands Protectorate the islands were renamed Solomon Islands in 1975, following a new constitution the previous year which pave the way for internal self-government. In January 1976, Solomon Islands became self-governing and became a independent state within the British Commonwealth on 7 July 1978.

Vanuatu, formerly known as the New Hebrides is a group of islands in the south-western Pacific Ocean. I 1888, Britain and France established joint sovereignty over the islands, initially through an 1888 Joint Nav Commission and subsequently through a condominium government, established in 1906, which wa superseded by an Anglo-French Protocol in 1914. On 30 July 1980, New Hebrides won its independence from the condominium powers and was renamed Vanuatu. It became a member of WHO on 7 March 1983.

Cook Islands joined the World Health Organization on 9 May 1984. The islands were proclaimed a Britis protectorate in 1888 and in 1901 were annexed by New Zealand. Cook Islands had become a self-governing territory in full association with New Zealand on 4 August 1965. New Zealand is ultimately responsible for Coc Islands’ defence and foreign relations, although the territory has progressively assumed control over much of its foreign policy (a Ministry of Foreign affairs was established in 1983).

Kiribati was under British protection from 1892. Formerly the Gilbert Islands, together with the Ellice Island (now Tuvalu), the islands were administered by the Western Pacific High Commission. The Gilbert and Ellic Islands were annexed to the United Kingdom of Great Britain and Northern Ireland in 1915 effective in 191 when the protectorate was declared a colony. Gilbert Islands obtained internal self government on 1 January 1977. On 12 July 1979 the Gilbert Islands became an independent republic, within the British Commonwealth under the name of Kiribati. The country joined the World Health Organization on 26 July 1984.

Meanwhile, on 1 October, 1975, Ellice Islands were allowed to form a distinct territory named Tuvalu. Tuvalu first separate elections were held in August 1977 and an independence constitution was finalized at conference in London, in February 1978. After five months of internal self government, Tuvalu became independent on 1 October 1978. It became a member of WHO on 7 May 1993.

Now one of the world’s smaller states, Brunei was once the centre of a great maritime empire. During the fir half of the 16th century it claimed suzerainty over the whole coast of Borneo, the Sulu Archipelago an Mindanao and forced Manila to pay tribute. British intervention in the 19th century led to the dissolution of mo of Brunei’s empire. In 1888, the United Kingdom of Great Britain and Northern Ireland made Brunei, Sarawa
and North Borneo protectorates.

Self government was introduced in 1959 but Britain retained responsibility for foreign affairs. In 1979, the sultan of Brunei negotiated a new treaty with the British and full independence and sovereignty was gained on January 1984. Brunei Darussalam joined WHO on 25 March 1985.

The Union Islands became a British Protectorate in 1877 and were annexed by the United Kingdom in 1916. In 1946, the group was officially designated as the Tokelau Islands. In November 1974, the administration of the Tokelau Islands was transferred to the Ministry of Foreign Affairs in New Zealand. In 1976, the Tokelau Island were renamed Tokelau. At present, New Zealand is still responsible for the external relations of Tokelau. Tokelau became the Region’s only associate member when it joined the World Health Organization on 8 March 1985.

The Office of the High Commissioner, Trust Territory of the Pacific Islands, ceased to exist with effect from 1 July 1987. All functions were transferred to the individual governments of the four successor states, three of which joined WHO on the date indicated in brackets: Republic of the Marshall Islands (1991), Federated State of Micronesia (1991) and Republic of Palau (1995). The federal government of the United States of America is still responsible for defence and foreign relations of the fourth, the Commonwealth of the Northern Marianas Islands.

The Northern Mariana Islands were occupied by the United States in 1944 and trusted to the United Nations by the United States in 1947. On 17 June 1975, the majority of the population voted to become commonwealth of the United States, like Puerto Rico. The United States Congress approved the new status on 21 July 1975 and on 9 January 1978, the Commonwealth of the Northern Mariana Islands was associated with the United States, without the formal dissolution of the United Nations Trusteeship Agreement.

Guam is the largest island of the Marianas archipelago. It was a Spanish colony from the 17th to the 19th centuries and was ceded to the United States of America in 1898. In 1982 the inhabitants of Guam voted to Commonwealth status in association with the United States of America.

The United Kingdom’s last remaining dependency in the South Pacific, the Pitcairn Islands, were discovered in 1767 and settled by the British in 1790. However, it was not until 1887 that Pitcairn Islands officially became British settlement. From 1898 the Pitcairn Islands were administered by the High Commissioner for the Western Pacific and transferred to the Governor of Fiji in 1952. When Fiji became independent in October 1970, the British High Commissioner in New Zealand was appointed Governor.

The Pitcairn Islands are also the closest inhabited land to Mururoa Atoll. In 1987, Pitcairn Islands joined the representatives of France, New Zealand, the United States and six Pacific island states in signing the South Pacific Regional Environment Protection Convention, the main aim of which is to prevent the disposal of nuclear waste in the Region.

New Caledonia became a French possession in 1853, when the island was annexed as a dependency of Tahiti. In 1884 a separate administration was established and in 1946 it became an Overseas Territory of the French Republic. Direct rule by France was discontinued from 14 July 1989 and the provincial councils gained a degree of limited autonomy. A poll will be held before the end of 1998 on the future political organization of New Caledonia. The first contact between New Caledonia and Dependencies and the Regional Office dates back to 1956, at which time the territory was besieged by problems such as leprosy and tuberculosis.

Formerly Tahiti, French Polynesia is another Overseas Territory of France. It was made a protectorate in 1844 and a colony in 1880. All the islands that now constitute French Polynesia had been annexed by the end of the 19th century. The islands were governed from France under a decree of 1885 until 1957 when French Polynesia became an Overseas Territory with a Governor in Papeete, the capital, on Tahiti. Moves toward increased local autonomy began in 1977 and new status creating a fully elected local executive was approve in Paris, France, in May 1977.

Wallis and Futuna Islands is a self-governing French Overseas Territory. It was first settled by Polynesia people, Wallis from Tonga and Futuna from Samoa. It was proclaimed a French protectorate in 1844; coinciding with a similar proclamation in Tahiti. Protectorate status was formalized in 1887 for Wallis and in 1888 for the two kingdoms of Futuna, but domestic laws remained in force. The islands formally became a Overseas Territory in July 1961 following a referendum in December 1959 in which the majority of the electorate requested this status. Government is conducted by the chief administrator, the representative of the French state, with the advice of the council and the elected territorial Assembly. The Territory also has representation in the French National Assembly.

Regional Office
During this period two annexes were added to the Regional Office. In arguing for the need for additional space, the Regional Office pointed out that there had been no addition to the original building since its construction in 1959, despite very significant increases in staff numbers. The first annex was duly completed on 16 April 1978 at a cost of US$538 638. It now houses the library and computer facilities, as well as staff offices and two conference rooms. However, further expansion during the 1980s led to "acute shortage of office and storage space" by the early 1990s. A second annex was therefore built and completed in June 1992. It added 105 square metres of floor space to the premises and is now used for the publications department as well as for additional offices and storage.

The Regional Director’s Reports from this period show that, like all organizations, the Regional Office was affected by the information revolution. In 1976, for example, we see the first mention of "word processing typewriters". In some areas the Office was ahead of its time; for example experiments on the use of electronic mail took place as early as 1987/1988.

In 1988, microcomputers were installed in all offices of WHO representatives and country liaison officers. In the same year, 67 microcomputers were introduced for the use of regional staff in automating administrative and technical functions. A local area network (LAN) was installed to enable microcomputers to share data and software applications.

Further improvements were made to the Regional Information System (RIS) programme management and monitoring of implementation in 1993. Enhancements were made to systems for managing supplies and equipment, personnel, group educational activities, fellowships and financial accounts. These systems were fully integrated with the main RIS.

The offices of WHO representatives and country liaison officers were automated in 1993. All computers in the Regional Office and six of the WHO field offices have local area networks. E-mail is increasingly used within the Organization. All secretarial staff in the Regional Office have received basic or refresher training in word processing, and staff in the budget and finance division have received training in data processing and use of the WHO information systems. In addition, individual staff, including professional staff members have receive computer training according to their particular needs.

Figures 5.1 and 5.2 show the organizational structure of the Regional Office at the beginning (1979) and the end (1993) of the period covered by this chapter. It should be stressed that the "Programme coordinators" in the former figure were in fact the same as the "WHO Representatives" (WRs) in the latter.

Staff numbers at the Regional Office increased during the health for all period (but less quickly than in the 1960s and 1970s). In fact budget cutbacks meant that a large number of professional posts had to be left vacant and, in 1983, the Regional Committee expressed its concern at the 23 vacant professional posts in the Regional Office. However, figures on full-time members of staff reveal only part of the story; by the health-for-all period, WHO was now the hub of a huge network of medical experts. During the period 1968–1988, it has been estimated that some 5000 WHO experts were on call throughout the world.

The Regional Office’s growing financial obligations from 1976–1977 to 1992–1993 are shown in Figure 5.3.

Sessions of the Regional Committee

Dr F.J. Dy’s retirement as Regional Director after 29 years’ service with WHO precipitated an election for a new Regional Director. At its twenty-ninth session held in Manila in 1978, the Regional Committee nominated to the Executive Board, Dr Hiroshi Nakajima (Japan) for the post of Regional Director. Dr Nakajima was duly appointed by the Executive Board to serve a five-year term as from 1 July 1979, an appointment that was extended for a further five years with effect from 1 July 1984.

The thirtieth session of the Regional Committee, held in Singapore in 1979, and the thirty-first, held in Manila the Philippines, in 1980, examined reports prepared by the Sub-Committee on formulating strategies for health for all by the year 2000. In 1979 debate focused on the role of indicators (which were described by the Office of the Director General as “not substitutes for targets but indicators of the extent to which the targets were being reached"), in particular on whether they should be formulated at national level initially, and on the different circumstances of individual countries. China, for example, not only had a long history of traditional medicine, also had a more ideological approach to health care than most countries. The representative of China indicate that both would feature in China’s implementation of health for all: “The guiding principles of China’s health plan for the year 2000 stipulated that health work should be oriented towards preventive medicine, amalgamating Chinese traditional medicine with Western medicine and integrating health work with mass movements.” In 1980, debate again centred on indicators. In the words of the representative from Samoa “th whole subject of indicators was exceedingly complex” a view that was shared by the representative of th
United States of America, who drew attention in particular to the difficulty of developing indicators for “health promotion” and “psychosocial” well-being. Despite these problems, the strategy received general support. In adopting the strategy, the Regional Committee urged Member States to re-evaluate their national strategies accordingly.

The thirty-second session of the Regional Committee was held in Seoul, the Republic of Korea, in 1981. The debates at the thirtieth and thirty-first sessions concerning holding the session in Korea were notable for two reasons. In the first place the Regional Committee queried why the session had been scheduled over weekend. On being told that this was to allow the secretariat time to produce the summary records of the debates, the question of doing away with the summary records altogether was debated. Second, the representatives of both China and Democratic Kampuchea objected to the choice of Seoul as a venue. In the event, the session was held from Tuesday to Monday (but the subsequent session was shortened to four and half working days), summary records were produced (as they have been at every session since) and China and Democratic Kampuchea did not attend.

AIDS was first mentioned at the Regional Committee in 1983, when the representative of Tonga asked whether there had been any recorded

**Figure 5.1 Organizational structure of the Regional Office (1979)**
(This is kept on separate file Ch_05 figures 5.1 and 5.2)

**Figure 5.3 Obligations incurred by the WHO Western Pacific Region per biennium, 1976–1993**
(in millions of US$)

<table>
<thead>
<tr>
<th>Biennium</th>
<th>Regular budget</th>
<th>UNDP</th>
<th>UNFPA</th>
<th>Other sources$^b$</th>
<th>Total extrabudgetary funds</th>
<th>Total all funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976–1977</td>
<td>20.73</td>
<td>1.61</td>
<td>2.05</td>
<td>2.77</td>
<td>6.43</td>
<td>27.16</td>
</tr>
<tr>
<td>1978–1979</td>
<td>27.17</td>
<td>1.4</td>
<td>1.92</td>
<td>6.5</td>
<td>9.82</td>
<td>36.99</td>
</tr>
<tr>
<td>1980–1981</td>
<td>33.97</td>
<td>7.16</td>
<td>5.53</td>
<td>8.39</td>
<td>21.08</td>
<td>55.05</td>
</tr>
<tr>
<td>1984–1985</td>
<td>43.97</td>
<td>3.03</td>
<td>9.96</td>
<td>10.34</td>
<td>23.33</td>
<td>67.27</td>
</tr>
<tr>
<td>1986–1987</td>
<td>46.8</td>
<td>4.29</td>
<td>10.4</td>
<td>15.96</td>
<td>30.65</td>
<td>77.45</td>
</tr>
<tr>
<td>1988–1989</td>
<td>51.37</td>
<td>2.6</td>
<td>8.96</td>
<td>17.22</td>
<td>28.78</td>
<td>80.15</td>
</tr>
<tr>
<td>1990–1991</td>
<td>56.97</td>
<td>3.03</td>
<td>5.73</td>
<td>22.57</td>
<td>31.33</td>
<td>88.3</td>
</tr>
<tr>
<td>1992–1993</td>
<td>57.1</td>
<td>2.2</td>
<td>3.4</td>
<td>25.9</td>
<td>31.5</td>
<td>88.6</td>
</tr>
</tbody>
</table>
The figures for the bienniums 1984–1985, 1986–1987, 1988–1989 are based on the audited reports of the Organization. Other sources include the Voluntary Funds for Health Promotion, Trust Funds, the Trust Fund for the Special Programme for Research and Training in Tropical Diseases, Reimbursable Funds, the United Nations Children's Fund, the Sasakawa Health Trust Fund, the Global Programme on AIDS, the Special Account for Servicing Costs, and Associate Professional Officers other than UNDP.

cases in the Region. The answer was six confirmed or suspect cases, five of which were among male homosexuals in Australia (all of whom had been to the United States). The sixth was a fatal case of a bisexual male, also from Australia. Two years later the Regional Committee expressed real concern about the disease. By 1985, 138 AIDS cases had been reported in the Western Pacific Region, 110 of which (with 50 deaths) were from Australia. By 1986 there had been a number of cases of people becoming HIV-infected through blood transfusions; for example, half of the 16 AIDS cases in Japan were haemophilia patients. Since, like other countries, Japan was experiencing a sharp increase in demand for blood products (demand increased by 60% in the period 1982–1986), the Regional Committee adopted a resolution which, inter alia, urged Member States to develop and improve their blood transfusion services. The thirty-eighth session in 1987 requested the Regional Director to present an annual report on the situation with regard to AIDS.

The thirty-sixth session was held in Manila in 1985 and included a debate on the first evaluation of the strategy of health for all. The representative of New Zealand, spoke for all the delegates when he commented on the "heartening progress made by many countries in the Region towards health-for-all goals." In particular he noted the "remarkable reductions in infant mortality and increases in life expectancy". In his view the Expanded Programme on Immunization (EPI) had been "a triumph".

The thirty-sixth session also raised another issue that was to resurface regularly; the number of seats on the WHO Executive Board allocated to the Western Pacific Region. The representative of Japan, supported by the representatives of China and Malaysia, said that the "number of seats for the Region on the Executive Board was unreasonably small in relation to the number of Member States, as well as to the size of its population." He therefore proposed that the number of seats be increased from 31 to 32, with the additional seat being allocated to the Western Pacific Region. These arguments were accepted by the World Health Assembly the following year, which recommended that Articles 24 and 25 of the Constitution be amended. As with any amendments to the constitution, these required two-thirds of Members to deposit their formal instruments of acceptance.

The thirty-eighth session in 1987 was the first to be held in the People's Republic of China. The session took place in Beijing and was notable for a number of reasons. By the late 1980s the shortfall in assessed
contributions from certain Member States was starting to have a severe impact throughout the United Nations system. WHO was no exception. Out of an estimated shortfall of US$ 35 million globally, the Western Pacific Region had to sustain a programme budget implementation reduction of US$ 3 269 000 for 1986–1987. This situation was made worse by the decline in value of the US dollar against the Swiss Franc, which further reduced the 1986–1987 global programme by US$ 9.4 million, of which about US$ 500 000 was apportioned to the Western Pacific Region. These facts were laid before the Committee, which, in a long and complex debate, discussed a contingency plan that had been prepared by the secretariat. In the discussion, the representatives of the United States informed the Committee that "the United States of America would pay US$ 35 million of its 1986 assessment at the beginning of October 1987", i.e. in the month following the session. The Committee adopted a resolution that expressed its concern regarding the adverse effects that this shortfall might have on WHO's activities in the Region.

This debate marked the beginning of a long and difficult financial period for WHO both globally and regionally. The last 10 years have seen numerous shortfalls in assessed contributions and consequent re-budgeting. In fact withholding money from the regions by the Director-General has become almost an accepted fact of life. To a certain extent this has been offset by the generosity of individual Member States of the Region, in particular Japan, which has made very significant voluntary contributions to WHO at both global and regional levels, in particular to the Expanded Programme on Immunization.

On Thursday afternoon and Friday morning of the Beijing session there was what the Regional Director called a "frank exchange of views" on WHO's management of resources. The debate was stimulated by a feeling that with 70% of the resources allocated to regional and country activities, the regional offices' performance in managing WHO's resources needed to be looked into. The Fortieth World Health Assembly in 1987 therefore requested the regional committees to consider the issue. The representatives in Beijing had before them a document called "Management of WHO's resources" that was described by the representative from the United States as "somewhat revolutionary". In his words: "it was not at all usual for organizations of the United Nations system to produce for circulation to their member countries a paper that was so self-critical." He accordingly encouraged his fellow representatives to partake in the process of evaluation as fully as possible. At the close of the Thursday afternoon session, the Regional Committee took the unusual step of deciding that discussion on the subject should immediately recommence on the Friday morning and, if necessary, some other agenda items would have to be postponed until the next year's session.

The debate was wide-ranging. The representative of Malaysia pointed out that in financial terms WHO's contribution to his country's national health budget was quite small, about 0.1%, although he stressed that if the actual value was far higher. He went on to argue that, although health for all was a desirable social goal and primary health care the most appropriate strategy, perhaps there was a lack of leadership at all levels of the Region's health sectors. He wondered whether it might be necessary for WHO to address the process of change in a more effective and realistic manner.

In contrast to the assessment by the representative of Malaysia that the financial contribution of WHO to his country's health budget was relatively minor, the representative of Samoa said that Samoa relied heavily on WHO's support; without that support it would be unable to implement its health programmes satisfactorily. The lively discussion on this agenda item took up most of the morning and representatives eventually framed a resolution to be forwarded with a record of their discussion to the Director-General.

The thirty-ninth session opened on a sombre note as representatives observed one minute's silence in recognition of the two representatives of Viet Nam and three WHO fellows who had died in an aeroplane crash on the way to the session. This session also saw an election for a new Regional Director. In May 1988, Hiroshi Nakajima, who had been Regional Director of the Western Pacific since 1979, was elected Director General of the World Health Organization. He was the fourth Director-General of the Organization, following Dr Chisholm (Canada), Dr Candau (Brazil) and Dr Mahler (Denmark). He took over from Dr Mahler on 21 July 1988. The Regional Director's Report at the thirty-ninth session was therefore presented by Dr Sang Tae Han in his capacity as Special Representative of the Director-General. Dr Han was duly nominated to the Executive Board as Regional Director for a period of five years from 1 February 1989. His appointment was confirmed by the Board. Like Dr Nakajima, he was the fourth person to hold his new position.

Representatives at the fortieth session in Manila were welcomed by the President of the Philippines, Corazon Aquino, and members of the Philippine government at an opening session in the Malacañang Palace on the morning of 19 September 1989. The Committee noted the declarations made by the British and Chinese Governments to the effect that in future Hong Kong would have its own nameplate at sessions of the Committee. The nameplate would originally read "Hong Kong" and, with effect from the forty-eighth session "Hong Kong, China". Three years later Hong Kong acted as host to the Regional Committee, the first time it was to do so under its own name. Macao has had its own nameplate with effect from the forty-fourth session in 1993 until 19 December 1999 (in that year Macao will host the fiftieth session of the Regional Committee). Thenceforth it will be known as Macao, China.
The final session of the Regional Committee to fall within the period covered in this chapter was the forty-fourth, held in Manila in 1993. In private session, the Committee unanimously recommended to the Executive Board that Dr Han be appointed for a second term commencing 1 February 1994. One of the most important items on the agenda was "WHO response to global change: report of the Executive Board Working Group. This asked the Committee to comment on a report on re-defining the role of the World Health Organization. The representative of Australia opened the debate by saying that "he felt it was no exaggeration to state that WHO's future was at stake." If WHO was to retain its leadership in health, he felt that it was vital to "ensure that WHO remained vibrantly active as the supreme organization for health in the world, responsive to changing priorities, flexible, accountable and open in its administration. It must concentrate on results." A representatives accepted the need for reform and it was agreed that the matter should be referred to the Sub Committee of the Regional Committee on Programmes and Technical Cooperation to report the following year. Discussion of the Sub-Committee's report more properly falls in the next chapter, which takes its title from another item on the agenda at the forty-fifth session, the adoption by the Regional Committee of the regional framework document, *New horizons in health*.

**Health status of the Region**

How effective was the Global Strategy for Health for All at improving the health status of the Western Pacific Region?

Far from fading away, tuberculosis and malaria experienced something of a resurgence in the early years of the health-for-all period. In 1992, for example, the Regional Director reported that there were still 40 000 people who died of tuberculosis each year in the Region, and 17 countries with incidence rates of more than 60 cases per 100 000 population. There were still nine malarious countries in the Region, with a total of 800 00 microscopically confirmed cases reported in 1991. The Regional Director reported that a further 2 million cases were believed to go unreported.

Cambodia and Viet Nam both experienced worrying increases in the number of microscopically confirm infections cases in the early 1990s. In Viet Nam there was a three-fold increase in cases in the first three years of the decade, with over 4600 deaths in 1991. Overall, there was a regional increase in malaria morbidity of almost 35% in the period 1985–1993.

Regional data from 1990 on the leading causes of mortality from infectious diseases showed diarrhoeal diseases in top place, closely followed by acute respiratory infections.

Cancer, cerebro- and cardiovascular diseases continued to increase throughout the period. In 1983, it was noted that cancer was now the leading cause of mortality in Japan, with a mortality rate of 142 per 100 000. I China hypertension was a significant problem, with incidence rates in 1983 of from 3.52% in the south (Guangzhou) to 9.68% in the north (Beijing).

Nevertheless, by the mid-1980s the Regional Office could point to significant improvements to the health status of the Region. By 1985, infant mortality rates had been reduced to below 50 per 1000 live births in all but four countries. Life expectancy had been prolonged beyond 60 in nearly every country. Levels of childhood diseases, while still significant, had been much reduced. The Expanded Programme on Immunization had achieved dramatic decreases in many diseases. As implementation of the health-for-all strategy progressed through the 1980s and early 1990s so too did the Region’s health indicators improve, as can be seen in Figures 5.4–5.7, which show data from the first three evaluations of health for all. They therefore provide record of the Region’s progress in terms of government expenditure on health, coverage of the population to health care, selected indicators of health status, cases of diseases targeted by the EPI, and selected family health indicators.

**Activities carried out by WHO in the Region**

Although WHO’s activities in the health-for-all period featured a growing emphasis on preventive and health promotion activities, communicable diseases continued to require considerable resources.

To counter diarrhoeal diseases, still the biggest killer among the communicable diseases, WHO focused on training with carefully designed materials. Training in clinical management was the leading element in national control of diarrhoeal diseases (CDD) programmes. Access to oral rehydration salts was another key element and by the end of 1992, 84% of the population in developing countries of the Region (other than China) had access to such salts.

The resurgence of malaria was a global issue. The World Declaration on the Control of Malari...
made at the Ministerial Conference on Malaria in Amsterdam in October 1992 made a political commitment to malaria control and recommended that countries review and replan their national malaria control programmes and activities. In the Western Pacific Region, anti-malaria activities focused on prevention through distribution of pyrethroid-treated mosquito nets and destruction of mosquito breeding sites; measures to counter drug resistance, in part through the use of the Chinese drug Qinghaosu or artemisinin; and improved recording of morbidity and mortality data.

The regional Expanded Programme on Immunization (EPI) was launched in 1976. Its objective was to reduce the morbidity, mortality, and disabilities caused by tuberculosis, diphtheria, pertussis, tetanus, measles, and poliomyelitis by providing immunization for all children by 1990 and to add other vaccines as and when they become available. WHO began promoting immunization against Japanese encephalitis in 1985 and against hepatitis B in 1986. The 1990 deadline has been established by the Thirty-fifth World Health Assembly in May 1982 which adopted a resolution aimed at ensuring that by 1990 all children of the world would be immunized against the common diseases of childhood.

In the words of the Director-General at the time, Dr Mahler, "Experience has shown that episodic mass campaigns have not been effective; programmes have to be established on a permanent basis and for this it is... necessary to have recourse to the primary health care services."

When the EPI began in the Region, immunization services were "virtually non-existent" in developing countries of the Region; by 1989 almost 90% of newborn children had access to EPI vaccines. This was only made possible by the careful construction of a health infrastructure, particularly with regard to the "cold chain" and logistics systems required to keep vaccines potent in transport between the place of manufacture and the place of its use, and in storage. WHO’s collaboration with UNICEF resulted in a new generation of cold chain equipment becoming available. By the late 1980s, the South Pacific island countries had a well-established cold chain and vaccine delivery system, as did almost 90% of populated areas in larger countries of the Region. Remote and mountainous areas of China, the Lao People’s Democratic Republic, Papua New Guinea, the Philippines and Viet Nam were covered by mobile teams.

The achievements of the EPI were often quite startling. In Singapore, for example, following the introduction of immunization the incidence of measles had declined from 2400 cases in 1984 to 192 cases in 1988. In China, which in the early

**Figure 5.4 Government expenditure on health**

<table>
<thead>
<tr>
<th>Country/area</th>
<th>Per capita GNP (where noted, GDP)</th>
<th>Percentage of GNP (GDP) spent on health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>US$ 1st eval. 2nd eval. 3rd eval.</td>
<td>Year Total Year Total Year Total Year Total</td>
</tr>
<tr>
<td>American Samoa</td>
<td>... ... ... ... ... ... ... ... ... ... ...</td>
<td>1995 9.20 1988 21.00 ... ... ... ... ...</td>
</tr>
<tr>
<td>Brunei 000a.</td>
<td>1984- 7.676^A 1990 10 1995 17054 1984 8.00 1991 1.53^A ... ... ... ...</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>1980- 980 1989- 2094 1990 4113 1984- 11.00 1989- 85 90 8.70 ... ... ... ...</td>
<td></td>
</tr>
<tr>
<td>Fiji</td>
<td>1982- 4700 1989 14 1995 14770 1983 11.55 1988 6.50 ... ... ... ...</td>
<td></td>
</tr>
</tbody>
</table>
Note: Names of countries/areas in capital letters refer to those which had submitted a report on the Third Evaluation of the Strategy for Health for All by the Year 2000 by 17 June 1997.

<table>
<thead>
<tr>
<th>Country/area</th>
<th>Percentage of national health expenditure devoted to local health services/primary health care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; eval. Year</td>
</tr>
<tr>
<td>American Samoa</td>
<td>1985</td>
</tr>
<tr>
<td>Australia</td>
<td>...</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>...</td>
</tr>
<tr>
<td>Cambodia</td>
<td>...</td>
</tr>
</tbody>
</table>

 стран/района в заглавных буквах относятся к тем, которые представили отчет о третьем оценке стратегии здоровья для всех стран к 2000 году по 17 июня 1997 года.

Таблица: Процентное значение государственных расходов на здравоохранение, посвященное местным услугам здравоохранения/восстановительной медицине

<table>
<thead>
<tr>
<th>Страна/район</th>
<th>1&lt;sup&gt;е&lt;/sup&gt; оценка</th>
<th>2&lt;sup&gt;ая&lt;/sup&gt; оценка</th>
<th>3&lt;sup&gt;ая&lt;/sup&gt; оценка</th>
</tr>
</thead>
<tbody>
<tr>
<td>Американская Самоа</td>
<td>1985</td>
<td>10.30</td>
<td>1991</td>
</tr>
<tr>
<td>Австралия</td>
<td>...</td>
<td>...</td>
<td>1988</td>
</tr>
<tr>
<td>Бруней Даруссалам</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Камбодия</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Country</td>
<td>Year 1</td>
<td>Year 2</td>
<td>Year 3</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cook Islands</td>
<td>1984-85</td>
<td>1990</td>
<td>1995</td>
</tr>
<tr>
<td>Fiji</td>
<td></td>
<td>1989</td>
<td>1996</td>
</tr>
<tr>
<td>Guam</td>
<td>1983-84</td>
<td>1990</td>
<td>1996</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1983</td>
<td>1989</td>
<td>1996</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td>1990</td>
<td></td>
</tr>
<tr>
<td>Kiribati</td>
<td>1984</td>
<td>1988</td>
<td>1996</td>
</tr>
<tr>
<td>Korea, Republic of</td>
<td>1984</td>
<td>1989</td>
<td>1996</td>
</tr>
<tr>
<td>Macao</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>1984</td>
<td>1989</td>
<td></td>
</tr>
<tr>
<td>Marshall Islands</td>
<td></td>
<td>1990</td>
<td></td>
</tr>
<tr>
<td>Micronesia</td>
<td></td>
<td>1990</td>
<td></td>
</tr>
<tr>
<td>Mongolia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nauru</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Caledonia</td>
<td>1983</td>
<td>1989</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>1984-85</td>
<td>1988</td>
<td>1994-95</td>
</tr>
<tr>
<td>Niue</td>
<td></td>
<td></td>
<td>1996</td>
</tr>
<tr>
<td>Northern Mariana Islands</td>
<td></td>
<td>1989</td>
<td></td>
</tr>
<tr>
<td>Palau</td>
<td></td>
<td>1991</td>
<td>1996</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>1984</td>
<td>1991</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>1985</td>
<td>1989</td>
<td></td>
</tr>
<tr>
<td>Samoa</td>
<td>1984</td>
<td>1991-92</td>
<td>1997</td>
</tr>
<tr>
<td>Singapore</td>
<td>1983</td>
<td>1989</td>
<td></td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>1983</td>
<td>1988</td>
<td></td>
</tr>
<tr>
<td>Tonga</td>
<td>1984</td>
<td>1991</td>
<td>1993</td>
</tr>
<tr>
<td>Trust Territory of the</td>
<td>1983</td>
<td>1990</td>
<td></td>
</tr>
<tr>
<td>Pacific Islands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuvalu</td>
<td>1984</td>
<td>1988</td>
<td></td>
</tr>
<tr>
<td>Vanuatu</td>
<td>1984</td>
<td>1986</td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1982</td>
<td>1990</td>
<td>1996</td>
</tr>
<tr>
<td>Wallis and Futuna</td>
<td></td>
<td>1991</td>
<td></td>
</tr>
</tbody>
</table>

* For 1st evaluation, 0/00; for 2nd evaluation, 0/000
In 1987, the Trust Territory was divided into: Federated States of Micronesia, Marshall Islands, Northern Mariana Islands and Palau

a/ Peninsular Malaysia only

1990s had the highest incidence of poliomyelitis in the Region, the incidence rate had been reduced by 64% in 1991 compared with 1990, and there was a further reduction of 84% in 1992. For regional details see Figure 5.9.

The decade 1976–1985 was the United Nations Decade for Women: Equality, Development and Peace. Member States were urged to give special attention to the health care needs of women and to widen the opportunities for women to participate in all facets of social and economic life. In 1984, for the first time the agenda of the Regional Committee contained a separate item on women, health and development.

Another UN Decade was to have significant implications for the Region. The promotion of safe drinking water and adequate sanitation, one of the eight basic elements of primary health care, is a major component of the environmental health programme. The International Drinking Water Supply and Sanitation Decade (1981–1990) led to numerous activities in the Region. From 1980, efforts focused on strategy formulation, culminating in the completion of a regional document on the decade which will guide regional activities during the next few years. In early 1980, country level rapid assessment documents were updated and served as input for the presentation on the Decade at the thirty-fifth Session of the United Nations General Assembly in November 1980. Throughout the Region, field level discussions were initiated with UNDP Resident Representatives, who were the United Nations country focal points for the Decade. One outcome of these initiatives was that UNDP-supported water supply and sanitation projects were started in several countries and areas.

Water supply development programmes in Malaysia, the Philippines and the Republic of Korea continued to receive WHO cooperation. Smaller scale programmes also received WHO support in Cook Islands, Fiji, Kiribati, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. By the end of the decade, countries and areas of the Region had implemented programmes within the framework of the International Drinking Water Supply and Sanitation Decade. Periodic reports submitted during the Decade show that the population covered kept well ahead of overall population growth. Even Member States which did not reach the targets for 1990 achieved substantial increases in coverage and improvements in their existing facilities. The momentum built up in the 1980s suggests that all countries and areas will continue to make significant progress in the 1990s.

In April 1985 a meeting was held in Tokyo, Japan, to review the question of the relevance of health manpower to the present and future needs of society. The meeting took place on the initiative of WHO. The meeting resulted in the Declaration of Tokyo, a far-reaching document that linked the achievement of primary health care goals with human resources development: “the reorientation of health systems towards primary health care and social equity ... can best be achieved through a fundamental re-orientation in health manpower planning, production and management.”

The fellowships programme continues to be one of the most important areas of human resources activity. The continued and increasing support to the programme is in recognition of its important role in developing national health plans, upgrading the skills and enhancing the experience of staff working on priority issues. A number of evaluations have been conducted over the years. These include regular surveys of the participants. One such survey was completed in 1992, and another continued during 1994–1995. The surveys provide useful indicators as to the current status of the programme. They also enable key areas, such as the retention rate — the percentage of fellows who remain in their government’s service after return from a fellowship — to be monitored and for poor retention rates to be detected early enough for appropriate remedial measures to be implemented.

Health promotion was to assume an increasingly important role in the work of the Regional Office throughout the period covered in this chapter. One of the most important promotional efforts in the Region was the Regional Action Plan on Tobacco or Health, which was adopted by the Regional Committee in September 1990. The extent of tobacco use has long been an important issue in the Region. Globally
alarm was expressed that, while tobacco use was decreasing by 1% year in the industrialized world, it was increasing by 2% a year in the developing world. For the Western Pacific Region, with its mix of countries at almost all stages of development, tobacco usage represented a particular challenge. For example, in the debate on the adoption of the Regional Action Plan, the representative of New Zealand pointed out that:

...according to WHO statistics released in 1990, out of 23 OECD countries, New Zealand had the highest loss of potential years of life in the case of heart disease among women and bronchitis, emphysema and asthma among men and women. It ranked third in the case of men with heart disease. If those statistics were not enough to prompt urgent action, there was the fact that Maori women had the highest rate of tobacco smoking in the world and, not surprisingly, the highest rate of lung cancer.

Two years later, the problems of developing countries were described by the representative of Viet Nam who explained that, despite a national tobacco control programme, cigarette smoking was increasing. Studies indicated that it was responsible for 80% of lung cancer cases.

There was growing recognition in the Regional Office of the danger that the Organization might be spread too thinly across a range of areas. In 1989, therefore, six regional priorities were established (endorsed by the Regional Committee in 1991). As the Regional Director’s Report from 1993 noted:

Figure 5.9 Reported poliomyelitis cases and OPV3 coverage 1980–1996, Western Pacific Region

"1996 data provisional. Source: Regional Office CEIS and poliomyelitis surveillance reports, 19 June 1997. "As the priorities are not programme- or country specific, their perspective cuts across programme boundaries to tackle a cross-section of needs throughout the region. As funds become ever more thinly stretched, and need for WHO support more widespread, the priorities have provided a constructive and focused approach."

The six priorities were:

1. development of human resources for health;
2. eradication or control of selected diseases;
3. health promotion;
4. environmental health;
5. exchange of information and experience; and
6. strengthening management.

China has a long tradition of primary health careImmunization in an integral part of primary health care
In 1996 a seventh priority was added: management and control of emerging and re-emerging communicable diseases. Together with the regional policy document, New horizons in health, which gives its name to the next chapter, these priorities were designed to focus the Regional Office’s activities as it re-examined its role in public health into the 21st century.

Publication of the regional policy document *New horizons in health* in 1994 signalled the beginning of a new phase in the implementation of health for all in the Region. *New horizons in health* stresses the role individuals can play in achieving positive health within a framework that is based on the different health needs of each stage of a person's life. *New horizons in health* is organized around three themes: preparation for life, protection of life, and quality of life in later years. It points out that:

Given the right circumstances, people have the potential to make long-term differences in their health. It is the role of WHO to support them in achieving this. A more people-centred human-development approach is evolving from the former disease-centred approach.

At the level of public health, the document argued that it was the responsibility of local and national governments to provide supportive environments that encouraged an individual to make healthy choices. In so doing, *New horizons in health* was not only redefining the goals of health for all in the Western Pacific Region, it was also echoing the preamble to the WHO constitution:

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity...

Governments have a responsibility for the health of their peoples which can be fulfilled only by the provision of adequate health and social measures.

*New horizons in health* provides a framework for regional health policy. The Regional Office has prepared a "minimum set" of 63 indicators to enable countries to measure their progress towards the goals of *New horizons in health*. The indicators are organized under the three stages of life and further divided into three categories: (1) context indicators, (2) performance indicators (which can be used at country level) and (3) impact indicators (primarily for evaluation purposes).

*New horizons in health* concepts have been used by many countries in the Region as part of their health policy development and planning processes. Examples include China's long-term health plan to the year 2010 and Singapore's National Healthy Lifestyles Programme and Green Plan for the Next Century. In the Pacific, two important ministerial meetings took place in the mid-1990s (at Yanuca, Fiji, in 1995 and Rarotonga, Cook Islands, in 1997) which reaffirmed the concepts of Healthy Islands, which are in turn based on the philosophy contained in *New horizons in health*. The Rarotonga Agreement made specific recommendations for the development of Healthy Islands initiatives, human resources development, quality and efficacy of pharmaceutical supply and the use of traditional medical practices.

Membership of the Western Pacific Region

Nauru is an island in the Central Pacific Ocean. It was annexed by Germany in 1888 and surrendered to the Australian forces in 1914. It was administered under a mandate, effective from 17 December 1920, conferred on the British Empire and approved by the League of Nations until 1 November 1947, when the United Nations General Assembly approved a trusteeship agreement with the governments of Australia, New Zealand and the United Kingdom of Great Britain and Northern Ireland as a joint administering authority. Independence was gained in 1968. Nauru joined WHO on 9 May 1994.

Niue became a British protectorate in April 1900. It was annexed to New Zealand in September 1901 as part of the Cook Islands but in 1904 it was granted a separate administration. Niue achieved internal self government in October 1974 in free association with New Zealand. It became a member of WHO on 4 May 1994.

Mongolia declared its independence from China, established a people's republic and proclaimed a new constitution in May 1924. On 5 January 1946, China recognized the independence of the People's Republic of Mongolia after the plebiscite stipulated by the Yalta agreement. Mongolia
became a member of WHO on 18 April 1962 and joined the South-East Asia Region. In 1995, it transferred to the Western Pacific Region.

**Regional Office**

The physical structure of the Regional Office did not change in the period under review but during the four years since *New horizons in health* was adopted by the Regional Committee there have been many financial, personnel and computer-related changes to the way the Regional Office conducts its business.

As was noted in the last chapter, financial cutbacks throughout WHO in the 1990s have meant that the Regional Office has had to utilize outside funding for many of its most important activities.

Nowhere has this been more true than in the Expanded Programme on Immunization (EPI), which has relied heavily on the generosity of partner countries and organizations. Figure 6.1 and Figure 6.2 show partner support for both vaccine and operational and surveillance requirements in the period from 1992 to 1997.

More generally, the Regional Office complied with a request by the Executive Board at its ninety-fifth session on 25 January 1995 to make a 5% shift to five priority areas. At the beginning of the 1996–1997 biennium, the Director-General announced that he would be withholding 10% of the regional allocations in anticipation of inability of some Member States to meet their assessed contributions. Eventually this was reduced to 2.5%. These developments have required the Regional Office to make two important changes to the way it manages its finances. First there has been a far greater emphasis on attracting extrabudgetary funds. Figure 6.3 shows the extrabudgetary resources that were disbursed during the 1996–1997 biennium. In the same period, the value of the regular budget implemented totalled US$ 74.6 million. In other words, extrabudgetary resources represented 37% (US$ 44.7 million) of total funds disbursed during the biennium (US$ 119.2 million). Second, the Regional Office has had to adapt itself to cope with a degree of uncertainty in its funding arrangements. Since 1996–1997, cost increases have been sought as a separate issue in the budget preparation process. This is in order for Member States to review the budgets in "real" terms. This procedure has, however, coincided with a reluctance by some Member States to recognize the need to allocate funds to compensate for the effects of cost increases. For example, for 1996–1997, a cost increase of 2.05% was granted to the Western Pacific Region compared to 15.15% requested.

These changes have created a difficult operating environment. The stringent economies imposed on staffing have meant managing programmes with a greater proportion of short-term staff on intermittent assignments to offset the reduction in full-time staff.

**Figure 6.3 Summary of extrabudgetary resources disbursed between 1 January 1996 and 31 December 1997**

<table>
<thead>
<tr>
<th>Sources of funds</th>
<th>Disbursements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency for Cooperation in International Health</td>
<td>669 588</td>
</tr>
<tr>
<td>Arab Gulf Programme for United Nations Development Organisations</td>
<td>73 615</td>
</tr>
<tr>
<td>AusAID</td>
<td>4 612 952</td>
</tr>
<tr>
<td>Austria</td>
<td>16 703</td>
</tr>
<tr>
<td>Belgium</td>
<td>71 509</td>
</tr>
<tr>
<td>Brunei</td>
<td>288</td>
</tr>
<tr>
<td>Cardiovascular Diseases (CVD) Funds from HQ</td>
<td>2 106</td>
</tr>
<tr>
<td>CDC Atlanta</td>
<td>1 324 028</td>
</tr>
<tr>
<td>Denmark</td>
<td>538 347</td>
</tr>
<tr>
<td>Department for International Development, United Kingdom</td>
<td>1 889 511</td>
</tr>
<tr>
<td>Diarrhoeal and Acute Respiratory Disease Control Programme (CDR) Funds from HQ</td>
<td>750 677</td>
</tr>
<tr>
<td>Finland</td>
<td>178 338</td>
</tr>
<tr>
<td>France</td>
<td>360 057</td>
</tr>
</tbody>
</table>
With regard to staffing, gender equality has been an important issue in recent years, as it has throughout the United Nations system. The agenda item on "Full involvement of women in all aspects of the work of the Western Pacific Region" at the forty-seventh session of the Regional Committee in 1996 provoked a lively debate. The Regional Director explained to the Committee that a target of 20% for the recruitment of women in professional and higher graded posts had been established by the World Health Assembly in 1979. This had been raised to 30% in 1985. He explained that the Regional Office had exerted considerable efforts to increase the involvement of women, not just among full-time staff, but also among consultants. However, he pointed out that it was not always easy to locate and recruit women for higher-level positions. By the time the subject was raised again, in Sydney in 1997, the global targets had increased still further; the Fiftieth World Health Assembly having specified that, by 2002, 50% of new appointments should be women. While the committee generally welcomed the drive to increase the participation of women in WHO's activities, several representatives observed that, at the national level, their countries did not experience any discrimination against women (in the case of the Pacific island countries, this was largely accredited to matrilineal societies).

By 1994, computer facilities had been upgraded and shifted to a Windows environment. The Region also computerized the Regional Information System (RIS) for management and implementation monitoring. The RIS has been adapted for use by two other WHO regions. The Regional Office has taken an active role in the development of a new global activity management system.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>36 232</td>
</tr>
<tr>
<td>Global Programme on AIDS</td>
<td>1 397 135</td>
</tr>
<tr>
<td>Italy</td>
<td>655 409</td>
</tr>
<tr>
<td>Japan</td>
<td>9 067 410</td>
</tr>
<tr>
<td>Japan Pharmaceutical and Medical Association</td>
<td>8 806</td>
</tr>
<tr>
<td>Luxembourg Development</td>
<td>72 109</td>
</tr>
<tr>
<td>Malaysia</td>
<td>3 941</td>
</tr>
<tr>
<td>Netherlands</td>
<td>575 319</td>
</tr>
<tr>
<td>Nippon Foundation</td>
<td>1 780 558</td>
</tr>
<tr>
<td>Norway</td>
<td>274 136</td>
</tr>
<tr>
<td>Pacific Leprosy Foundation</td>
<td>132 642</td>
</tr>
<tr>
<td>Programme on Essential Drugs (DAP) Funds from HQ</td>
<td>196 860</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>465 691</td>
</tr>
<tr>
<td>Rotary Funds</td>
<td>1 888 770</td>
</tr>
<tr>
<td>Sasakawa Memorial Health Foundation</td>
<td>254 394</td>
</tr>
<tr>
<td>Special Account for Servicing Costs</td>
<td>1 834 672</td>
</tr>
<tr>
<td>Sweden</td>
<td>177 318</td>
</tr>
<tr>
<td>Trust Funds</td>
<td>5 171 384</td>
</tr>
<tr>
<td>Tuberculosis Programme (TUB) Funds from HQ</td>
<td>22 529</td>
</tr>
<tr>
<td>UNAIDS</td>
<td>170 539</td>
</tr>
<tr>
<td>UNDP</td>
<td>3 038 374</td>
</tr>
<tr>
<td>UNFPA</td>
<td>4 612 780</td>
</tr>
<tr>
<td>UNICEF</td>
<td>20 345</td>
</tr>
<tr>
<td>United Nations Association of Singapore</td>
<td>13 107</td>
</tr>
<tr>
<td>Uns specified Funds from HQ</td>
<td>953 635</td>
</tr>
<tr>
<td>USAID</td>
<td>1 279 853</td>
</tr>
<tr>
<td>World Bank</td>
<td>75 563</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>44 667 230</strong></td>
</tr>
</tbody>
</table>

*a* The Global Programme on AIDS activities ended in 1995. However, funds have been provided for settlement in 1996 of unpaid obligations as at 31 December 1995.

With regard to staffing, gender equality has been an important issue in recent years, as it has throughout the United Nations system. The agenda item on "Full involvement of women in all aspects of the work of the Western Pacific Region" at the forty-seventh session of the Regional Committee in 1996 provoked a lively debate. The Regional Director explained to the Committee that a target of 20% for the recruitment of women in professional and higher graded posts had been established by the World Health Assembly in 1979. This had been raised to 30% in 1985. He explained that the Regional Office had exerted considerable efforts to increase the involvement of women, not just among full-time staff, but also among consultants. However, he pointed out that it was not always easy to locate and recruit women for higher-level positions. By the time the subject was raised again, in Sydney in 1997, the global targets had increased still further; the Fiftieth World Health Assembly having specified that, by 2002, 50% of new appointments should be women. While the committee generally welcomed the drive to increase the participation of women in WHO's activities, several representatives observed that, at the national level, their countries did not experience any discrimination against women (in the case of the Pacific island countries, this was largely accredited to matrilineal societies).

By 1994, computer facilities had been upgraded and shifted to a Windows environment. The Region also computerized the Regional Information System (RIS) for management and implementation monitoring. The RIS has been adapted for use by two other WHO regions. The Regional Office has taken an active role in the development of a new global activity management system.
The E-mail system has been extended to all country offices in the Region, with the exception of the WHO office in Kiribati where the technology is not yet available.

An Internet website for the Regional Office is being developed. It will contain full text of some regional documents, such as the Regional Director’s report, and technical information.

Sessions of the Regional Committee

The forty-fifth session of the Regional Committee was held in Kuala Lumpur, Malaysia, from 19 to 23 September 1994. The Regional Committee endorsed *New horizons in health* and asked the Regional Director to transmit it to the Director-General as part of the Region’s contribution to the updating of WHO’s policy and mission. The Regional Director began the debate by drawing attention to the fact that the document had been prepared in response to the report of the Sub-Committee, which had asked him to prepare a report reassessing the role of WHO in the Region. He went on to explain that:

The Region had developed economically and socially to a point where the basic infrastructure and educational levels were virtually all in place. The initial momentum had been established. The question that had to be asked when preparing for the future, was how to ensure that health and the environment were not damaged by the economic progress for which people had worked so hard. He wanted to explore the best way to encourage and enable people to help themselves to avoid disease and disability and to develop lifestyles and environments that supported positive health. Even the simplest health actions, such as taking children for immunization, or boiling drinking water, could start from the earliest days of life, and could have an effect on health protection or healthy lifestyles all through life.

*New horizons in health* was welcomed by all the speakers in the debate. Their views were summed up by the representative of Malaysia: "The emphasis on protecting health rather than treating disease, on self awareness, self-help, and the role of the individual, was the right one". The Regional Director presented a revised version of the document at the following year’s session in Manila. One of the main changes was the expansion and modification of the indicators that were proposed to help countries to monitor their health status. In response to a query from the representative of New Zealand, the Regional Director stressed that it was not intended that all countries should adopt all indicators; the lists of indicators were put forward as suggestions and each country should adopt those most suited to its needs. In a resolution adopted at this session, the Committee requested the Regional Director to establish a minimum set of indicators.

The forty-sixth session also debated one of the most contentious subjects ever to come before the Regional Committee: the health implications of nuclear testing in the Pacific. This was not the first time the issue had been discussed. The Twenty-sixth World Health Assembly had adopted a highly critical resolution in 1973, despite the arguments of Professor Aujaleu of France that: "although the risks [of nuclear testing] could not be said to be absolutely zero in the strict scientific sense of the word, they were extremely low". When the WHA resolution came to be discussed at the Regional Committee later in 1973, the representative of France, had restricted himself to pointing out that: "...in his capacity as Director of Health in French Polynesia, he was in a good position to comment on the experiments being conducted in the area. The health personnel in French Polynesia consisted of approximately 800 persons, including some 50 government medical officers and some 20 private practitioners. Nothing in their reports suggested that the experiments had had any effect on the health of the people". The issue was raised again at the thirty-fifth session in 1984, when the representative from Vanuatu requested that the subject should be an agenda item at the following session. This provoked some disagreement among members of the Committee, with representatives of Papua New Guinea and Tonga agreeing that testing of nuclear weapons and dumping of nuclear waste represented a serious health risk and should be discussed, and the representatives of New Zealand and the United States of America and the Regional Director arguing that this was a global, rather than a regional matter, which should be dealt with at the World Health Assembly or the United Nations General Assembly. The compromise that was reached was that no resolution would be adopted but that the discussion should be recorded in the summary records.

On 5 September 1995, six days before the beginning of the forty-sixth session of the Regional Committee, France conducted a nuclear test at Mururoa. When the session opened, the representative of Cook Islands, the country closest to the French testing ground, put forward a draft resolution calling on governments to cease testing nuclear weapons immediately. The great majority of the speakers supported the motion. However, the representative of the United States suggested that the United Nations General Assembly would be a more appropriate forum for such a discussion. For his part the representative of France pointed to two studies which "concluded that the Mururoa
tests were quite harmless”. Both arguments were concisely dealt with by the representative of Solomon Islands:

...in his view the Regional Committee was indeed the correct forum in which to raise the issue since nuclear tests were currently being conducted in that Region. If such tests were harmless, as claimed, governments insisting on conducting them should do so in their metropolitan territories.

The draft resolution included a call for "those governments intending to test such weapons to desist from doing so immediately". In the event representatives were unable to achieve consensus on the removal of the word "immediately", as requested by the representative of France. The draft resolution (including the word "immediately") was put to the vote and adopted by 24 votes to 1 with 2 abstentions.

Crowded cities are often unhealthy cities

Health status of the Region

The Western Pacific Region has always contained some countries with relatively poor indicators and others with good indicators, but the picture is a dynamic one. Some countries, such as Japan and Singapore, have over 50 years progressed from being almost overwhelmed by communicable diseases and nutritional problems to being able to present some of the best indices in the world. In fact, Japan has the highest life expectancy in the Region. At any point over the last 50 years the Regional Office would have been able to point to countries which, through improved economic circumstances and sound public health policies, were progressing through what has been called the "epidemiological transition".

The Third Evaluation of the Implementation of the Strategy for Health for All provides a snapshot of the health status of the Region in the mid-1990s. The document classifies countries according to whether they are at the early, middle or late stages of the epidemiological transition.

The Evaluation indicates that Cambodia, the Lao People's Democratic Republic and Papua New Guinea all contain segments of the population that are experiencing the early stage of epidemiological transition. Although not specifically mentioned in the evaluation, several Pacific island countries are also at this stage. Tuvalu, for example, is one of four countries and areas in the Region with a maternal mortality ratio above the regional target of 300 deaths per 100 000 live births (Figure 6.4).

Fiji, Malaysia, the Federated States of Micronesia, Mongolia, the Philippines and rural areas of Vietnam include populations in the middle stage of the epidemiological transition. Maternal mortality and morbidity remain problems in such populations. So too do some communicable diseases, such as tuberculosis, malaria and, in some of these countries, HIV/AIDS. Yet these countries are also affected by emerging problems such as traffic accidents, ischaemic heart disease, stroke and cancer.

Australia, Cook Islands, Hong Kong, Japan, Nauru, New Zealand, the Republic of Korea, Singapore and urban China are all in or approaching the later stage of the epidemiological transition. In the words of the evaluation, the fact that countries such as Japan and Singapore have proceeded through the epidemiological transition "at an extraordinarily rapid rate" is because "they have achieved excellent health service provision for all citizens, including near universal immunization, plus
education and health-related infrastructure (water, transport, sewerage, etc.)

In such countries, the ageing of the population, ischaemic heart disease (Japan is an exception), hypertension, diabetes, lung, breast, colon and prostate cancer are rising:

For example, during the past 40 years, deaths due to lung cancer in males in Japan have risen by approximately 800% and in the same period deaths due to breast cancer in Singapore have doubled. While lung cancer death rates in Japan and breast cancer death rates in Singapore remain less than in, for example, Australia, the trends are very worrying.

The increased prevalence of these noncommunicable diseases, coupled with growing populations of older persons throughout the Region, draws attention to the third stage of life identified in New horizons in health: quality of life in later years. The proportion of older persons to the total population varies widely between countries, from about 4% in Cambodia to about 20% in Japan. Overall, the populations of the Western Pacific Region are expected to age more quickly than the world population. By the year 2050 the Region is expected to have 20% of its population over the age of 60 years compared to the global percentage of 16%. This will have major implications for the disease profiles of virtually every country in the Region.

The health status of the Western Pacific Region has undoubtedly improved during the 50 years since the founding of WHO in 1948. Two important statistics demonstrate this quite clearly. Life expectancy at birth in 1950 was 45 years, by 1995 it was 70. The infant mortality rate in 1950 was 71.5 per 1000 live births, by 1995 it had dropped to 39. Many of the communicable diseases that were prevalent in the Region in the late 1940s have been eradicated or virtually so. Yaws, trachoma, poliomyelitis, leprosy – these are all diseases that used to afflict millions of people, yet which have now either disappeared or are confined to small areas of the Region. Greater prosperity is one

Figure 6.4 Estimated maternal mortality ratios in selected countries, 1995

Note: in 1997, the representative from Papua New Guinea informed the Regional Committee that a preliminary report indicated that the maternal mortality ration in Papua New Guinea had been reduced to 300 per 100 000 live births (Document WPR/RC48/1:93).

reason for this improvement, but public health interventions, carried out mainly by national governments with extensive support from WHO, have also played an important role. Immunization rates, for example, have soared in the last 50 years (Figure 6.5).

Nevertheless, health improvements have not been uniform. It has already been noted that the Region still contains some countries at the early stage of the epidemiological transition, but as the Third Evaluation pointed out: “There are pockets of disadvantaged people in all otherwise well-off countries”. Furthermore, for some diseases, such as tuberculosis, the number of cases has actually increased in the last 20 years. Even for countries such as the Philippines, which has shown a slight decrease in the number of cases since 1975, the picture has been erratic (Figures 6.6 and 6.7.)
Added to these disturbing epidemiological trends are population projections that seem certain to have a negative effect on the overall health of the Region. On the positive side, China's population (which increased from 563 million in 1950 to 1138 million in 1990) shows signs of levelling off. The estimated population of China in 1998 is 1246 million, an increase of 9.5% over eight years. Current projections for 2023 (i.e. by WHO's 75th anniversary) are for a population of 1405 million, an increase of only 13% over 25 years. However, population data from other countries in the Region are far less encouraging (Figure 6.8). There is no doubt that population increases of this magnitude, if sustained, will lead to serious public health problems.

Activities carried out by WHO in the Region

One of the most notable achievements of WHO in the 1980s and 1990s has been the virtual eradication of poliomyelitis from the Region. The last wild-poliomyelitis-associated case to be reported was more than one year before this book went to press, on 19 March 1997, in Cambodia. It is possible that this may have been the last case in the Region. This is in contrast to 1993, when of the 2675 cases of acute flaccid paralysis that were reported in the Region, wild poliovirus could be isolated from 269. The dramatic achievement of the Expanded Programme on Immunization is illustrated in Figure 6.5. The strategy has been to conduct massive annual national immunization days (NIDs), supplemented by high-risk response immunization (HRRI) in areas of recent poliovirus circulation. Approximately 106 million children under five years of age have been immunized with poliovirus vaccine during each low transmission season since 1992.

Figure 6.5 Immunization coverage in the Western Pacific Region, 1950 and 1995 (%) a Immunization data from 1950 are only approximate EPI campaigns in the 1990s have been conducted on a scale never before attempted. Yet WHO doctors from the 1950s and 1960s would have recognized many of the techniques employed by today's EPI team. The immunization teams operating in the last forms of poliovirus transmission on the Mekong River have moved from house to house or from boat to boat in much the same way as doctors conducted smallpox immunization in the 1960s.

In order for WHO to respond quickly and effectively to disease outbreaks in the Region, an outbreak response task force was established in April 1996 and stockpiles of supplies and equipment needed for emergency response were set up. This mirrored developments at WHO Headquarters, where a new Division on Emerging and Other Communicable Diseases had been set up. The task force's capacity to respond to disease outbreaks was quickly tested. In July 1996 there was an outbreak of diphtheria in the Lao People's Democratic Republic. Five hundred vials of diphtheria anti-toxin were immediately delivered by WHO to the affected areas and a plan was drawn up with the Government for mass immunization against further outbreaks. In view of the likelihood of similar outbreaks occurring in future, in 1996 the Regional Committee adopted "management and control of new, emerging and re-emerging diseases" as a seventh regional priority. Since then the Regional Office has responded rapidly and effectively to a number of outbreaks, including influenza A (H5N1), known as avian influenza, in Hong Kong, China, and dengue fever in Fiji. With regard to avian influenza, WHO provided support for the Hong Kong Government and led a mission into Guangdong province in southern China which found no human cases of influenza A (H5N1) strain. In December 1997 a dengue epidemic with over 15 000 clinically suspected cases broke out in Fiji. Insecticides and equipment from WHO's stockpiles in Suva were used to conduct spraying campaigns

Figure 6.6 Comparison of tuberculosis outcome measures in the Philippines, as measured by the 1981–1983 and 1997 National Tuberculosis Prevalence Surveys

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of radiographic abnormalities suggestive of tuberculosis (ages ≥ 10 years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4.20%</td>
<td>4.20%</td>
</tr>
<tr>
<td>Minimal lesions</td>
<td>2.50%</td>
<td>3.49%</td>
</tr>
<tr>
<td>Moderate or advanced disease</td>
<td>1.70%</td>
<td>0.71%</td>
</tr>
<tr>
<td>Cavitated disease</td>
<td>0.47%</td>
<td>0.26%</td>
</tr>
<tr>
<td>Prevalence of bacteriologically confirmed tuberculosis (per 1000 population)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Smear-positive 6.60 (9.50) 3.10 (4.30)\(^a\)
Culture-positive 8.60 (12.50) 8.10 (11.20)
Proportion of subjects with BCG scar
Among those with no BCG scar, prevalence of tuberculosis infection 54.50% 63.40%
Annual risk of infection (ARI) (based on children aged 5–9 years) 2.50% 2.30%

\(^a\) This became 6.02 per 1000 population, after adjustment for differences in smear findings between the surveys.

\(^b\) Figures in brackets denote the observed prevalence in those examined, i.e. persons aged 10 years or more.

**Figure 6.7 Notification rate for tuberculosis in the Philippines (per 100 000)**

**Figure 6.8 Population of selected countries in the Western Pacific Region ('000), 1950–1990**

and WHO worked closely with all levels of Government to develop case management guidelines to ensure proper treatment and to reduce mortality.

Following the Regional Committee’s acceptance of *New horizons in health* in 1994, several meetings were held with governments to discuss entry points for collaborative efforts. One of the most significant of these was the meeting of the Ministers of Health of the Pacific Islands that was held in Fiji in March 1995. This meeting produced the Yanuca Island Declaration, which focused on three...
main areas. First, the concept of Healthy Islands was adopted as the unifying theme for health protection and health promotion in the island nations of the Pacific. Second, in relation to improving the health workforce, greater networking was urged; in particular the role of the Fiji School of Medicine was stressed. Third, the Ministers agreed to collaborate to promote rational drug use and to investigate the benefits of establishing a bulk purchasing scheme for Pacific island countries.

This path-breaking meeting was followed up two years later in Rarotonga in the Cook Islands, when Ministers of Health met to discuss implementation of the concepts agreed on in Yanuca. The main conclusions of the Rarotonga Agreement, “Towards Healthy Islands”, that resulted from this meeting were that: departments of health should formulate Healthy Islands Plans of Action for submission to the governments; training programmes should be re-orientated towards Healthy Islands, with particular attention being paid to the development of mid-level practitioners; given the problems of implementing a comprehensive bulk purchasing scheme for pharmaceuticals for Pacific island countries, alternative arrangements should be investigated; and the use of traditional medicine should be encouraged.
Chapter 7. Organization of health systems

During the last 50 years, WHO has made significant contributions to the development of health systems in almost all countries and areas of the Western Pacific Region. Throughout the Region, basic health infrastructures are in place to meet health needs at national and community levels. With the exception of a few least developed countries, health for all targets have been or are close to being achieved through the overall strategy of primary health care.

Despite the achievements of WHO in the organization of health systems in the Western Pacific, all countries and areas, in varying degrees, still face problems of equity of access, quality and efficiency. In addition, it is anticipated that changes in disease patterns, urbanization, ageing populations, technological advances and the restructuring of global economic and political systems will lead to a new set of health challenges in the future.

THEN AND NOW

The early years

Of the 37 countries and areas presently within the Western Pacific Region of WHO, only nine had their own health administrations and collaborated directly with the Regional Office during WHO’s first decade of existence. The rest were under the jurisdiction of the colonial administrations of France, the Netherlands, Portugal, the United Kingdom of Great Britain and Northern Ireland, and the United States of America or under United Nations jurisdiction.

Three of these countries, Australia, Japan, and New Zealand, already had well developed health systems which by 1958 had the capacity to deliver the full range of health services available at that time. Recovering quickly from the Second World War, by the end of WHO’s second decade, these countries had controlled most communicable diseases (acute respiratory infections, diarrhoeal diseases, leprosy, malaria and tuberculosis) and their health status indicators had reached developed country levels. In varying degrees, health services were supported by a mix of public and private sector resources in all three of these countries. The systems of Australia and New Zealand were influenced heavily by the model of the United Kingdom National Health Service, while Japan adopted a mixture of the American and continental European systems. Health services in these countries improved during the 1950s and 1960s.

The other six countries with their own health administrations during the first decade – Cambodia, China (Taiwan), the Lao People’s Democratic Republic, the Philippines, the Republic of Korea, and Viet Nam – had poorly developed health systems. Most of their populations had little or no access to health services, resulting in poor health status indicators. These included high infant and child mortality rates, high maternal mortality ratios, and low life expectancies. By the Organization’s 25th year, Malaysia (1958), Samoa (1962), Singapore (1966), Fiji (1972) and Papua New Guinea (1972) had joined WHO and were members of the Western Pacific Region. These five countries had comparable health status levels and health systems with varying capabilities for service delivery.

The 1970s and 1980s

By the late 1970s and early 1980s, the health systems of many countries of the Region were sufficiently developed to be able to effect significant improvements to the populations they served. Australia, Japan and New Zealand had health systems that compared favourably with those anywhere in the world. National, intermediate and community-level health facilities and services were in place in Malaysia, the Philippines, the Republic of Korea and Singapore, based on British or American models or a mixture of the two. The People’s Republic of China had a socialist health care delivery system while Hong Kong and Macao continued to use the models of their respective metropolitan administrations. The Pacific island countries, including Papua New Guinea, were just emerging from the colonial period and the special problems of health care delivery for small isolated communities were only beginning to be addressed. Decades of violence had finally ended in the Lao People’s Democratic Republic and Viet Nam, allowing health development programmes to be initiated, while civil strife persisted in Cambodia.
WHO’s Seventh General Programme of Work covering the years 1984 to 1989 was the first to cover the implementation of the Organization’s health-for-all strategy following the Alma-Ata Declaration on primary health care. During this and the succeeding periods, the adoption of primary health care accelerated health services development in almost all countries and areas of the Western Pacific. Operations research had provided models of health service delivery and emphasized the importance of health systems research in their continuing development. Planning and management models were developed to meet the changing health needs of countries in different circumstances.

The 1990s

By the mid-1990s, health infrastructures comprising facilities, management systems and appropriate human resources were in place in most countries and areas. By WHO’s 50th anniversary, the health-for-all targets had been or were close to being achieved in most of the Region. There are, however, a few exceptions. Health development in the Lao People’s Democratic Republic has been slowed by economic problems and the lingering effects of decades of conflict. In Cambodia, it is only recently that levels of violence have subsided sufficiently to allow the infrastructure for health to be built up. The development of human resources in adequate numbers and at appropriate levels continues to be a major concern for Papua New Guinea and some of the smaller island countries of the Pacific.

WHO ACTIVITIES

Vertical programmes and national health services

In the first years of the Organization, the major WHO programmes emphasized the control of specific diseases such as leprosy, malaria, and tuberculosis; delivery of services to particular groups such as mothers and children; and ensuring access to clean water and proper waste disposal. Early on it was recognized that, at the country level, the execution of these vertical programmes in response to governments’ requests could only be accomplished effectively by strengthening national health services. Thus by the end of the first ten years of the Organization, collaboration with governments to improve their health services had become one of WHO’s major activities. An important part of WHO’s support to countries was personnel training, including fellowships, strengthening of national institutions and other educational activities. Training activities are discussed in greater detail in the chapter on human resources for health.

In a number of countries, systems for the delivery of vertical programmes became the nucleus for further development of integrated health services. In the Philippines, for example, centres for maternal and child health services developed into rural health units. In Solomon Islands, health stations were organized around malaria control.

Strengthening of health services

By the early 1970s, the strengthening of national health services had become one of WHO’s major priorities. The Fifth General Programme of Work stated that “the development of strong national health services constitutes the most important single factor for the attainment of the highest possible level of health in any country”. The Twenty-third World Health Assembly acknowledged this in a resolution entitled “Basic Principles for the Development of National Health Services.” At all levels, it was stressed that the development of health services constituted an essential element of national plans for social and economic development.

From the beginning, it was acknowledged that there were enormous variations among countries in the way national health services were organized and managed. There were differences in the way national administrations related to local health authorities. Some countries ran hospitals services separately from preventive services. In a number of countries all health services were provided by governments. In others, private and voluntary groups were responsible for services, with governments playing only regulatory or coordinating roles.

In order to identify ways of dealing with the variety of health service administrations among countries, WHO has convened periodic meetings of experts, administrators, and service providers at global, regional and intercountry levels. The first of these was the Expert Committee on Public Health Administration convened in Geneva in 1951. The Committee reviewed the state of organization of the world’s health services. It noted that, in general, health services throughout most of the world but especially in developing countries were administered in a fragmented manner. There was insufficient coordination horizontally between different agencies responsible for different aspects of health or vertically between central, intermediate and peripheral levels of administration. The Committee made
a number of recommendations which later evolved into the principles guiding the development of health services at various levels. It also defined a concept of the smallest operational health service unit which later became the basis for the development of district and other local health systems.

With inputs from this and similar meetings at different levels, WHO’s programme on the development of comprehensive health services took form. However, as late as the early and mid-1970s, there was no clear distinction within the WHO programme structure between health infrastructure building activities and those concerned with technical substance or content. Thus the programme on comprehensive health services included content areas such as family health, mental health, nutrition and workers’ health as well as health infrastructure activities such as health policy formulation, primary care, management of services and human resources for health. The interconnection between infrastructure building and health programmes became the framework for the basic health services approach to the strengthening of health care delivery. In 1977, WHO defined the goal of basic health service delivery as “Health for all by the year 2000”.

**Health system infrastructures**

During the implementation of WHO’s Sixth General Programme of Work (1978–1983), the need for systematic efforts to build up health system infrastructures became evident. Without such infrastructures, delivering health care in an integrated manner to all peoples, it would not be possible to deliver health programmes effectively and efficiently. Thus activities to develop the necessary components of effectively functioning health systems were initiated in all countries of the Region. These included improving the capacity to collect and use data on health situations and to assess trends, establishing a continuous managerial process from planning to monitoring and evaluation during implementation, and instituting of health systems research as a means of modifying structures and functions to suit changing needs. The crucial role of appropriately trained and adequately motivated human resources as the key components of any health infrastructure was also recognized.

In the 1970s there was also a growing realization that health development could not be effected by the health sector acting in isolation. While continuing to develop mechanisms for cooperation, coordination and integration between the different components of health systems, it would be necessary for the health sector to establish linkages with other sectors involved in community development. The international health community led by WHO therefore engaged in a series of discussions towards the end of the decade which led to the crystallization of the concept of primary health care. In the Western Pacific Region, an important conference on primary health care took place in Manila, the Philippines, in November 1977. All these activities culminated in the International Conference on Primary Health Care in September 1978 at Alma-Ata in what was then the Union of Soviet Socialist Republics. The conference issued the Declaration of Alma-Ata which led to the adoption of primary health care as the basis for the development of health system infrastructures to deliver health programmes to all peoples.

**Organization of health systems based on primary health care**

The Thirtieth World Health Assembly in 1977 decided that the main social target of governments and of WHO would be the attainment by the year 2000 of a level of health that would permit all peoples to lead a socially and economically productive life. This was embodied in resolution WHA30.43 which became the basis of the slogan “health for all by the year 2000”. Two years later, the Thirty-second World Health Assembly, through resolution WHA32.30, launched the Global Strategy for Health for All, endorsing the Report and Declaration of Alma-Ata. Following this, in November 1979, the United
Nations General Assembly, adopting resolution 34/58, endorsed the goal of health for all by the year 2000 and called on the various United Nations bodies to support WHO in its efforts.

Having established this goal and having set targets to measure its attainment, steps were taken to identify ways of ensuring that available resources were efficiently utilized and new resources found. Wherever possible, countries were urged to integrate existing health systems that consisted of diverse institutions geared to providing services to those who came to them rather than to the needs of the community as a whole. Support was also provided to develop improved management and decision-making capabilities in many countries.

These various international actions gave rise to recommended national health policies designed to support the development of health systems. Primary health care was to be the central function, in line with the recommendations and details of the Report of the Alma-Ata Conference. Health systems were defined as interrelated components in, among others, homes, schools, workplaces, communities, and the health sector. The health infrastructure was to deliver a variety of health programmes and provide health care to individuals, families and communities. Promotive, preventive, curative and rehabilitative health services were to be carried out at various levels, special attention being paid to the initial point of contact between the individual and the system, i.e. where primary health care is delivered. The intermediate and central levels, where specialized services were available, were seen as supporting primary health care.

Primary health care as the key to attaining health for all was defined as follows:

Primary Health Care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country’s health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where the people live and work, and constitutes the first element of a continuing health care process.

In 1986, the first evaluation of the strategy for health for all by the year 2000 was carried out. By that time most countries and areas in the Western Pacific had reoriented their health systems towards primary health care. This meant that many changes had taken place: restructuring and reorganization of ministries of health; establishment of improved mechanisms for coordination within the health sector; and reorganization of the health care delivery infrastructure.

Basic health services and primary health care

Prior to the adoption of primary health care, the concept "basic health services" defined the content of the service packages made available to communities. These included activities which were to become essential elements of primary health care, namely: health education, nutrition, water and sanitation, maternal and child care, prevention and control of locally endemic diseases, immunization, treatment of common ailments, and provision of essential drugs. In many instances, each of these services was made available in vertical programmes delivered by a network of administrative
By the end of the 1970s, the development of basic health services was moving towards decentralization, integrated approaches to the provision of health care, intersectoral coordination, community participation, more reliance on non-professional village-level health workers and the development of appropriate technology for health. These trends were given added impetus by the adoption of the concept of primary health care in the Western Pacific Region. Almost as soon as the Alma-Ata Declaration was adopted, research and development activities began in almost all countries to develop models to adapt basic health services components to the emerging concepts of primary health care.

For governments, the adoption of the primary health care approach required a reassessment of existing health delivery systems and a search for new structures supported by appropriate planning mechanisms. Thus major activities in health services development in the late 1970s and early 1980s took place in research and development, planning and management, and the exchange of information and experience.

Countries approached the development of primary health care in a variety of ways. China already had a well-established "barefoot doctors" programme that many countries used as a basic model. In Pacific island countries and areas, village health aides were trained in countries, such as Solomon Islands, where there was a dearth of health professionals. The Republic of Korea used a community development approach. The network of health extension officers and aid post orderlies in Papua New Guinea was strengthened. The Philippines began to train community health workers within a framework of research and development projects. Viet Nam mobilized communities as its health service network was reconstructed after the war.

Strengthening planning and management capacities of countries and areas was a major area of concern in the organization of health systems based on primary health care. By 1987, most countries were routinely preparing health plans as part of their national development plans. Management training, initially directed at national level officials, was extended to staff at intermediate and peripheral levels. In 1986, the WHO Learning Centre in the Regional Office was established, offering a unique form of training in communication, management, and leadership in pursuit of WHO’s health-for-all goals.

**District health systems**

During the early stages of the implementation of primary health care, it became clear that comprehensive health service delivery to individuals and families would be achieved only with technical and managerial support from higher levels of health care. It was determined that the intermediate levels of administration would be crucial in ensuring that this sophisticated support reached the point where primary health care was delivered. By mid-1980s, WHO had identified that district health systems, with particular reference to first-level referral hospitals, were one of the weakest aspects of health services in most countries and needed strengthening. In 1986, the Thirty-ninth World Health Assembly adopted a resolution urging Member States to lay particular emphasis on the development of district health systems to support primary health care.

A series of activities aimed at strengthening district level support for primary health care was begun by the Regional Office in 1986. The Regional Office organized the first regional workshop on health facility planning and development in Tokyo, Japan, in October 1986. This was followed by a biregional conference on technology transfer in 1987. In 1988, two consecutive meetings held in Seoul, the Republic of Korea, and Tokyo, Japan, examined the design, planning, and development of district health facilities. These activities led to the development of guidelines for the development of district hospitals, the second edition of which was published in 1996.

In 1986, WHO’s Global Programme Committee defined the district health system as follows:

A district health system based on primary health care is a more or less self-contained segment of the national health system. It comprises first and foremost a well-defined population, living within a clearly delineated administrative and geographic area, whether urban or rural. It includes all institutions and individuals providing health care in the district, whether governmental, private, or traditional. A district health system therefore consists of a large variety of interrelated elements that contribute to health in homes, schools, workplaces, and communities. It includes self-care and all health workers and facilities up to and including the hospital at first referral level and appropriate laboratory, other diagnostic and logistic support services. Its component elements need to be well coordinated by an officer assigned to this function in order to draw together all these elements and institutions into a fully
comprehensive range of promotive, preventive, curative and rehabilitative health activities.

A district, in the generic sense, denotes a clearly defined administrative area with a population ranging from 50,000 to 100,000, which is considered to be the catchment area of a general hospital for referral. The actual organization of district health systems depends on specific country situations. Isolated communities in some Western Pacific countries or territories, such as small Pacific islands surrounded by water and nomadic settlements surrounded by desert, have special requirements for technological support to primary health care. Nevertheless, the district health model defines the common characteristics which apply to the majority of communities in the Region.

Health systems research

WHO has long recognized that the development of health systems, like all other aspects of the Organization’s work, depends on inputs from a continuously expanding knowledge base. WHO has therefore promoted several methods of investigation and research in the field of health services and health systems research. The Fifth General Programme of Work made this direction explicit in the following terms: "Systems analysis, operational research, and the normative approach will all contribute to the planning process. Methods of cost-benefit and cost-effectiveness analysis of alternative plans will be applied as ancillaries to priority determination. Norms and standards for health programmes, resources and institutions, including their distribution, will be used as a basis for comparison by countries. Health statistics will be increasingly harnessed for planning purposes."

During the late 1960s and early 1970s, operations research methods were tried out in Malaysia, Papua New Guinea, the Philippines and the Republic of Korea. Such projects contributed to the development of standards and guidelines for the operation of peripheral health facilities at local and community levels. Participation of health staff in these activities promoted the awareness that research was an integral aspect of ensuring that health programmes remained relevant to health needs.

As the era of primary health care began, the importance of research in health systems development became even more crucial. During the period 1976 to 1981, the Western Pacific Advisory Committee on Medical (later Health) Research through its Task Force (later called the Sub-Committee) on Health Services Research identified health services issues requiring research support. The recommendations of this body were reviewed in early 1982 by a meeting of the Scientific Group on Research Needs for Health for All by the Year 2000 in Manila, the Philippines. Globally, the concept of health systems research, including its content and principles, was reviewed by a WHO study group meeting in Geneva, Switzerland, in October 1982 that validated the value of research for the future development of health systems. The deliberations of these and subsequent forums provided the basis for the development of a network of institutions in different countries that supported national health agencies in the area of health service research.

Financing of health services

At the start of WHO’s second decade, the emphasis given to national health planning gave rise to an increased awareness of the relationship of health development to general socioeconomic development. In the Western Pacific Region, in 1964, a seminar held at the Regional Office stimulated interest in national health planning as a component of economic development.

Article III of the Declaration of Alma-Ata recognized the importance of this linkage thus: Economic and social development ... is of basic importance to the fullest attainment of health for all and to the reduction of the gap between the health status of developed and developing countries. The promotion and protection of the health of the people is essential to sustained economic and social development and contributes to a better quality of life and to world peace.

Programmes were developed to apply methods of economic and financial analysis to health issues. Led by WHO, national health agencies began to develop capabilities in the area of health financing that would enable them to participate actively in decisions on the distribution of resources and to promote the allocation of more such resources to health services. To this end countries of the Western Pacific Region participated in a series of global and regional meetings dealing with the social and economic aspects of primary health care. Representatives of Malaysia and the Philippines attended a workshop on financing of health services in Mexico in 1979. In 1980, the Republic of Korea participated in the WHO/UNICEF Interregional Workshop on Cost and Financing Patterns of Primary Health Care held in Geneva, Switzerland. In the same year, countries from the Region attended a seminar on health and medical sociology with particular reference to the economic aspects of primary health care in Yokohama, Japan. In this connection, WHO collaborated with
countries in supporting the Twentieth General Assembly of International Social Security Associations
held in Manila, the Philippines, in late 1980.

WHO’s collaboration was instrumental in developing the capacities of countries to deal with health
financing issues. In the Republic of Korea, the Korea Health Development Institute played a central
role in a review of the organization and financing of health services, leading to the development of a
national health insurance programme. Singapore developed training programmes in health
economics that enabled health staff to acquire skills for the redesign of the country’s health financing
packages. In Malaysia, a health financing unit was established in the Ministry of Health, while health
economics was established as a programme at the University of the Philippines School of Economics.

Health systems reform

In the last half of the 1980s and the beginning of the 1990s, the health sector became aware of the
growing disparity between the resources available for health and increasing demands on health
systems. At global and regional levels, the triad of accessibility, affordability and quality in the delivery
of health services was increasingly difficult to sustain, even for the most economically advanced
countries. This was occurring at a time when developing countries were just beginning to meet their
health-for-all goals. At this time free market forces began to play an increasing role in the
determination of health resource allocations. WHO responded by joining with its members in their
efforts towards health systems reform.

In the Western Pacific Region, the current movement towards health systems reform was led by the
developed countries of Australia, Japan and New Zealand. The emerging economies of Hong Kong,
Malaysia, Singapore, and the Republic of Korea also recognized the need to re-examine their health
systems. Four of these countries and areas (Australia, Hong Kong, New Zealand and Singapore)
came together in a landmark symposium on health systems reform sponsored by the Regional Office
in Wellington, New Zealand, in May 1994. The symposium outlined a framework for reform based on
recent developed country experiences that would be useful in re-orienting the directions of the rest of
the Region’s still developing countries.

ACHIEVEMENTS

WHO successfully supported the installation of national health planning and management capabilities
in countries where none had previously existed. In countries that already had some planning and
management capacity, WHO helped to strengthen this capacity. In addition, research and
development as an integral part of the planning and management process was institutionalized in
most countries and areas of the Region. Throughout the Region academic institutions developed
strong public health programmes with multidisciplinary approaches that contributed not only to
national health development but also to strengthening of similar institutions and programmes
elsewhere in the Region. For island countries of the Pacific, planning and management tools were
adapted to suit the development of health services specifically for their small isolated communities.

In all countries and areas of the Region, WHO has helped the respective health sectors to become
aware of the need to coordinate with other sectors in developing health policies that will ensure
rational allocation of resources. WHO’s promotion of health legislation enactment and reform has
meant that nearly all countries in the Region have reviewed existing health laws as the legal basis for
policy formulation.

WHO’s emphasis on the role of research and the collection of reliable health information has
encouraged countries to develop and utilize their own research infrastructures to support initiatives for
changing or reorienting health policies.

In the Western Pacific Region, most health-for-all goals had been achieved by most countries at the
end of WHO’s first 50 years. However, even in those countries that have had difficulty achieving the
goals, the primary health care strategy has succeeded in installing the necessary structures and
values for national health development in the future. All countries have accepted the value of focusing
health efforts on communities and families. Intersectoral collaboration is acknowledged as a
necessary condition for appropriate health development.

Health for all is now the basis for national health development in all countries and areas of the
Region. In the management of their health-for-all policies, countries and areas have established
monitoring and evaluation processes that can be used beyond 2000.

Throughout the Region, the necessary basic health infrastructure (including policies, systems and
procedures and physical facilities, from the most peripheral health stations to intermediate or district level secondary care facilities) is now in place. The development of human resources for health in almost all countries is covered by sound policies providing for planning, training and management of present and future health personnel.

WHO’s early recognition of the close link between health and socioeconomic development enabled the Organization to support countries to prepare for the emergence of market forces as a major determinant of the structure and function of health care systems. By providing external expertise and organizing meetings, WHO worked with Member States to identify common principles to guide the response of their health systems to the rapid changes in the world’s socioeconomic and political structures in the late 1980s and early 1990s. WHO has supported studies covering various forms of health care financing and management.

UNDERACHIEVEMENTS

Despite the Region’s success in establishing the necessary basic infrastructure for health service delivery in most countries, a few countries continue to have problems serving the basic health needs of their people. The health infrastructures of the countries in this category, such as Cambodia, the Lao People’s Democratic Republic, Papua New Guinea, Solomon Islands and Vanuatu continue to have deficiencies in one or more health service components. The most important of these is the lack of appropriately trained and motivated health staff. For this reason, large segments of the populations of these countries continue to be inadequately served.

Even in those countries with adequately functioning infrastructures, there are population pockets that are either unserved or underserved by the health system. Some are underserved, such as the indigenous peoples of Australia and New Zealand and some of China’s minorities, by virtue of uneven cultural and social development. Geographic isolation in other countries in remote border areas of China, mountainous regions of Viet Nam, small island communities of the Philippines and the Pacific island countries has proved a constraint to equitable delivery of health services.

Maldistribution of health resources means that the quality of service suffers, as does cost effectiveness. Maldistribution may be geographic (between rural and urban), socioeconomic (between rich and poor communities), or programmatic (curative and rehabilitative as against promotive and preventive). In all countries in the Region, including developed countries, the health sector continues to search for a framework that will take account of cost considerations, the need for an acceptable level of technological quality, and the efficiency differences between institutional tertiary care and community primary care.

In the 1950s and 1960s, health programmes were delivered predominantly through vertical approaches. Parallel vertical structures from global, regional and national levels down to intermediate and peripheral levels were developed for maternal and child health, immunization services, and most disease control programmes. This approach had the advantage of focusing resources, including staff attention, on narrow but important problems. However, at the peripheral levels where actual delivery took place, programmes were often competing for staff time and resources, leading to fragmentation. To date, health agencies are still struggling to achieve a reasonable balance between vertical and integrated approaches to health care delivery.

Another health management issue that requires rethinking in terms of attaining a balance that will optimize effectiveness and efficiency is that of administrative decentralization. The Western Pacific Region has examples of a whole spectrum of administrative styles from the highly centralized pre-1990 structures of the socialist economies of China, the Lao People’s Democratic Republic, Mongolia and Viet Nam, to Papua New Guinea’s experiments with provincial autonomy and the Philippines’ devolution of health service responsibilities to local governments. From this spectrum, the Region’s countries are still sorting out the various advantages and disadvantages that would best suit their own situations.

The Declaration of Alma-Ata and the adoption of primary health care as the main strategy to achieve health for all firmly linked the development of the health sector to that of other sectors. As a result, economic development agencies, at national and international levels, now recognize the need to incorporate health concerns in their planning processes. Nevertheless, even after two decades of primary health care, it is clear that, from the viewpoint of resource allocation, health is not yet a development priority in some countries and areas of the Region.

The same can be said for the international development community. The 1993 World Development Report stated that internationally the share of health in total development has declined even as
partner agencies continue to express concern about health. International financial institutions like the Asian Development Bank and the World Bank have increased the absolute level of loan funds spent on health slightly over the last 20 years but, as a percentage of total development expenditure, health has remained at less than 1%. This is notwithstanding the realization by all concerned that substantial increases in health sector support can be easily justified, given the importance of health in reducing poverty and the large gap between current and needed spending for public health programmes.

FUTURE

Health systems of the future will be influenced by a variety of factors that directly and indirectly affect health. These include the interactive effects of changing disease patterns, population distribution, and environmental factors. Health systems of the future must be prepared to deal with an increasing number of behaviourally determined health problems while maintaining capabilities to control emerging and re-emerging infectious diseases. Ageing populations that are increasingly concentrated in urban centres will reduce the need for fully equipped and staffed peripheral facilities while increasing the need for home and community level services.

Even though the long-term economic outlook for the Western Pacific Region continues to be optimistic, affordability of health services will be a major issue in the organization of health systems in the next 50 years. Improved access brought about by concentrations of population as well as improvements in transport and communications will bring about more demands on health systems. At the same time these health systems will be supported by smaller working populations. This situation will be compounded by the added health care costs resulting from the availability of services of substantially improved quality but which require ever higher levels of sophisticated technological support.

The major technological developments influencing health systems of the future are in the areas of biogenetics, body imaging, computerized information handling and communications. Advances in biological research will lead to the development of new and better antimicrobial drugs and vaccines to deal with infectious diseases; increasingly accurate means of diagnosing and predicting hereditary, degenerative and neoplasmic disorders, and production of more effective pharmaceutical remedies to alleviate and cure a wide range of human afflictions. Radiological, ultrasonographic, and nuclear magnetic resonance techniques will combine with immunology, other biological methods, and fibre-optic endoscopy to extend non-invasive body imaging not only for diagnosis but also for the delivery of therapeutic materials to diseased and damaged sites. Finally, informatics and communications systems will enable access to the most sophisticated health care methods from homes and communities even in the most remote geographic settings.

The developed economies of the Region (Australia; Hong Kong, China; Japan; New Zealand; the Republic of Korea; and Singapore) will be joined by countries with established health infrastructures (China; Malaysia; Mongolia; the Philippines and Viet Nam) in evolving models of health systems reform that will take into account the expected impact of the factors cited above. These models will enhance the ability of individuals and households within communities to assume increased responsibility for their own health. In this sense national health systems reform will build on the concepts contained in the regional policy framework, New horizons in health. Reforms will also improve the capacity of government at central, peripheral and local levels to allocate health resources effectively and efficiently. New health system models will improve on the current evaluative tools for assessing health interventions and expand on concepts such as disability-adjusted life years (DALYs) and quality-adjusted life years (QALYs). Sharing of information and experiences in these reform initiatives will be a key activity in which WHO will be expected to play an important role.

In countries that have not yet achieved present health-for-all targets, health policy reforms will have to anticipate future challenges while struggling to meet present basic needs. International support will be required in countries such as Cambodia, the Lao People’s Democratic Republic, Papua New Guinea, Solomon Islands and Vanuatu to accelerate national health development. WHO will play a key role in
ensuring that bilateral and multilateral efforts are effective and that the experiences and models developed elsewhere are adapted to these countries.

Advances in health information and communications technology will particularly benefit small isolated communities. The application of telemedicine, currently in its early stages in the Pacific, should help to resolve the difficult question of access to high-quality care for island countries that cannot now or in the future afford to maintain the entire range of services to meet all their health needs. WHO will take the lead in promoting the establishment of linkages between health facilities and more sophisticated health institutions throughout the Region.

In the light of these future projections, "health for all" has been redefined as "a process leading to the progressive improvement in the health of people, and is not a single finite target". The expanded view of the primary health care strategy as defined by the concepts of New horizons in health provides a framework for the health-for-all process into the 21st century. Efforts will be made to ensure that health systems of the future will feature specific services that focus on the various stages of life and take into account the settings in which people live or work.

The first challenge is to address the issue of equal access to health care. Notwithstanding continued economic improvements, countries must still take steps to narrow the wide gap in access between the richest and the poorest population groups. In the market-oriented setting, this means that special efforts are required to provide services to those who are unable to pay.

Quality of care is the second major issue that health systems must address. Effectiveness of interventions is only one of the concerns in this area. Appropriateness and sensitivity to social and cultural settings must also be taken into account. Outcomes should be assessed not only on the basis of objective health criteria, but also on individual satisfaction and a subjective sense of well-being.

Third, there is the challenge of keeping costs affordable for individuals and communities as well as for institutions and governments. Selection of appropriate health technologies and interventions is crucial. However, care must be taken to ensure that cost considerations do not completely override social values.
Chapter 8. Human resources for health

WHO has always given priority to the development of human resources for health (HRH) as the best way for Member States to achieve self-reliance and sustainability. Health workers represent the largest portion of a country’s health budget.

The development of human resources for health is a dynamic and evolving process responding to changes in epidemiology, demography, technology and cost pressures. WHO and its Member States have made HRH an area of priority concern. An appraisal of HRH activities during the past five decades shows that collaboration between WHO and Member States has resulted in many improvements to planning, management, training and technology transfer for the development of appropriate, affordable and safe health workforces. The development of human resources for health has both qualitative and quantitative aspects. The quality of personnel employed in the health sectors of countries and areas of the Region is hard to measure or to tabulate, but the quantitative improvement that has taken place over the last 50 years in terms of numbers of doctors in countries of the Region can be demonstrated quite clearly (Figure 8.1).

Another area where progress can be clearly shown is in the number of medical faculties in the Region. Institutions for the study of medical science have existed in the Region since at least the 17th century (Figure 8.2), but it has been only in the last 50 years that medical schools have come to be located throughout the Region.

WHO ACTIVITIES

The 1950s and 1960s

Shortly after the Regional Office was established, it became apparent, particularly in the newly independent and developing countries, that the most important factor to be considered in the establishment and development of health services was the availability of trained health personnel, for

<table>
<thead>
<tr>
<th>Country/area</th>
<th>Year</th>
<th>Number</th>
<th>Per 10 000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>1952</td>
<td>8 500</td>
<td>10.00</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>14 072</td>
<td>13.15</td>
</tr>
<tr>
<td></td>
<td>1994–1995</td>
<td>43 200</td>
<td>24.00</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>1952</td>
<td>7</td>
<td>1.42</td>
</tr>
<tr>
<td></td>
<td>1961</td>
<td>12</td>
<td>1.36</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>251</td>
<td>8.50</td>
</tr>
<tr>
<td>Cambodia</td>
<td>1952</td>
<td>103</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>183</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>1 201</td>
<td>1.20</td>
</tr>
<tr>
<td>China</td>
<td>1975</td>
<td>521 600</td>
<td>5.64</td>
</tr>
<tr>
<td></td>
<td>1980</td>
<td>709 500</td>
<td>7.18</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>1 427 000</td>
<td>12.48</td>
</tr>
<tr>
<td></td>
<td>1996</td>
<td>1 922 808</td>
<td>15.71</td>
</tr>
<tr>
<td>Country</td>
<td>Year</td>
<td>Value</td>
<td>GDP PPP (US$)</td>
</tr>
<tr>
<td>------------------</td>
<td>------</td>
<td>--------</td>
<td>---------------</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1951</td>
<td>594</td>
<td>2.94</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>1 189</td>
<td>3.44</td>
</tr>
<tr>
<td></td>
<td>1963</td>
<td>1 278</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>8 122</td>
<td>13.50</td>
</tr>
<tr>
<td>Japan</td>
<td>1952</td>
<td>85 374</td>
<td>10.00</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>102 906</td>
<td>10.86</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>220 853</td>
<td>17.60</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>1962</td>
<td>49</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>945</td>
<td>2.30</td>
</tr>
<tr>
<td>Macao</td>
<td>1952</td>
<td>68</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>71</td>
<td>4.16</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>703</td>
<td>1.70</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1975</td>
<td>2 757</td>
<td>2.26</td>
</tr>
<tr>
<td></td>
<td>1980</td>
<td>3 858</td>
<td>2.80</td>
</tr>
<tr>
<td></td>
<td>1985</td>
<td>4 939</td>
<td>3.15</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>7 012</td>
<td>3.95</td>
</tr>
<tr>
<td>Mongolia</td>
<td>1961</td>
<td>1 014</td>
<td>10.52</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>5 846</td>
<td>25.40</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1950</td>
<td>2 397</td>
<td>12.50</td>
</tr>
<tr>
<td></td>
<td>1964</td>
<td>3 873</td>
<td>14.92</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>11 889</td>
<td>33.20</td>
</tr>
<tr>
<td>Philippines</td>
<td>1962</td>
<td>18 073</td>
<td>6.25</td>
</tr>
<tr>
<td></td>
<td>1963</td>
<td>18 266</td>
<td>5.88</td>
</tr>
<tr>
<td></td>
<td>1992</td>
<td>77 127</td>
<td>11.80</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>1952</td>
<td>4 716</td>
<td>2.22</td>
</tr>
<tr>
<td>Singapore</td>
<td>1952</td>
<td>381</td>
<td>3.33</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>761</td>
<td>4.34</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>4 495</td>
<td>15.00</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1960</td>
<td>489</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>77 861</td>
<td>10.40</td>
</tr>
</tbody>
</table>
| Pacific island countries/areas
  American Samoa   | 1952 | 16     | 8.33          |
|                  | 1996 | 16     | 2.80          |
| Cook Islands     | 1952 | 10     | 6.66          |
|                  | 1959 | 18     | 10.00         |
|                  | 1995 | 9      | 4.70          |
| Fiji             | 1962 | 201    | 4.76          |
|                  | 1994 | 295    | 3.80          |
| French Polynesia | 1952 | 25     | 3.84          |
|                  | 1962 | 35     | 4.34          |
|                  | 1996 | 384    | 17.20         |
| Guam             | 1952 | 14     | 2.17          |
"without workers the work will be poorly and weakly and inefficiently carried out".

The shortage of trained health personnel was a common problem in the Region. It is noteworthy that the education and training of health personnel was the subject selected for the first technical discussions to be held in connection with the Regional Committee, at its third session in 1952. These technical discussions showed the wide variations in human resources for health in the Region. In some countries there was a substantial nucleus of personnel and facilities, but the demand for more health services, brought about by new knowledge and the development of new techniques, made it necessary to revise or expand existing training programmes. At the other extreme were countries where the personnel shortage was so acute that a beginning had to be made in almost every field.

At the time the Regional Office for the Western Pacific came into being, there were 68 medical schools in existence in the Region, two of which, the Fiji School of Medicine and the Health Officers’ School in Cambodia, were for the training of assistant medical officers. The dates of establishment of selected medical schools in the Western Pacific Region are given in Figure 8.2. The pattern of medical education in the various countries was markedly influenced by the American, British, French or German systems with variations according to local conditions. The doctor/population ratio ranged from 1:725 in New Zealand to 1:95000 in Cambodia.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Number</th>
<th>Doctor/Population Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiribati</td>
<td>1995</td>
<td>12</td>
<td>2.20</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>1991</td>
<td>20</td>
<td>4.30</td>
</tr>
<tr>
<td>Federated States of Micronesia</td>
<td>1992</td>
<td>46</td>
<td>4.60</td>
</tr>
<tr>
<td>Nauru</td>
<td>1950</td>
<td>6</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>9</td>
<td>17.85</td>
</tr>
<tr>
<td></td>
<td>1963</td>
<td>9</td>
<td>17.85</td>
</tr>
<tr>
<td>New Caledonia</td>
<td>1952</td>
<td>36</td>
<td>5.55</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>48</td>
<td>5.88</td>
</tr>
<tr>
<td></td>
<td>1993</td>
<td>334</td>
<td>18.70</td>
</tr>
<tr>
<td>Niue</td>
<td>1953</td>
<td>3</td>
<td>5.88</td>
</tr>
<tr>
<td></td>
<td>1963</td>
<td>6</td>
<td>12.04</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>4</td>
<td>20.00</td>
</tr>
<tr>
<td>Palau</td>
<td>1990</td>
<td>10</td>
<td>8.20</td>
</tr>
<tr>
<td>Papua New</td>
<td>1953</td>
<td>24</td>
<td>0.58</td>
</tr>
<tr>
<td>Guinea</td>
<td>1964</td>
<td>56</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>259</td>
<td>6.40</td>
</tr>
<tr>
<td>Samoa</td>
<td>1992</td>
<td>60</td>
<td>3.8</td>
</tr>
<tr>
<td>British</td>
<td>1952</td>
<td>15</td>
<td>1.51</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>1962</td>
<td>23</td>
<td>1.78</td>
</tr>
<tr>
<td></td>
<td>1963</td>
<td>23</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>55</td>
<td>1.40</td>
</tr>
<tr>
<td>Tokelau</td>
<td>1995</td>
<td>3</td>
<td>15.00</td>
</tr>
<tr>
<td>Tonga</td>
<td>1951</td>
<td>24</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>1962</td>
<td>24</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>1963</td>
<td>24</td>
<td>3.44</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>41</td>
<td>4.10</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>1994</td>
<td>4</td>
<td>4.40</td>
</tr>
<tr>
<td>Vanuaatu</td>
<td>1991</td>
<td>15</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Source: Country Health Information Profiles. Manila, WHO.
A number of the Region’s medical schools were heavily damaged during the Second World War and were slowly rehabilitated during the 1950s and 1960s. Meanwhile, many of the schools started after the war suffered from inadequate physical facilities, difficulties in recruiting technical staff and limited budgets. In addition, many schools had to cope with disruptions to the general educational system and a shortage of qualified students.

The need for more doctors to meet demands for medical care, particularly in developing countries, forced many authorities to allow increases in enrolment far beyond the ability of the schools to handle. Difficulty in communications and shortages of funds often prevented the exchange or purchase of medical books, journals and other teaching materials. Many faculty members were therefore not aware of new medical discoveries. All of these factors resulted in generally low standards.

Early WHO support for medical faculties in the Region included support for programmes in Cambodia, Fiji, Singapore and Viet Nam. In 1953, the first substantial programme of support for medical education was started in Cambodia when the School of Health was upgraded into the Royal Cambodian School of Medicine. The objective of this project was to improve the standards of teaching to enable the School to produce fully qualified medical graduates. WHO provided consultants in the basic medical sciences and the clinical fields, fellowships, particularly for the training of local staff as assistant lecturers, and teaching equipment and supplies to the School. Before the formation of the Royal Cambodian School of Medicine, Cambodian medical students had had to go to Paris, France, to study medicine. The School graduated its first batch of fully-trained doctors in 1963.

A programme of support for the Fiji School of Medicine was started in February 1955. WHO provided visiting lecturers in physiology and biology, fellowships to train local staff as faculty, and teaching equipment and supplies. The School upgraded its standards and served as a training centre for health personnel throughout the South Pacific. WHO also indirectly supported the School by sponsoring fellows from the surrounding areas to study at the School.

In 1964, a programme to produce teachers in preventive medicine and public health in the newly-created Faculty of Medicine, University of Malaya, began with the award of a number of fellowships to enable selected staff to pursue advanced training abroad. Support in the form of advisers in hospital administration, hospital records and a tutor in laboratory technology was also provided in order to ensure the smooth operation of the teaching hospital, which served as the main training ground for medical students and nurses. This strengthened the teaching of preventive and social medicine in particular, so that a nucleus was established for future training in postgraduate public health. The development of the
teaching hospital also laid the groundwork for courses for nurses, hospital administrators and other health personnel. The strengthening of this centre resulted in improved training of higher calibre medical graduates needed to man the health services of Malaysia and Singapore.

WHO also provided staff to assess the status of medical education and to determine the training needs for physicians in various countries of the Region. Such surveys were carried out in Laos, Malaya and the Philippines. The findings in the Philippines proved to be of great value in later years when the standards of medical education were upgraded.

The concept that the doctor is the key member of the health team and is looked upon as its leader is generally accepted, and as a result 14 new medical schools, including two schools for medical auxiliaries, were added to the 68 that existed in 1950. This brought the total number of medical schools in the Region to 82 by 1963, including three schools primarily for training medical auxiliaries. Their establishment substantially improved doctor/population ratios in some countries, but serious shortages still existed in others, such as Cambodia, Laos, Malaysia, the Territory of Papua and New Guinea and Viet Nam. Moreover, favourable doctor/population ratios do not necessarily mean that the doctors are uniformly distributed throughout the country. The concentration of doctors in urban areas and their absence in rural areas was apparent in almost all countries in the Region, but particularly so in the newly-developing ones.

Fellowships

From the earliest days of WHO up to the present, the award of fellowships to personnel from the Region has been central to WHO support for human resources for health. In the 1950s, 1177 fellowships were awarded to 29 member countries, an average of 84 awards per year. The countries with the most fellowships were: China (Taiwan) (230), the Philippines (175), Japan (161), the Republic of Korea (128) and Viet Nam (57).

During the same period, malaria was the most popular field of study with 15.9% of total awards, followed by studies in public health administration (14.4%), nursing (9.2%), other communicable diseases (8.3%), and studies in medical sciences and education and clinical medicine (6.7%).

During the 1960s, a total of 1097 fellowships were awarded with malaria as the most common field of study.

Meetings

Group educational activities in the form of meetings for the exchange of information (training courses, workshops, seminars, symposia) and meetings of experts (working groups, scientific groups, advisory committees, etc.) have always constituted an important part of the regional programme on human resources for health.

The appointment of a Regional Adviser in Education and Training in 1953 signified the priority accorded to this programme. In the 1950s, 23 intercountry meetings were organized. The most common topics considered were malaria, public health administration, communicable diseases, environmental sanitation, vital and health statistics, dental health, nursing and tuberculosis. A total of 455 participants attended these meetings.

In this decade, countries in the Region also participated in 75 interregional educational meetings, some of which were held within the Region. Of these, the largest number were on subjects related to communicable diseases. Meetings were also held on environmental sanitation, radiation, education and training, malaria, nursing, tuberculosis and social and occupational health. There were 344 participants from the Region at these meetings.

The 1960s saw an increase in the number of meetings held to 54. Participants at these meetings totalled 1104.

The 1970s

Since 1970, regional institutions have played an increasingly important role in providing training for WHO fellows in the Western Pacific Region. In addition, while basic training for new and junior-level staff is still offered, especially in the Pacific islands, the number of study tours and short programmes to expand contacts and knowledge of more senior staff has increased. Thus, over the years, there has been increasing emphasis on observation visits, rather than structured training programmes.

It was realized in the early 1970s that health professionals were insufficient in both numbers and
capabilities to carry out health work in remote areas. Consequently, several countries continued to promote the delivery of health services by non-professional community health workers. Task-oriented training programmes were reinforced for various categories of workers, from traditional birth attendants in several Pacific island countries, to aid-post orderlies in Papua New Guinea, and village health workers in many other places. The best known of these types of workers were the "barefoot doctors" of China.

In addition to these village or community-trained health workers, some countries introduced training programmes for mid-level practitioners for communities where fully trained physicians could not be deployed either because of geographical isolation, or cost, or both. These health workers had a variety of titles, including health extension officer, physician assistant and medical assistant. In some countries, health workers with nursing backgrounds were trained as mid-level practitioners. All of these workers were deployed in peripheral primary care facilities treating uncomplicated medical problems. To some degree, most of them also provided preventive and promotive health services. Several schemes were developed to provide them with opportunities for career development along a number of routes, i.e. administrative, nursing or medical. A well-known example is the administration training for health extension officers in Papua New Guinea.

In the early 1970s there was also a general realization among the authorities of academic institutions involved in the education of conventional medical and nursing practitioners of the need for their programmes to be more closely linked to national health development. A recognition that new educational methods were required to keep the training of professionals abreast of continued rapid growth of health technologies occurred at the same time. It was in this atmosphere that the Regional Teacher Training Centre (now called the Regional Training Centre) at the University of New South Wales in Sydney, Australia, was organized as a cooperative activity of the University, the Commonwealth of Australia and the Regional Office. National teacher training programmes were also established initially in the Philippines and the Republic of Korea, and subsequently in China, Malaysia and elsewhere.

These efforts at improving teaching and learning for the health professions were paralleled in several countries by the development of institutions which emphasized problem-solving and community-oriented programmes. Examples of such institutions include Newcastle University's problem-based curriculum in Australia; Japan's innovative programme at Tsukuba University; the community-oriented programme at the University of Science in Malaysia; and the "step-ladder curriculum" of the University of the Philippines in Leyte. Although these new institutions were not replicated to any major extent in the rest of the Region, their approaches influenced revisions and continuing curricular reviews of almost all other academic programmes for health professionals throughout the Region.

In the early and mid-1970s, half of the world's population still did not have the benefit of adequate health care, and the health status of hundreds of millions of people was not acceptable. Taking note of this, the Thirtieth World Health Assembly in 1977 decided that the main social target of governments and WHO should be "the attainment by all citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life". A series of national, regional, and international meetings on ways to attain this objective culminated in the International Conference on Primary Health Care held in September 1978 in Alma-Ata, in what was then the Union of Soviet Socialist Republics. The Conference affirmed that the primary health care approach in delivering health services at community level was essential to achieving an acceptable level of health throughout the world. In the formulation of strategies to implement this approach, human resources for health were regarded as crucial. It was recognized that there was a need to reorient existing health workers, develop new categories of health workers where required, and to motivate and train them to serve in communities.

By the late 1970s, the concept of linked health services and human resources development was recognized as a valid thrust for health in the Western Pacific. International conferences were held in 1978 and 1979 to promote this concept. Similarly, a working group on nursing and midwifery recommended changes in nursing curricula to allow these categories of health workers to work in both hospitals and communities.

**Fellowships**

During the 1970s, public health services was the most popular field of study for fellowships (25.1%), followed by health manpower development (25.07%), communicable diseases (16.18%) and environmental health (11.51%).

**Meetings**

A total of 170 intercountry meetings were held during the 1970s. These meetings were attended by 2845 participants. A total of 513 participants attended interregional meetings and courses.
The 1980s

In 1981, WHO cooperation began to focus on human resource planning studies, strengthening national human resource production capabilities, and the management and continuing education of existing cadres of health workers. Thus the Regional Director’s report on the work of WHO in the Western Pacific Region, 1981–1983, stated that the overall aim of the human resources for health programme was "to cooperate in planning, developing and strengthening human resource development and management in consonance with the regional strategy of health for all by the year 2000 based on primary health care." The major concern at that time was to cooperate in formulating plans for the development of human resources for health as an integral part of national health plans, while developing the managerial capability of national staff to ensure the best possible use of human resources.

The involvement of training institutions in community health programmes to enhance the relevance of their programmes was further promoted at the Tenth Interregional Meeting of Directors and Representatives of Schools and Departments of Health and the Fifth Meeting of Deans of Medical Schools, both of which were held in Manila, the Philippines, in 1983. Research in the field of human resources for health was also promoted for the first time in 1984. At its 1985 session the Western Pacific Advisory Committee on Medical Research (later called the Advisory Committee on Health Research) noted the need for research in human resources to help rational planning, production and utilization of health personnel.

As support to programmes for educational development continued with teacher training activities expanding from a focus on medical education and training to the improvement of training in all the health professions, the planning and management of human resources began to receive increased attention. By the early 1980s, an increasing number of countries of the Region were taking a fresh look at their requirements and allocations to ensure better use of human resources towards the achievement of health-for-all goals.

In 1985, a landmark conference was organized in Tokyo, Japan, on the topic “Towards future health and medical manpower: New strategies in education for the 21st century”. Leaders of academic institutions agreed that changes were necessary inside and outside training institutions to ensure that human resources for health thus produced would be adequate and suitable for the changing needs of the future. The need for strengthened health workforce policies for the 21st century was stressed. These ideas were embodied in what came to be known as the “Declaration of Tokyo”. In many countries of the Region, the conference prompted national workshops, supported by WHO, to disseminate these ideas to academic and training institutions.

Throughout the second half of the 1980s, greater attention was given to planning and management as components of the development of human resources for health. More countries and areas strengthened the health workforce planning component of the managerial process for national health development by specifying qualitative and quantitative requirements appropriate to the primary health care strategy. The Pacific island countries, for example, defined the numbers required for each category of health worker using a workforce planning tool developed specifically for them by WHO. Mechanisms to improve coordination between producers and users of health professionals and other personnel were initiated in most countries of the Region. An industrialized-country example can be seen in Japan where academic institutions, through the Japan Foundation for Medical Education, worked closely with the Ministry of Health and Welfare in reviewing and reformulating licensure examinations for medical practitioners. In the Philippines too, such collaboration can be seen in the joint approach of the Association of Medical Colleges which maintained close relations with the Department of Health, the Professional Regulatory Commission and the Department of Education, to ensure that government policies were reflected in the medical school curricula.

Towards the end of the decade, following a Regional Committee resolution on the topic at its thirty-ninth session in September 1988, special attention was given to the problems related to the development of human resources for health in the island communities of the Pacific. It was recognized that many island countries did not have the population base to support the whole range of training institutions to fulfil all of their health personnel requirements.

Thus the development of a network of training facilities for different levels of training, including basic, postbasic, postgraduate and continuing education, was stressed. Two main nodes of the network were identified as the University of Papua New Guinea Faculty of Medicine and the Fiji School of Medicine. While developing new curricular approaches in all Pacific institutions, the establishment of institutional linkages in the form of exchanges of staff and students, common programmes, and other joint academic activities was given priority. The Pacific Basin Medical Officers Training Programme in Pohnpei, Federated States of Micronesia and the integrated programme for public health nursing and medical
assistants in Kiribati, as well as similar programmes in Tonga, were interlinked; they were also linked to other health personnel training activities specifically designed for Pacific island countries.

Despite all the efforts in the mid-1980s to improve medical education, there was of course an interim period before new graduates could enter service. In the meantime, those already in service were not always being used effectively. Consequently, during the late 1980s, the training needs of health professionals already in practice or in field service received special attention. Postgraduate and continuing education was the topic of a symposium held in Seoul, the Republic of Korea, and Fukuoka, Japan, in June 1990 and an intercountry workshop at the Regional Training Centre in Sydney, Australia in July of the same year. In nursing, postbasic training and upgrading of nurses in peripheral units were emphasized by the development of a distance education programme in Fiji. Nurse practitioner programmes for health services of isolated island communities were also launched. The revised programme for training environmental health inspectors at the Fiji School of Medicine achieved greater self-sufficiency and provided support for similar programmes in neighbouring countries, such as Solomon Islands.

Fellowships

During the 1980s, the most popular fields of study for fellowships were as follows: health services development (20.04%); communicable diseases (17.53%); human resources for health (17.15%); prophylactic, diagnostic and therapeutic substances (11.35%); and environmental health (8.37%).

Meetings

With the availability of additional external sources of funding and increasing awareness among countries of the benefits to be derived from meetings, this decade saw a continuing upward trend in the number of meetings held to 348, an increase of 50% from the previous decade. These meetings were participated in by 3669 participants. Participation in interregional activities gradually decreased during this period due to the availability of training facilities and suitable venues within the Region. However, a number of bi-regional activities which considered areas of mutual interest (e.g. border meetings) were held in this period.

The 1990s

The 1970s and 1980s were decades of unprecedented economic growth for many countries in the Region. This brought many health benefits, but also posed new challenges to health planners. One of these was the dramatic increase in life expectancy of the population. Frequently, this did not mean an increase in years of healthy life. Consequently, the health system had to deal with an increasing number of degenerative diseases, a number that is expected to rise significantly in the future. In 1994 the Regional Director outlined his vision for tackling these problems in New horizons in health, at a time when many countries of the Region were adopting innovative approaches to health development beyond the year 2000. This document stresses the need to guide people to lead healthier lives when they are younger, in order to help reduce the burden on the health system when they are older. The need to reorient health training towards health promotion, and towards combating the rise in degenerative diseases, was emphasized.

In addition to collaboration with governments, the Regional Office’s programme for the development of human resources for health also supported work with international, regional and national professional organizations. In the field of medicine, the programme maintained strong links with the World Federation of Medical Education and its affiliate, the Association for Medical Education in the Western Pacific Region, and actively participated in their regional meetings as well as two global meetings in Edinburgh, the United Kingdom of Great Britain and Northern Ireland, in 1988 and 1993. Mutual cooperation was also sustained in relations with the Confederation of Medical Associations of Asia and Oceania. These and similar efforts encouraged professional groups not only to understand in a broad sense the direction in which professional education in health was going, but to take an active part in developing medical curricula.

In the field of nursing, the Regional Office has supported work with the International Council of Nurses (ICN), an independent nongovernmental federation of 112 national nurses’ associations, and participated in their regional and national meetings. In 1990 the Regional Office cosponsored a regional workshop with the ICN on the regulation of nursing. The workshop addressed legislative and regulatory changes required for nurses to exercise their full potential in primary health care, and provided follow-up in country technical cooperation. In the Pacific, strong linkages were maintained with the South Pacific Nurses Forum, and the American Pacific Nurse Leaders Council and its affiliated nursing associations.
These activities were carried out in line with the evolving policy of improving the relevance of professional education and training in health to the actual health situations of countries, communities and families. Other activities included the establishment of multidisciplinary linkages among academic institutions through the cooperative arrangements at both regional and global levels. At the regional level, WHO worked closely with the Asia-Pacific Academic Consortium for Public Health to develop the public health content of teaching programmes for various health professionals. Globally, the Regional Office participated in activities of the Network of Community-Oriented Institutions of Health Sciences, including its meeting in Manila, the Philippines, in 1995.

One of the fundamental ideas of *New horizons in health* is that, despite the health achievements of the last two decades, the health sector needs to be prepared to meet continuing challenges in the early 21st century. Health infrastructures throughout the Region must be used more efficiently and effectively to deal with new issues, as well as the old ones. In particular, health professionals will have to work with a wide range of groups and disciplines, not necessarily in the health sector, to ensure that sustainable improvements in health and a better quality of life are highlighted in developmental decision-making at all levels. Economic considerations will play a major part in this. In addition, health staff must become skilled in applying people-centred health interventions that focus on positive health rather than disease as the object of human development. One of the challenges for today’s health training institutions is to ensure that the training they give enables their students to handle the changing nature of modern health requirements.

In March 1995, a Conference of Ministers of Health of Pacific Islands met on Yanuca Island, Fiji to discuss the priority health issues for Pacific island countries in the 21st century. The development of the health workforce was one of the main topics of the Yanuca Island Declaration that resulted from the meeting. In particular, the Declaration reaffirmed the leading role of the Fiji School of Medicine. Another meeting of Ministers of Health took place in Rarotonga, Cook Islands, in August 1997. The Rarotonga Agreement which was adopted at the meeting confirmed the commitment of Pacific communities to place appropriate and sufficient human resources at the centre of national health programmes.

**Fellowships**

The most common fields of study undertaken by fellows during the 1990s have been: human resources for health (37.81%); communicable diseases (11.46%); prophylactic, diagnostic and therapeutic substances (9.67%); health services development (8.92%); and environmental health (6.27%).

**Meetings**

In the 1990s, the number of meetings has averaged 55 per biennium. The meetings have been attended by 3430 participants, or an average of 857 per biennium.

**ACHIEVEMENTS**

Throughout the Region, countries and areas have developed capabilities and established mechanisms for health workforce planning. These have promoted a better understanding of the existing gaps between available human resources and service needs. In turn, such understanding has encouraged closer coordination between service agencies and training institutions to ensure greater relevance of academic programmes to the needs of individuals and communities. As a result, new educational methodologies, orientation to community needs, and a greater emphasis on psychosocial disciplines have been adopted in most countries. WHO’s programme for the development of human resources for health has contributed to this improved coordination between the various institutions, agencies and organizations involved in the planning, production and management of health workers in the Region.

Over the years fellowships have been one of the most important forms of collaboration between the Regional Office and countries and areas in the Region. Expenditure on fellowships has averaged 20% of the total budget of the Western Pacific Region. More than 10 000 fellows have been trained in the last 50 years, including the current Regional Director of the Western Pacific who was a fellow in the 1950s.

Almost all countries in the Region have committees or equivalent mechanisms to select candidates for fellowships. To monitor the return of fellows and track their activities, the Regional Office initiated a rapid follow-up study of WHO fellows. This study was started in 1991 to cover fellows in the 1986–1990 period. It has since been conducted every biennium.

Countries in the Region have also provided centres of excellence for specific technical expertise: for example, the Philippines for malaria prevention, China and the Republic of Korea for traditional medicine, Australia for public health and environmental health and New Zealand for health reforms. Figures 8.3 to
8.6 indicate the most popular fields of study.

UNDERACHIEVEMENTS

Sociocultural diversity and financial constraints have limited the capacity of many countries to provide sufficient numbers of health care workers with relevant education and training. The emphasis has been on the development of personnel and, in some cases, this has taken place without accompanying quality assurance.

It must also be recognized that the conflicts which have occurred in many countries have had knock-on effects throughout the Region. While conflicts themselves result in instability for the education and training sectors, the post-conflict period has usually lasted much longer and has often had much more serious consequences.

Greater sharing of curricula, core materials and teacher training activities would have added value to all training programmes in the Region. The development of regional standards or requirements for particular training courses would have helped to improve quality.

The knowledge and skills of those providing teaching and supervision have not always been of a sufficient standard. There is a shortage of qualified national teachers in most training programmes for health workers.

Professional registration and licensing is necessary to protect the public, and to monitor the practice of health professionals. Throughout the Region, there is a need to strengthen professional regulatory systems.

In a region with a shortage of many categories of trained national health personnel, loss of trained personnel through out-migration has been a serious concern. Measures such as "bonding" have been of limited long-term value.

Figure 8.3 Fellowships by field of activity, 1966–1972 (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical and health</td>
<td>86.11</td>
<td>88.10</td>
<td>88.30</td>
<td>88.10</td>
<td>90.00</td>
<td>88.40</td>
</tr>
<tr>
<td>services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>10.71</td>
<td>10.00</td>
<td>8.80</td>
<td>8.80</td>
<td>8.30</td>
<td>8.40</td>
</tr>
<tr>
<td>Undergraduate study</td>
<td>2.38</td>
<td>1.90</td>
<td>2.90</td>
<td>3.10</td>
<td>1.70</td>
<td>3.20</td>
</tr>
<tr>
<td>Research</td>
<td>0.80</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

WHO strategy

Figure 8.4 Fellowships by field of study, 1951–1965 (%)

<table>
<thead>
<tr>
<th>Field of study</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental health</td>
<td>2.46</td>
</tr>
<tr>
<td>Environmental health</td>
<td>6.62</td>
</tr>
<tr>
<td>Health education</td>
<td>2.97</td>
</tr>
<tr>
<td>Health statistics</td>
<td>2.29</td>
</tr>
<tr>
<td>Leprosy</td>
<td>1.78</td>
</tr>
<tr>
<td>Malaria</td>
<td>15.89</td>
</tr>
<tr>
<td>Maternal and child health</td>
<td>6.54</td>
</tr>
<tr>
<td>Medical sciences and education, clinical medicine</td>
<td>6.71</td>
</tr>
<tr>
<td>Mental Health</td>
<td>6.20</td>
</tr>
<tr>
<td>Nursing</td>
<td>9.17</td>
</tr>
<tr>
<td>Nutrition</td>
<td>1.10</td>
</tr>
</tbody>
</table>
It is clear that the dramatic changes that have affected societies in the Region over the last generation are likely to continue. It is equally clear that the health infrastructure of the future must be prepared to meet changing needs and evolving challenges to health. As the most important component of a strong health infrastructure, the development of appropriate and well-motivated human resources for health must remain the highest priority in any future programme for health development at all levels.

WHO’s programme for the development of human resources for health focuses on the following objectives, on the basis of supporting countries’ and areas’ New horizons in health development strategies:

- promoting policies and programmes that strengthen managerial and leadership capabilities of health workforce personnel in all health settings;
- emphasizing health promotion and protection as the basic approaches to health in the next century, in addition to the traditional biomedical skills;
- encouraging countries to implement new methods for developing, motivating, supporting and retaining a health workforce that is relevant to the needs of the Region.

These are the overarching strategies that have been put forward by WHO and that countries and areas are being encouraged to follow. Within these general strategies, and in part in response to them, one possible future of the health system is outlined in the following pages.

**Health systems**

Looking at all the above changes in a narrower focus, it would seem that the health workforce of the future will have to be prepared to meet a greater number of behaviourally determined health problems, the health impacts of continuing environmental degradation, and emerging and re-emerging infectious diseases. Generally, health workers will need to identify themselves as part of the community they serve, working with people, rather than simply tackling disease. This will allow them to identify the ills of the community – and help prevent them – and generate trust and support in their actions. In this way, health workers will come to be seen as part of the community, rather than distant dispensers of medicine and advice in a faceless and patient-unfriendly hospital. They will

**Figure 8.5 Fellowships by field of study, 1972–1977 (%)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public health services/ health services development</td>
<td>28.65</td>
<td>21.12</td>
<td>32.60</td>
<td>10.30</td>
<td>37.70</td>
</tr>
<tr>
<td>Communicable diseases</td>
<td>20.27</td>
<td>16.58</td>
<td>21.40</td>
<td>11.50</td>
<td>14.30</td>
</tr>
<tr>
<td>Health manpower development</td>
<td>18.38</td>
<td>33.16</td>
<td>22.70</td>
<td>48.10</td>
<td>3.00</td>
</tr>
<tr>
<td>Health protection and promotion</td>
<td>11.36</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Environmental health</td>
<td>10.81</td>
<td>8.82</td>
<td>10.40</td>
<td>9.10</td>
<td>18.40</td>
</tr>
<tr>
<td>Family planning</td>
<td>4.86</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Noncommunicable</td>
<td>3.24</td>
<td>7.75</td>
<td>0.70</td>
<td>6.90</td>
<td>9.30</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Family health</td>
<td>11.72</td>
<td>15.80</td>
<td>26.50</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Human resources for health</td>
<td>12.70</td>
<td>10.10</td>
<td>-</td>
<td>17.20</td>
<td>21.82</td>
</tr>
<tr>
<td>Communicable disease prevention and control</td>
<td>15.02</td>
<td>15.20</td>
<td>16.70</td>
<td>20.90</td>
<td>19.03</td>
</tr>
<tr>
<td>Noncommunicable disease prevention and control</td>
<td>11.23</td>
<td>8.80</td>
<td>4.40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Prophylactic, diagnostic and therapeutic substances</td>
<td>7.45</td>
<td>4.50</td>
<td>7.30</td>
<td>17.40</td>
<td>12.30</td>
</tr>
<tr>
<td>Environmental health</td>
<td>13.43</td>
<td>8.80</td>
<td>9.90</td>
<td>8.10</td>
<td>8.49</td>
</tr>
<tr>
<td>Health statistics/health information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health services development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research promotion and development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public information and education for health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General health protection and promotion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection and promotion of health of specific population groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection and promotion of mental health</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General programme development and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 8.6 Fellowships by field of activity, 1977–1997 (%) (continued)
also need to have the communication skills to persuade people to undertake healthy physical activities, eat healthy foods, and learn how to handle stress where possible.

Just as community health workers must learn skills beyond the narrow confines of traditional, curative medicine, so must intermediate and higher level professionals work in a more integrated manner with professionals from other fields, such as town planners. This will allow them to have a greater impact in implementing health protection programmes that will reduce or counteract the adverse effects of unhealthy physical environments. Governments themselves need to ensure that they have qualified senior medical advisers for many planning matters, to ensure policies that promote health and appropriate socioeconomic action.

Biomedical expertise will have to be maintained and strengthened to a level that can provide high-quality care for complex disabilities resulting from degenerative diseases, and that can respond to a continuously changing mix of infectious biological threats to health. This will mean that training must be continually updated to ensure that health workers are kept informed of the changes in technology. The application of low technology techniques will also need to be improved, as they frequently have an impact upon a far wider range of people than do the prestigious, curative-led, high technology interventions.

Most programmes for human resources in health have yet to fully realize the potential of information and communication technology. For example, the postgraduate programmes in the medical specialties that are just beginning in the Pacific may overcome the difficulties of distance and limited case-loads from small populations through extensive and creative use of telemedicine and teleconferencing technologies. Training will be required in the numerous applications of modern communications and technology that are currently being developed. They include the use of the Internet to transmit digitized images such as ultrasound from one location to any part of the world for remote diagnosis and expert opinions; and the construction of repositories of health information. Both these elements will allow distant health workers access to expert advice and information.

The gap between health service needs and academic requirements of institutions, though narrower than it used to be, remains the major human resources challenge. Many countries now have the required development capabilities for human resources in terms of quantity. However, many of them—particularly the least developed ones—have serious problems in terms of quality. Therefore, it is probable that conventional biomedical science and technology will continue to be needed in the health systems of almost all countries and areas in the Region.

The increasing concentration of populations in urban areas will require new systems for the delivery of health services, with direct links between technologically sophisticated centres and peripheral facilities. This will require central staff to maintain a high level of understanding and appreciation of primary health care to ensure appropriateness of the means employed in resolving the health problems of communities and individuals. At the same time, peripheral staff will need to be adequately trained in the application of increasingly complex technology for delivering high quality health care. However, it must not be forgotten that in the midst of unparalleled technological advances, some of the simplest techniques—and preventive measures—are not available or known in all parts of the Western Pacific Region. No country’s human resources development plan can afford to ignore or misallocate resources from primary health care activities to bolster high profile, prestige projects. As is evident from the WHO strategy outlined above, human resources strategy for the future is based on this premise.

**Composition of the health workforce**

Despite continued attempts to maintain a primary health care approach, it seems likely that the health workforce of the future will further diverge into two areas of expertise: qualified primary health care professionals in the community, and academically qualified and professionally trained doctors, nurses, dentists, technicians and health managers at sophisticated institutions. The challenge for the health system will be to maintain a strong linkage between the two, to ensure that each can offer support to the other in the overall aim of improved health care.

Generally, it is likely that all health workers will require advanced skills, to some degree at least, in the use of information and communication technologies. These will play an increasingly important role in both individual and community health care.
It is also likely that the benefits derived from high-technology interventions will become, from a public health standpoint, increasingly expensive and cost-ineffective for society as a whole. There will therefore be a need to enhance the sociocultural skills of the health workforce, especially in terms of the ability to transfer knowledge and skills both to other workers and to patients and other recipients of services. Thus, research and training at tertiary academic institutions are likely to increase the scope of behavioural interventions. Primary care skills will need to be common to all health professionals at any level in order to provide full technical support for all services at the periphery. Improved communications, including the use of telemedicine, will change the mix of skills required at community-level facilities.

Management and organization of the health workforce

As health communication technologies and the skills to manage them are developed, as far as curative services are concerned the need for intermediate-level facilities, systems and personnel is expected to diminish. Thus, fewer highly sophisticated institutions combining the skills and capabilities now characterized as tertiary and secondary will be linked directly to peripheral primary facilities. In turn, the peripheral facilities may well be able to deliver high quality care, even for complicated conditions, to communities and possibly individual homes. Interlinked, highly developed information systems should allow separate facilities effectively to monitor quality of care in terms of processes and outcomes as well as “customer satisfaction”. However, with regard to preventive services, a strong intermediate stratum of health personnel will be required, at district and provincial levels. In addition, all levels of the health system will need to be able to offer rehabilitative services, as well as services for older persons and the chronically ill.

Education and training of health professionals in the future

Levels of education throughout the Region are expected to increase to the point that students entering all basic programmes in the health professions will have at least middle-school academic qualifications. The new educational approaches involving problem-based learning, combined with the new information and communication systems, will probably be used by all academic and training institutions in the Region to ensure that the levels of science education provided are always commensurate with the service competencies and skills expected of the individual health worker.

It is highly likely that the health systems of the future will provide communities and individuals with more sophisticated tools for dealing with their health problems. However, these tools will only be as good as the people using them. For this reason, the continued development of human resources for health remains a priority.
Nurses are the largest category of health workers. Nursing personnel make up over 50% of the health workforce in every country of the world. In many countries in the developing world, over 80% of health workers are nurses. There are now an estimated 3 million nurses and midwives in the Western Pacific Region.

Nurses provide services in the home, in the hospital, and in a whole variety of community settings. Travel to even the most remote community and the health worker you are most likely to find is a nurse. Many WHO cooperative activities – immunization programmes and maternal and child health activities, for example – are implemented by nurses. The work of WHO to strengthen nursing has had a significant impact on the development of health services. WHO will continue to work with countries to ensure that high-quality nursing services are available to all, particularly to those in greatest need.

THEN AND NOW

It is not possible to make an accurate analysis of trends in the composition and size of the nursing workforce in the Western Pacific Region. First, the composition of the Region has changed over time. For example, when the People’s Republic of China assumed the seat for China on the Regional Committee, it increased the regional nursing workforce by as much as 1 million. Second, nursing workforce data have not always been available. Even today there are countries in the Region where the number of nurses is not known. Third, the definition of the various categories of nursing personnel has varied over time and from one country to another, so comparisons are difficult. For example, at some times and in some countries, a health worker defined as a “nurse” is a person who has been trained to perform some nursing functions in a very short (months or weeks) on-the-job training programme. In other countries, a nurse is defined as a person who has completed an approved university-level programme of studies.

In some countries, all nurses practise midwifery. In others, only nurses who have taken postgraduate courses in midwifery are considered qualified to deliver babies. Another group of countries consider midwifery to be a profession distinct from nursing.

In a worldwide study on the regulation of nursing conducted in the 1980s, the International Council of Nurses (ICN) concluded that the word “nursing” has no universal definition of function and no universal standards of education and practice.

TRENDS IN NURSING PRACTICE

The scope of nursing practice in each country of the Region has evolved based on the country’s needs, resources, and cultural practices. The role of the nurse has varied from country to country and even from day to day depending partly on the availability of other health workers.

There is a distinct body of work which is almost universally defined as “nursing interventions”. This work has historically expanded or contracted in relation to the availability of other types of health workers, including doctors, medical assistants, laboratory technicians, pharmacists, health educators and even dentists.

In the Western Pacific Region, nurses in some countries have worked primarily in hospitals under the direct supervision of doctors. In other countries, nurses have been the main health providers and have worked relatively independently, particularly in rural areas, diagnosing and treating illnesses, managing emergencies, prescribing and dispensing medication, providing midwifery care, and performing minor surgery. Nurses in some developing countries have a long history of being the main—often the sole—providers of basic health care in peripheral areas.

Interestingly, there appears to be no direct correlation between a country’s level of socioeconomic development and the scope of its nursing practice. In some low-income countries, nursing is highly developed and nurses provide the full range of primary health care services – preventive and curative. In others, nurses are poorly utilized, their role being restricted to performing clinical procedures in hospitals
under the supervision of doctors. Similarly, there are high-income countries where nurses have a very limited role, and high-income countries where the level of practice is very advanced and where the nurses perform a broad range of tasks.

Over the 50 years of WHO’s collaboration in nursing development in the Region, countries have increasingly recognized the key role that nurses can play in the health care system, and there has been a corresponding interest in improving the scope and quality of nursing practice throughout the Region. More nursing personnel are being used in community settings and the nursing role is being expanded to include the whole continuum of primary health care services, ranging from health promotion to basic curative care.

**Trends in nursing education**

In many countries, traditional nurse training focused on teaching nurses to perform tasks in hospital settings. Training was based primarily on the apprenticeship model of learning. Today most nurse training institutions have oriented their curricula to the primary health care approach to care and teach community health topics as well as hospital bedside care. A problem-solving approach to learning is employed and students are taught to base their nursing practice on scientific principles and on research findings.

Educational institutions are trying to keep up with the expanding role of the nurse in the delivery of health services. Advanced courses in clinical specialisms are increasingly available at country level. A number of countries are now training nurses as mid-level practitioners (nurse practitioners) to meet the needs of medically-underserved communities.

**WHO ACTIVITIES**

The importance of nursing in health care was discussed in the First World Health Assembly, at which it was noted that an increase in the number of nurses and a more appropriate utilization of the nursing workforce was needed in many countries. That could still be said today.

During that Assembly, the delegate from Ireland suggested that: "it is important to include a representative of nursing in the Organization in order to gain their cooperation to improve services, especially to raise the standard of health amongst women and children". The delegate from the Philippines noted that "Because of the work of the public health nurses in disease control and health promotion, an invitation should be extended for their participation in the Organization".

The Second World Health Assembly in 1949 adopted a resolution which established an Expert Committee on Nursing "to study problems concerned with nurses, health visitors, midwives and related auxiliaries because the role of nursing is becoming more and more important in the area of public health, and to recruit and train adequate members to carry out the numerous and complicated tasks...".

When the Western Pacific Regional Office was established in 1951, a Nursing Adviser was one of the first advisers to be appointed.

By the end of 1957, WHO employed 155 nurses in 44 countries. Globally, nurses represented about one fifth of the total WHO field personnel.

**WHO nursing activities in the early years**

Initially, WHO nursing staff were asked to work as members of specialized teams in vertical programmes related to the control of diseases such as malaria and tuberculosis and to the implementation of projects in areas such as mental health and maternal child health. During the second ten years of WHO in the Region, nursing staff worked on 230 such WHO collaborative country projects and participated in 30 regional projects. But in almost every country, the lack of nursing personnel hampered the progress of many health programmes.

In the 1950s and 1960s, most countries in the Region faced serious shortages of well-trained nurses. In
1951, the Regional Director’s Report stated that governments had concluded that it was necessary to increase the number and the quality of nurses, in order to meet the health needs of their countries. Governments had begun requesting WHO nurses and nurse-midwives to help in establishing schools of nursing and midwifery or in strengthening existing ones. During that same year, WHO nurse educators started to play an important role in developing national systems of education.

Dr I.C. Fang, the WHO Regional Director at the time, described the nursing situation in those early years as follows:

In the field of nursing, there was a great disparity in development among many countries in the Region; while some had progressive nursing standards and a corps of qualified nurses, many countries had no nursing service to speak of in the years immediately after the Pacific War. There were various causes that accounted for the dearth of nursing personnel, chiefly due to the complexity of factors related to the economic, cultural and social patterns existing in the countries concerned. In many areas, nursing was generally confined to menial tasks or the acquisition of certain skills to assist the doctors. Outside of these, there were certainly no incentives for the growth of the nursing service.

During the period from 1950 to 1957, WHO cooperation in nursing and midwifery education was given in almost every country and territory in the Western Pacific.

Nurses in the rural areas, no matter what the level or quality of their training, have always played an important role in health care delivery. One of the early nurse educators tells a story of one of the graduates of the nursing school established for the former US Trust Territories in the Pacific islands.

One young woman, two months after graduation, was sent to an island 40 miles from Koror where no doctor is located. She visited a woman who was about to deliver her 14th child and asked her to go to the hospital, but the woman refused. She went into labour and developed four major obstetrical complications, including shock. A few weeks later, I was down on the island and the graduate told me about this case. I asked fearfully, "Did the baby live?" And she said, "The baby is fine." "And the mother?" "She is gaining in strength every day!" said the young nurse who had been taking care of them.

When the village magistrate called on me the next morning and requested that the young nurse be allowed to remain beyond her allotted assignment, I understood why the villagers wanted to keep her on their island.

During the early years of WHO (and to this day in a few countries) there were few national nurses qualified to manage the nursing services or to teach in the nursing schools. Doctors were often primarily responsible for the administration and regulation of nursing services and even for the training of nurses. It became obvious that nursing education and nursing service were interdependent. The 1967–1968 Regional Director’s report noted the need to appoint qualified nurses to leadership positions at the national level "to facilitate the planning and development of nursing services and to ensure the most equitable distribution and efficient utilization of nursing personnel". By 1971, 19 of the 31 countries and territories of the Region had nursing units responsible at the national level for planning, coordinating, guiding and supervising nursing and midwifery programmes.

WHO nursing activities since the Alma-Ata Declaration

The Alma-Ata Declaration in 1978 clearly stated that primary health care was the key to attaining health for all and in 1979 the World Health Assembly launched the Global Strategy for Health for All.

In 1985, the Director-General of WHO, Dr H. Mahler, proposed that nurses could "lead the way" in primary health care. He suggested that the profession would experience the following changes:

- the role of nurses will change; more of them will move from the hospital to the everyday life of the community, where they are badly needed;
- nurses will become resources to people rather than resources to physicians; they will become more active in educating people on health matters;
- nurses will increasingly innovate and participate in programme planning and evaluation;
- nurses will participate more actively in interprofessional and intersectoral teams for health development;
- more and more nurses will become leaders and managers of primary health care teams; this will include guiding and supervising non-professional community health workers;
- nurses will thus assume greater responsibility for taking decisions with health care teams.
The following year, during a conference on leadership in nursing for health for all held in Tokyo, Japan, Dr Mahler challenged nurses everywhere to assume leadership in international efforts to achieve health for all.

In 1986, a regional workshop was held in Manila, the Philippines, on the lead role of nursing in primary health care. Consensus was reached on the role of the nurse in primary health care. This role was defined as clinical assessment and the performance of certain clinical interventions (the nurse practitioner role); social action for community development; use of epidemiological data in the planning and management of primary health care; and the conduct of health systems research for primary health care.

As a logical follow-up, a regional network of collaborating centres was established to strengthen primary health care nursing. These centres include the Faculty of Nursing, University of Sydney, Australia; St Luke’s College of Nursing, Japan; College of Nursing, University of the Philippines; and Yonsei University College of Nursing, the Republic of Korea.

By 1988, the Regional Director was able to report that many countries were developing nursing in line with primary health care or had at least adopted national policies for nurse training to prepare nursing staff as primary health care providers.

However, as the 1980s drew to a close, there were still many barriers preventing nurses from leading the way in primary health care. There was still a shortage of qualified nurses in many countries. Due to poor working conditions and low salaries, large numbers of nurses were leaving the profession or migrating. Few nurses had been involved in the planning of health services (including nursing services) and in many countries, nursing was not strongly represented at the policy-making level in the ministry of health. Nursing, including nursing schools, remained underresourced. The laws regulating nursing practice in many countries were outdated to the extent that, in some countries, nurses who provided the full range of basic health services in the rural areas were actually practising illegally.

Recent WHO resolutions on nursing

Over the years there have been 13 World Health Assembly resolutions on nursing.

Since the Alma-Ata Declaration, many of these resolutions have focused on the need to strengthen the role of nursing and midwifery in relation to health for all. In 1977 and 1983, the World Health Assembly adopted resolutions on the role of Nursing/Midwifery Personnel in Primary Health Care Teams. In 1989 and 1992, resolutions were adopted on Strengthening Nursing and Midwifery in Support of Health For All and in 1996, the Health Assembly adopted a resolution on Strengthening Nursing and Midwifery.

Resolution WHA45.5 urged Member States to assess nursing/midwifery service needs and the utilization of nursing personnel; to strengthen the management and leadership capabilities of nurses and midwives; and to reinforce the positions of nursing and midwifery personnel at all levels of service. Member States were encouraged to support the nursing/midwifery workforce by ensuring appropriate working conditions; by allocating adequate resources for nursing activities; by strengthening educational programmes; by promoting relevant research; by enacting needed legislation; and by ensuring that the contribution of nursing and midwifery is reflected in health policies.

Resolution WHA45.5 also requested the Director-General to establish a global multidisciplinary advisory group on nursing and midwifery; to ensure that nursing and midwifery are represented in WHO policies and activities at all levels; and to strengthen the global network of WHO collaborating centres for nursing and midwifery.

In September 1992, the WHO Regional Committee for the Western Pacific expressed its support for resolution WHA45.5 by adopting a resolution reiterating the need for member countries to support and strengthen nursing services. The Regional Director was requested to continue to support Member States in their efforts in this regard and to ensure that regional activities and policies were developed with appropriate input in the nursing services. Since 1992, the Regional Office has worked in partnership with member countries in the areas identified by resolution WHA45.5.

The most recent World Health Assembly resolution was on Strengthening Nursing and Midwifery. Adopted in May 1996, it called for Member States to develop action plans for health which included nursing and midwifery. Member countries were encouraged to increase opportunities for nurses and midwives in the health team when selecting candidates for fellowships in nursing and health-related fields. The Director-General was requested to increase support for countries to enable them to develop national health plans which included nursing and midwifery. The resolution also called on WHO to promote and support the training of nursing/midwifery personnel in research methodology to facilitate their participation in health.
research programmes.

**ACHIEVEMENTS**

WHO Headquarters, with support from the International Development Research Centre in Ottawa, Canada, commissioned a survey to examine progress in strengthening nursing and midwifery in all six regions. Data was collected from November 1993 to August 1995 from 150 Member States, representing a 79% response rate globally. The response rate for the Western Pacific Region was 96%. The results of the study were published in 1997 and the key findings are included below.

**Strengthened management and leadership for nursing**

According to the survey, the Western Pacific Region has the highest percentage (48%) of Member States reporting an increase in the number of senior nursing and midwifery positions at central (ministry) level. Globally the figure was 32%.

The global percentage of Member States reporting increases in nursing positions at the operational level was 44%. In the Western Pacific Region, the figure was 52%.

Importantly, the majority of Member States (64%) reported increases in the number of nurses and midwives receiving training to strengthen leadership and management skills. The figure was 78% for the Western Pacific Region.

Over the years, WHO has cooperated in many activities to strengthen the organization and management of nursing services. Potential nurse leaders have been awarded overseas fellowships to study nursing administration and related subjects, and management training activities for nurses have been conducted in many countries, including China, Fiji and the Lao People's Democratic Republic. Activities to develop a new nursing management structure were implemented in Cambodia and a new organizational structure for the delivery of public health nursing services ("zone nursing") has been established in the Marshall Islands.

The Regional Office has worked with many countries to help them develop a health information management system that will give managers the information needed for policy development and workforce planning.

In the Western Pacific Region, 74% of countries reported that since 1992 there has been an increased contribution from senior level nurses and midwives to policy development. Globally, the percentage was 54%. Again, 63% of countries in the Region reported that they had made major policy changes to strengthen nursing/midwifery. About half the countries had written national action plans.

**Legislation regulating nursing practice enacted or reviewed**

Half of the Member States of WHO indicated that legislation and/or regulations aimed at ensuring quality nursing services and education had been enacted or reviewed since 1992.

Again, the figures were highest in the Western Pacific Region, with 74% of the Member States addressing regulatory issues related to nursing and 37% enacting or reviewing legislation related to midwifery.

Through its work with individual countries and with organizations such as the International Council of Nurses and the American Pacific Nurse Leaders Council, the Regional Office has collaborated with a number of governments in drafting legislation, practice standards and clinical protocols which promote safe nursing practice and which are relevant to and support modern nursing practice, including advanced nursing practice in medically underserved areas. The Federated States of Micronesia is an example of a country in which new legislation regulating nursing practice was passed into law with technical support from WHO. In this regard, the Nursing Councils of Australia and New Zealand are making an important contribution through their sponsorship of regional meetings on the regulation of nursing.

The Regional Office has also worked with a number of countries in developing written standards for practice to improve the quality of nursing services.

**Basic nursing education strengthened**

A significant aspect of WHO collaboration in nursing and midwifery over the last 50 years has involved strengthening training institutions. In this regard considerable support has been provided in reviewing, revising and improving basic nursing and midwifery curricula. Curriculum development is an ongoing
process related to the changing role of the nurse and midwife within the context of the development of the country and the needs of the health services. With the increased recognition of the role of the nurse in the primary health care system, the emphasis during the past decade in curriculum development has been to strengthen the primary health care content.

Data from the nursing and midwifery survey described above document significant achievements in this regard. Since 1992, 82% of the countries in the Region have reported strengthening the primary care content in the nursing curricula and 52% in the midwifery curricula. This compares favourably with global figures of 61% and 48% respectively.

In addition, 74% of countries in the Region report having reviewed and/or upgraded the quality of their nursing/midwifery education programmes. WHO has cooperated in this regard by providing nurse teachers with fellowship support to undertake advanced studies and by providing support for training courses and workshops for nurse teachers on teaching methodology.

China is an example of a country which is making significant changes in nursing education with WHC collaboration. Nursing curricula are being revised and the quality of nursing education upgraded throughout the country.

Provision of teaching/learning resources

The Regional Office has supported nursing schools through the provision of essential teaching equipment and books for school libraries. In Cambodia, China, the Lao People’s Democratic Republic and Viet Nam, WHO has also supported the translation of basic nursing textbooks and manuals into local languages. In addition, the Regional Office has produced and published manuals which can be used in basic as well as continuing education programmes.

In 1993, the Regional Office published a six-volume HIV/AIDS reference library for nurses to give nurses the information they need to prevent the spread of HIV infection and to care for patients throughout the stages of HIV infection and AIDS. A teaching manual entitled Quality health care for the elderly was published in 1995 to provide faculty with a teaching guide on the nursing care of older persons.

In addition, the Regional Office has cooperated with individual countries to support the development of training manuals and student learning materials specific to country needs. Examples include infection control and nursing procedure manuals in Papua New Guinea and communicable disease manuals in China.

On the occasion of the 50th anniversary of WHO, the Regional Office published Nursing care of the sick: a guide for nurses working in small rural hospitals, a low-cost basic nursing textbook targeted at nurses providing bedside care in facilities with few resources. The book is being translated into six languages and will be distributed to nursing schools and health facilities in various countries in the Region.

Development of postgraduate courses for advanced nursing practice

In the Western Pacific Region, 52% (compared with 24% globally) of Member States reported receiving increased financial resources for post-basic nursing courses. The Regional Office is working in partnership with countries who are developing advanced courses for nurses to improve the quality of care. A good example is Fiji, where WHO has cooperated in developing the post-basic midwifery and public health courses. Both courses last for approximately six months and every year accept a significant number of students from other Pacific island countries. In 1996 WHO cooperated in revising both of these courses. The teaching of life-saving obstetrical skills in the midwifery course was strengthened through the introduction and field testing of training modules developed through the WHO Safe Motherhood Programme. The public health course was revised to include basic primary health care clinical skills needed by nurses in remote areas. A nurse practitioner course is being established at the Fiji School of Nursing.

Similarly in Samoa, an Advanced Diploma of Nursing in Primary Health Care programme (equivalent to a nurse practitioner course) has been developed with WHO cooperation. The purpose of the programme is to train nurses for advanced clinical practice, primarily in rural communities. WHO is continuing to support the development of the programme through the provision of training fellowships for faculty and essential teaching/learning resources for the nursing school. Other countries where WHO has cooperated in developing and strengthening these advanced clinical primary health care courses for nurses include Cook Islands, Kiribati, and Vanuatu. A post-basic advanced clinical nursing course was also developed and implemented in Tonga with WHO collaboration.
Continuing education

Over the years WHO has cooperated with many countries to improve the quality of nursing practice through a variety of continuing education activities. Countries recognize the need for health workers to expand and update their skills, and WHO has cooperated in numerous national and regional workshops and courses for nurses. For example, WHO is cooperating with Viet Nam to develop and implement a community health in-service course for hospital nurses so that they will be qualified to work in community-based settings. In the nursing and midwifery survey, 44% of Member States in the Region (and 27% globally) reported increased resources for continuing education.

One of the challenges has been to provide continuing education for rural health workers, and WHO has cooperated with governments to develop some innovative approaches to upgrading the skills of health workers who live and work in remote areas. Examples would be the one-year distance education course for mid-level nurse managers in all districts of Fiji using teleconferencing. Another example is the use of AM radio broadcasts to maintain and upgrade the skills of rural health nurses in Fiji and Tonga (“Health Care on the Air”).

Many WHO cooperative activities at the community level are implemented by nurses. Between 1989 and 1996, 203 nurses and midwives participated in 35 workshops, meetings and training courses in a variety of programme areas, such as the Expanded Programme on Immunization, Maternal and child health, and HIV/AIDS.

Nursing research promoted

In 1991, the Regional Office conducted a survey on the status of nursing research in the Region and identified 140 researchers involved in projects related to nursing.

Worldwide, 33% of Member States have reported an increase since 1992 in health service research examining the contribution of nursing and midwifery to health care delivery. The Region with the highest percentage of countries that had allocated financial resources to the study of nursing and midwifery problems was Western Pacific (41%).

WHO has promoted research in nursing and research by nurses through cooperation with the WHO collaborating centres in nursing and through the provision of advanced training for nurses in research methodology during overseas training fellowships and in-country workshops. In supporting research the aim is to seek solutions to those health care problems in which nurses and midwives are the principal care providers or in which they make a major contribution to the provision of health care.

In addition, the Regional Office has supported practical and relevant in-country research projects conducted by nurses. Examples of such projects include studies to monitor nosocomial infections in hospitals in Papua New Guinea and evaluation studies on the implementation of nursing standards in Fiji.

In 1996 the Regional Office convened an interregional meeting on Nursing Research and Training Network at the College of Nursing of Yonsei University in Seoul, the Republic of Korea.

Working conditions improved

In the Western Pacific Region, 67% of the countries reported in the nursing and midwifery survey that there had been increases in their salaries and benefits since 1992 and an equal percentage of countries reported that in recent years there had been improvements in career opportunities for nurses and midwives.

UNDERACHIEVEMENTS

In the field of nursing, in all the areas where achievements can be described, underachievements can also be seen.

Nurses minimally involved in policy and planning

There are still countries in the Region that are just beginning to develop a nursing structure at the national level and where nurses make virtually no contribution to health policy, even to policy directly related to nursing education or nursing practice. Some countries still have no effective system of nurse registration and no effective laws and regulations governing nursing practice.
The midwife represents the starting point of primary health care in any community

Nursing education inadequate

Nursing education remains inadequate in many countries. Hands-on clinical training is still weak in some of the nursing schools, and some student nurses do their practical training in facilities that lack essential equipment and qualified supervisors. Nursing school curricula do not always teach nurses the clinical primary health care skills they need for practice in rural areas. Faculty themselves often do not have these advanced skills. Many nursing schools still lack essential learning resources, particularly nursing books in the local language, and many have neither the resources nor the expertise to conduct research.

Working conditions poor

There is a shortage of nursing personnel in many countries. In others, there is maldistribution and poor utilization of nursing staff. There are still countries where nursing remains a low-status female occupation and where the conditions of service are poor. This leads to the migration of nurses from poor countries to wealthy ones and causes nurses to leave the public sector or to abandon the profession altogether.

Career opportunities limited

Opportunities for advanced training and career development, while increasing, remain limited. For example, as of 1995, only 4% of worldwide WHO fellowships were awarded to nurses and midwives. In the Region the figures are somewhat better, the latest data (1994–1995) indicating that nurses and midwives were awarded 15% of all fellowships, up slightly from 13% in the previous biennium. Nevertheless, given that at least 50% of the health workforce worldwide are nurses and midwives, these figures are low.

Nursing remains underresourced

Many of the underachievements in strengthening nursing and midwifery can be attributed to a lack of resources. For while it is true that resources for nursing are increasing in many countries, overall nursing remains underresourced at all levels. Only about one third of the countries (37% in the Western Pacific Region) report increases since 1992 in the financial resources available to support education for nursing and midwifery.

FUTURE

Governments are increasingly recognizing the contribution of nursing to health services. However, nursing does not operate in a vacuum. Rather, nursing operates in a social, political, cultural and economic context. Events such as wars and economic crises can wipe out gains made over many years or at least slow progress, and this has been the case in some countries in the Region. Clearly, much progress has been made in strengthening nursing and midwifery over the past 50 years, but the areas for future WHO cooperation are essentially the same as they were when WHO was first established.

In future WHO will continue to work with countries to:

- strengthen nurse training institutions through curriculum development, faculty training, and the provision of appropriate teaching learning resources;
- support the development of postgraduate courses for advanced nursing practice, particularly mid-level practitioner programmes for nurses working in medically underserved areas;
- improve the standard of clinical nursing practice through research, legislation, continuing education, the development of learning materials, treatment guidelines and nursing standards;
- strengthen the organization and management of nursing services through the development of effective management structures and information systems and through leadership training for nurses; and
- encourage the participation of nurses and midwives on the health team in all programme areas.
Chapter 10. Pharmaceuticals

WHO’s regional activities in the area of pharmaceuticals began in earnest only in the 1960s. In those early years, attention was mainly on quality and safety aspects. Initially issues related to pharmaceuticals were dealt with through different programmes. The WHO Action Programme on Essential Drugs was launched in 1981. In 1982 the Regional Committee adopted a resolution which urged Member States to make political decisions and commitments with respect to the formulation of national policies in order to improve the supply of essential drugs.

THEN AND NOW

In 1948 few countries in the Western Pacific Region had written policies on drugs. Drug laws and regulations were old and were not adapted to local conditions. They were often inherited from colonial administrations. The quality of pharmaceutical products on the market was questionable.

Today 18 countries and areas in the Region have endorsed a national drug policy. Twenty-seven countries and areas have related legislation in place. Nineteen countries have established procedures and requirements for drug registrations. Twenty countries have established development programmes based on the Essential Drugs Concept. Many countries have established quality assurance programmes, including testing facilities for pharmaceuticals.

WHO ACTIVITIES

Brief history of the WHO pharmaceutical programme

In the early years of WHO, the pharmaceutical programme concentrated on drug specifications and drug standards. The First World Health Assembly in 1948 accepted the programme on the International Pharmacopoeia as proposed by the Interim Commission. The International Pharmacopoeia established chemical, physicochemical and biological specifications for pharmaceutical products commonly used worldwide. The first volume was published in 1951. Several further editions have been published, the latest will be published in 1998 and will include specifications for raw materials and finished dosage forms.

In 1962, a study on the scientific aspects of the clinical and pharmacological evaluation of pharmaceutical products to ensure their safety and efficacy was initiated. In 1965, WHO was urged to play a more active role in the quality control of pharmaceutical products moving in international commerce by providing support to countries so they could develop quality control facilities. WHO was also asked to produce internationally accepted specifications and methods of securing, in countries of origin, control of the quality of pharmaceutical preparation. The need for a certification system for drugs in international commerce paved the way for the adoption of the WHO Certification Scheme on the Quality of Pharmaceutical Products Moving in International Commerce in 1969. A revision to the Scheme was endorsed by the World Health Assembly in 1997.

A global programme on Adverse Drug Reaction (ADR) monitoring exchange information was established in 1965 to ensure the systematic collection, evaluation and dissemination of information on adverse drug reactions. WHO provided support to countries and areas in the Western Pacific Region to establish national ADR monitoring centres.

In the Region, the pharmaceutical programme was established in the mid-1960s. It was first called the programme on Pharmacology and Toxicology and was included in the programme on Prophylactic and Therapeutic Substances in the mid-1970s. At this time the emphasis was still on quality specifications and quality control.

The programmes on Essential Drugs and Vaccines and Drug and Vaccine Quality, both of which came under the Action Programme on Essential Drugs, were created in 1983. These two programmes covered the same areas of technical cooperation as the Action Programme on Essential Drugs and Drug Management and Policies in WHO Headquarters. In 1996, these programmes were consolidated into one existing programme, the Action Programme on Essential Drugs.
Development of national regulatory drug control authorities

Intercountry activities in the field of drug quality control began in late 1969. The first regional seminar on the quality control of pharmaceutical substances took place in Manila in 1970. The seminar reviewed the regional situation and discussed future support from WHO. Support to selected Member States in drug quality control was provided from 1970 to 1975.

Introduction of the essential drugs concept

In 1977 a global WHO expert committee meeting concluded that about 220 "essential drugs" are sufficient to deal with the vast majority of health problems. The committee established the WHO model list of essential drugs which is periodically updated. The most recent is the tenth list of essential drugs.

Promotion of the establishment of national drug policies

The formulation and implementation of national drug policies by governments are fundamental to ensure equitable access to safe and effective drugs of acceptable quality to all in need. A technical presentation on national drug policies and management was included at the Regional Committee Meeting in 1977 and the major components of a national drug policy were endorsed at the Thirty-fifth World Health Assembly in 1982.

In 1978, the Western Pacific Region was the first region of WHO to convene a working group on regional aspects of drug policies and management. The formulation of a regional medium-term programme on drug policies and management up to 1983 was based on the report of the working group.

Technical cooperation among countries

In 1978, WHO and the South Pacific Bureau for Economic Cooperation (SPEC) sponsored a meeting on Technical Cooperation among South Pacific countries and areas in Fiji. The meeting adopted a programme for the joint establishment of a South Pacific pharmaceutical service which would include bulk procurement, quality control, storage and repackaging, supply of pharmaceuticals and human resources development.

At the Conference of Ministers of Health of the South Pacific Countries and Areas on Technical Cooperation in Pharmaceutical Services held in Manila, the Philippines, in 1979, a declaration of intent for the immediate establishment of a joint pharmaceutical service was adopted by 12 countries and areas and a memorandum of agreement on the establishment of the South Pacific Pharmaceutical Services (SPPS) was drafted. In 1981, the Regional Committee urged WHO to cooperate in establishing the SPPS. However, the SPPS did not materialize as some Pacific island countries decided to set up their own procurement system.

At the Meetings of Ministers of Health of Pacific Island Countries held in Yanuca Island, Fiji, in 1995 and in Rarotonga, Cook Islands in 1997, the issue of bulk purchase of pharmaceuticals was again discussed. The Rarotonga Agreement made recommendations on collaborative activities on drug procurement, quality assurance and drug information exchange. Bulk purchase was discussed extensively and alternative approaches were identified.

ASEAN Technical Cooperation Among Developing Countries in Essential Drugs, also known as the ASEAN Pharmaceuticals Project, was initiated in 1979 with seven countries as members. Today, there are nine member countries: Brunei Darussalam, Indonesia, the Lao People’s Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam. The main thrust of WHO’s collaborative activities has been in the area of training in quality assurance of pharmaceuticals.

The Biregional Technical Cooperation Among Countries in Essential Drugs involving member countries of the Western Pacific and the South-East Asia Regions began in 1994. The main areas of collaboration have been on human resources development in quality assurance of pharmaceuticals and herbal medicines.

In 1996, initial steps were taken to establish an electronic network for drug information exchange between Member States.

ACHIEVEMENTS

Achievements related to the main WHO activities
WHO’s support to Member States in the pharmaceuticals area has concentrated on developing national drug policies. Figure 10.1 illustrates the situation based on the information submitted by Member States in 1996.

In the Western Pacific Region, almost half the countries and areas have endorsed a national drug policy and over two-thirds have related legislation in place.

There are 14 countries in the Region who participate in the WHO Certification Scheme on the Quality of Pharmaceutical Products Moving in International Commerce.

**ASEAN Pharmaceuticals Project**

The primary objective of the Project is to strengthen the pharmaceutical sectors in all ASEAN countries and to ensure the sufficient supply of effective and safe essential drugs of acceptable quality. The Project began in 1979 and activities in selected areas have been implemented since 1982. Through cooperation among ASEAN countries, and with support from the Japan Pharmaceutical Manufacturers Association (JPMA), UNDP and WHO, the pharmaceutical sectors in all ASEAN countries have benefited greatly from the project. Human resources have been strengthened and regional training centres established to promote self-sufficiency in training within ASEAN; guidelines and manuals on many aspects of pharmaceutical manufacture, quality assurance, herbal medicines and pharmacy management have been published; 116 ASEAN reference substances have been established to aid quality assurance and drug evaluation and control; formats for exchange of information on drug lists and essential drugs have been produced; and the rational use of drugs has been promoted through patient information leaflets, posters and videotapes.

[Click here](#) to view Figure 10.1. Pharmaceuticals policy, legislation and data in the Western Pacific Region.

<table>
<thead>
<tr>
<th>Year</th>
<th>Principal achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>ASEAN Good Manufacturing Practices (GMP) Guidelines</td>
</tr>
<tr>
<td>1988</td>
<td>ASEAN Manual on peripheral drug supply management</td>
</tr>
<tr>
<td></td>
<td>Draft monographs for crude drugs (herbal medicines)</td>
</tr>
<tr>
<td></td>
<td>ASEAN Manual for GMP inspection</td>
</tr>
<tr>
<td>1990</td>
<td>Manual on cultivation, production and utilization of herbal medicines in primary health care</td>
</tr>
<tr>
<td></td>
<td>Videotape on proper use of medicine</td>
</tr>
<tr>
<td></td>
<td>Guidelines on Good Hospital Pharmacy Practice and Management</td>
</tr>
<tr>
<td>1991</td>
<td>ASEAN Operational Manual on Drug Evaluation and Control</td>
</tr>
<tr>
<td>1993</td>
<td>GMP Guidelines for the manufacture of herbal medicines</td>
</tr>
<tr>
<td></td>
<td>Volume I of Standard ASEAN Herbal Medicines consisting of 36 monographs on herbal medicines</td>
</tr>
<tr>
<td>1994</td>
<td>Report on Intercountry Expert Meeting on ASEAN Good Control Laboratory Practices</td>
</tr>
<tr>
<td></td>
<td>Report on Technical Meeting on Re-evaluation Criteria for registered products</td>
</tr>
<tr>
<td></td>
<td>Standard format for exchange of information on drug regulatory matters</td>
</tr>
<tr>
<td>1996</td>
<td>119 ASEAN reference standards (ARS) established, of which 65 ARS included in a booklet distributed to ASEAN countries</td>
</tr>
<tr>
<td></td>
<td>ASEAN Good Manufacturing Practices (GMP) Guidelines</td>
</tr>
<tr>
<td></td>
<td>Training Manuals for Clinical Pharmacy and Improvement of Communication Techniques for Pharmacists and Pharmacy Staff</td>
</tr>
<tr>
<td></td>
<td>Patient information leaflets, posters and videotapes to strengthen consumer education on rational drug use published and distributed to ASEAN countries</td>
</tr>
<tr>
<td></td>
<td>20 non-pharmacopoeial analytical methods prepared</td>
</tr>
<tr>
<td></td>
<td>40 herbaria for medicinal plants prepared for ASEAN countries</td>
</tr>
</tbody>
</table>
Network for drug information exchange

The availability of updated information on pharmaceuticals plays an important role in the improvement of drug procurement and quality. Recognizing the need for such a scheme, an electronic network for drug information exchange between drug regulatory authorities has been established through designation of a WHO collaborating centre for drug information at the National Poison Center, Science University, Penang, Malaysia.

Pacific islands activities

Collaborative activities have been initiated between Pacific island countries in the area of drug supply management, quality assurance of pharmaceutical products and drug information exchange:

- A network for drug information exchange has been established and information is being exchanged.
- WHO collaborating centres on drug quality assurance have agreed to conduct testing of selected drug for Pacific island countries.
- A survey has been conducted to select drugs for testing at the Therapeutic Goods Administration (TGA) in Australia and testing of drugs has already started.

UNDERACHIEVEMENTS

Irrational drug use

In some countries the regulation of access is inadequate. In one country in the Region antibiotics are sold legally without prescription. In the same country it is possible to buy only part of a complete treatment course without advice being provided to the consumer resulting in resistance against the most common antibiotics.

In another Member State the new "fourth generation" antibiotics developed and reserved for particular conditions are being used indiscriminately as first choice drugs. As these antibiotics are more expensive than the more common drugs, an extra financial burden is placed on either the health care system or on patients, who in many countries will have to bear the costs. Most importantly, the effect of these antibiotics may be lost through development of resistance. In some countries even controlled drugs such as diazepam, are sold legally without prescription in accordance with national legislation but in violation of the international conventions on narcotic and psychotropic drugs. In other countries it is not unusual for patients who are feeling tired to visit hospitals to ask for vitamins to be administered intravenously. Unlicensed drug outlets without qualified pharmacists represent another problem. Patients may sometimes request drugs based on anecdotal stories from family members, friends and neighbours. In unlicensed outlets drugs are often sold without any diagnosis and without proper advice on dosage or duration of treatment.

In some countries, self-medication has led to irrational drug use because of unacceptable prescribing patterns, polypharmacy, uneducated and unlicensed drug sellers, unethical promotion of drugs and lack of standard treatment guidelines.

Proliferation of counterfeit drugs

Counterfeit drugs are an increasing problem in the Western Pacific Region. They may range from perfect copies of well-known brands to substandard drugs with or without active ingredients.

Counterfeit drugs represent a particular problem for self-medication because the general public finds it more difficult than prescribers, pharmacists and other drug sellers to identify such drugs. Patients may unknowingly purchase pharmaceuticals which may contain no active ingredients or fewer active ingredients than the label claims, leading to unsuccessful treatment and a waste of money. Appropriate legislation, drug registration, a good pharmaceutical inspectorate and collaboration between drug regulatory authorities, customs, police and the pharmaceutical industry are crucial to the fight against
counterfeit drugs.

**Unavailability of essential drugs**

In some countries and areas, the availability of essential drugs is still inadequate. This is true particularly in Pacific island countries which are far from manufacturers and suppliers and cover huge geographical areas. Problems of access and lack of infrastructure add to the problem. One such country is Papua New Guinea, where drugs have to be carried by foot to the most remote villages. These countries and areas have no local manufacturers of pharmaceuticals and need to import all their drugs.

**Other constraints**

Drug advertising, promotion and clinical trials are still not covered in all countries. Lack of trained staff remains a problem for implementation of policies and enforcement of legislation. Lack of adequate procedures for drug registration and quality assurance, as well as counterfeit drugs, remain problems in some countries and areas.

**FUTURE**

The pharmaceuticals programme will continue to provide technical support to Member States in developing and implementing national drug policies. Relevant plans of action will be developed to ensure that such policies are implemented and their impact monitored.

WHO’s support to Pacific Island countries will be based on the principles contained in the Rarotonga Agreement. Support will focus on strengthening drug supply management through exchange of information on drug supply. As an initial step, a quality assurance scheme for Pacific island countries will be established which will enable pharmaceutical products to be tested at one of the WHO collaborating centres on drug quality assurance.

The strengthening of the capacity and capability of drug regulatory authorities through direct technical support to selected Member States and sharing of information through the network and will continue to be an area of priority.

Rational drug use in the Region will be promoted by revising curricula for medical, pharmacy, dental and nursing students. Prescribers, dispensers and drug sellers will be made aware of the importance of rational drug use through dissemination of information and related activities geared towards proper drug use.
Chapter 11. Health information

All countries need good health information in order to plan effective health policies and strategies, and to manage and evaluate health programmes and services. Information is a means of arriving at better decisions. Quality information will lead to more efficient and appropriate use of scarce resources through better procedures, programmes and policies.

THEN AND NOW

In 1948, information systems were either not well developed or were almost non-existent in almost all countries of the Region. Scattered health statistics were collected on selected diseases such as malaria, tuberculosis, diphtheria and yaws as part of the disease surveillance system. Vital registration systems were not functional or were being developed. Vital health statistics suffered from poor coverage. Linkage between health information and programme management was weak.

At present, all countries in the Western Pacific Region have established health information systems. Greater awareness of the importance and use of information by health management has been observed in recent years. The scope of information collected has expanded from data on selected infectious diseases to data on socioeconomic conditions, health services, health resources, and morbidity and mortality statistics. Computerization has made the collection and utilization of health information more important than ever, but it has also posed new challenges. In most countries and areas of the Region health information is increasingly seen as an integral part of health services management.

WHO ACTIVITIES

The role of health information is closely associated with the planning and evaluation of health services and epidemiological surveillance of diseases. The effective utilization of health information depends very much on the timeliness, extent of coverage and accuracy of the data and on the management skills of the users. WHO’s work has followed two main lines of development: support to governments in order to improve their health statistics, and the use of sound statistical techniques in research and other programmes sponsored by WHO. The publication of international statistics and the development of international statistical standards, definitions and classifications to facilitate international comparability is one of WHO’s most important activities.

When the Western Pacific Regional Office started its activities in the early 1950s, health statistics in countries and territories outside Australia, Japan and New Zealand were inadequately developed. Statistics for the assessment of health needs were inadequate and vital and health statistics did not provide a sound basis for planning health programmes or for evaluating them. Basic problems included a lack of recent and reliable enumerations of population, underregistration of vital events, scarcity of trained statisticians and weak statistical information systems.

WHO’s initial efforts were directed at training of personnel. Training courses and seminars were organized to strengthen practical training in vital and health statistics. Fellowships were also awarded to upgrade technical skills in medical statistics. Support to teaching institutions started in 1953 when a WHO officer was assigned to the University of Malaya for two years to collaborate in the teaching of medical statistics to postgraduate students taking the diploma of public health. Similar arrangements were made for professionals in vital and health statistics to lecture at the Institute of Hygiene, University of the Philippines. These initiatives greatly strengthened the teaching of statistics and broadened the scope of the research work being carried out.

With the establishment of the three regional poliomyelitis reference laboratories in Japan, Singapore, and
the South Pacific, the need to improve national reporting systems to strengthen epidemiological surveillance became apparent. Practical training in statistics and the application of statistical methods to public health was emphasized.

WHO also supported vital and health statistics projects in the Philippines and Viet Nam; and hospital record projects in Malaysia; the Philippines, and Singapore. Countries began to realize the importance of hospital morbidity, mortality and utilization statistics to improve health planning and programme evaluation. In-service training by countries throughout the Region improved medical record systems in hospitals, especially coding and classification of diseases.

In the early 1960s, WHO assigned statistical advisers to specific projects. These included a BCG project in the Philippines, tuberculosis control and trachoma projects in China (Taiwan) and a tuberculosis control project in the Republic of Korea. The advisers provided statistical planning of surveys and helped to compile and analyze data. Advice was given on health survey methods, annual health reports and collection of information on health and socioeconomic conditions.

Towards the end of the 1960s and into the 1970s, most countries were placing increasing importance on planning, programming, management and evaluation of health services to improve the organization and delivery of health services. Efforts were made to develop health statistical services at various levels of the health administration, including improvement of recording and reporting, particularly at the periphery. More systematic procedures were introduced for the collection, analysis and compilation of health statistics.

With WHO support, statistical training courses for recording and reporting data at hospitals and health centres, collecting vital and health statistics, and improving medical certification on causes of death were intensified in Cambodia. Courses on recording and reporting of vital health data were undertaken and improvements to vital registration systems were made in the Lao People’s Democratic Republic. Support was provided to improve the medical records system in Tonga, Viet Nam, and Western Samoa; to upgrade the health statistics and epidemiological service in Hong Kong; and to build up a nationwide statistical system in Singapore.

In the early 1970s, WHO programmes emphasized the collection of information on morbidity and mortality and the systematic organization of statistical reports which were suitable for international comparison and met the requirements for national health planning and programme evaluation. Further support through intercountry projects improved the system of recording and reporting health activities at the national and peripheral levels in American Samoa, Cook Islands, Gilbert and Ellice Islands, British Solomon Islands Protectorate, Tonga, and Western Samoa. A monitoring system for communicable diseases was developed in Malaysia. In the Republic of Korea, support continued for the organizing and strengthening of the central statistical unit in the Ministry of Health and Social Affairs to improve the completeness and accuracy of vital registration. In South Viet Nam, procedures for collecting and processing health statistics including collection of demographic data through household surveys, were supported.

Cooperation to strengthen data processing capacity and introduce cross-sectional ad hoc surveys continued in Papua New Guinea and the Republic of Korea. The type and level of support depended on the size and needs of the country. In this period, for example, developing a simple data collection system for peripheral health services and introducing lay reporting of morbidity data in the New Hebrides were initiated. Statistical activities in support of other Regional Office health programmes increased significantly. These included preparing designs for tuberculosis and leprosy surveys in American Samoa and the independent state of Western Samoa.

To facilitate exchange of health information in the Region, basic data on administration, demography, economy, education, health and human resources, health planning, morbidity, mortality, and sanitation were collected at the Regional Office. Information was gathered through questionnaires and from relevant official publications, and compiled in the form of Country Health Information Profiles or CHIPs. Begun in 1974, CHIPs are of considerable value in disseminating health information and formulating WHO’s regional programme. They later became valuable briefing documents and many became the basis of country health programmes. Annual updating became a routine activity.

Towards late 1970s and early 1980s, several new developments in health information took place. Health statistics had slowly been integrated into health development programmes. The need to develop information support systems which provided the right type of information to the right people to enable them to carry out their managerial functions formed an integral part of health services development.

Medical record personnel from countries
throughout the Region were trained in the use of the Ninth Revision of the Manual of the International Classification of Diseases, Injuries and Causes of Death (ICD-9). By 1978, 190 coding supervisors and senior coders from 23 countries or areas throughout the Region had been trained. Studies to develop procedures for lay reporting of morbidity and mortality statistics were initiated in Fiji and Papua New Guinea.

"Country reviews" which formed part of the contribution to the Sixth World Health Situation report for the period 1973–1977 were received from 21 countries or areas (about 70% coverage). For the first time the health information contained in the country reviews was analysed regionally for health planning and prediction of future trends. An effective procedure was established for the consolidation each month of weekly epidemiological reports under the Expanded Programme on Immunization and for dissemination of the consolidated report known as the “EPI Leaflet”.

In the 1980s, the main thrust of the programme was to reorient and strengthen the health statistics services so as to provide information support for the development and management of health programmes.

The development of the health information systems in Malaysia and the Philippines initiated in 1976 led to the formulation of guiding principles for health information support. A methodology to establish a dynamic multipurpose and multi-user health information system was also developed and disseminated through a regional workshop on national health information systems, held in Kuala Lumpur in June 1980. Subsequent to this, national workshops were organized to formulate action plans to develop integrated health management information systems which provided training in data generation and utilization.

A working group on indicators for the monitoring and evaluation of strategies for health for all by the year 2000 was held in Manila in 1982. The indicators which were proposed for monitoring the implementation of health-for-all strategies were discussed with a view to formulating priority activities to facilitate the generation, compilation, processing and analysis of relevant data.

A basis for classifying and identifying health indicators for programme areas was developed and tested. The use of indicators to improve health development was also emphasized. Standardization of the classification of diseases through ICD-9 was promoted and some countries introduced problem-oriented medical records systems and developed hospital management information systems.

A regional databank for economic, social and health indicators (the WPRO databank) was established in 1979 and has since been regularly expanded and updated. This provided a database for the regional monitoring of national health-for-all strategies. The regional epidemiological database, updated periodically from weekly epidemiological reports, contains relevant data on 24 diseases of public health significance.

Biomedical information programmes were begun in 1984 to meet the need to establish an efficient regional telecommunication network for health and biomedical information. However, WHO also emphasized the strengthening of national networks based on the principles of resource sharing and technical cooperation among countries. The Government of Australia agreed to provide developing countries of the Region, through WHO, with Medical Literature Analysis and Retrieval System (MEDLARS) searches and photocopies.

Member States have also designated national focal points or focal libraries or both. These are responsible for the development of their own biomedical and library services. However, in many cases, they are constrained by shortages of trained health library and information service personnel. Many countries also lack facilities to provide for adequate accessibility to and dissemination and transfer of health literature and information at international, regional and national levels. To meet this need, workshops and regional training courses on health library operations and management have been organized and guidelines for the planning of health literature services have been provided to librarians.
From the mid-1980s, most countries have strengthened the managerial process of health service delivery, focusing on planning, financing, training and information. Development of information support to monitor progress towards health-for-all goals at the national and regional levels has been actively pursued. However, most countries still lacked health statistical and epidemiological surveillance services to support the delivery of primary health care at grassroots level. There was a clear need for better integration of health information activities with general health systems development, especially at the district level. Health indicators for programme monitoring and evaluation were developed in China, Papua New Guinea, the Philippines, and Tonga as part of management training courses. Participants learned about the use of data generated from district level for monitoring health problems and services in community and, of course, for resource allocation and staff supervision. Workshops were organized in the Lao People’s Democratic Republic and Viet Nam on improving management at the provincial level, using information from local reporting systems and population surveys. With quality assurance and costing emerging as management priorities, the importance of reliable medical record systems for better quality data was continually stressed. Since the second evaluation of the health-for-all strategy, more and better analysis is being done at the country level, especially within country comparisons of health services, health status and other indicators. Particular attention has been paid to the health status of special population groups and evaluation of programmes aimed at such groups.

The 1980s also saw the continuation of technical advisory services, notably in the South Pacific where support was provided for the strengthening of epidemiological surveillance for immunization, diarrhoeal diseases, and acute respiratory infections. WHO cooperated in improving the accuracy, timeliness and utilization of such epidemiological data.

The use of microcomputers in the Regional Office began in the early 1980s. Initially, the microcomputers were mainly used for word processing tasks, but by the mid-1980s they were widely used to process CHIPs, the WPPO databank, and other health programme databases. During their country visits, WHO intercountry statisticians promoted the use of the microcomputers by Ministry of Health officials to process not only the routinely collected health data but survey data as well.

With regard to the biomedical information programme, the acquisition of CD-ROM technology has added a new dimension to computer-based literature searching in the Regional Office library. Several networking courses have been held in China, the Lao People’s Democratic Republic, and Viet Nam to foster inter-library cooperation among member countries. More recently, emphasis has been placed on the microcomputer-based literature searching, copying and dissemination, including CD-ROM applications.

Based on the experience of Fiji, Papua New Guinea, the Philippines, and Vanuatu, a regional publication entitled Guidelines for the Development of Health Management Information Systems was published in 1993. An English version of the district health information system computer software package based on the experience in the Republic of Korea was developed for use by other countries and areas in the Region. More training opportunities have also been provided to show the advantages to be gained from linking epidemiology, informatics and management.

So far six countries in the Region have implemented ICD-10 and thirteen have either expressed interest or formulated plans to implement ICD-10 in the near future.

Recently, the health information programme has continued to focus on the development of health indicators to quantify progress in the operationalization of three themes of New horizons in health. Relevant health indicators to monitor health activities and evaluate national goals have been selected. Improvement of medical records systems and training in ICD-10 have been actively pursued in a number of countries to prepare for the implementation of ICD-10 in the near future.

Information technology support has been provided to a number of countries to accelerate data transfer, processing and dissemination of information. Network systems were also initiated in selected countries to strengthen epidemiological reporting and health situation assessment. Hardware support to upgrade the Chinese Medical Information Network in China has enabled more medical libraries to be networked.

**ACHIEVEMENTS**

All countries and areas have made significant improvements to their health information systems during the last 50 years, especially in the coverage of national data and in the accuracy, timeliness and dissemination of data.

A marked improvement in the use of information to support health management at different levels of the health organization has contributed to more rational decision-making. This has had a direct impact on the effectiveness and efficiency of the health care system.
The regional health database, especially the country health information profiles, greatly assisted analysis of the health situation and projections of health trends.

Speedier information feedback for epidemiological surveillance has been made possible with improved reporting and computerization.

Data quality, a key issue in quality assurance, has been improved through technical support for medical records management and utilization of ICD training courses.

Promoting the use of health indicators through the development of health information systems has resulted in a close alignment of management issues with information needs and the selection of relevant indicators for actions.

More efficient retrieval and use of health literature have facilitated health promotion and health research.

UNDERACHIEVEMENTS

Most countries still lack trained staff to carry out information-based management. The capability to analyse and use information is still weak in most developing countries. Mechanisms to continuously monitor the timeliness, use, and quality of data are generally lacking. In some cases, pilot systems have proved unsustainable due to poor infrastructure support. In almost all countries, there is a need to improve the integration of health information with programme planning and management. When successful, such integration gives a better understanding of the roles of information and the outcome its effective utilization will bring about. A concerted effort is needed to develop training courses that combine statistical and information expertise with management skills and methods. Not enough countries have established a national information policy or developed appropriate infrastructure support to guide the development of health information systems.

FUTURE

Despite the significant improvements made in health information, WHO will be redoubling its efforts to support countries to extend information coverage, enhance data quality and promote the use of indicators.

Promoting fast dissemination and sharing of health information through networking with the appropriate informatics support, particularly through the Internet, will remain an important part of the programme.

It is important that health information systems should not be the sole preserve of information specialists. More active participation by managers, planners and supervisors in information system development will help to create a better appreciation of the critical importance of the use of information management in performance assessment and resource allocation.

Although the information required for regional health situation analysis has improved, WHO will continue to provide training opportunities for field experience to bring together the disciplines of management, epidemiology and information management.
Chapter 12. Health research

Advances in medical research underlie almost all achievements in the field of health. A vibrant and innovative health research sector is now more important than ever, as the epidemiological transition currently being experienced by most countries and areas of the Region has led to a number of unexpected health problems. Rapid industrialization, urbanization and environmental degradation have had negative impacts on the health of the Region. Research is needed to prevent and cure these threats. The Regional Office’s support for medical research in the Region is focused on supporting research that is relevant to achieving health for all.

THEN AND NOW

Health research began at different times in the various countries of the Western Pacific Region. The earliest indication of research in Japan would appear to have been when an anaesthetic drug, sen tsu san, was used successfully during breast cancer surgery in 1805.

Research on medicinal plants has been carried out since ancient times in China. Li Shizhen (1518–1593), a physician and naturalist, published B è n Cá o Gâ ng Mù (Compendium of Materia Medica) in 1590. The book listed 1892 medical substances and over 10 000 herbal prescriptions with detailed descriptions of appearance, properties methods of collection, preparation and use of each of the medical substances.

Early in the 16th century, Chinese physicians discovered that variolation (deliberate inoculation with the smallpox virus) produced immunity. The first medical research institute in China was the Health Experiment and Research Center (now the Chinese Academy of Medical Science), established in 1932.

In the Philippines, the public health system, and consequently health research, was introduced during the Spanish colonial period. Scientific laboratories were established when the Americans took over in 1898.

In Australia, health research in a general sense began with the establishment of university medical schools in Melbourne in 1863 and Sydney in 1883. After the formation of the London and Liverpool Schools of Tropical Medicine in the United Kingdom in 1899, many such institutes were founded in the initial decade of the 20th century, including the Australian Institute of Tropical Medicine in 1909.

Dunedin was the cradle of medical research in New Zealand and no other centre in the country has such a rich history nor one going back so far, to well before the end of the 19th century. The university has played a pivotal role in the development of health research in New Zealand by emphasizing the value of original thought and making enlightened appointments to key academic posts.

When the European colonial powers met during the Conference of Berlin in 1885, a resolution was passed to undertake activities “to promote the moral and material well-being of the native population and to explore the great and unknown field of tropical medicine”. The French opened the Saigon Institute in Indo-China (now Viet Nam) in 1889 and another medical research laboratory in Nahtrang in 1895.

The British established the Pathological Institute in Kuala Lumpur, British Malaya (now Malaysia) as a research outpost for the London School of Tropical Medicine in February 1901. Soon thereafter, the institute became known as the Institute for Medical Research.

In the Republic of Korea, health research began with the establishment of the first medical school in Seoul National University in the 1930s. However, studies on traditional medicine may have been undertaken as long ago as the Chosun Dynasty (1100–1400).

WHO ACTIVITIES

At the outset it was decided that WHO would be the coordinator of a network of eminent scientists and national laboratories, selected for their technical excellence. This was the beginning of the twin concepts of the “WHO expert committee”, a group of first-class scientists selected for their expertise in a given subject, and the “WHO collaborating centre”, an existing laboratory, institute or university department with
high standards willing to share its expertise and resources with others. Over the years the expert committees and collaborating centres have grown steadily both in numbers and in disciplines covered.

WHO’s contribution has usually been small in monetary terms, as it has acted principally as a catalyst. In many cases initial input by WHO acted as a stimulant for subsequent action by communities and/or governments.

**WHO Research Programme**

WHO’s research policy was stated in a resolution of the Second World Health Assembly as follows:

*The Second World Health Assembly*

RESOLVES that the following guiding principles should be applied in the organization of research under the auspices of the World Health Organization:

1. research and coordination of research are essential functions of the World Health Organization;
2. first priority should be given to research directly relating to the programmes of the World Health Organization;
3. research should be supported in existing institutions and should form part of the duties of field teams supported by the World Health Organization;
4. all locally supported research should be so directed as to encourage assumption of responsibility for its continuance by local agencies where indicated;
5. the World Health Organization should not consider at the present time the establishment, under its own auspices, of international research institutions."

The WHO research programme is not limited to the support of medical research and the provision of services to research. Other aspects of the programme deal with the training of research workers and the improvement of communication among scientists. Collaborative research projects are supported through contracts with research institutions and grants to individual researchers. WHO also recruits teams of scientists for both the initiation of research projects and training of local personnel.

Medical research has always been an integral part of WHO’s programme activities. However, it was given fresh impetus in 1958 when the Eleventh World Health Assembly established the intensified medical research programme. The policies and objectives of the programme remained essentially the same as those listed above; but the approach was influenced by a number of developments. One was the increased use of data-processing techniques and consequent involvement of systems analysts, computer programmers and electronic engineers. The most significant structural development brought about by this trend was the establishment within WHO of the Division of Research in Epidemiology and Communications Science in 1967, following a resolution of the Nineteenth World Health Assembly. The creation of the new Division strengthened the Organization’s research programme by increasing contributions from the mathematical sciences and computer technology, behavioural and communications sciences, methodology of operational investigations and ecology.

Initially, research was primarily the responsibility of WHO Headquarters. However, in the 1970s the World Health Assembly advocated the regionalization of research. At this time, research was being undertaken mostly in developed countries and it was felt that research capability should be strengthened in developing countries where tropical diseases were prevalent.

At its twenty-sixth session in 1975, the Regional Committee for the Western Pacific welcomed the proposal that the Regional Committee and the Regional Office should become more involved in promoting and coordinating programmes of biomedical research, with an emphasis on applied research. It endorsed the proposals to strengthen and broaden the Region’s role in research, including development of databases for national and regional purposes; identification of national and regional priorities in research; establishment of national and regional mechanisms for the promotion and coordination of research; establishment of national medical research councils or analogous groups where necessary; and training in research. It also approved the establishment of a regional advisory committee to advise the Regional Director on research activities that might be considered by the Regional Committee for development. The establishment of the Western Pacific Advisory Committee on Medical Research in 1976 marked the beginning of the regional programme of research promotion and development.
Member States have been encouraged to coordinate their research activities and to link research priorities to the solution of major health problems. Focal points to coordinate and manage activities have now been established in 16 countries in the Region.

One of the most important goals of the health research programme is to develop a nucleus of research scientists. To support this there have been 20 national workshops on research design and methodology on health research in the Region since 1981.

The manual on *Health research methodology: a guide for training in research methods* was published by the Regional Office in 1992. Since then, the manual has been translated and published in Chinese, Khmer, Laotian, Mongolian and Vietnamese. Requests have also been granted to publish it in English in India and to translate it into Croatian, Bahasa Indonesia and into one of the languages of Pakistan.

Because research funds are limited, the emphasis is on applied or operational research instead of basic research. Available funds are too limited to support full-scale studies; however, in some cases the Regional Office has been able to provide "seed money" to enable researchers to start their research.

**Western Pacific Advisory Committee on Health Research**

In 1959 the Advisory Committee on Medical Research was established by the Twelfth World Health Assembly. The Advisory Committee met annually to review the WHO research programme and to advise the Director-General on research policy, priorities and the need for new research.

It had become apparent by the early 1980s that WHO was becoming more and more involved in a broad range of health research, such as biomedical, epidemiological, health systems, behavioural and socioeconomic research. The title of the Committee was therefore changed to the Advisory Committee on Health Research. This proposal was adopted by the Thirty-ninth World Health Assembly in 1986.

The Western Pacific Advisory Committee on Medical Research (WPACMR) met for the first time in 1976. The terms of reference of this Committee were to advise the Regional Director on: (1) defining policies for the promotion of research in the Region; (2) determining regional priorities for research and establishing mechanisms for this purpose; (3) coordinating areas of research between WHO Headquarters and the Regional Office, the Regional Office and the countries, and among the countries; (4) developing research capability in the Region; (5) establishing collaboration between global and regional advisory committees (6) establishing close contacts with national and international bodies engaged in biomedical research, and supporting the setting up of national health research councils or analogous bodies (HRC/AB) in countries where they do not exist; (7) collecting relevant data in the Region in order to develop a regional research information system; (8) stimulating research on priority problems; and (9) evaluating programmes in terms of stated objectives and the mechanisms for their implementation.

Membership of WPACMR is restricted to outstanding research scientists and research administrators from countries of the Region. The Committee consists of not more than 14 members representing a mix of disciplines. It met annually until 1986. In that year, the global Advisory Committee on Health Research decided to meet biennially rather than annually, so the Western Pacific Advisory Committee on Health Research (WPACHR) followed suit. Although in 1994 the global advisory committee decided to resume annual meetings, the WPACHR has continued to meet every two years.

Sub-committees of WPACHR coordinate research in particular fields. Currently there are three sub-committees: the sub-committee on health systems research was established in 1980, and those on environmental health and health promotion in 1990.

It is the responsibility of WPACHR to make recommendations with regard to the formulation and analysis of research priorities at regional level. The review and updating of priorities is a continuous process and priority research areas were established in 1976, 1982, 1984, 1986 and 1988.

In 1994 the joint meeting of WPACHR and the directors of HRC/AB recommended that priority be given to the development of a five-year strategic plan for health research in the Region. A task force met in 1995 to review the research needs of the major health programmes within the Regional Office and to recommend various priority fields of research linked to the three themes of the regional policy document, *New horizons in health*. The draft of the strategic plan was widely distributed for comments. The three sub-committees of the WPACHR met jointly in October/November 1995 and provided further input from their own perspectives. The strategic plan was finalized by WPACHR in 1996, and the *Strategic plan for health research in the Western Pacific Region 1997–2001* was published in 1997. The implementation of the plan will depend on the strengthened commitment to health research of the Member States and the Regional Office and on the enhanced networking and collaboration in research and development of new funding.
partnerships with partner agencies. A Committee on Strategic Plan Implementation was established to encourage, expedite and oversee the implementation process.

In 1980, the Working Group on Medical Research Councils and the WPACMR both considered that a national focal point or a functional medical and health research council was a necessary first step towards strengthening the national research capabilities and ensuring better utilization of research findings.

In 1982, a Working Group on National Health Research Management emphasized the need to streamline existing national research coordination mechanisms.

The directors of HRC/AB met in 1984 and 1989 and stressed the need for close and active collaboration between themselves and WPACHR and among the national health research councils or bodies themselves. The development of mechanisms was also urged for the exchange of health research information; for training much-needed research personnel at all levels and categories; for the effective transfer of appropriate technologies; for ensuring coordination of intersectoral activities; and for setting priorities for health research.

At its 1989 meeting HRC/AB recommended that its next meeting be held in conjunction with WPACHR to allow the two committees to share expertise and discuss country reports and other matters relating to health research management. This was endorsed by the WPACHR in 1990. Combined meetings of these two committees were held in 1992, 1994 and 1996 and gave rise to a unique and valuable grouping of research experts and administrators.

Many general issues were discussed at these meetings relating to the implementation of health research programmes. Health research in the Region was seen to be facing many challenges, some of which were the result of wide differences between countries in levels of socioeconomic development and rates of movement towards urbanization and industrialization. Others resulted from the geographical isolation of a number of countries. However, these differences also offered opportunities for effective partnerships between developed and developing countries, provided the problem of isolation could be overcome by improved communication and information networking. "Twinning" of research institutes was encouraged. It was recommended that regional experts should be available more freely in areas of need and that greater use should be made of existing centres of excellence, including WHO collaborating centres.

It was noted that the administrative infrastructure of research programmes at national level could be further improved in a number of countries.

Themes which recurred during these general discussions were those of coordination, strategic planning and training for research. An ever-present concern was the lack of sufficient funds for health research, which enhanced the need for careful and effective use of such resources as were available. It was argued that effective collaboration between countries should allow scarce funds to be utilized more effectively. Above all others, a need was identified for more effective communication and networking between countries. There were already encouraging signs that this was taking place, aided by new communications technology. Progress of research in some countries would be accelerated by a greater emphasis on training, including further workshops in research design and methodology and effective follow-up of trainees from such programmes. There was also a need to train the users of health research information, in both developed and developing countries.

A subregional meeting on health research management in the South Pacific was held in Fiji in 1991. Subjects discussed included special problems of research in the Pacific area; the work programme of the South Pacific Commission (now called the Pacific Community); the functions of a national health research council; the setting of research priorities, networking and information exchange; development of human resources for research; and technology transfer relevant to Pacific countries.

A number of barriers to research in Pacific countries were recognized. These included the problem posed by "helicopter research" (research by outsiders with no benefit to the country itself); the fact that the right questions were not always asked by research planners; the lack of local interest; the fact that research results were not always implemented; and poor communication and dissemination of research information.

WHO collaborating centres
A scientist in a WHO collaborating centre carries out a test to detect antibodies to the AIDS virus in a patient's serum.

The concept of using national institutions for international purposes dates back to the days of the League of Nations, when national laboratories were first designated as reference centres for the standardization of biological products. Immediately after the establishment of WHO, more reference centres were appointed, beginning with the World Influenza Centre in London for global epidemiological surveillance in 1947. Subsequently, the number of centres rapidly increased with the expansion of WHO's intensified programme of medical research.

Over the years the name of the centres has varied. Although the centres' activities extended beyond the "reference" services they were initially expected to provide, the term "WHO reference centres" was used for over 20 years. The WHO programme of immunology then created regional reference centres whose principal role was research and training. These were known as "research and training centres".

As time went by, the names became more artificial and confusing as the functions of these centres were closely connected. Therefore, the term "WHO collaborating centre" was adopted in 1973, with the title of each centre specifying its area of activity.

All collaborating centres have been designated in already existing institutions. In 1949, the Second World Health Assembly adopted the policy that the Organization should not consider "the establishment, under its own auspices, of international research institutions" and that "research in the field of health is best advanced by assisting, coordinating and making use of the activities of existing institutions."

A WHO collaborating centre forms part of a collaborative network that operates at country, intercountry, regional, interregional and global levels, as appropriate. In addition, a collaborating centre must participate in the strengthening of country resources in support of national health development. Hence, institutions which qualify as potential centres may be those having either high scientific and technical standing or, especially in developing countries, the potential for excellence.

The functions of the collaborating centres are varied and include: synthesis and dissemination of information; standardization; reference services and programme development support; research, including research planning, monitoring and evaluation; and training and coordination.

Exchanging information among the collaborating centres and other concerned institutions within or outside the country, particularly those that are part of the same WHO collaborative network, is of utmost importance.

Centres are used to standardize, among other things, terminology and nomenclature; diagnostic, therapeutic and prophylactic substances; and technologies, methods and procedures. Examples of such standardization include the international classification of diseases and the production of chemical reference substances in relation to the International Pharmacopoeia and national pharmacopoeias.

An example of the services provided by collaborating centres is epidemiological surveillance. During epidemics, collaborating centres have been involved in identification of causal agents and development of preventive measures. The role that these centres play in technical cooperation for national health development can be seen in the development of virus laboratories in many national institutions in developing countries involved in combating epidemics.

Collaborating centres are the pillars of the collaborative research efforts under WHO's leadership at all
levels and form a closely knit functional network. Activities of the networks should be planned, monitored and evaluated with the active participation of the scientific community at the national, regional and global levels.

With much emphasis on the strengthening of research institutions in the developing countries, the role of training, especially research training, has become essential. It is imperative that a core of qualified human resources be developed.

Some centres may have a coordinating function, whereby they promote, support and harmonize the work undertaken by a number of collaborating centres in a given network.

The first institution ever to be designated as a collaborating centre in the Region was the Laboratory of Microbiology and Pathology, Department of Health, Brisbane, Queensland, Australia. It was named in 1957 as the WHO Collaborating Centre for Reference and Research on Leptospirosis and is still active today. Figure 12.1 summarizes the activities of the collaborating centres in the Region.

From 1957 to 1979, the number of the centres gradually increased to 52. However, there has been a sharp increase since 1980 (Figure 12.2). During the period between 1980 and 1994, 165 centres were designated. The increase was primarily due to the recognition and designation of the many institutes in China since 1980.

Another factor responsible for this increase was the decentralization of the programme on research promotion and development at regional level since the mid-1970s. This resulted in the increased need for support from national institutions for collaboration, not only in biomedical research but also in WHO activities for national health development, especially health systems research. Yet another reason was the revision of WHO regulations for designating national institutions as WHO collaborating centres. The new regulations allowed more flexibility in designating institutions in developing Member States.

Currently, there are 218 collaborating centres distributed in 12 countries and areas of the Western Pacific Region. China with 68, Japan with 51 and Australia with 42 together comprise 73.9% (161 out of 218) of collaborating centres in the Region.

Thirty-six WHO programmes have at least one collaborating centre. The programmes with the largest number of centres are "other communicable diseases" with 24; "technology for health care" with 18; and "control of tropical diseases" and the "Special Programme of Research, Development and Research Training in Human Reproduction" with 14 (Figure 12.1).

National meetings involving collaborating centres have been held in five countries. In China, six national meetings for the directors of all WHO collaborating centres took place between 1988 and 1997. Collaborating centres in Malaysia have met annually since 1993 to discuss activities undertaken during the year. National meetings involving the heads of the collaborating centres have been held twice each in Australia, Japan and the Republic of Korea.
In China, meetings have also been held between all the collaborating centres of one discipline, e.g. primary health care; mental health/neurosciences; and occupational health. In addition, all collaborating centres from Shanghai have met at least five times.

Each collaborating centre is required to submit an annual report immediately after the end of each year. The progress made by the centre is reflected in this report, which covers only the activities of the institution as a WHO collaborating centre. The Regional Office noted that many of the collaborating centres were unaware of the existence of other centres in the Region or even of other centres in their own countries, even though they might be involved in similar programmes of work. A compendium summarizing the activities of WHO collaborating centres in the Western Pacific Region was prepared to bridge these gaps and promote information exchange and communication within the Region. It will be prepared annually to enable the centres to keep up-to-date with each other’s activities and to encourage collaboration.

WHO Regional Centre for Research and Training in Tropical Diseases and Nutrition

In 1978, an agreement was signed between WHO and the Government of Malaysia to establish the Institute for Medical Research (IMR) as the WHO Regional Centre for Research and Training in Tropical Diseases and Nutrition.

The objectives of the Centre were: (1) to develop, through biomedical research, new methods for the diagnosis, treatment and prevention of the major communicable diseases, with special emphasis on the parasitic diseases that prevail in the Western Pacific Region; (2) to train scientists and technicians in the Region in the proper conduct of research for the control of these diseases; and (3) to act as a focal point for the coordination of research and training in the Western Pacific Region.

WHO has provided support to strengthen epidemiology and biostatistics, medical entomology, immunology, clinical nutrition, and social and health behavioural sciences at the Centre. Major developments since 1978 have included: the setting up of an electron microscopy unit (1981); the establishment of a blood meal identification facility for disease vectors and of the human leukocyte antigen (HLA) tissue typing facility (1982); the setting up of the epidemiology and biostatistics division, the biotechnology unit, and on-line and off-line searches on the Dialog Information Services (USA) and MEDLARS (Australia) databases in the library (1986); and the establishment of the division of molecular pathology and the designation of the former division of medical ecology as the environmental health research centre (1996).

The Centre has provided training to doctors, scientists and other health workers from Malaysia and abroad. It offers a medical laboratory technologists course to meet the needs of the Ministry of Health for human resources in laboratory services. The Centre also hosts two Southeast Asian Ministers of
Education Organization - Tropical Medicine Programme (SEAMEO-TROPMED) courses leading to the Diploma in Applied Parasitology and Entomology and the Diploma in Medical Microbiology. Short-term training is provided to many WHO-sponsored scientists. In addition, staff members have served as faculty members of many WHO-sponsored national workshops on research design and methodology within the Region.

Five divisions have particularly close relations with WHO. The Biotechnology Centre serves as the WHO Collaborating Centre for Taxonomy, Immunology and Chemotherapy of Brugian filariasis while the Division of Medical Entomology is the WHO Collaborating Centre for Ecology, Taxonomy and Control of Vectors of Malaria, Filariasis and Dengue. The national focal point for the WHO collaborative surveillance programme on antibiotic resistance in the Western Pacific Region is the Division of Bacteriology. The Division of Library, Information and Publications acts as the national focal point for the WHO biomedical information programme. The Division of Virology serves as the WHO national influenza centre.

ACHIEVEMENTS

From the second decade of its existence, WHO enlisted the collaboration of the chemical industry. It was envisaged that industrial chemists in the private sector would produce and screen new compounds for effectiveness in their laboratories. The most promising products would then be evaluated by the network of WHO collaborating centres and scientists under field conditions. For example, in 1978 a major pharmaceutical company together with two WHO collaborating centres confirmed the efficacy and safety of using ivermectin to destroy *Onchocerca* worms in human beings. Further clinical studies showed that a small yearly dose of the drug provided safe, effective, long-term results. The company has subsequently provided the drug free-of-charge to all onchocerciasis victims through WHO. WHO has also tested insecticides developed by the private sector.

In 1974, the Member States of WHO decided to intensify research into malaria and other major tropical diseases. The Special Programme on Research and Training in Tropical Diseases was initiated to promote and coordinate the development of new tools for the detection, treatment and prevention of target diseases; and to strengthen the research capability of countries where tropical diseases were endemic. Scientists from the affected countries were trained so that they could take part in the research.

WHO has actively encouraged research into various alternative health solutions. This has included the greater use of allied health personnel and a study on the use of rice-water and similar ingredients that mothers may have more readily at home instead of using pre-mixed oral rehydration salts to control diarrhoeal diseases.

Respiratory infections are one of the main causes of deaths in young children. Research promoted and coordinated by WHO has determined that bacterial pneumonia is the main cause of death and that it can easily be cured with penicillin. Later studies which correlated clinical symptoms with laboratory findings made it possible to draw up standard descriptions of typical mild illnesses and typical life-threatening infections.

Finally, after many years of research, investigators have discovered some causes of cancer. New approaches to prevention and cure have evolved, which WHO has encouraged governments to integrate into national cancer control programmes. Currently, one third of all cancers can be prevented, one third can be cured with early detection and adequate therapy, and for the remaining one third, relief from cancer pain can be achieved.

Outstanding contributions made by the collaborating centres during recent years include the following. The Australian Army Malaria Institute, Enoggera, Queensland, Australia (WHO Collaborating Centre for Malaria), has made significant achievements in the field of *Plasmodium spp.* resistance to antimalarial drugs. The principal achievement has been the identification of *P. vivax* resistance to chloroquine in Papua New Guinea, Solomon Islands and Vanuatu. Previously, resistance to antimalarial drugs was found only in *P. falciparum*, and this finding has explained many of the questions which were being raised on the poor response being seen in vivax malaria cases to this commonly utilized drug. This continuing research will play an increasingly important role by helping to guide the way treatment regimens and national drug policies in malaria control programmes are organized and implemented.

From 1989 to 1993, a unique plasma collection scheme was carried out in Pacific island countries by the Research Centre for Liver Diseases, Kitasato Institute, Tokyo, Japan (WHO Collaborating Centre for Reference and Research on Viral Hepatitis), in collaboration with WHO. In many developing countries with small populations, local production of hepatitis B (HB) vaccine was inappropriate. Therefore, a scheme was developed where plasmas containing high-titred HB surface antigens were collected from small countries and sent to the collaborating centre in Japan for processing into HB vaccine. The vaccine
was then returned, without any cost, to the countries that provided the plasma. Eight Pacific countries participated in the plasma collection scheme.

The Public Health Institute, Ministry of Health, Kuala Lumpur, Malaysia (WHO Collaborating Centre for Health Systems Research), has been instrumental in the training and exchange of information on health systems research (HSR). The Institute was the prime mover in the development and testing of a five-volume set of learning materials on this subject. These materials have now been published by WHO and are used worldwide for training in HSR. In addition, the collaborating centre invites staff from other countries to participate in HSR training activities.

In cooperation with the Ministry of Health, China, and the Regional Office, the Hong Kong Society for Rehabilitation (WHO Collaborating Centre for Rehabilitation) set a goal of training 1000 rehabilitation workers in China by the year 2000. To achieve this goal, the Centre developed four different training strategies: (1) a certified one-year training course in applied rehabilitation for rehabilitation doctors was established in Tongji Medical University, Wuhan, China, in 1989; (2) a one-year certificate course in applied rehabilitation therapy for nurses and therapists was set up in Anhui Medical University, Hefei, China, in 1992; (3) short courses of one to four weeks on specialisms were provided; and (4) community-based rehabilitation mobile teaching teams were established in 1994. By the end of 1996, 2040 personnel had already been trained. In addition, the collaborating centre mobilized considerable financial resources and recruited many voluntary lecturers from Hong Kong and elsewhere for the training courses.

Collaborating centres have also played important roles in coordinating and conducting multicentre research projects linking several institutions within the country or the Region. Shanghai Mental Health Centre (WHO Collaborating Centre for Research and Training in Mental Health) undertook a multicentre study on the feasibility and effectiveness of a widely applied rehabilitation/family education and support programme in the community for schizophrenics in cooperation with four other centres in China: Hangzhou, Shandong, Shenyang and Suzhou.

The Mental Health Institute, Changsa, Hunan, China (WHO Collaborating Centre for Psychosocial Factors, Substance Abuse and Health) played an important part in a pathbreaking study on the "health care seeking behaviour of the mentally ill patients and their families in Asia". This was a multicentre behaviour study involving institutions in Changsa, China; Tokyo, Japan; Kuala Lumpur, Malaysia; Manila, the Philippines; and Seoul, the Republic of Korea.

The WHO Regional Centre for Research and Training in Tropical Diseases and Nutrition has published 90-100 papers annually. Some of the more notable studies include the establishment of the leaf monkey model of *Brugia malayi* infection for the screening and evaluation of antifilarial compounds; *in vitro* maintenance of the filaria parasite from the infective stage to the adult stage for antigen production, biochemical studies and screening of drugs; production of monoclonal antibodies against malaria and the filaria parasite for immunodiagnostics and research; establishment of the "liver yeast media" and "wet strength paper" for large-scale colonization of *Mansonia* mosquitoes; evaluation of a mixture of *Bacillus thuringiensis* H-14 and malathion for mosquito control. Collaborative studies have included: a community nutritional study (with Brunei Darussalam and the Lao People's Democratic Republic); regional collaboration for rapid malaria diagnosis in South-East Asia and China (with China and Thailand); and prevalence and causes of anaemia amongst women of child-bearing age in Vientiane Province, the Lao People’s Democratic Republic.

UNDERACHIEVEMENTS

The "underachievements" of WHO's support for health research in the Region mainly reflect the resource constraints of the many developing countries in the Region. The main constraints are lack of funds for applied research and research training grants; lack of qualified researchers; poor quality of research proposals; limited access to health research information; and lack of effective communication and networking between countries.

Analysis has revealed considerable variation in the performance of collaborating centres, from both a quantitative and a qualitative point of view. Many collaborating centres have been active but others have been quite inactive, especially those designated long ago.

FUTURE

The history of WHO has been one of adaptation to evolving circumstances, with priorities being changed from one period to another. This ability to adjust remains one of the Organization's greatest strengths.

Continued efforts will be made to strengthen the research capabilities in the Region by means of national
workshops on research design and methodology in developing countries, research training awards at all levels (scientific, technological and managerial), and research grants. Technical units will be encouraged to initiate commissioned research in the priority areas listed in the Strategic plan for health research in the Western Pacific Region 1997–2001. Countries will also be stimulated and supported to initiate operational research in priority areas. Research promotion activities will be directed at less developed countries such as Cambodia, the Lao People’s Democratic Republic, Mongolia and Viet Nam.

In order to look for more effective ways of making proper use of increasingly limited resources, the WHO collaborating centres will be encouraged to work together with WHO and among themselves to develop and support work in the priority areas identified by WHO.

Bringing the involvement of all collaborating centres up to the levels of the most active will continue to be a major task for the Regional Office.
Chapter 13. Traditional medicine

THEN AND NOW

The practice of traditional medicine varies widely, in keeping with the diverse social and cultural heritage of the different countries of the Region. Traditional Chinese medicine is a highly developed system, well documented and with its own body of theory. Traditional Chinese medicine was exported to neighbouring countries such as Japan, Republic of Korea and Viet Nam, which then developed their own variants. The practice of traditional medicine in these countries is also relatively sophisticated. At the other extreme, there are a large number of simpler systems, usually practised by smaller, more isolated ethnic groups. Such systems are usually empirically based and are transmitted orally from generation to generation.

Once modern medicine had been introduced into the Region, traditional medicine was usually rejected by the formal medical service system. In many cases the practice of traditional medicine was even prohibited and for many years it existed only as part of community and personal activities outside the official health system.

Attitudes towards traditional medicine have changed slowly. When the People’s Republic of China was established in 1949, the country was faced with the almost impossible task of rapidly expanding health services to cover China’s huge population. One of the measures adopted was the integration of traditional medicine into the health care system at all levels. China’s example has provided an important boost for WHO’s support for traditional medicine elsewhere in the Region.

In the Republic of Korea, a national medical law was passed in 1952 and traditional medicine was introduced into the health service as a parallel system alongside modern medical science. The discovery of side-effects of modern chemical medicines led to a resurgence of traditional medicine in Japan during the 1960s. Traditional medicine is an integral part of the formal health service delivery system in China, Japan, the Republic of Korea and Viet Nam, albeit in different forms. Other countries have proved more cautious about incorporating traditional medicine into the formal system, although to some extent traditional medicine is now used in most countries in the Region. It often provides a first-line health service to people living in rural and remote areas or an alternative form of medical care for city-dwellers. Even in countries where traditional medicine is used only in communities and private practices outside the official health service system, interest has increased greatly in the last decade at popular, official, and commercial levels.

There is no regional figure for the extent of traditional medicine usage. However, national data provide evidence that use of traditional medicine is increasing throughout the Region, in some cases quite sharply. Traditional therapies are applied in public hospitals in China, Japan, the Lao People’s Republic, Mongolia, Papua New Guinea, the Philippines, the Republic of Korea, Singapore and Viet Nam. In 1995, there were 2522 traditional medicine hospitals equipped with 353 373 staff and 236 060 beds in China compared with only 678 traditional medicine hospitals equipped with 73 458 staff and 49 977 beds in 1980. These hospitals treat 200 million outpatients and almost 3 million inpatients annually. In addition, 95% of general hospitals in China have traditional medicine departments which treat about 20% of daily outpatients.

In Singapore, two acupuncture clinics have been set up with WHO support. They are affiliated with public hospitals. In the Philippines, eight public hospitals provide acupuncture clinics and treatment. Several doctors at these hospitals have been trained in acupuncture with WHO support. In Viet Nam, 45 traditional medicine hospitals at national and provincial levels and 265 general hospitals provide traditional medicine services.

In Australia, 48.5% of the population used at least one non-medically prescribed alternative medicine in 1993 and the estimated national expenditure on alternative medicines and alternative practitioners is close to A$1000 million per annum. Of this, A$ 621 million is spent on alternative medicines. In Hong Kong, 60% of the population has consulted traditional medicine practitioners at one time or another. In Singapore, 12% of daily outpatients visit traditional medicine practitioners. The Singapore Trade Development Board has reported that Singapore imported US$ 79 million worth of herbs and ginseng in 1993 and re-exported $ 13 million worth of these products during the same year.

There are 30 universities or colleges for traditional medicine in China, with an enrolment of 37 000 students.
In the Republic of Korea, there are 11 colleges providing formal education on traditional medicine and there are about 9210 licensed traditional medicine doctors. In Australia, three universities provide full-time courses on traditional medicine.

**Figure 13.1 Traditional medicine hospitals in China (number of hospitals)**

![Graph showing traditional medicine hospitals in China](image)

**Figure 13.2 Number of staff and ward beds in traditional medicine hospitals in China**

![Graph showing staff and ward beds in traditional medicine hospitals in China](image)

**WHO ACTIVITIES**

Traditional medicine is particularly suited to primary health care. Because traditional healers already practise in nearly all countries of the Region, a form of health care coverage that is culturally acceptable to the local population already exists and is dealing more or less satisfactorily with many of the health problems of local people.

The return of the People’s Republic of China to WHO in 1972 provided a great stimulus to the study and practice of traditional medicine in the Region. China’s successful integration of traditional Chinese medicine into the formal health delivery system has been particularly studied. WHO has supported numerous study tours to examine various aspects of health care in China. These have aroused widespread interest throughout the Region in Chinese and other traditional systems of medicine, their philosophies, methods of therapy, and their results.

The growing worldwide recognition of the role of traditional medicine can be seen by the fact that in May 1976 the World Health Assembly discussed the contribution that traditional medicine could make to health and encouraged countries to take into account the potential contribution that could be made by traditional medicine practitioners. Another international event that activated interest in traditional medicine was the adoption of the Alma-Ata Declaration in 1978. The Alma-Ata Declaration specifically recognized traditional medical practitioners, including traditional birth attendants, as important allies in achieving health for all through primary health care. The report of the meeting recommended that medical practitioners be selected as community health workers and that the list of essential drugs for primary health care should include traditional remedies.

A number of resolutions related to traditional medicine have been adopted by the World Health Assembly...
and the Regional Committee. They urge Member States to develop programmes in traditional medicine and to improve cooperation between traditional and modern medicine.

**Use of traditional medicine to support primary health care**

In 1983, a Working Group on the Integration of Traditional Medicine in Primary Health Care was held in the Regional Office in Manila, the Philippines. An Interregional Seminar on the Role of Traditional Medicine in Primary Health Care in China was held in China in October 1985. This gave national health policy-makers throughout the Region an opportunity to see how traditional medicine was used in the delivery of primary health care in China.

WHO has sought to promote the use of simple traditional remedies which can be incorporated into primary health care in China, the Lao People’s Democratic Republic, the Philippines and Viet Nam. WHO’s work in Viet Nam is a good example of how the application of simple traditional medical practices can bring about both health and financial benefits. In 1991, WHO supported the introduction of a community-based traditional medicine programme in Binh Luc District, Namha Province in Viet Nam. The programme has since been carried out in 12 provinces. The programme includes identifying local plants with medical value, introducing the use of these plants to community health workers, teachers and women’s groups, setting up herbal gardens in villages and educating the public. Local residents benefited not only medically but also economically by using locally available and affordable remedies.

Traditional medicine also has a long history in the Pacific islands. WHO has provided support, including consultancy services and organizing workshops and training courses, to Pacific island countries to raise their awareness of traditional medicine. Health authorities have been encouraged to become involved in the use of traditional medicine to support primary health care. The most notable example of such cooperation between WHO and national health authorities came at the Meeting of the Ministers of Health for the Pacific Island Countries in August 1997 in Rarotonga, Cook Islands. The Rarotonga Agreement that resulted from this meeting identified traditional medicine as one of four areas warranting particular attention from Pacific island countries. It recommended that steps should be taken to incorporate its use in the health care system.

In many developing countries, traditional healers are essential human resources for health care in rural communities, but most have had no formal training in primary health care. WHO has therefore provided training to traditional healers in the Lao People’s Democratic Republic, Mongolia, the Philippines and Pacific island countries. The objective has been to use trained traditional healers as public health educators or primary health care providers. The Regional Office has prepared a training package containing simple language and pictures for traditional healers. A trainer’s guide has also been prepared.

Because traditional medicine is often more culturally accessible than modern medicine, it can be mobilized not only for curative purposes, but also for preventing diseases and promoting health. For example, projects for health of older persons using traditional medicine and traditional physical exercises have been implemented in Viet Nam.

**National policy development**

It is difficult to use traditional medicine effectively to support primary health care without the commitment of governments. In turn the government’s involvement needs a national policy that provides a clear statement on the role of traditional medicine and the government’s position with regard to the relationship between traditional medicine and the official health service system. The adoption of such a policy will be particularly helpful in establishing appropriate standards for traditional medicine.

WHO has supported several countries and areas in the Western Pacific Region to develop national policies on traditional medicine. Technical support and advice was provided to the Government of Hong Kong to develop a policy on traditional medicine. In Singapore, WHO was also asked to work with the Ministry of Health and the Committee on Traditional Chinese Medicine to review the role and current practice of traditional medicine and to recommend measures to safeguard patients’ interests and safety. The report submitted by the Committee has become the basis for Ministry of Health policy. In Viet Nam, WHO provided support for the drafting of a government document on national policy on traditional medicine and for a survey on the role of traditional medicine in selected provinces. In Malaysia, WHO has been involved in the work of the Steering Committee of Traditional/Complementary Medicine which was asked by the Minister of Health to provide suggestions on policy issues relevant to traditional medicine. Technical support has also been provided to the Lao People’s Democratic Republic, Mongolia and the Philippines for national policy development.

Guidelines for the appropriate use of herbal medicines have been prepared. They cover a broad range of topics in relation to herbal medicines, with particular emphasis on national policy development, development
of national programmes, regulation of practice and registration of herbal medicines.

**Medicinal plants and herbal medicine**

To promote the proper use of medicinal plants and herbal medicines, lists of commonly used medicinal plants have been prepared in several countries. The basic criteria for selection are: (1) the plants should be locally available; (2) they should be used for the control of common health problems in the country; and (3) reference materials on their safety and efficacy should be available.

In the Philippines, with the support of the Philippine Council for Health Research and Development, Department of Science and Technology, 10 medicinal plants were selected and recommended by the Department of Health. A small booklet which provides information on their medicinal value was printed in five local dialects and widely distributed. Three of the selected plants have been produced in tablet form under Department of Health supervision. In the Lao People’s Democratic Republic, 30 commonly used medicinal plants have been selected in collaboration with the Research Institute of Medicinal Plants, Ministry of Health. A booklet entitled *The medicines in your garden* was published in Laotian to provide information on the identification, collection, utilization and scientific basis of these plants. Since 1993, training courses on medicinal plants have been conducted in various provinces of the Lao People’s Democratic Republic to promote the proper use of the selected plants in supporting primary health care.

To disseminate traditional knowledge on medicinal plants beyond its original ethnic group, a series of publications on medicinal plants has been published by the Regional Office. These include *Medicinal plants in China*, *Medicinal plants in Viet Nam*, *Medicinal plants in the South Pacific* and *Medicinal plants in the Republic of Korea*. *Medicinal plants in Japan* is being prepared. Several of these titles have been reprinted and titles have been translated into Italian and Korean, among others.

Computer databases on traditional medicine have been developed by WHO collaborating centres in China and the Republic of Korea. In 1997, two information and documentation centres were set up in Hanoi and Ho Chi Minh City for information dissemination on traditional medicine in Viet Nam.

The improvement of the quality of herbal medicine products is another area where WHO support has been provided. In China, workshops and training courses have been held on quality control of herbal products and heavy metals in herbal medicines. In February 1997, the first national workshop on adverse reactions to herbal medicines was held in China. During the workshop, a plan of action for monitoring adverse reactions to herbal medicines was prepared for Guangdong Province. A training course for doctors and pharmacists on adverse reactions to herbal medicines was also conducted in Guangzhou, China, in December 1997. Consultancy services have been provided to Cambodia and Mongolia on the quality of herbal medicines. In March 1996, in Viet Nam, "Regulations on the safety and efficacy of traditional Vietnamese medicines" came into force, following a series of meetings funded by WHO. Good manufacturing practice (GMP) for herbal medicine products has been implemented in China and Malaysia. A monograph on medicinal plants, which is an official document providing a standard reference pertaining to the quality and safety specifications of selected medicinal plant species, is being prepared by the National Pharmaceutical Control Bureau, Ministry of Health, Malaysia. A collaborative research project on pesticide residue in medicinal plants is being conducted by WHO collaborating centres for traditional medicine and for food contamination monitoring in China.

Medicinal plants and herbal medicines have been used for hundreds of years and in many cases there is already a strong body of knowledge on their use. However, scientific research will provide additional evidence on their safety and efficacy. Research projects funded by WHO include a survey on medicinal plants in the Lao People’s Democratic Republic; research on dihydro-qinghaosu, or dihydro-artemisinin, an anti-malarial drug for multidrug resistant cases; and a study on the use of herbal medicines for cancer and for the rehabilitation of patients suffering from cerebrovascular diseases in China. WHO support for research on traditional medicine is focused on the upgrading of research capability, where appropriate, using the principles and methods of modern scientific research. Guidelines on research methodology have been prepared and workshops and training courses on research methodology were conducted in China and Viet Nam. WHO fellowships have been awarded to researchers from Cambodia, China, the Lao People’s Democratic Republic, Mongolia, the Philippines and Viet Nam to learn research methods and new techniques from abroad.

**Acupuncture**

Acupuncture is a simple, effective and cost-effective therapeutic technique. In June 1979, a provisional list of 43 diseases and disorders that lend themselves to acupuncture treatment was drawn up by a WHO Interregional Seminar on Acupuncture, Moxibustion and Acupuncture Anaesthesia held in Beijing, China. Although the selection of the diseases and disorders is based on clinical experience and not necessarily on
controlled clinical research, the list attracted the attention of health authorities and interest from medical professionals and the public.

Many medical professionals in the formal health sector are interested in learning about acupuncture. Since 1975, WHO has been supporting acupuncture training of medical doctors and other health workers. Three international acupuncture training centres have been established by the three WHO collaborating centres for traditional medicine in Beijing, Nanjing and Shanghai, China. They offer a three-month basic course and three-month advanced courses on acupuncture for foreign doctors. At the end of the training courses, the participants are equipped with the basic theories of traditional Chinese medicine and have mastered the preliminary needle techniques. They are therefore able to use acupuncture to treat common diseases and disorders. More than 9000 medical practitioners from 121 countries have been trained in this way. Chinese acupuncture training teams have also been sent to Papua New Guinea and the Philippines to train local medical doctors.

**Figure 13.3 Share of herbal medicines in the drug market in China, 1995**

Laboratory research into acupuncture analgesia has been conducted by WHO collaborating centres for traditional medicine in Beijing and Shanghai, China. The results showed the involvement of endogenous opioid peptides and other neurotransmitters in acupuncture analgesia. Such research has contributed to a wider acceptance of acupuncture by formal medical society. Clinical research on acupuncture has also been conducted in China, Singapore and Viet Nam. To improve clinical research capability, guidelines for clinical research on acupuncture have been prepared by the Regional Office.

**ACHIEVEMENTS**

WHO’s support has encouraged health authorities in the Western Pacific Region to give careful consideration to supporting the proper use of traditional medicine.

There are now 10 countries and areas in the Region (China; Hong Kong, China; Japan; the Lao People’s Democratic Republic; Macao; Mongolia, the Philippines; the Republic of Korea; Singapore and Viet Nam) which have developed policies on traditional medicine. China; Hong Kong, China; the Philippines; the Republic of Korea; Singapore and Viet Nam have created responsible government bodies for traditional medicine. Hong Kong and Malaysia have appointed advisory committees on traditional medicine. These are significant developments and indicate a generally held realization in the Region that traditional medicine has a great deal to offer to the Region. WHO has played an important catalytic role in this increased acceptance of traditional medicine.

Herbal medicines are responsible for an increasing share of the drug market in the Western Pacific Region. In 1995, the total production of herbal medicines in China reached 17.57 billion Chinese yuan an increase of 212.6% since 1990. In that year sales of herbal medicines accounted for 33.1% of the drug market in China.

Twelve countries and areas in the Region have or are developing measures for the registration and control of herbal medicines. They are Australia; China; Hong Kong, China; Japan; the Lao People’s Democratic Republic; Macao; Malaysia; New Zealand; the Philippines; the Republic of Korea; Singapore; and Viet Nam. GMP for herbal medicines has been implemented in China, Japan, Malaysia and the Republic of Korea.

In 1997, a research project on dihydro-qinghaosu, funded by WHO, was selected as one of the top 10 achievements in health care in China. A WHO-supported research project on testing methods and standard limits for heavy metals in 13 patented Chinese traditional medicines received a Government award for scientific research on traditional medicine in China.

Different naming systems have hindered information exchange on traditional medicine. The Regional Office worked from 1982 to 1987 to develop a standard acupuncture nomenclature which was adopted by a Scientific Group on International Acupuncture Nomenclature which met in Geneva, Switzerland, in 1989. The
Regional Office subsequently published two pamphlets, the *Standard Acupuncture Nomenclature*, Parts 1 and 2, which have been distributed throughout the world.

**UNDERACHIEVEMENTS**

Rapid economic development in the Region and the availability of pharmaceutical products (including counterfeit drugs) has in some cases resulted in scepticism about the role traditional medicine can play in the urbanized and sophisticated societies of the newly developed and industrializing countries of the Region.

Ignorance of existing practices of traditional medicine for many people as a first-line health service or as an alternative approach, has inhibited some governments from supporting traditional medicine.

Recognition of the value of traditional medicine is not always accompanied by strong support or the development of vigorous programmes at national or local levels. Implementation of government policies is often slow because of health authorities’ lack of experience of traditional medicine.

Some medical professionals are doubtful about the efficacy of traditional medicine, because they are used to more scientifically-based evidence on which to judge medical techniques and products. The different philosophical backgrounds of traditional and modern medicine often lead to mutual incomprehension.

**FUTURE**

The Regional Office will continue to develop, expand and adjust as necessary the technical, managerial and administrative tools needed for the formulation and implementation of national traditional medicine policies in accordance with requests and requirements of countries in the Region. The Regional Office will strengthen its support for countries in developing and implementing their national traditional medicine programmes. A mechanism for ensuring the safety and control of herbal medicines needs to be introduced as part of its formal incorporation into the health service system. Scientific research on traditional medicine will be further strengthened to provide additional evidence on the safety and efficacy of herbal medicine. Commonly used medicinal plants will be selected in other countries, such as Cambodia and Mongolia. Support will be given to Pacific island countries to organize more activities in the field of traditional medicine in collaboration with health authorities. Improving research capacity and quality assurance of herbal medicine will still be the priority in China and other countries.
Chapter 14. Acute respiratory infections

Acute respiratory infections (ARI) are the most common cause of death in children under five years of age. Most ARI deaths are due to pneumonia, a disease that can be effectively treated with low-cost oral antibiotics. Most of these deaths could, therefore, be avoided.

Children all over the world suffer from frequent ARI, many episodes of which are self-limiting infections of viral origin such as coughs or colds. However, ARI are often associated with life-threatening pneumonia, which kills about 2 million children under five years of age annually in developing countries. Many of these deaths occur during the first year of life, and at home. Such cases never reach health facilities and the deaths are therefore never officially recorded. While viruses are the predominant cause of pneumonia in developed countries, there is strong evidence that bacteria cause a large proportion of childhood pneumonia in developing countries. The bacteria which are mostly commonly isolated in children between two months and five years of age are *Haemophilus influenzae* and *Streptococcus pneumoniae*.

**THEN AND NOW**

Data from the 1950s on ARI are unavailable, but it seems certain that then, as now, ARI were responsible for very large numbers of deaths of children. In the Western Pacific Region, ARI are still the greatest single cause of childhood mortality, being responsible for almost 20% of deaths of children under five years of age. Most of these deaths take place in seven countries (Cambodia, China, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, the Philippines and Viet Nam).

ARI are a major economic burden on families and the health care system. One in three hospital admissions of children in developing countries is due to pneumonia. Treatment of ARI also often involves the unnecessary or inappropriate use of antibiotics and other drugs in outpatient services.

**WHO ACTIVITIES**

In September 1979, the first meeting of the Regional Advisory Panel on ARI reviewed the regional programme, which had been outlined by a task force. The Panel stressed the importance of improving clinical management and epidemiological research. In October 1979, the Thirty-second World Health Assembly adopted a resolution requesting the involvement of Member States in the control of respiratory diseases and asked them to accord high priority to research activities for the development of simple and effective methods for the prevention of these diseases, their timely detection and diagnosis, and appropriate curative services. A multidisciplinary research project based in Goroka, Papua New Guinea, was begun in 1979.

In 1980, a resolution of the Regional Committee urged Member States to give high priority to the reduction of mortality in children as well as to the reduction of morbidity. The resolution also requested the Regional Director to collaborate with Member States in establishing means to monitor, investigate and control ARI in defined populations using standardized methodology. Following the project in Papua New Guinea, epidemiological and etiological research started in China in 1980 and in the Philippines in 1981. All these projects provided important data for understanding the nature and magnitude of ARI in the Region.

The WHO ARI programme was officially established at the global level in 1982. In August 1982, a group of ARI researchers reviewed the progress of research in the Western Pacific Region. One of their most important conclusions was that, though there was still a need for additional research, particularly in the area of health services delivery, sufficient technology was already available, and sufficient information had been provided by projects already carried out, for countries to initiate a phased prevention and control programme. The regional programme for ARI then gradually shifted its emphasis from biomedical research to operational research and programme implementation.

On the basis of research and experience in Papua New Guinea and other countries, a standard method for case management has been developed to enable primary health workers to: (1) recognize important
signs and symptoms such as fast breathing and chest indrawing; (2) determine the nature of cases, whether mild, moderate or severe; and (3) decide whether antibiotics should be given and whether patients should be referred to hospitals. The same information has been given to mothers through health education.

In Viet Nam, studies on epidemiology, etiology and clinical aspects began in 1983, and a control programme in selected areas was started in 1985. An intervention study was started in Bohol, the Philippines, in 1984 which aimed to develop, implement, and evaluate improved case management and health education on ARI within the context of primary health care.

In the Western Pacific Region, the ARI programme was established in 1986. The first regional workshop on ARI was held in Manila, in November 1986, in the course of which guidelines for the development of national ARI programmes were formulated. By the end of the 1980s, through consultations and national workshops, WHO had supported the establishment of national control programmes in 11 countries of the Region.

Since the development of WHO’s standard case management guidelines the programme has concentrated on the establishment and expansion of national control programmes. Priority has been given to training health workers on standard case management. At the same time, a number of training units have been established to provide suitable equipment and to train and supervise staff. WHO materials such as training modules for health workers, flipcharts and treatment charts have been distributed to countries.

In most cases, education on home care is delivered by health workers to caretakers. Efforts have therefore been made to improve the interpersonal communication skills of health workers.

In the 1990s, more modules and tools were developed in order to strengthen particular elements of ARI activities: programme management, surveys and programme reviews.

In 1996, the WHO Control of diarrhoeal disease (CDD) and ARI programmes were merged in the Regional Office. This was mainly because both programmes were targeted at children under five years of age; integrating them made both programmes more effective. As a result, objectives for the Diarrhoeal and acute respiratory disease control programme (CDR) were redefined (see box).

Control programmes have been established in all the developing countries in the Region where ARI are a major public health problem for children. At the national level, most activities have been implemented jointly with CDD in Cambodia, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, the Philippines and South Pacific countries. Due to the structure and organization of the health care delivery systems in China and Viet Nam, the programmes are implemented vertically. National policies and plans of action have been prepared and revised in Cambodia, China, the Lao People’s Democratic Republic, Papua New Guinea, the Philippines and Viet Nam. Annual review and planning meetings have been held in these countries in order to replan activities and to improve the efficiency and cost-effectiveness of programme implementation.

**Main objectives of the Diarrhoeal and acute respiratory disease control programme**

- To reduce mortality and morbidity from acute respiratory infections, particularly pneumonia, and diarrhoeal diseases in children below five years of age.
- To reduce overall childhood mortality through the implementation of standard treatment of acute respiratory infections, diarrhoeal diseases, malaria, measles and malnutrition.
- To reduce inappropriate use of antibiotics and other drugs used in the treatment of major childhood illness.

Training of health workers in case management with an emphasis on hands-on practice and improving the communication skills of health workers has remained the priority activity for most of the national programmes. In order to familiarize trainers with participatory training methods and to update their knowledge and skills on ARI standard case management, training of trainers courses have been conducted in Cambodia, China, the Lao People’s Democratic Republic, Mongolia, the Philippines and Viet Nam since the early 1990s. Many combined ARI/CDD case management training courses have been carried out throughout the Region, promoted by WHO. Programme management training courses have been conducted for provincial programme staff in Cambodia and the Philippines, in order to improve mid-level health managers’ skills in effectively planning and managing their programmes. Activities to strengthen teaching of CDD and ARI in medical and allied health workers schools have continued in the Region. Training and reference materials have been translated into Chinese, Khmer, Lao, Bahasa Malaysia, Mongolian and Vietnamese.
To identify local terms describing signs and symptoms of ARI, focused ethnographic studies were conducted in China (1993 and 1995), the Philippines (1993) and Viet Nam (1992). The results of these studies were used to develop appropriate communication messages and materials. Based on a qualitative community-based study on knowledge, beliefs and practices, a communication project targeted at grandmothers was developed in the Lao People’s Democratic Republic (1995 to 1997).

ARI/CDD programmes have been monitored and evaluated through field visits, surveys, programme reviews and planning meetings.

ACHIEVEMENTS

All the developing countries of the Region where ARI pose a public health problem for children have now established national ARI programmes. In several of these countries, national policies supporting programme objectives and strategies have been developed. To help monitor and evaluate these ARI programmes, key indicators have been introduced. They include indicators of the process of programme implementation (e.g. proportion of facilities with trained staff, availability of antibiotics needed to treat pneumonia), and programme outcomes at both the health facility level (e.g. proportion of cases correctly managed) and at home (e.g. appropriate careseeking behaviours for ARI needing assessment).

These indicators were incorporated into ARI health facility surveys and household surveys. ARI health facility surveys were carried out from 1992 to 1996 in China, Malaysia, Papua New Guinea, the Philippines and Viet Nam. The results showed that a very high percentage of children were correctly classified as having pneumonia but that only 50%–60% were treated correctly. In addition, from 1993 to 1995, household surveys were conducted in China, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, the Philippines and Viet Nam. These household surveys indicated that caretakers’ knowledge of when to seek care for coughs was low.

The measurement of programme impact in terms of ARI death reduction in children under five years of age remains beyond the reach of most national programmes. However, some surveys carried out on a limited scale have shown encouraging results. A survey that was conducted in Viet Nam at the end of a project on ARI control showed a significant reduction in child mortality (60%) at the most peripheral level of the public health services (commune health services) following the introduction of ARI case management. Such results must be interpreted with caution as they apply only to the area where the survey took place, which is usually a site where the ARI programme is most active. The data do not, therefore, necessarily represent the national trend, but they do give some indication of the general effectiveness of the programmes.

UNDERACHIEVEMENTS

One of the main reasons for the stubborn persistence of ARI as a leading cause of death among children in the Region is the fact that children are brought for treatment too late. Therefore WHO will continue to stress the need for caretakers to recognize the danger signs as soon as possible.

Health workers’ performance does not always reach expected targets, despite considerable training efforts. Health workers are often overworked and have to cope with shortages of essential drugs. The frequently overlapping signs and symptoms of ARI can make case management of ARI complex.

Training courses did not always achieve the required standards. Logistical problems have often impeded follow-up visits, which are of crucial importance for newly trained health workers.

Some countries of the Region are experiencing major changes in their health sectors and have rapidly expanding private sectors. Health providers from outside the public sector need to be more closely involved in case management and prevention activities.

FUTURE

The programme will continue to strengthen the capacity of national programmes to plan, implement and evaluate ARI/CDD activities. Priority will continue to be given to training health workers in case management, with increased emphasis on hands-on practice and communication skills. In order to reinforce programme sustainability and reach emerging private sectors, special attention will be given to pre-service training in medical and allied health workers schools.

More effort will be dedicated to the introduction of the Integrated Management of Childhood Illness (IMCI),
which was developed jointly by WHO and UNICEF in the 1990s. In the long term, ARI and CDD programmes will be coordinated within the IMCI strategy. The IMCI strategy involves: (1) improvement of the case management skills of health workers through the provision of locally adapted guidelines on ARI, dengue haemorrhagic fever, diarrhoea, malaria, measles and malnutrition and activities to promote their use; (2) improvements in the health system required for effective management of childhood illness; and (3) improvements in family and community practice. The IMCI will be a priority of programmes which aim to reduce death and the frequency and severity of illness and disability, and to contribute to improved growth and development of the child. IMCI has already been introduced in the Philippines and Viet Nam and it will be soon proposed for all countries with infant mortality rates of 40 per 1000 live births or higher.
Chapter 15. Dengue

Dengue virus causes two clinically distinct diseases, dengue fever (DF) and dengue haemorrhagic fever (DHF). Until 1948, the year of WHO's foundation, humans were only familiar with dengue fever, a flu-like acute illness. Reliable dengue statistics for Asia were not available in 1948, the year of WHO's foundation, although a number of outbreaks of dengue fever or dengue-fever-like illness had been recorded in America, Asia and Oceania. This was because of the low awareness of the significance of dengue infection and lack of laboratory confirmation, except in countries such as Australia and Japan. However, dengue fever is now a significant threat to public health in several countries of the Western Pacific and South-East Asia Regions of WHO.

THEN AND NOW

The dengue virus was first isolated in the Philippines. It was subsequently discovered that there are four types of dengue virus. Dengue haemorrhagic fever is a severe form of dengue infection which mostly affects young children and is characterized by high case fatality rates. During the 1950s and 1960s, DHF was recognized in many countries in the South-East Asian and Western Pacific Regions of WHO, including Bangladesh, India, Indonesia, Malaysia, Myanmar, Singapore, Sri Lanka, Thailand, and Viet Nam. In the Region of the Americas, the successful Aedes aegypti eradication programme meant that dengue had disappeared from many countries. However, the failure to eradicate the mosquito carrier resulted in the re-emergence of DF and, later, the emergence of DHF in the Region of the Americas.

Today, dengue is prevalent in more than 100 countries and areas, including many in the Regions of the Americas, South-East Asia and the Western Pacific. The global prevalence of dengue has grown in recent decades (Figure 15.1). It is estimated that about 500,000 people with DF or DHF, many of whom are children, are hospitalized each year worldwide. In the Western Pacific Region, DF and DHF are major public health problems in more than 15 countries and areas. These include Cambodia, China, the Lao People’s Democratic Republic, Malaysia, the Philippines, Singapore, Viet Nam, and many Pacific island countries. About 1.78 million dengue cases were officially reported to WHO from 1981 to 1996. During the period, more than 60% of the reported dengue cases in the Region were from Viet Nam (Figure 15.2). In industrializing countries in the tropical zone, such as Malaysia and Singapore, the incidence of dengue declined during the 1980s due to successful vector control programmes, but both countries have reported a resurgence of the disease since 1994.

WHO ACTIVITIES

During the 1960s, the main activities of WHO were focused on DHF surveillance based on a network of hospitals connected with laboratories. Since the early 1970s, WHO's activities have expanded to include vector surveillance and control, case management, coordinating information exchange, supporting applied research, including vaccine development, laboratory-based disease surveillance and public health education. Technical collaboration has been provided to countries in all these areas.

In 1993, the Forty-sixth World Health Assembly adopted a resolution confirming that dengue prevention and control should be among WHO's priorities and urging Member States to strengthen national and local programmes for the prevention and control of DF, DHF and dengue shock syndrome.

Several manuals for dengue vector control and case management have been published by WHO. In the Western Pacific Region, Guidelines for dengue surveillance and mosquito control was published in 1995.

In order to expedite information exchange between the South-East Asia and Western Pacific Regions of WHO, the two Regional Offices have published a Dengue newsletter since March 1975 (known as Dengue bulletin since 1996). This biregional publication developed out of a meeting of the WHO Technical Advisory Committee on Dengue held in Manila in 1974. A WHO biregional meeting on prevention and control of dengue infections was conducted in Manila in 1997, to which representatives from 17 countries were invited.
The Regional Office is also involved in emergency activities relating to outbreaks in the Region. For example, when a dengue outbreak occurred in Cambodia in 1995, the Government began intensive dengue intervention activities in collaboration with the Regional Office, other international agencies, and nongovernmental organizations. Staff were sent from the Regional Office to strengthen technical collaboration for these activities, as well as to provide supplies and equipment. After proper control measures had been taken, the number of cases quickly decreased and the case fatality rate declined.

In order to strengthen epidemic preparedness, in 1996 the Regional Office established regional emergency stockpiles in Cambodia, Fiji and the Philippines. Supplies and equipment for vector control were allocated to Cambodia and Fiji. The effectiveness of these stockpiles was demonstrated during the dengue outbreaks in the Lao People’s Democratic Republic in April 1996, Cook Islands in May 1997, and Fiji in January 1998. During these dengue outbreaks, the Regional Office also provided technical collaboration.

ACHIEVEMENTS

The case fatality rate of dengue has continuously decreased in most of the epidemic countries in the Region during the last two decades (Figure 15.3). This has been largely due to better understanding of the pathogenesis of the disease and improved case management skills. The overall case fatality rate in the Region as a whole is now less than 1%, although in some countries case fatality rates still exceed 4%. High fatality rates are mainly caused by late hospital admissions, suggesting the importance of public education, as well as of efforts to improve the capability of clinical personnel, especially during epidemics.

Figure 15. 3 Case fatality rates of dengue in the Western Pacific Region

There are three WHO collaborating centres doing work relating to dengue in the Region. They are located in Brisbane, Australia; Kuala Lumpur, Malaysia; and Nagasaki, Japan. These laboratories have made a number of important developments in laboratory diagnosis and vector control. Techniques such as IgM-Capture ELISA, virus isolation technique using cultured mosquito cells, and polymerase chain reaction of dengue are now standard procedures for laboratory diagnosis in the Region.

UNDERACHIEVEMENTS

In some countries and areas, laboratory-based surveillance has not yet been established. Recent increases in cases of DF and DHF in newly-industrialized countries in the tropics may be because of construction sites in urban areas providing breeding places for vectors.

FUTURE

Even if dengue vaccines are successfully developed, vector control will still be an important part of dengue control. Community-based source reduction campaigns will continue to be promoted.

Developing approaches on how to cope with new mosquito breeding sites in newly industrialized countries will be a priority.

Tetravalent dengue vaccine has been developed in Thailand with WHO’s technical and financial support. Clinical trials have shown that it is safe and gives a high seroconversion rate to all four dengue viruses. The vaccine has been licensed to a pharmaceutical company for commercial production and further clinical trials are being carried out.
Chapter 16. Diarrhoeal diseases, including cholera

Every year about 200,000 children in the Region die from dehydration, a complication of diarrhoea, which can be prevented by oral rehydration therapy. Less severe cases of diarrhoea can also be harmful for the children as repeated diarrhoea episodes can lead to protein-energy malnutrition.

Cholera is a well-known form of diarrhoeal disease. It became a disease of global importance in 1817, when major outbreaks occurred in India, spreading through Burma, Ceylon, Dutch East Indies and Siam, as far to the east as the Philippines. Between 1817 and 1923, five pandemics followed, caused by the classical biotype of *Vibrio cholerae* serogroup O1. The seventh, ongoing cholera pandemic, due to the El Tor biotype of *V. cholerae* O1, started in Sulawesi, Indonesia in 1961 and spread quickly throughout Asia. This pandemic intensified in 1993–1994, partly because of a new cause of cholera, *V. cholerae* O139 which emerged in the Indian subcontinent in 1992 and spread to nearby countries. Of particular concern has been the fact that previous exposure to *V. cholerae* O1 does not provide protective immunity to *V. cholerae* O139, thus creating the potential for severe outbreaks.

A strong programme for the control of diarrhoeal diseases is the best preparation for cholera outbreaks, both in areas that have not yet been affected and where seasonal occurrence of the disease is expected. Similarly, the diarrhoeal disease control programmes have benefited greatly from the inter-agency and country level collaboration, in particular between UNICEF and WHO, that cholera control promotes.

THEN AND NOW

Diarrhoea has long been known as a condition affecting many children in developing countries. However, accurate health statistics remain scarce and it was not until the 1960s that diarrhoeal diseases were identified as a major cause of morbidity and mortality in children under five years of age. In the Western Pacific Region, the diarrhoeal disease problem varies considerably in its magnitude and severity from one country to another. In the affluent countries of the Region, diarrhoeal diseases do not represent a serious problem either in terms of morbidity or mortality. Elsewhere, diarrhoeal diseases remain a major public health problem. Diarrhoea and pneumonia are the main causes of child deaths in Cambodia, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, the Philippines and Viet Nam.

Cholera can be considered endemic in many of the developing countries in the Region. Since 1993, major outbreaks have been reported from Cambodia, China, the Lao People’s Democratic Republic, Malaysia, the Philippines and Viet Nam. In the last 15 years, the peak year for cholera reporting was 1994 when 57,424 cholera cases with 1233 deaths were officially reported to WHO from 13 countries in the Region (see Figure 16.1). This represented more than a 30-fold increase in the number of reported cases compared with 1991. Improved surveillance and openness with regard to notification and recognition of cholera as a major public health problem contributed to the increased number of reported cases in the Region in 1994, although there also seems to have been a real increase in cholera cases. From 1995 onwards, a continuous decline in the number of cases has been observed.

Figure 16.1 Reported cholera cases in the Western Pacific Region (1985–1997)
Compliance with international health regulations and therefore notifications of cases and deaths to WHO has varied from year to year. Surveillance has improved in the past few years; however, figures should be taken as indicative only.

**WHO ACTIVITIES**

The development of oral rehydration salts (ORS), which are administered in a solution consisting of a mixture of water, salts and glucose in specific proportions, was described by *The Lancet* as "The most significant medical advance in the century".

In the 1960s, research work on oral rehydration therapy took place in many parts of the world. A study in the Philippines showed physiological evidence that the use of an oral glucose-electrolyte solution could help to replace fluid and electrolyte losses in cholera cases. This and other studies helped to establish the final composition of oral rehydration solution. ORS were developed in 1968 by researchers in Calcutta, India, and Dhaka, Bangladesh. ORS was then seen as a potential cure for dehydration that could be used not only in health facilities but by village health workers and finally in every home. Oral rehydration therapy was found to be, and remains, the best means of rehydration and the best way to prevent dehydration from developing.

In 1978, a global programme for the prevention and control of diarrhoeal diseases was established. In the same year the programme was launched in the Western Pacific Region. Its objectives were to reduce mortality and morbidity due to diarrhoeal diseases and associated conditions, particularly malnutrition in infants and young children. In 1996 the programme was integrated with the programme for the control of acute respiratory infections.

National control of diarrhoeal diseases (CDD) programmes have been established in many countries of the Region, with the main strategies being standard case management and prevention of diarrhoea. Training of health workers has been the priority activity in these programmes. Standard diarrhoea treatment guidelines have been developed to be used in the field. Diarrhoeal training units have been set up and training courses conducted. In recent years, special attention has been given to pre-service training of health professionals and WHO has collaborated with medical and nursing schools to incorporate CDD concepts into their curricula. In many of these activities, WHO has collaborated closely with UNICEF.

Another priority has been to secure the availability of ORS at field level. Some countries have developed their own ORS production, while the least developed countries have used external support to procure ORS. With support from WHO, a number of studies on cereal-based fluids were carried out in the late 1980s and early 1990s. The studies examined whether cereal-based fluids could be used as an alternative to ORS in cases of diarrhoea. The introduction of cereal-based fluids and other recommended home fluids has further increased access to oral rehydration therapy and has given families an important role in early treatment of diarrhoea and prevention of dehydration.

The first evaluation studies showed that health workers had some difficulties in delivering home care messages to mothers. Focused ethnographic studies were carried out in Viet Nam in 1995. The results...
were used to identify the local terminology that would be understood by the caretakers. Subsequently emphasis was put on training health workers to improve their interpersonal communication skills.

In 1991, WHO and UNICEF agreed at the global level to develop a joint strategy for the control of diarrhoeal diseases. Key process and outcome indicators were selected for their simplicity in data collection and definite targets were set for 1995 and 2000.

Throughout the years of CDD implementation, collaboration between related units and divisions within Ministries of Health, as well as with WHO,

has been strengthened. Collaborating programmes have included, among others, environmental health, essential drugs, family health, health service development, malaria control, nursing and nutrition. The Expanded Programme on Immunization has also worked closely with the CDD programme. During the past few years, private sector involvement has also taken place, for example, through training private pharmacists in the Philippines and private practitioners in Vietnam.

In the 1990s, most national CDD programmes in the Region were combined with national programmes for acute respiratory infections (ARI). This has improved the effectiveness and efficiency of the programmes, in accordance with primary health care strategies. Recently, collaboration between programmes related to child health has further increased due to the new Integrated Management of Childhood Illness (IMCI) strategy, which draws heavily on experiences gained through implementing CDD/ARI activities.

In the 1980s, CDD research focused on basic microbiology, immunology and clinical science. Now that the epidemiology and etiology of diarrhoea are better understood, research has turned to operational studies. These have helped to determine strategies for preventive interventions. Programmes at national and regional levels seek to reduce diarrhoea morbidity through promotion of breast-feeding and proper weaning practices, use of safe water, and good personal, domestic and food hygiene. These programmes to control diarrhoea include education of parents and the community in general.

During the early cholera pandemics, the spread of cholera followed the routes of travellers and merchants. The international spread of cholera led to the establishment of International Sanitary Regulations that included recommendations on quarantine regarding the disembarkation of cargo and individuals in ports (see Chapter 1). The quarantine measures may have slowed the introduction of disease in some areas but they also caused much inconvenience and disrupted economic activity. The International Sanitary Regulations were later revised as the International Health Regulations (IHR) and were adopted by the Twenty-second World Health Assembly on 25 July 1969. The purpose of the IHR is to ensure maximum security against the international spread of diseases with minimum interference to world traffic.

It was increasingly recognized that, because they were only partially effective, vaccines had not helped to control cholera. More importantly, vaccination was giving a false sense of security to those vaccinated and to health authorities who sometimes neglected the implementation of more effective measures. Furthermore, vaccination campaigns had diverted resources, attention and manpower away from more useful activities. As a consequence, in 1973, the Twenty-sixth World Health Assembly amended the International Health Regulations so that cholera vaccination should no longer be required of any traveller.

Cholera has been subject to extensive studies for well over a century. In the Western Pacific Region, a number of important studies were carried out following the notification of cholera in Hong Kong in 1961, the first year of the seventh pandemic. Following this outbreak, WHO supported epidemiological studies on the spread of cholera and its mode of transmission, in particular, the role of food and water. Epidemiological methods were improved through the bacteriological examination of night soil for sources of infection.

The first attempts to control the disease by vaccination campaigns, chemoprophylaxis and cordons sanitaires had little impact on the course of the epidemics. Case fatality rates of more than 50% were recorded at the beginning of most new epidemics. These rates came down to 7%–10% when treatment procedures and facilities became more organized. The Regional Office supported countries to develop national action plans and to improve availability of essential drugs, in particular, oral rehydration salts.

In 1991, a Regional Task Force on Cholera Control was created. The Task Force consisted of Regional Office staff with expertise in communicable diseases, environmental health, laboratory technology, and logistics. In April 1996, the responsibilities of this task force were transferred to the newly-established Outbreak Response Task Force.

The regional task force promotes prompt information exchange and provides technical and logistical collaboration in the control of communicable diseases, including emerging and re-emerging communicable
During the forty-fourth session of the Regional Committee, held in Manila, the Philippines, in September 1993, a resolution was adopted which urged Member States to give high priority to prompt reporting of cholera according to the International Health Regulations (Article 3) in order to promote international collaboration in cholera control.

The first intercountry training course for the management and control of cholera for Cambodia, the Lao People’s Democratic Republic and Viet Nam was conducted in the cholera training unit in Hué, Viet Nam, in 1995. In some countries, special cholera coordination committees have been established and national cholera control workshops have been conducted. Principles of good personal hygiene, use of safe water, safe food practices and proper disposal of excreta have been continually stressed in cholera-endemic areas. The WHO publication *Guidelines for Cholera Control* has been translated into several languages, including Chinese, Khmer, Lao and Vietnamese, and information on the latest developments in prevention, treatment and control of cholera has been compiled and distributed by the Regional Office.

**Achievements**

CDD programmes have now been established in countries of the Western Pacific Region where diarrhoea in children under five years of age is a major public health problem. In several of these countries, programme objectives and strategies have been developed.

The CDD programmes have demonstrated that it is feasible to introduce standard case management guidelines by training health workers at all levels of the health care delivery system and by ensuring the supply of ORS and other essential drugs.

ORS sachets are readily available at an affordable price in practically all areas covered by the national programmes. A cost-effectiveness study on the use of ORS carried out in Viet Nam in 1994 indicated that a well-functioning diarrhoea training unit can generate considerable savings through implementation of correct case management, in particular oral rehydration therapy.

Figure 16.1 shows the impact of diarrhoea case management training on case fatalities, following the setting up of a diarrhoea training unit in the
Children’s Hospital No. 1, Ho Chi Minh City, Viet Nam, in 1988. As can be seen, improved treatment practices, involving oral rehydration therapy, resulted in a marked decrease in fatalities.

Especially in the 1990s, high priority has been given to the development of national policies and plans of action for cholera control, with a focus on training of health workers in diarrhoea case management, including clinical management of cholera, conduct of health education and communication activities, and strengthening of laboratory capacity and epidemiological surveillance.

Prompt notification of cholera has helped to promote international collaboration. For example, during 1993 and 1994, the Lao People’s Democratic Republic experienced several major outbreaks of cholera with alarmingly high case fatality rates. In February 1995, an appeal for international collaboration for epidemic control was launched in collaboration with the Government of the Lao People’s Democratic Republic, the United Nations Department of Humanitarian Affairs and WHO. The appeal raised significant funds for the support of cholera control.

Generally, there has been a continuous downward trend in the regional cholera case fatality rate in the 1990s, which has been reduced from 6.8% in 1991 to 1.3% in 1996. Countries with strong CDD programmes, trained health workers and health facilities supplied with essential drugs and equipment have been able to maintain case fatality rates below 1%.

UNDERACHIEVEMENTS

Although the use of ORS has proved to be a very simple, cheap and effective way to rehydrate patients, for a number of reasons it has been difficult to promote. ORS do not stop diarrhoea; it takes time to explain to a caretaker how to prepare and to use the solution; ORS are not a popular product with private pharmaceutical companies because of their limited profit margin and they do not look like a state of the art product of medical research.

In many Asian countries, the private health sector is growing quickly. Private institutions are often the major health service providers especially in urban settings. In addition, health personnel from the public sector often work part-time for the private sector, sometimes applying a completely different case management for diarrhoeal diseases. CDD programmes need to extend collaboration with the private sector, as well as with nongovernmental organizations, community groups and traditional healers.

Over the years, under-five mortality rates have declined in many countries in the Region. CDD programme activities have contributed to this trend. However, it is difficult to determine to what extent these declines are due to the CDD programme, and to what extent other factors, such as changes in economic status or in the general education level of the family members, have contributed to the decline.

Surveillance systems and the detection of cholera have improved in a number of countries and areas in the Region. However, some cholera-endemic countries still lack the means to detect cholera outbreaks early, and to report and respond to them. This is due to a number of reasons, such as lack of a clear cholera case definition, poor knowledge and skills of peripheral health workers in detecting and reacting to outbreaks, and poor communication. WHO recommends that all cases of cholera (both suspected and confirmed) should be reported.

FUTURE

Training of health workers in standard case management and communication skills has long been a priority for the CDD programme. In future, more emphasis will be given to preservice training of medical and paramedical health personnel, as well as to improving the quality of training. Interventions for families and communities will also be further developed in order to improve early home care of illness, careseeking practices and compliance with treatment advice.

While maintaining support for CDD and ARI activities whenever necessary, the programme will make more efforts to implement the Integrated Management of Childhood Illness (IMCI) strategy. Developed by UNICEF and WHO in the mid-1990s, IMCI is a broad strategy aimed at addressing a sick child as a whole instead of a single disease. It aims to improve not only the management of diarrhoeal diseases but also in an integrated way to address the other main conditions responsible for childhood mortality in the Region, namely, ARI, dengue haemorrhagic fever, malaria, malnutrition and measles and to include aspects of prevention and promotion of growth and development. In the Western Pacific Region, the Philippines and Viet Nam have already embarked on this new initiative. Based on the positive experience gained, the IMCI strategy will be expanded to other countries in the Region.
In order to address the lack of immunity in populations threatened by cholera, research on the
development of potentially effective, safe and cost-effective vaccines against cholera has been
undertaken. New cholera vaccines, administered orally, have recently become available in a few countries
for use by travellers. However, the only public health situation for which WHO currently considers that
there may be a potential use for oral cholera vaccine is during the stable phase of an emergency, such as
a natural disaster or a refugee crisis, when refugees are located in or came from cholera-endemic areas.
More data are still needed, including data on the cost-effectiveness of the vaccines, before
recommendations on use of a vaccine to control endemic cholera can be made.

Epidemiological surveillance, early detection, prompt information exchange, provision of appropriate
treatment of diarrhoea, including cholera, and implementation of control measures to contain any outbreak
are the cornerstones of good preparedness and cholera control. In the long term, however, improvements
in water supply and sanitation will be needed before a permanent reduction in cholera incidence can be
expected.
Chapter 17. Japanese encephalitis

Japanese encephalitis (JE) was first identified in 1935 in Japan. The virus is active in most Asian countries, including China, India, Indonesia, Japan, Malaysia, Myanmar, Nepal, Thailand, the Republic of Korea, and Viet Nam. Most recently, human JE infections have been confirmed in an island in Torres Strait, Australia, and in Papua New Guinea. It is transmitted by the bites of infected mosquitoes.

THEN AND NOW

During the 1950s and the early 1960s, severe outbreaks of human JE with more than 1000 cases were recorded in Japan. The case fatality rate was 30%–50%. Since 1972, however, the number of cases has rapidly decreased to fewer than 100 cases per year, following the development of inactivated JE vaccines in the mid-1960s and a nationwide immunization programme (Figure 17.1).

In the Republic of Korea, more than 1000 cases were reported annually until 1969. The majority of the victims were children under 14 years of age, as in other countries experiencing JE epidemics. During 1955–1965, the highest rates of incidence were observed among children from four to seven years of age. Immunization started in the late 1960s and since 1969 there have been fewer than 1000 cases a year. The Government started an intensified immunization programme in the early 1980s and the number of cases has dramatically decreased since 1985 (Figure 17.1). Vaccine coverage reached almost 100% in the 3–15 age group in 1985.

China reported more than 20 000 cases annually until 1992. Since 1993 the number of reported cases has been decreasing. In 1996, for the first time during the last two decades, the number of cases fell below 10 000. China is also strengthening its JE immunization programme.

In Viet Nam, the first big JE outbreak was reported in 1965 in northern Viet Nam. Since then, 2000–3000 cases have been reported annually (Figure 17.1). The JE epidemic in northern Viet Nam is seasonal, which follows the pattern of countries in the temperate zone, while in southern Viet Nam, JE is reported all year. The most affected age group in Viet Nam is children under nine years.

The first outbreak of JE (two clinical cases) in Australia was reported in 1995. The cases occurred on an island in the Torres Strait. During the outbreak, the JE virus was also isolated from healthy humans (asymptomatic infection). In Papua New Guinea, two children were confirmed as having contracted JE in 1997.

Some countries in the South-East Asia Region of WHO (India, Nepal, and Thailand) have reported a marked increase in the number of JE cases since the 1970s.

Vaccine development

The first, and to date the most reliable JE vaccine, was developed during the 1960s. The vaccine is made from infected mouse brain and inactivated with formalin. Japan and the Republic of Korea have used this type of JE vaccine in their national immunization programmes. Production of this vaccine requires sophisticated technology to purify virus particles from brain materials, resulting in the relatively high cost of the vaccine compared with those for other diseases, such as poliomyelitis, measles, and mumps, targeted by the Expanded Programme on Immunization.

In China, another inactivated vaccine was developed, this time from hamsters’ kidney cells. A live attenuated JE vaccine, which is cheaper than

Figure 17.1 Japanese encephalitis cases in selected countries in the Western Pacific Region

the inactivated vaccines, was developed by repeated passage in hamster kidney cultures and plaque purification in late 1980s. In China, both the inactivated vaccine made from hamster kidney cells and the live attenuated vaccine are currently used and are sufficient to meet China’s current national requirements of 240 million doses per year.
WHO ACTIVITIES

The major strategies to control JE are: (1) human vaccination, (2) swine vaccination and (3) vector control. Although vector control is important in controlling JE, the success of JE control in Japan and the Republic of Korea can be attributed to the nationwide JE immunization programme. Emphasis has therefore been placed on the implementation of JE vaccination in humans in epidemic areas.

In order to improve the quality of JE vaccines, and to develop more affordable JE vaccines, the Regional Office conducted a number of working group meetings in the 1980s. The development of second-generation vaccines using genetic technology is underway with WHO’s support.

The Regional Office has coordinated the technology transfer of JE vaccine (mouse brain-derived inactivated vaccine) production in Viet Nam during the 1990s. The technology transfer was completed in 1995 in collaboration with Kannonji Institute and the WHO Collaborating Centre for Tropical Viral Diseases in Nagasaki, Japan. The quality of Vietnamese JE vaccine has been confirmed by WHO.

In order to improve laboratory-based diagnosis of JE, WHO has coordinated a number of workshops at national and international levels.

ACHIEVEMENTS

Japanese encephalitis has been eliminated in Japan and the Republic of Korea. In China, JE cases have been decreasing since the early 1990s.

JE vaccine production in Viet Nam has increased every year since 1992. In 1997, Viet Nam produced some 800 000 doses (40% of national requirements).

These achievements have been largely due to activities of national governments, supported by WHO.

UNDERACHIEVEMENTS

It is known that the JE virus is prevalent in Cambodia, the Lao People’s Democratic Republic, Papua New Guinea and the Philippines. However, the impact of JE infection in these countries is not well understood. There is an immediate need to develop laboratory-based surveillance in all four countries.

International standards for live JE vaccine have not yet been established. To ensure that an affordable JE vaccine is available, the new vaccines should be evaluated against international requirements. The fact that an affordable second-generation JE vaccine is not yet available should also be noted as an underachievement.

FUTURE

Consideration will be given to integrating JE immunization into the Expanded Programme on Immunization.
Chapter 18. Lympathic filariasis

Three species of lymphatic filarial parasites infect man. The most widespread, *Wuchereria bancrofti* was discovered by J. Bancroft in Queensland, Australia, in 1876. In China, at about the same time, D. Manson-Bahr demonstrated the role of the mosquito as the intermediate host. The final piece in the puzzle of how lymphatic filariasis was transmitted was provided by T. L. Bancroft and C. C. Low, who showed that humans were infected when larvae escaped from the mosquito proboscis during feeding. *Brugia malayi*, the second species infecting man, was described by Lichtenstein and named by Brug in 1927. A third species, *B. timori*, found only in a number of islands in Indonesia, was described much later.

THEN AND NOW

In 1948 the distribution of the two main species of human filarial parasites had been well mapped and the major mosquito vector identified. In the Western Pacific Region, *B. malayi* is confined to four endemic countries: China, Malaysia, the Philippines and the Republic of Korea. *W. bancrofti* is found in 17 countries and areas: American Samoa, China, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Malaysia, Niue, Papua New Guinea, the Philippines, Samoa, Tonga, Tuvalu, Vanuatu and Viet Nam.

The collection of lymphatic filariasis data began in the South Pacific as long ago as 1901. Small prevalence surveys eventually covered all the endemic areas, so by 1948 the distribution of lymphatic filariasis was well documented. Some examples of prevalence rates from the early surveys are shown in Figure 18.1.

Current national data on the incidence of lymphatic filariasis are not readily available and, because of differences in the methods of collection, may not always be comparable. Some recent estimates of cases of lymphatic filariasis are shown in Figure 18.2.

### Figure 18.1 Prevalence rates for lymphatic filariasis in selected South Pacific countries and areas (1925–1950)

<table>
<thead>
<tr>
<th>Country or area</th>
<th>Date</th>
<th>Number of individuals sampled</th>
<th>Microfilaria rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook Islands</td>
<td>1926</td>
<td>218</td>
<td>44.0</td>
</tr>
<tr>
<td>Ellice and Tokelau</td>
<td>1923</td>
<td>670</td>
<td>47.8</td>
</tr>
<tr>
<td>Fiji</td>
<td>1925</td>
<td>944</td>
<td>27.6</td>
</tr>
<tr>
<td>New Caledonia</td>
<td>1949</td>
<td>104</td>
<td>5.7</td>
</tr>
<tr>
<td>New Guinea</td>
<td>1946</td>
<td>318</td>
<td>30.5</td>
</tr>
<tr>
<td>New Hebrides</td>
<td>1928</td>
<td>318</td>
<td>31.1</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>1949</td>
<td>n.a.</td>
<td>0.7</td>
</tr>
<tr>
<td>Tahiti</td>
<td>1949</td>
<td>916</td>
<td>30.3</td>
</tr>
<tr>
<td>Tonga</td>
<td>1925</td>
<td>107</td>
<td>7.4</td>
</tr>
<tr>
<td>Western Samoa</td>
<td>1928</td>
<td>1 103</td>
<td>36.1</td>
</tr>
</tbody>
</table>

More than 1.1 billion people, one fifth of the world’s population, are at risk from lymphatic filariasis. Worldwide, 120 million people in 73 countries are infected. The overt clinical symptoms of elephantiasis, lymphoedema, and genital pathology afflict 44 million people. Another 76 million have parasites in their blood and hidden internal damage to their lymphatic and renal systems. In the Western Pacific Region, 135 million people in 16 countries live in areas where they are at risk.

### Figure 18.2 Recent estimates of lymphatic filariasis cases in selected countries (1994–1997)

<table>
<thead>
<tr>
<th>Country or area</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1 000 000</td>
</tr>
<tr>
<td>French Polynesia</td>
<td>2 000</td>
</tr>
<tr>
<td>Malaysia</td>
<td>40 000</td>
</tr>
</tbody>
</table>

The WHO Expert Committee on Filariasis that met in Geneva in December 1983 reported that 10.9 million people had overt filariasis infection in the Western Pacific Region. By 1991, this had decreased to 3.9 million. The prevalence based on the population living in the endemic areas was 2.9% for both reporting periods. This marked reduction in the total
The number of cases is undoubtedly due to the achievements made in China, where fewer than 1 million cases occur today. In the 1950s, there were reports of 30 million cases.

**WHO ACTIVITIES**

The control of lymphatic filariasis focuses on two main activities: (1) treatment of either selected individuals found to be infected or mass treatment of the entire population at risk; and (2) reduction of man–mosquito contact through appropriate vector control measures.

**Early control efforts**

Fiji began an experimental programme in 1944 for filariasis control. This was followed in 1946 by Cook Islands and later by Samoa and Tahiti. All three focused entirely on vector control activities, either the elimination of breeding sites such as small containers and coconut shells by mass clean-up campaigns or the use of insecticides such as dichlorodiphenyltrichloroethane (DDT). Where DDT was being used for malaria control, significant reductions in microfilaria rates were observed, but clean-up campaigns aimed at reducing breeding were not successful.

**Introduction of DEC and mass drug administration**

Antimonials, arsenoxides, cyanine dyes and piperazine derivatives were the first drugs tested for treating human filariasis. The most promising of these, Hetrazan (1-diethylcarbamyl-4-methyl piperazine hydrochloride) was first synthesized in 1947 and used as a treatment for lymphatic filariasis by D. Santiago-Stevenson et al. Now known as diethylcarbamazine (DEC), hetrazan was quickly accepted as the standard treatment for lymphatic filariasis. By 1951, its use for mass drug administration (MDA) for control of the disease had been proposed.

Preliminary work in the 1940s demonstrated that the individual treatment of patients showing clinical symptoms of lymphatic filariasis – including elephantiasis, lymphoedema, hydrocoele and other "lymphatic dysfunctions" – was not effective in reducing transmission of the disease. Surveys demonstrated that a large percentage of infected individuals did not show signs and symptoms. Likewise, there were a large number of patients with symptoms who did not have circulating microfilaria. Treatment of the entire population at risk regardless of the presence of symptoms was clearly the only way effectively to reduce the reservoir of parasites and thereby reduce transmission.

One of the first experimental trials was a full-scale MDA using DEC carried out in Fiji between 1952 and 1953. Monthly doses of 50 mg administered for one year cleared 60%–67% of infections.

Based on the success of the Fiji trials and other small experimental studies, WHO and UNICEF supported an additional small trial of MDA using multiple doses of DEC in Samoa. DEC at a dosage of 5 mg/kg was given weekly for six weeks, then once a month for 12 months. This led to a full-scale MDA in 1971 using the same dosage schedule. In Fiji the MDA campaign began in 1969 and progressed in stages until it covered the entire country by 1975. Similar MDA campaigns were carried out in the 1970s by other countries and areas in the Pacific including Cook Islands, French Polynesia, Niue, Tonga and Tuvalu.

The initial results of those campaigns were encouraging. In Samoa after two rounds of MDA, the microfilaria prevalence rate decreased from 21% in 1964 to 0.24% in 1972. In Fiji, prevalence also dropped from 23% to less than 1%. In Tonga rates dropped from 20.4% to 1.6%, in French Polynesia from 30% to 0.3%, in Cook Islands from 30% to 0.8%, in Niue from 16.3% to 0.4% and in Tuvalu from 14.7% to 8%.

**Annual single dose therapy using DEC**

In 1977, the WHO Samoa filariasis project was launched to determine the true rate of infection, to clearly define the dynamics of transmission and to design a feasible set of control measures. The results led to the adoption of a revised strategy using a single annual dose of DEC (6 mg/kg) to be given over a period of five consecutive years. After three rounds of MDA carried out between 1982 and 1986 the microfilariae prevalence rate decreased from 5.25% to 2.3%. A further three rounds of MDA using the single annual dose of DEC were carried out between 1993 and 1995 and further reduced the prevalence to 1.9%.

Similarly in Fiji studies supported by WHO from 1984 to 1991 showed the single annual dose of 6 mg/kg to be slightly superior to a multidose regimen. Single annual doses were found to be easier to administer.
and more acceptable to the population. Following the lead of Fiji and Samoa, programmes in other Pacific island countries initiated annual single dose treatments and showed similar levels of success. In Tonga, microfilaria prevalence dropped from 20.4% to 1.6%, in French Polynesia from 30% to 0.3% and in Cook Islands from 30.0% to 0.8%.

**DEC-fortified salt**

The distribution of DEC-fortified salt is another form of MDA that has been successfully applied for the control of lymphatic filariasis. In China where there were an estimated 30 million cases of lymphatic filariasis in 1956, the use of fortified salt in combination with standard two-week MDA brought down the number of cases to an estimated 1.58 million by 1994.

**Combined single annual therapy with ivermectin and DEC**

The combination of ivermectin and DEC administered in a single annual dose was used for the first time on a national scale in Samoa, beginning in 1996. A second round was completed in 1997 and resulted in a drop in microfilaria rates from 2.4% in 1995 to 1.7% in 1997. Fiji also adopted the combination of DEC and ivermectin as the basis for its 10-year control programme that began in 1996.

**Other programmes**

In addition to its support for filariasis control programmes in the Pacific, WHO has been involved to a lesser extent in control programmes in China, Malaysia and the Philippines.

In 1992, China reported dramatic reductions from reported 1983 levels due to an effective national programme of control. In Shandong Province where over 50 million people were at risk, a large-scale control programme was conducted between 1970 and 1983. Selective treatment in areas of low endemicity reduced the average prevalence from 1.3% to 0.1% after three courses. Mass treatment was used in areas with an initial average prevalence of 5.8%. After three rounds prevalence was reduced to 0.2%. Medicated salt containing DEC was given to 23 million people in 1972. After six months there was a decline in prevalence from 13.2% to 0.2%. By 1983, the microfilaria prevalence was below 1%.

In the Philippines, the first surveys carried out in 1960 showed that the disease was endemic in 37 out of 56 provinces, with prevalence rates ranging from 0.02 to 10.8%. A national control programme that began in 1963 brought down prevalence rates to 7.84 per 100 000 by 1996.

In Malaysia, a filariasis control programme began in the 1960s. Like the programme in the Philippines, this programme focused on the detection and treatment of infected individuals. In 1996 the incidence of lymphatic filariasis was reported as 5.2 per 100 000 population.

In the Pacific islands, where malaria and filariasis overlap, the natural decline and eradication of *W. bancrofti* in Solomon Islands during the 1970s is well documented. This was entirely due to large-scale malaria vector control operations using DDT indoor residual sprays. Following this spraying, the microfilaria rates dropped from 20% to zero. The large-scale vector control operations now taking place in Vanuatu for malaria control are likely to help keep filariasis controlled. From a regional perspective, the greatest need is in Papua New Guinea, where high filariasis prevalence undoubtedly occurs in certain areas.

**WHO expert committees and working groups**

Policy recommendations by the WHO expert committee meetings and working groups that began in 1962 and research supported by the WHO/World Bank Special Programme on Tropical Disease Research (TDR) have made significant contributions to the understanding of both the biology and control of lymphatic filariasis. Research supported by the Special Programme over the past 10 years has led to better, more effective methods for the diagnoses, treatment and control of the disease.

**ACTIVITIES**

WHO has been at the forefront of filariasis control activities since its founding in 1948. It directly supported the use of multidose MDA campaigns in the South Pacific during the 1960s and 1970s that led to dramatic drops in microfilaria rates. It collaborated with Fiji, French Polynesia and Samoa in pioneering the use of single annual dose MDA campaigns using DEC during the 1980s and early 1990s, leading to the development of the highly cost-effective method of annual combination mass therapy using DEC and ivermectin.
Not only has the successful application of annual MDA campaigns reduced the number of microfilaria carriers, it has also significantly reduced the number of cases with overt symptoms such as elephantiasis.

UNDERACHIEVEMENTS

Filariasis control has not been universally successful. In a few countries, the Government has not placed a high priority on filariasis control and there are no organized control activities currently in place. Community-level involvement is essential for the successful implementation of both vector control and MDA campaigns. Where community involvement has not been achieved through health promotion, campaigns have failed.

FUTURE

In 1993 the International Task Force for Disease Eradication identified lymphatic filariasis as one of six infectious diseases that are considered to be eradicable. The Fiftieth World Health Assembly in 1997 adopted a resolution that launched WHO’s initiative to eliminate lymphatic filariasis globally as a public health problem.

The approach will be based on experiences during the past 50 years that have shown that the focus of filariasis control efforts should be on treating the human population. Vector control should only be an adjunct to an effective programme of drug treatment. Mass distribution of drugs should replace selective treatment of infected individuals. These approaches are cost-effective and community-based, making it possible to integrate them into existing health programmes. This is essential if the long-term commitment (usually five years) for MDA is to be sustained.

The recent identification of albendazole as an effective anti-filarial drug when used in combination with DEC has opened the way for further development of multidrug therapy applications. Albendazole also controls intestinal parasites such as roundworms and hookworms.

Negotiations on how to put albendazole within reach of most countries around the world are continuing with the manufacturer.

It is now recognized that one single annual treatment is only slightly less effective than the multiple 12-day course treatment, which is more difficult to administer. The Region is planning to introduce the new combined drug therapy (DEC with albendazole or ivermectin) and has formulated criteria for achieving filariasis elimination. In 1996, Samoa was the first country in the world to use the new combined therapy on a country-wide basis. A second combined MDA is planned for 1998. The Pacific island countries will continue to strive to maintain, strengthen and expand their surveillance and control efforts.
Chapter 19. Hepatitis

Viral hepatitis is a serious global public health problem. At present, six distinct types of hepatitis virus have been identified: hepatitis A, B, C, D, E and G. Of these, hepatitis A and E are transmitted through contaminated food and water and often cause large epidemics. However, they cause only acute hepatitis. Hepatitis B, C and G are transmitted by exposure to contaminated blood and can cause acute hepatitis followed by chronic hepatitis, which results in severe liver diseases, such as liver cirrhosis and liver cancer.

In the Western Pacific Region, approximately 150 million people are hepatitis B virus (HBV) carriers. Recently, surveys have been conducted to determine the scope of hepatitis C virus (HCV) infection in the Region. HCV infection is a growing concern, as tentative results indicate a high prevalence in some countries and areas.

THEN AND NOW

Although the existence of hepatitis, including epidemic hepatitis and post-transfusion hepatitis, was known in 1948, no causative agents had been identified. It was not until the 1960s and 1970s that hepatitis A and B viruses were identified and improvements were made to laboratory diagnosis, epidemiology and pathogenesis. Hepatitis viruses C and G were identified in the 1990s using genetic engineering techniques. Today we know that the six identified hepatitis viruses (A, B, C, D, E, G) are prevalent in the Western Pacific Region.

Among these viruses, HBV is the major worldwide cause of chronic hepatitis. At least 350 million people are chronic carriers of HBV, 150 million of whom are in the Western Pacific Region. In the Region, 25 countries and areas are reported to have carrier rates greater than 8% (Figure 19.1). In some countries and areas in the Region, between 10% and 30% of the population are chronically infected with HBV. About 10% of these carriers will develop chronic hepatic illnesses, such as liver cirrhosis or primary liver cancer.

HCV has chronically infected approximately 100 million people worldwide. Like HBV, chronic HCV infection also causes serious liver diseases. The scope of recent HCV infection in some countries in the Region is shown in Figure 19.2. This figure suggests that HCV is the second largest hepatitis problem in the Region.

The public health impact of HG infection is not yet clear but epidemiological surveys are currently underway in many Member States.

WHO ACTIVITIES

Hepatitis A - control policy

Some 10 to 50 persons per 100 000 are infected by hepatitis A (HA) annually in the Region. Water contaminated with the virus and shellfish grown in contaminated water have been recognized as primary sources of HA infection. An inactivated HA vaccine is available, but WHO also recommends various preventive strategies, including improvements to sanitary conditions, particularly in highly endemic areas. The criteria for using the inactivated HA vaccine are as follows. In areas of high endemicity, improving the water supply and sanitary conditions should have a higher priority than immunization. In areas of

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>American Samoa</td>
<td></td>
<td>7</td>
<td>47</td>
<td>49</td>
<td>68</td>
<td>47</td>
</tr>
</tbody>
</table>
Notes:

n.a. = not available. HBsAg = hepatitis B surface antigen.

*a Vaccine coverage for China is not reported, but is estimated to be 25% - 30% nationwide.

Figure 19.2 Prevalence of HCV in selected countries in the Western Pacific Region

<table>
<thead>
<tr>
<th>Country</th>
<th>Prevalence (%)</th>
<th>No. positive</th>
<th>No. examined</th>
<th>Location</th>
<th>Sample</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0.31</td>
<td>299</td>
<td>94 970</td>
<td>Sydney</td>
<td>Blood donors</td>
<td>1990 - 1991</td>
</tr>
<tr>
<td>Cambodia</td>
<td>4.00</td>
<td>6</td>
<td>154</td>
<td>Takeo</td>
<td>General population</td>
<td>1990 - 1991</td>
</tr>
<tr>
<td>China</td>
<td>4.07</td>
<td>2112</td>
<td>Guangxi</td>
<td></td>
<td>General population</td>
<td>1996 pub.</td>
</tr>
</tbody>
</table>
intermediate endemicity, the relative public health burden of hepatitis A should be determined and compared with other health priorities and available resources to decide on the appropriate strategy. In areas of low endemicity, the main target groups to be immunized should be travellers from low endemicity areas who are travelling to high or intermediate endemicity areas; sexually active homosexual or bisexual men; food handlers; and persons affected in community-wide epidemics.

### Hepatitis B

The prevention and control of hepatitis B (HB) has been a major priority for hepatitis control activities in the Western Pacific Region. In 1992, the World Health Assembly endorsed a recommendation of the Global Advisory Group of the Expanded Programme on Immunization which was held in Turkey in October 1991. The recommendation asked all Member States with an HB carrier rate of 8% or greater to expedite the integration of HB vaccine immunization into their routine infant immunization programmes by 1995 and all other countries to introduce such immunization by 1997. In order to facilitate the immunization policy in the Western Pacific Region, WHO formed the Hepatitis B Task Force and organized six regional meetings on hepatitis control between 1982 and 1987. Four WHO collaborating centres on viral hepatitis were designated in the Region. Recommendations made by the Task Force and in the meetings included: (1) integration of HB immunization into the EPI programme; (2) coordination of vaccine supplies to relatively small countries, such as the Pacific island countries; and (3) technology transfer of HB vaccine production.

<table>
<thead>
<tr>
<th>Country</th>
<th>Prevalence</th>
<th>Age Group</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federated States of Micronesia</td>
<td>1.50</td>
<td>1</td>
<td>66</td>
</tr>
<tr>
<td>Japan</td>
<td>2.30</td>
<td>35</td>
<td>1542</td>
</tr>
<tr>
<td>Kiribati</td>
<td>4.80</td>
<td></td>
<td>385</td>
</tr>
<tr>
<td>Malaysia</td>
<td>3.00</td>
<td>11</td>
<td>363 Kuala Lumpur</td>
</tr>
<tr>
<td>Mongolia</td>
<td>10.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>0.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>7.00</td>
<td>12</td>
<td>180</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.54</td>
<td>22</td>
<td>4091</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanuatu</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>6.10</td>
<td>61</td>
<td>1002 Hanoi and other cities</td>
</tr>
</tbody>
</table>

Source: National Institute of Health and Epidemiology, Viet Nam.

HB vaccine supplies to the Pacific islands

For Pacific island countries with relatively small populations, WHO has been providing vaccines to support immunization programmes covering newborn infants. From 1990 to 1993, a plasma collection scheme took place, whereby high hepatitis B surface antigen (HBsAG) titre positive plasma collected from countries was sent to a WHO collaborating centre for viral hepatitis (Kitasato Institute, Japan) and processed into a plasma-derived HB vaccine. However, in 1994 the scheme was discontinued owing to the closure of facilities at the collaborating centre. From 1994 to 1996, the supply of HB vaccines to the countries continued through procurement of plasma-derived HB vaccines under WHO and UNICEF programmes. The supply of hepatitis B vaccine in 1997 and 1998 was supported by extrabudgetary funds.

Local production of HB vaccine

China, Japan, the Republic of Korea and Viet Nam have the capacity to undertake large-scale HB vaccine production (plasma-derived,
genetic engineered or both). HB vaccine production in Japan and national requirements for these countries. China and Viet Nam are in vaccine self-sufficiency. Plasma-derived HB vaccine production figures Figure 19.3. Technology transfer of plasma-derived HB vaccine production through a WHO collaborating centre for viral hepatitis, in Tokyo, Japan.

ACHIEVEMENTS

HB vaccination coverage in the Region has increased through the integration of HB immunization into the Expanded Programme on Immunization (EPI) since the early immunization programmes in the Western Pacific Region is shown in Figure 19.4 shows that a total of 34 countries and areas in the Region immunization policies and 30 countries and areas have started immunizing newborn infants. Figure 19.4 also demonstrates that the immunization coverage rate for newborn infants in the Western Pacific Region increased steadily from 1991 to

Figure 19.3 HB vaccine production in Viet Nam

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>Proj 2</td>
</tr>
<tr>
<td>1999</td>
<td>Proj 4</td>
</tr>
<tr>
<td>2000</td>
<td>Proj 6</td>
</tr>
</tbody>
</table>

Reduction of HBsAg prevalence

Immunization has been an effective way of reducing HB prevalence. China reported that the prevalence of HBsAg in children under five years of age was reduced from 10% to 1% in Shanghai and Beijing after HB immunization was introduced. Japan has also reported that the HB prevalence rate in children under five years of age declined from 2% to 0.04% after high-risk newborn infants were immunized against HB and given immunoglobulin. In other countries, similar lower HB prevalence rates have been observed.

UNDERACHIEVEMENTS

In most countries and areas in the Region, surveillance for new hepatitis viruses, such as HCV, HEV and HGV, is still insufficient due to the high cost of diagnostic equipment. Routine screening of blood used in transfusions for hepatitis C (a result in chronic hepatic diseases) should be instituted in all countries and areas in order to prevent HCV transmission. A regional plan for hepatitis C control should be established.

FUTURE

In the past, the high cost of HB vaccines was a serious constraint for the HB immunization programme. Although they are more expensive than other routine childhood vaccines, the cost of HB vaccines has dramatically declined over the last ten years, from US$ 20 down to US$ 0.50-US$ 2 per child dose. Plasma-derived vaccines are relatively affordable, but, because of the supply in the Region, HB carriers who can provide plasma for these vaccines will certainly decrease, resulting in a reduction in the number of plasma-derived vaccines in the market. It will therefore be necessary to ensure the technology transfer vaccine production for China and Viet Nam in future.

Figure 19.4 HB immunization status in the Region

<table>
<thead>
<tr>
<th>Year</th>
<th>HB vaccine policy implemented</th>
<th>Immunization of newborn infants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989</td>
<td>23</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Hepatitis B virus in serum
In order to assess the current HB control programme in the Region and to develop a regional strategy on the prevention and control of hepatitis C and E, the Regional Office will convene a WHO meeting on hepatitis prevention and control in December 1998.

WHO will fully support the development of affordable diagnostic equipment and techniques for Hepatitis C and E.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>31</td>
<td>25</td>
</tr>
<tr>
<td>1994</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>1996</td>
<td>34</td>
<td>30</td>
</tr>
</tbody>
</table>

n.a. not available.
Chapter 20. Influenza

Influenza viruses can cause large and serious outbreaks of upper-respiratory infections. The history of influenza dates back to the year 412 BC when Hippocrates described an outbreak of flu-like illness. Today, influenza viruses are divided into types A, B and C. Among these, influenza A is the most contagious and has caused a number of pandemics that have claimed millions of lives.

In modern human history, the most serious influenza pandemic occurred in 1918. The pandemic was called the ‘Spanish flu’ because of its high incidence in Spain. However, the first wave of the pandemic started in North America in March and then crossed the Atlantic to Europe in April. It is estimated that the pandemic killed more than 20 million people worldwide. In Japan, there were 389,000 deaths; in Samoa, 25% or more of the population died. Although viruses were not yet isolated in those days, retrospective serological studies indicate that the causative agent of the influenza virus was influenza A (H5N1), possibly a variant of the swine influenza H1N1 subtype.

THEN AND NOW

During the 1940s, the influenza H1N1 virus was still endemic all over the world. The virus caused small to medium-sized epidemics, but these were always below the pandemic level. In 1946, there was a worldwide H1N1 epidemic, but the mortality rate was low.

In 1956/1957, the second influenza pandemic in modern history, now called Asian flu, began. The causative influenza virus was influenza A (H2N2) which was a new subtype of the virus. In 1967/1968, another new subtype, H3N2, caused a pandemic now known as Hong Kong flu. Although the case-fatality rates of the 1956 and 1967 pandemics were much lower than that of the Spanish flu, together they led to 1 million deaths worldwide. In 1977, the re-emergence of the H1N1 influenza virus caused a mild pandemic. This pandemic began in China and then spread worldwide, primarily affecting those born after 1957. Since then, mild influenza epidemics caused by the H1N1, H3N2, and B influenza viruses have been reported.

The first human case of influenza A (H5N1) were reported from Hong Kong, China, in May 1997. The H5N1 influenza virus had previously been known to exist only among avian species. By 28 December 1997, a total of 18 human cases of H5N1 influenza infection with 6 deaths had been reported in Hong Kong. An emergency epidemiological survey was carried out in early December. Findings showed that the majority of H5N1-infected patients contracted the virus directly from infected birds and chickens, and that if human-to-human transmission of the virus was occurring, it was very inefficient. The Government of Hong Kong ordered a mass slaughter of poultry in chicken farms and markets and at the time of writing (May 1998) no human cases had been reported since 28 December 1997.

WHO ACTIVITIES

In order to prepare for and address an influenza epidemic or pandemic effectively, WHO has strengthened the following activities: (1) global surveillance of influenza, including identification of the influenza virus subtypes; (2) vaccine production; (3) use of antiviral drugs in the early phases of a pandemic; (4) promotion of national plans on the control of influenza epidemics and pandemics; and (5) dissemination of accurate and timely information to the public.

Surveillance
The development and maintenance of an effective surveillance system for influenza is essential if new and potentially dangerous virus strains are to be detected. Such a system is also essential if vaccination against influenza is to be based on accurate information about the virus subtype or subtypes that are causing the majority of cases at any particular time.

For these two reasons, one of WHO’s first activities was to initiate a global influenza surveillance system. A WHO influenza centre was set up in the United Kingdom. The centre is responsible for collecting and distributing information, coordinating and conducting laboratory work on influenza as a reference laboratory, and training laboratory workers. Another WHO influenza centre was set up in New York, United States of America, which was subsequently transferred to Montgomery, Alabama, and then transferred again to its current location in Atlanta, Georgia. A network of national influenza centres was then set up. By the end of 1957, links existed between the two WHO influenza centres (London and Montgomery) and 60 WHO-designated national influenza centres (six of which were in the Western Pacific Region).

There are now 110 WHO-designated national influenza centres worldwide. Four WHO influenza centres, now designated as WHO collaborating centres for influenza, serve as international reference laboratories in Atlanta, United States of America; London, United Kingdom; Melbourne, Australia; and Tokyo, Japan. The emergence of the new H5N1 influenza infection was first detected at the WHO influenza surveillance centre in Hong Kong in 1997. All four WHO collaborating centres for influenza contributed to the confirmation of laboratory diagnosis and the emergency surveillance that was carried out in Hong Kong and the southern part of China.

In relation to the emergence of H5N1 human cases in Hong Kong in 1997, the Regional Office sent a WHO mission to the southern part of China. The mission was composed of 14 experts and officials from the WHO collaborating centres for influenza in Atlanta, United States of America, and Tokyo, Japan; the Health Department of Hong Kong; the Ministry of Health, China; and WHO Headquarters and the Regional Office. The mission visited Guangdong Province from 16 to 23 January 1998 and assessed the influenza surveillance there, with particular emphasis on H5N1. The mission made a number of recommendations to intensify influenza H5N1 surveillance in southern China.

Surveillance information and vaccine recommendations are disseminated through the WHO Weekly Epidemiological Record, WHO press releases, and the Regional Communicable Disease Bulletin. Most recently, the WHO FLUNET system has been developed to distribute information on influenza epidemics through the Internet and electronic mail.

**Vaccines**

Although an influenza vaccine was developed in the 1940s, controlling influenza by immunization is not an easy task. This is due to the unique characteristics of influenza viruses, which alter their surface antigen and the target of immunity through a series of mutations (antigenic drift) and also by genetic reassortment (antigenic shift). WHO therefore has an important task to perform in monitoring influenza viruses at the global level so that appropriate influenza vaccines can be prepared before widespread epidemics or pandemics occur.

In mid-February of each year, WHO convenes a meeting attended by representatives from the four WHC collaborating centres for influenza and also, if necessary, manufacturers and researchers. The meeting attempts to predict the likely predominant influenza virus strains (two influenza A strains and one influenza B strain) in the coming year based on information from the WHO influenza surveillance system. Following the recommendations of this annual meeting, countries start vaccine production (taking into account prevalent local virus strains).

**ACHIEVEMENTS**

A global influenza surveillance network has been established. WHO now coordinates a network of 110 influenza-surveillance sites worldwide. The effectiveness of this global network was demonstrated by the rapid response to the discovery of the first human cases of influenza A (H5N1) in Hong Kong.
WHO has played a leading role in disseminating surveillance information and vaccine recommendations worldwide.

UNDERACHIEVEMENTS

National plans to prepare for influenza pandemics have not yet been prepared in many countries and areas of the Region. There is an urgent need for all Member States to develop such national plans.

FUTURE

The exact origins of new influenza viruses are unknown. One hypothesis is that new influenza subtypes are introduced from birds and/or animals such as swine. The evidence indicates that a new pandemic strain in humans is usually accompanied by a similar influenza virus in animals, suggesting that some animals may be reservoirs of new influenza viruses. Hence, it will be important to establish an animal influenza surveillance system, and this system should be incorporated into WHO’s influenza surveillance network. Emergence of the H5N1 subtype in Hong Kong in 1997 has emphasized the urgency of the need to develop an appropriate animal surveillance mechanism. One step that has been taken in this direction is an agreement between China and WHO in 1997 to begin a study in 1998 on swine influenza surveillance in southern China.

To prepare adequately for an influenza pandemic, the World Health Organization is advising all its Member States to develop national influenza pandemic plans. To support them in preparing such plans, WHO is providing them with guidelines. National influenza pandemic plans should include the provision of antiviral drugs as well as a strategy for immunization.
Chapter 21. Leprosy

During the 4th and 5th centuries AD, leprosy spread in the southern parts of China and in Viet Nam. The disease was first described in Japan at the beginning of the 7th century AD.

In the middle of the 19th century, leprosy was introduced by immigrants into some Pacific islands, including Hawaii (1850), New Caledonia (1850) and Nauru (1912).

THEN AND NOW

In the history of human diseases, leprosy has a special place. "No other scourge has inspired such terror and had left so strong a stigma in the political and economic life of the people" wrote Jeanselme in the historical introduction to his treatise on leprosy. In the Western Pacific Region, China was one of the earliest leprosy endemic countries and leprosy was described in the 3rd century BC. Leprosy remains an important, though diminishing, public health problem in the Western Pacific Region. Figure 21.1 shows the number of leprosy cases in the Region from 1950 to 1997.

WHO ACTIVITIES

Leprosy before the widespread use of sulfone

When Armauer Hansen discovered that leprosy was due to a bacillus in 1873, indicating that it was an infectious disease, he did not anticipate that his discovery would be used to justify the compulsory segregation of leprosy patients. At the first international conference on leprosy in Berlin, Germany, in 1897, compulsory isolation was recommended to avoid transmission of the disease. In 1933, the work of Doull and Guinto in the Philippines clearly demonstrated the marked difference between the infectivity of highly infectious lepromatous patients and less infectious tuberculoid patients. The findings confirmed that leprosy was not, in most cases, a highly infectious disease.

Figure 21.1 Number of leprosy cases in the Western Pacific Region (1950–1997)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>600 000</td>
</tr>
<tr>
<td>1960</td>
<td>500 000</td>
</tr>
<tr>
<td>1970</td>
<td>350 000</td>
</tr>
<tr>
<td>1982</td>
<td>270 000</td>
</tr>
<tr>
<td>1986</td>
<td>245 000</td>
</tr>
<tr>
<td>1990</td>
<td>88 545</td>
</tr>
<tr>
<td>1997</td>
<td>25 400</td>
</tr>
</tbody>
</table>

In 1941, it was discovered that sulfones were effective in the treatment of leprosy. Previously, patients were treated in leprosaria with chaulmoogra oil which was the only treatment to have had any effect on leprosy. Between 1941 and the 1950s, sulfone was used in only a few cases, among the first were patients from the leper colony on Culion island in the Philippines.

Generalization of sulfone therapy

The use of dapsone (DDS) for systematic treatment of leprosy patients coincided with the foundation of WHO. The fifth International Leprosy Congress held at Havana, Cuba, in 1948, established the general principles of sulfone therapy. In its first report, the WHO Expert Committee on Leprosy recommended that sulfone should be the major treatment for leprosy and gave details on various regimens. It was accepted that temporary isolation might still be necessary, although for infectious cases only. However the committee also suggested that ambulatory and domiciliary treatment could be safely and satisfactorily given to most patients. Leprosy had therefore ceased to be a "special" disease, and had simply become a
disease for which early diagnosis and treatment of cases were recognized to be essential. On the recommendation of the UNICEF/WHO Joint Committee on Health Policy in May 1953, leprosy was included among the diseases for which joint support could be provided to countries. WHO’s collaboration with governments included support for control projects in the Philippines.

In 1960, the second Expert Committee on Leprosy reaffirmed that it is more effective to reduce infectiousness in many patients than to eliminate infectiousness in a few. It also included definitions for case-finding programmes, epidemiological surveys and mass campaigns. Mass campaigns were progressively implemented in endemic countries and areas of the Region.

Mass campaigns and integration of patients into general health services

As early as 1959, WHO’s leprosy control programme collaborated in the organization of surveys in various countries. For example, in 1953, WHO sent a team of evaluators to examine the status of leprosy in China (Taiwan) and to institutionalize DDS therapy.

Throughout the Region, there has been a general trend towards integrating leprosy patients into general health services. In Malaysia, it took the whole of the 1960s to integrate leprosy treatment into general medical and health services. In 1969, the national leprosy control programme was launched. Under this new programme, steps were taken to decentralize treatment of leprosy to hospitals and health centres near to patients’ homes. In 1983, a sample survey conducted by a WHO consultant estimated that there was a pool of about 15 000 cases in Peninsular Malaysia alone. Implementation of the programme involved not only the integration of leprosy treatment into general medical and health services, but also the creation of adequate facilities for training medical and paramedical personnel for clinics that were to be set up throughout the country. In 1975, the total number of registered cases in Malaysia was 8199.

The organization of leprosy control programmes in the South-East Asia and Western Pacific Regions was discussed at a WHO interregional conference in Tokyo, Japan, in 1958 and subsequently, at an interregional leprosy training course in Manila, the Philippines, in 1961.

Multidrug therapy era

DDS has brought about major changes in the treatment of leprosy. However, in 1964, in Sungei Buloh leprosarium in Malaysia, resistance of the mycobacterium to sulfone was demonstrated for the first time. In 1973, 2.5% of patients at this institution were harbouring resistant strains. To overcome this problem, the fifth meeting of the WHO Expert Committee on Leprosy in 1976 recommended combining several drugs, including rifampicin and clofazimin. However, no standard regimens were defined. For this reason, a WHO study group on chemotherapy of leprosy was convened in 1981. Using the results of a study done by the group on therapeutic leprosy (THELEP), the study group recommended two regimens combining several drugs. This treatment was called multidrug therapy (MDT). It also proposed a six-month regimen for paucibacillary (PB) patients and a two-year regimen for multibacillary (MB) patients, targeting the infectious aspects of the disease. Noting the urgency of the situation, the study group recommended that MDT should be implemented immediately, without the usual clinical trials. MDT regimens have proved popular with both patients and health personnel. The treatment is much shorter than previous regimens and has proved to be extremely effective. The rate of relapse is less than 1 per 100 patient-years.

However, implementation of MDT needed a complete reorganization of programmes, retraining of health personnel and changes to the recording and reporting system. These activities were extensively supported by nongovernmental organizations and WHO. MDT has led to a major improvement in the quality of leprosy control and, as a consequence, more patients have come for treatment confident of being cured. Another part of the stigma attached to leprosy was disappearing.

Most endemic countries of the Region started to implement MDT in a limited number of areas as a test phase (1982–1985) in order to be able to set up operational standards for the whole country. The pioneer countries in the Region and in the world were China and the Philippines. The second phase was the expansion phase (1986–1990) during which much training and reorganization was done. The generalization phase (1991–present), during which MDT was widely applied, has led to significant decreases in the number of leprosy cases.

The standard operational definition of leprosy

Although leprosy is a disease that has been known since ancient times, a standard case definition was not established until the sixth WHO Expert Committee on Leprosy met in 1988. Before that, at the first Western Pacific Regional Seminar on Leprosy Control held in Manila, the Philippines, in 1965, and in the third meeting of the WHO Expert Committee on Leprosy held in the same year, operational definitions of
"inactive" cases and those "released from control" were proposed for administrative purposes. However, uncertainty about the duration of treatment for highly infectious cases (lepromatous and borderline) meant that no clear guidelines could be formulated on when patients could complete their treatment. In 1988, for the first time a case that had received MDT was defined with an entry and an exit (cured after completion of treatment). It was now possible to remove from the register all cases that had been cured, but remained on the register because they were in a follow-up period or were undergoing treatment for disability. This operational definition of "inactive" cases and those "released from control" has been instrumental in producing more accurate figures on the prevalence of leprosy and in distinguishing between the infectious disease and its complications such as disability.

In 1982, the prevalence of leprosy in the Western Pacific Region was 1.7 per 10 000 population. Figure 21.2 shows the dramatic decline to 0.5 per 10 000 population in 1991 and further declines thereafter. This is the combined effect of the implementation of the case definition and the generalization of MDT, which has shortened the duration of treatment and enabled patients to be discharged.

Figure 21.2 Prevalence, detection rate and MDT coverage in the Western Pacific Region (1986-1996)

Elimination of leprosy as a public health problem

A regional workshop on leprosy control held in the Regional Office in 1989 discussed the possibility of eliminating leprosy by the year 2000. Elimination of the disease as a public health problem was defined as "a prevalence below 1 case per 10 000 population". This definition was used when, in 1991, the World Health Assembly adopted a resolution on global elimination of leprosy as a public health problem.

Intensification of activities

As the target of elimination approached, WHO convened the first international conference on the elimination of leprosy in Hanoi, Viet Nam, in July 1994. The subsequent Hanoi Declaration called for more efforts to be devoted to eliminating the disease. A WHO leprosy working group the same year suggested that the elimination strategy would require innovative approaches and intensified activities if underserved areas and populations and hidden cases were to be reached with MDT. In the Western Pacific Region, it was estimated that approximately 35% of existing cases were living in difficult-to-reach areas. To tackle the problem, WHO launched the Special Action Project for the Elimination of Leprosy (SAPEL) and the Leprosy Elimination Campaign (LEC) initiatives. The two initiatives brought more flexibility in programme delivery. A second international conference was held in New Delhi, India, in October 1996. Its theme was "reaching every patient in every village".

Shorter regimens

The success of MDT has led researchers to study the possibility of shorter regimens in clinical trials. In addition, 15 years’ experience of MDT implementation has yielded considerable information on patients’ risk of relapse. It was therefore possible for the seventh Expert Committee on Leprosy to recommend that
the treatment regimen for MB patients be shortened to 12 months instead of 24 and that patients showing
a single patch on the skin could be treated with a single dose of a combination of three drugs. Compared
to the lifelong treatment that was recommended in the 1970s, the one-year treatment that is the norm in
the late 1990s is also helping to reduce the stigma of leprosy.

Collaboration with other international organizations and nongovernmental organizations

In 1931, during the fourth International Conference on Leprosy held in Manila, the Philippines, and
organized by the Leonard Wood Memorial Fund, the International Leprosy Association (ILA) was created.
This association was among the first nongovernmental organizations to be brought into official relations
with WHO in 1948.

Nongovernmental and voluntary organizations have played and continue to play a significant role in
leprosy control in many countries of the Region. WHO enjoys close relations with many of these
organizations, notably the Nippon Foundation (formerly the Japan Shipbuilding Industry Foundation or
JSIF), the Sasakawa Memorial Health Foundation (SMHF), the German Leprosy Relief Association
(GLRA), the Netherlands Leprosy Relief Association (NSL) and the Pacific Leprosy Foundation (PLF).

ACHIEVEMENTS

Closing the leprosaria

The introduction of sulfone therapy for leprosy has brought about a major change in leprosy control
policies. Sulfone therapy made it possible to render patients non-contagious and to cure noninfectious
patients. As consequence, it was possible to provide ambulatory treatment so that patients could stay with
their families. Since the 1970s, the number of leprosy cases isolated in leprosaria has declined markedly.
In the Philippines, for example, the population of the leper colony of Culion (which had once contained as
many as 5500 persons) started to decrease in size during this period. Throughout all endemic countries
and areas more and more patients are treated by mobile skin clinics or in health centres.

MDT coverage and elimination of leprosy

The expansion of MDT coverage reached 70% by 1990 (Figure 21.2). The impact on leprosy prevalence
has been dramatic. It is also noticeable that there has been an impact on detection. This can be explained
by increased expenditure on health education, retraining of health personnel and integration of leprosy
prevention and control programmes into peripheral health units, which increased opportunities for
detection. MDT has reduced the regional prevalence rate to 0.16 per 10 000 population in 1996. The
number of countries and areas that have reached the elimination target increased from 12 in 1991 to 26 in
1997.

Reaching every patient in every village

WHO’s leprosy programme is now focused on providing MDT services for cases living in underserved
populations and detection of “hidden” cases. To achieve this, SAPEL and LEC projects were implemented
in Cambodia, China, Papua New Guinea, the Philippines and Viet Nam. In addition, in the Federated
States of Micronesia, a special

project was launched in 1996 aimed at decreasing the incidence of leprosy within two years. It included
total population screening for leprosy case detection, treatment of all identified cases with MDT and mass
drug administration of preventive therapy to the whole population. This large-scale two-year project was
developed through close collaboration between the government, WHO and the Sasakawa Memorial
Health Foundation. After one year of operation, there was a 70% decrease in new cases.

Following the detection of an alarming number of leprosy cases in Kiribati during 1996 (a case detection
rate of 98 per 100 000 population) in May 1997 a second special project supported by the Pacific Leprosy
Foundation New Zealand began. This project includes total population screening and treatment of all
detected cases with MDT.

UNDERACHIEVEMENTS

MDT implementation

While MDT has enabled patients to be cured in a short period of time, its implementation has been slow. It
was only in 1993 that MDT coverage reached 90% (Figure 21.2), 11 years after it was first recommended
by WHO.
Remaining pockets of high prevalence of leprosy

There are still cases living in the community that are not reporting for diagnosis and treatment. In some countries such as Kiribati or the Federated States of Micronesia, despite implementation of leprosy control programmes, the number of cases remained high until special projects were started. In a few provinces or districts of countries such as China, the Lao People’s Democratic Republic and Viet Nam, there is still a high prevalence of leprosy. This is mainly due to difficulties in reaching populations that either live in remote areas or belong to minority groups with different customs and languages.

Few improvements in care of patients with disabilities

Mass campaigns and MDT have reduced delays in treating cases and have therefore prevented disability from occurring. However, for the patients suffering from disability, little has been done. Care of patients with disabilities has mainly been the focus of charitable organizations.

Distribution of multi-drug therapy pills to leprosy patients

FUTURE

As more countries reach the elimination target, attention needs to be focused on the remaining clusters of leprosy, so the disease can be totally eradicated in the next few decades. Activities will be directed towards: (1) improved levels of diagnosis capability by health workers in the periphery in countries which still have numerous cases of leprosy (Cambodia, the Lao People’s Democratic Republic, Marshall Islands, the Federated States of Micronesia, Papua New Guinea and the Philippines); (2) more sensitive surveillance systems for leprosy, with systems of referral to well-trained specialists to sustain early case detection in all countries with low prevalence rates; and (3) community-based rehabilitation programmes.
Chapter 22. Malaria

Two of the most important events in the history of malaria occurred towards the end of the 19th century. Patrick Manson, a Scotsman practising medicine in China, discovered in 1878 that mosquitoes are arthropod hosts of human filarial parasites found in the blood. This was followed by the discovery by Ronald Ross in India in 1897 that anopheline mosquitoes transmit malaria parasites to humans. During the first half of the 20th century, malaria was a tremendous burden to the world's population living in tropical countries. In 1948, approximately 40 million people were infected in the Western Pacific Region.

There was optimism that malaria could be eradicated or at least controlled after the World Health Assembly in 1955 adopted a malaria eradication policy. Two years later a global campaign was launched. During the next 12 years, excellent results were obtained in many countries, including some in the Western Pacific Region. However, the global eradication policy was dropped in 1969, after it became obvious that this goal was not feasible in many highly endemic countries. During the 1980s, progress in the Western Pacific Region was stagnant, apart from in China. However, control programmes in all malaria endemic countries were revitalized during the 1990s.

THEN AND NOW

The worldwide distribution and prevalence of malaria in 1948 were known in detail for some areas, and roughly for almost all. Malaria was estimated to affect some 300 million persons yearly and to cause about three million deaths annually. The most recent global estimate of malaria mortality and morbidity is for 1996 and shows 1.5–2.7 million deaths and 300–500 million sick annually. Slightly more than 2 billion people are at risk.

The Epidemiological and Vital Statistics Report of WHO in 1950 provided little information on malaria cases and deaths in the Western Pacific Region. In 1948, there were 218,036 cases and 3,076 deaths reported in Indo-China, 4,933 cases and 42 deaths in Japan, 4,079 cases in Papua New Guinea, 726 cases and 24 deaths in Manila, the Philippines, and 37 cases and 3 deaths in Shanghai, China.

As the health services in the malaria endemic countries developed during the ensuing years, the reporting of malaria cases became more reliable and comprehensive. Nonetheless, many cases and especially deaths went unreported because the disease mainly affects the poorest people living in remote areas where only those reaching a hospital are recorded. Experience has shown that, on a regional basis, reported cases confirmed by microscopic diagnosis represent only about 20% of actual cases.

In 1948, at least 40 million cases are estimated to have occurred in the Western Pacific Region (30 million in China, 2 million in the Philippines, 8 million or more in other countries). The first official reports from China to WHO were in 1977. In that year, there were 4.5 million microscopically confirmed cases reported in the Western Pacific Region. The total number of cases in the region was estimated to be five times higher (22 million), due to underreporting.

By 1986, the number of cases in the region had declined, and there were 6.5 million estimated cases (1.3 million confirmed by microscopy). In 1996, the estimated number of cases had dropped still further to 2.5 million (0.5 million confirmed by microscopy), with 20,000 estimated deaths (2,402 reported).

The number of cases and deaths reported in each of the nine malaria endemic countries in the Region in 1996 are shown in Figure 22.1. In addition to these countries, 350 indigenous cases were reported in the Republic of Korea in 1996 after an absence of the disease for 17 years.

WHO ACTIVITIES

Adopting the malaria eradication policy

In the early 1950s, international interest in a global eradication campaign was developing. Malaria eradication means the elimination of malaria parasites in the human population of a large area. It does not
mean the eradication of mosquitos. The strategy evolved because of the availability of a new, promising insecticide, DDT, which was to be applied for a three-year period as an indoor residual spray to kill adult mosquitos and prevent them from reaching the age of seven days or more. Seven days or more are required for the parasites to develop in the mosquito and to reach the salivary glands for transmission to occur at the next blood meal. It was also known that *Plasmodium falciparum* and *P. vivax* normally disappear from a patient’s blood stream within one and three years respectively, even in the absence of treatment. It was concluded that, if a very large area is sprayed with DDT with maximum efficacy for at least three years, it would be possible to stop spraying in the fourth, provided that a sound system of case finding and treatment was in place.

The Second Asian Malaria Conference for the Western Pacific and South-East Asia Regions was held in Baguio, Philippines, 15–24 November 1954. It was attended by 42 participants, including the world’s most prominent malariologists, from 23 countries or areas. WHO staff, consultants and Rockefeller Foundation staff also attended. The conference recommended that the ultimate goal of a nationwide malaria control programme was the eradication of the disease. There was a consensus that the absence of indigenous malaria for a minimum period of three years would be an acceptable indication of malaria eradication. It was also recognized that eradication of malaria by residual spraying alone might not be possible in some areas and that other methods of control would have to be used to prevent insecticide resistance. It was important that effective spraying with high coverage be completed in a short period of time and not applied indefinitely. In 1955, the Eighth World Health Assembly adopted a global policy for malaria eradication. Promising results and experiences from Greece, Crete, Indonesia and the Philippines lay behind the endorsement of the global eradication policy. For example, the WHO-supported project in Mindoro, Philippines from 1952 to 1954 showed beyond any reasonable doubt that DDT residual spraying of houses can effectively control *Anopheles flavirostris*-borne malaria and interrupt malaria transmission. The experience of this project formed the basis of the six-year plan for the control of malaria in the Philippines. A project in Sarawak, Malaysia also showed that the local vector, *A. leucosphyrus*, could be successfully controlled by residual house spraying. During the same period a WHO project in the southern highlands and in the Mekong Delta of Viet Nam showed that the use of DDT on plantations brought about almost complete disappearance of malaria.

In Malaysia, antimalaria activities began in 1901 with the use of environmental measures adapted to local vector conditions in coastal, urban and plantation settings. These included swamp drainage, tidal gates, subsurface drainage, clearing of shade cover, and oiling of breeding sites. After 1945, drug prophylaxis and residual house spraying were introduced where antilarval measures had been ineffective. During the early 1950s, pre-eradication projects were run in Negeri Sembilan, Sarawak, and Sabah.

**Malaria eradication period**

<table>
<thead>
<tr>
<th>Endemic country</th>
<th>Population at risk</th>
<th>Cases diagnosed microscopically</th>
<th>Cases per 1000 inhabitants (annual parasite incidence)</th>
<th>Deaths reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>2 500 000</td>
<td>73 160</td>
<td>29.0</td>
<td>735&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>China</td>
<td>55 200 000</td>
<td>33 382</td>
<td>0.6</td>
<td>30</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>3 435 943</td>
<td>51 550</td>
<td>15.0</td>
<td>588&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1 945 750</td>
<td>51 921</td>
<td>27.0</td>
<td>40</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>4 000 000</td>
<td>71 013</td>
<td>18.0</td>
<td>514</td>
</tr>
<tr>
<td>Philippines</td>
<td>10 278 215</td>
<td>40 545</td>
<td>3.9</td>
<td>262</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>409 158</td>
<td>84 795</td>
<td>207.0</td>
<td>30</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>172 124</td>
<td>5 654</td>
<td>3.3</td>
<td>0</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>34 200 000</td>
<td>84 625</td>
<td>2.5</td>
<td>203</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>112 141 190</strong></td>
<td><strong>496 645</strong></td>
<td><strong>4.4</strong></td>
<td><strong>Estimated at 20 000 deaths</strong></td>
</tr>
</tbody>
</table>

<sup>a</sup>Estimated at 10 000 deaths.

<sup>b</sup>Estimated at 5000 deaths.

Health Assembly adopted a global policy for malaria eradication. Promising results and experiences from Greece, Crete, Indonesia and the Philippines lay behind the endorsement of the global eradication policy. For example, the WHO-supported project in Mindoro, Philippines from 1952 to 1954 showed beyond any reasonable doubt that DDT residual spraying of houses can effectively control *Anopheles flavirostris*-borne malaria and interrupt malaria transmission. The experience of this project formed the basis of the six-year plan for the control of malaria in the Philippines. A project in Sarawak, Malaysia also showed that the local vector, *A. leucosphyrus*, could be successfully controlled by residual house spraying. During the same period a WHO project in the southern highlands and in the Mekong Delta of Viet Nam showed that the use of DDT on plantations brought about almost complete disappearance of malaria.

In Malaysia, antimalaria activities began in 1901 with the use of environmental measures adapted to local vector conditions in coastal, urban and plantation settings. These included swamp drainage, tidal gates, subsurface drainage, clearing of shade cover, and oiling of breeding sites. After 1945, drug prophylaxis and residual house spraying were introduced where antilarval measures had been ineffective. During the early 1950s, pre-eradication projects were run in Negeri Sembilan, Sarawak, and Sabah.
The malaria eradication period lasted from 1955 to 1969, although some countries with low malaria endemicity continued eradication efforts until the disease was eradicated or eliminated. WHO was particularly active in supporting country activities during this period and was involved in pre-eradication activities in 1953 in Cambodia, China (Taiwan), Hong Kong, Japan, the Lao People's Democratic Republic, New Hebrides, North Borneo, Papua New Guinea, the Philippines, Sarawak, Singapore, Solomon Islands, and Vietnam. All of these countries and areas had started malaria spraying operations.

From 1960 to 1965, the malaria eradication programme in most of the Western Pacific Region was vibrant, active and optimistic. Using 1963 as an example, there were 23 WHO malaria staff assigned to eight country projects. With few exceptions during the first quarter of 1963, field operations in most of the projects proceeded according to the schedules set down in the respective plans of operation.

Specific examples for the first quarter of 1963 give a snapshot of the extensive activities taking place throughout the Region. The spraying cycle in the Solomon Islands malaria eradication project was completed in Guadalcanal and spraying squads worked in New Georgia. In Savo Island, in addition to the house spraying programme, chloroquine and primaquine tablets were given to all local inhabitants once a week for eight consecutive weeks. In the Republic of Korea's pre-eradication programme, a branch office of the national malaria service was established in Yongju county. The fourth spraying cycle in the Malaya malaria eradication project was nearly completed and the incidence of an abnormal response of *P. falciparum* to the treatment of chloroquine was reported on the border with Thailand. In the North Borneo malaria eradication programme, the first spraying cycle covering the whole country had started, while in Sarawak about two-thirds of the population was in the consolidation phase.

In the southern part of Vietnam, the eighth cycle of spraying operations was in progress during the first quarter of 1963. Surveillance by active case detection covered a total population of 2,248,000 in the hyper-endemic coastal areas. Surveillance by passive case detection and the establishment of cooperative malaria detection posts progressed slowly. DDT residual spraying had reduced parasite rates from 60% to 5% in mountain areas. Difficulty in interrupting transmission was ascribed to the need to stay in temporary huts exposed to mosquitoes.

In the two pre-eradication programmes in Brunei and Cambodia, little progress was made during the first quarter of 1963. In the Philippines' malaria eradication programme, a new comprehensive plan of operation in two volumes was completed. The construction of the new malaria eradication training centre building in Manila started in early 1963. An eight-week special training course for entomologists was conducted in Kuala Lumpur under the auspices of the Regional Office from January to March 1963. With effect from 1 January 1963, the West New Guinea/West Irian pre-eradication programme came under the jurisdiction of the South-East Asia Regional Office.

**Training**

The International Malaria Eradication Training Centre was established in Manila in 1963, funded by the United States Agency for International Development (USAID) and supported with WHO staff. For 10 years the Centre was of inestimable value in maintaining commitment and expertise in the field of malaria control and eradication. In 1973, USAID support was withdrawn and the facilities of the training centre were used solely by national staff of the Philippine malaria programme. In 1979, the Philippine malaria programme, in collaboration with WHO, began producing and distributing test kits for

*in vitro* assessment of malaria parasites' sensitivity to drugs. Today, the kits and pre-dosed plates are the world standard for monitoring the susceptibility and resistance of malaria parasites to chloroquine, amodiaquine, sulfadoxine/pyrimethamine, quinine, artemisinin and other antimalarial drugs. In 1996, a biregional meeting on malaria control with emphasis on drug resistance was held at the regional office in Manila. Drug policy issues related to artemisinin and its derivatives were emphasized.

From a group of WHO staff originally assigned to the Malaysian malaria eradication programme, the Regional Antimalaria Team was established and based at the Institute of Medical Research (IMR) in Kuala Lumpur. During the 1980s, the team provided technical support to all malaria endemic countries in the Region by collaborating in planning, evaluation and training. The materials used in the preparation and field testing of microscopy and other training materials are now used all over the world. Apart from organizing special training courses, the team supported the popular six-month course in Diploma in Applied Parasitology and Entomology (DAP&E). WHO's full-time presence at the IMR ended in the early 1990s.

The WHO-supported Sub-Regional Malaria Training Centre located at the College of Allied Health Sciences, Madang, Papua New Guinea provided training to malaria staff from Papua New Guinea.
Solomon Islands and Vanuatu during the 1980s. The Centre received UNDP funding and was active until the Solomon Islands Medical Training and Research Institute was established in Honiara in 1988, funded by the Japanese Government.

Border meetings have been an important mechanism for the exchange of information on malaria. The South-West Pacific Malaria Meeting involving Australia, Indonesia, Papua New Guinea, Solomon Islands and Vanuatu has been held about every five years. Regular meetings between Cambodia, the Lao People’s Democratic Republic and Viet Nam are planned as part of the European Union’s support for malaria control in these countries.

**Pyrethroid-treated mosquito nets**

Hands-on workshops for malaria workers to demonstrate use of pyrethroid-treated mosquito nets were held in all nine malaria endemic countries of the Region from 1983 to 1987. Nets and permethrin insecticide were provided by the Regional Office. The malaria workers were encouraged to keep the nets, use them and to learn from practical experience.

After sufficient interest and motivation was achieved, national and WHO staff worked together to implement field trials in China, Malaysia, Papua New Guinea, and Solomon Islands. Malaria incidence was reduced from 1.87% to 0.15% in Sichuan, China and from 46.3% to 10.9% in Sabah, Malaysia. Prevention of malaria was demonstrated in most of the 1–4 year olds near Madang, Papua New Guinea. The malaria staff noticed that mosquito densities as well as malaria incidence were reduced. Moreover, the individuals and families using the nets were pleased with the protection provided from biting mosquitoes. They also noticed that other insects were killed such as head lice, flies and cockroaches.

Large-scale operational activities proceeded throughout the Region from 1987 to 1989. Approximately 2.2 million mosquito nets were treated with deltamethrin in China, providing protection to 5.46 million inhabitants in Jiangsu, Henan and Sichuan provinces. Malaria incidence was reduced by 87%. Projects were also implemented in Papua New Guinea, Solomon Islands and Viet Nam. The aim was for every house in a community or village to have one or two treated nets, thus providing protection even to those who did not sleep under them. The nets are especially valuable in high-risk localities where other control measures are difficult to apply.

During the 1990s, all nine malaria endemic countries implemented large-scale use of treated mosquito nets, combined with diagnosis and treatment of malaria patients. During one mobilization in China, 163 million people were issued with pyrethroid with which to soak their mosquito nets. This protected over 300 million people. The Philippines institutionalized treated net usage and launched a nationwide awareness campaign in April 1994. Vanuatu had covered 70% of the population at risk by 1997 and plans to have complete coverage by 1999. The north-eastern provinces of Cambodia are also proceeding towards complete coverage by 1999. Viet Nam had the highest net coverage in the world in 1996, with 10 million inhabitants protected.

**Airport vector control in Pacific islands**

Sixteen countries and areas have never been malarious because of the absence of anopheline mosquitoes. They include American Samoa, Cook Islands, Fiji, French Polynesia, Kiribati, Nauru, New Caledonia, New Zealand, Niue, Samoa, Tonga, and Tuvalu. In these countries and areas, a firm policy of airport vector control and aircraft disinsection of arriving aircraft has been maintained for many years. This has helped prevent the establishment of malaria vectors in these islands.

The control of insect vectors in international air traffic was the subject of Regional Committee resolutions in 1971, 1973, 1980 and 1982, which endorsed the need for aircraft disinsection and other control measures, particularly for flights to the anopheline-free Pacific Islands. The Regional Office convened a regional seminar on the health applications of international travel in June 1983 and an intercountry workshop on airport vector control in Honiara, Solomon Islands in May 1986. These meetings reinforced the need for aircraft disinsection by aerosol or residual spray, larval control in and around the airport perimeter and screening of airport terminals.

**Solomon Islands intensified malaria control**

From 1993 to 1997, Solomon Islands made significant progress in controlling malaria. In 1992, there were 153 359 confirmed cases of malaria in a population of 350 000 and an annual parasite incidence of 440 per 1000 population, making Solomon Islands the most malarious country in the Region. By the end of 1997, incidence was 160 per 1000 inhabitants, or a reduction of 64% in comparison to 1992. A factor
accounting for the marked reduction was the intensified malaria control measures implemented in September 1995 in Honiara, the capital city of 62,000 inhabitants. The incidence in 1992 in Honiara was 1072 per 1000 inhabitants (some persons had two or more recorded infections throughout the year). By 1997 incidence was 264 per 1000, a decline of 75%.

The success achieved by the Solomon Islands Malaria Control Programme was attributed to reorganization of the programme in 1993 with the government giving its full commitment to malaria control. New, realistic targets were set, control strategies were selected, a programme for re-training of staff was put in place, and commitment from international partners was obtained. These eventually included the Australian Agency for International Development (AusAID), Canada Fund, Japan International Cooperation Agency, Rotary Against Malaria, the governments of New Zealand and the Republic of Korea, UNDP, and the United Kingdom’s Overseas Development Administration (later Department for International Development). In 1995, realizing that more than one third of total malaria cases came from Honiara, the government, with WHO support, initiated an intensified control programme with the goal of making Honiara a healthier place to live and work.

The intensified control measures directed against adult mosquitoes in Honiara included wide-scale use of permethrin treated mosquito nets and ultra-low volume spraying with 1% permethrin around houses during the peak transmission period. An additional feature was the installation of pipelines at the mouth of the Mataniko River in central Honiara and two other sites to alter the breeding habitat and greatly reduce the larval densities of the local vector species, *A. farauti*. Mass blood surveys of the target populations were also carried out followed by treatment of all positive cases within 48 hours after the slides were taken. The seasonal incidence peaks occurring from February to April were eliminated.

A mass drug administration (MDA) was carried out in December 1996 using a three-day regimen of chloroquine, sulfadoxine/pyrimethamine and primaquine. The MDA was preceded by residual house spraying with lambdacyhalothrin in October and November 1996. The falciparum form of malaria was reduced by 70%, leaving vivax as the predominant malaria parasite. Malaria became less common in Honiara, and the number of malaria admissions to Honiara General Hospital in September 1995 was 43 per day in comparison to 5 per day in September 1997.

Other activities in Honiara included cleaning of streams and rivers, application of temephos larvicide to breeding places, introducing a computerized malaria information system, active surveillance to detect cases not seeking treatment, and checking the malaria status of visitors and residents returning from other parts of the country. In the provinces, activities focused on improving diagnosis and treatment, attaining high coverage of insecticide-treated mosquito nets and spraying of houses in the most problematic localities. By the end of 1997, four of the eight provinces had annual parasite incidences of less than 100 per 1000 population.

**ACHIEVEMENTS**

**Regional reduction in malaria cases**

Figure 22.2 shows a marked decline from 40 million estimated cases in 1948 to only 2.5 million in 1996 (a reduction of 94%). This undoubtedly means that the deaths of many thousands of people were prevented each year. In comparing 1992 to 1996, there was a marked reduction in the incidence of reported malaria cases confirmed by microscopy, for example, 60% for China, 63% for the Philippines, 45% for Solomon Islands, 57% for Vanuatu, and 40% for Viet Nam. The prospects are good that the regional target of a 50% reduction of incidence by the year 2000, in comparison to 1992, will be achieved.

**Countries eradicating malaria**

In order to be entered in the WHO Official Register of Malaria Eradication, a country must have the financial resources and operational facilities to prevent the reintroduction of the disease. Malaria has been eradicated in Australia, where it occurred mainly in Queensland and the Northern Territory, and this achievement was registered by WHO in 1982. Between 1907 and 1910, about 2000 deaths occurred a year in Singapore. From 1956 to 1962, no indigenous cases occurred but thereafter minor outbreaks occurred until 1977. With a comprehensive system of vector control and case finding to detect imported cases, Singapore also was officially registered by WHO as having eradicated malaria in 1982. Malaria was indigenous to Japan with some 400,000 cases and 1000 deaths a year in 1945 and 1946 but the disease has now been eradicated. By 1965, China (Taiwan) had eradicated malaria.
In the mid-1970s, health workers in Singapore sprayed larvicide in breeding places of mosquitoes twice weekly, sprayed quarters constructed for foreign workers, searched for cases, took blood samples en masse, taught preventive measures, and urged citizens travelling abroad to take anti-malaria drugs. Since 1975, of the some 200 or so cases reported yearly, nearly all are imported, but Singapore has shown its capacity to get rid of malaria and prevent the reestablishment of the disease. Many WHO fellows from the Western Pacific and South-East Asia Regions routinely visit Singapore to share information on surveillance and preventive control measures.

Countries and areas where malaria transmission has been eliminated

Following an extensive antimalaria programme in Brunei, transmission ceased during the 1970s, although imported cases do occur. In Hong Kong, malaria was responsible for 1492 deaths in 1939 and 2422 cases in 1946. Following an intensive control campaign, there has been no malaria transmission since 1969, except for occasional indigenous and an increasing number of imported cases. In neighbouring Macao, malaria has also disappeared. Beginning in 1988, WHO routinely held meetings about every two years with health authorities from Hong Kong, Macao and Southern China on the surveillance and control of malaria and other communicable diseases. The last meeting was in Hong Kong in June 1998.

In the Republic of Korea in the 1960s, the national malaria eradication service was established with WHO collaboration. By 1979, cases were no longer being detected. In the early 1990s there was a resurgence of malaria. Surveillance and control activities are now taking place to contain and control this re-emergence.

Malaria controlled in most of China

Prior to 1949 in China, approximately 30 million cases occurred per year, with some localities having annual parasite incidences as high as 800 cases per 1000 inhabitants. During the 1950s and 1960s control campaigns began. In 1977, there were 4 193 763 malaria cases reported for the whole country. At that time, 300 million people lived in malarious areas. This gave an annual parasite incidence of 72 cases per 1000 inhabitants. The number of reported cases dropped to 364 000 in 1986 and 33 000 in 1996. Apart from Hainan and Yunnan provinces and limited localities elsewhere, malaria is no longer a public health problem in China.

Decentralized control activities implemented at the commune level were highly successful and annual parasite incidence dropped by 60% from 1970 to 1977. Antimalaria activities were carried out by health centres in the communes. The activities involved detecting, treating and reporting cases, and organizing antimosquito campaigns. Wide coverage was ensured by the presence of health aides who lived and worked in the commune. They located malaria or fever cases, and drugs were administered in house-to-house visits if necessary. From 1985 to 1990, insecticide-treated mosquito nets were introduced on a large scale and millions of people living in the endemic areas were protected.

Malaria burden reduced in the Philippines

In the Philippines, malaria was responsible for an estimated 100 000 deaths per annum in the early 20th century. In 1921, a malaria campaign funded by the Rockefeller Foundation reduced malaria deaths to 20 000 a year by 1935. These gains were lost during the war years from 1941 to 1945, and some localities after the war had spleen enlargement rates as high as 100% and parasite rates of 78%. The population also suffered from physical weakness, loss of work efficiency, shortages of food and the lack of industrial and agricultural development.

A malaria eradication programme was established from 1956 to 1983. In 1959, the Philippines became self-supporting in rice production, thanks to the increase in rice acreage, following elimination of malaria in certain areas. Analysis in 1957 revealed that treatment of 1 million cases and the loss of life due to malaria imposed a cost of some US$ 54 million and a great strain on economic development. The eradication programme therefore brought considerable benefits to health and economic development.

In 1994, the malaria control strategy was revitalized to include large-scale vector control coverage with
insecticide-treated mosquito nets, residual house spraying and improved case detection and treatment. By 1996, only 40,545 microscopically confirmed cases were reported, with 262 deaths. Even if the total number of actual cases and deaths were as high as 200,000 and 1000 respectively, tremendous progress had been achieved.

Progress in Viet Nam

Malaria control in Viet Nam suffered severe setbacks in the 1980s as a result of general economic decline. Health services were degraded, DDT was no longer donated by the Union of Soviet Socialist Republics, resistance to antimalarial drugs developed relentlessly, and people seeking new economic opportunities in forested and hilly areas carried the infection back to areas from which it had previously been eliminated. In 1991, morbidity and mortality peaked, 144 epidemics were recorded, and 187,994 confirmed cases and 4646 deaths were reported.

From the early 1990s, economic recovery made it possible to increase allocations to malaria control. Collaboration between industry and researchers led to the local production of artemisinin and related drugs for treatment of severe and multidrug-resistant malaria. The artemisinin drugs (used for centuries in traditional Chinese and Vietnamese medicine) had been rediscovered by Chinese scientists in the 1970s. In Viet Nam, the introduction of these rapidly acting antimalarial drugs in the general health services has helped to reduce the number of severe cases and malaria mortality.

The other important development was the introduction of insecticide-impregnated-mosquito nets. Trials in Viet Nam indicate that the effectiveness of this method for preventing malaria is comparable to that of spraying of the indoor walls of habitations with insecticides. The advantage is both economic and ecological, as less insecticide is needed per person protected. The method is also more popular, providing protection against bedbugs and other nuisances, and more adaptable to different lifestyles; people who regularly sleep away from home can take nets with them, but not their sprayed house-walls. Insecticide impregnation is now provided as a free public service to people living in malaria endemic areas. Nearly 10 million persons are protected by this method in Viet Nam.

Some ethnic groups have still not acquired the habit of using mosquito nets. Others use them, but not when staying in the forest. A nationwide evaluation of malaria control in 1995 showed that malaria had gone down in most but not all of the areas where impregnated nets had been introduced. Where the nets had been less effective, the population usually did not know that the impregnated nets were supposed to prevent malaria. Obviously health workers need to accompany distribution of nets and insecticide to ensure correct use.

Government funding for malaria control continued rising rapidly from 1991 to 1995. From 1995, foreign partners have greatly increased their contributions to the successful Vietnamese control programme, allowing the Government to give more attention to other health problems, such as dengue haemorrhagic fever. The Vietnamese achievements in malaria control seem very impressive, but it should be noted that the gradual reduction in malaria incidence (number of cases per 1000 persons per year) during the 1990s resembles the reduction seen from 1975 to 1984, when the programme relied mainly on house-spraying. In 1996, only 84,625 confirmed cases and 203 deaths were reported.

Artemisinin is the antimalarial substance isolated in China in 1972 from a shrub (Artemisia annua) used in traditional Chinese medicine from which qinghaosu is derived. Artemisinin and its derivatives have an essential role to play in the treatment of multidrug-resistant falciparum malaria. The remarkable properties of these drugs are particularly valuable in the treatment of severe and complicated malaria caused by multidrug-resistant P. falciparum. These drugs have been widely used in China and Viet Nam and have been recently registered in many other countries outside the Western Pacific Region. Malaria mortality in Viet Nam dropped by 92% when these drugs were used on a nationwide basis from 1992 to 1996.

UNDERACHIEVEMENTS

There are many examples of impressive progress made during the malaria eradication period from 1955 to 1969. However the impracticality of applying a time-limited programme to the whole world was clearly recognized. In 1968, the World Health Assembly confirmed the need to re-examine the global strategy of malaria eradication.

At the next Assembly, in 1969, the proposal of the Director-General for the revision of the strategy was endorsed by the World Health Assembly. The Director-General’s proposal centered on the need for: (1) adaptability in the choice of combinations of different methods, and (2) the need to maintain eradication where it has been achieved. Unfortunately, this re-examination unintentionally led to a deterioration of political and financial support and a considerable decline in programme discipline,
efficiency and drive. Except in China, progress was not satisfactory in the Western Pacific Region during most of the 1970s. Beginning in 1979 there was some improvement, but not in the Philippines, Solomon Islands, and Viet Nam.

Although progress is being made in controlling malaria in most endemic countries, comprehensive control measure still need to reach high incidence areas where the poorest and most dispersed populations live.

Drug supply and treatment methods are usually adequate, but many people with severe malaria die because they arrive in hospitals too late. As many seriously ill malaria patients are not treated at hospital, the real number of deaths due to malaria is underreported. This particular problem needs to be addressed in Cambodia and Lao People’s Democratic Republic where expansion of curative services to health centres is needed. In addition, preventive measures need to be expanded by using insecticide-treated mosquito nets to cover all populations at high risk.

Progress has been slow in implementing effective malaria control in remote rural areas of Cambodia and Lao People’s Democratic Republic. There transmission is intense and mortality thought to be high. In Cambodia malaria is most severe in isolated villages surrounded by forests and an estimated 10 000 deaths occur annually. In the Lao People’s Democratic Republic, ethnic groups living in remote areas have insufficient health services and at least 5000 malaria deaths occur annually.

The control measures in Honiara, Solomon Islands have reduced malaria morbidity and mortality but relapse vivax cases occur, as does vivax drug resistance. This poses a challenge if the required level of control is to be achieved. A 14-day primaquine treatment to control vivax stages in the liver needs to reach more people.

In Papua New Guinea, malaria remains a serious health problem in coastal and island regions. There are 15 provinces where transmission is high throughout the year. Epidemics have recently occurred at high altitudes in Chimbu and Eastern Highlands province with considerable mortality. Nationally, malaria has been the third leading cause of hospital admissions and deaths. Manpower shortages in the health services, a breakdown of drug supplies in rural areas, and a lack of vector control have contributed to the problem.

Artemisinin and its derivatives are a group of fast acting and life-saving drugs, produced mainly in China and Viet Nam. Their widespread and irrational use, especially underdosing and poor quality formulations, accelerates parasite resistance. These drugs should be reserved for treating multidrug-resistant malaria. However, unregulated commercial vendors sell these drugs in Cambodia and neighbouring countries.

More international reference centres and better national regulations are needed to strengthen quality control and rational drug usage. Enhanced biregional cooperation and coordination of malaria control in selected areas of China, the Lao People’s Democratic Republic, Myanmar, and Thailand, which constitute the epicentre of multidrug-resistant P. falciparum malaria, is needed. Achieving the goal of effective vector control in these areas would reduce the incidence of disease and drug consumption.

Decisions about drugs and regimens to be used in health services should be guided primarily by the principle that effective treatment must be available so that severe malaria and deaths can be prevented. When treatment failure rates reach 25%, it is time to consider whether a change to a new drug may be necessary, although this can be a slow process.

Whenever a wide range of technical and operational issues are discussed with national programme managers, lack of effective management often emerges as an important problem. Programme management should be decentralized and financially supported so that important decisions can be made at the local level. This leads to flexibility and innovation within the programme, better supervision and stronger community support.

FUTURE

National malaria control programmes will continue to be encouraged and supported by WHO. One important objective is to provide malaria microscopy at the peripheral level of the health services so that the treatment can be based on a blood slide result. This is especially critical where expensive treatment regimens are needed because of drug resistance or where the mixture of parasite species requires different treatment regimens. It is also critical for the management of patients with severe malaria. Where microscopy is not available, efforts will be made to ensure that health centre staff are trained in clinical diagnosis. The rapid dipstick diagnosis will also be promoted on a large scale in areas of Cambodia without microscopy.
Early diagnosis and effective treatment will remain the fundamental components of malaria control. Insecticide-treated mosquito nets will remain an essential form of personal protection for infants, children, pregnant women and others in the community. Coverage will strive to reach populations not yet protected. Partner support will be sought in order to supply nets and insecticides to the countries most in need. Other vector control measures will be applied for appropriate situations. These control measures will include indoor residual spraying, fogging, larviciding and environmental measures.

Lack of financial resources in national budgets will be partly offset by a renewed commitment by partner agencies to support malaria control activities. These agencies include AusAID, the European Union, the Japanese Government, Rotary International, the United Kingdom’s Department for International Development, UNDP, and the World Bank. Most of the Regional Office’s malaria budget will be allocated for use at the country level.

Intensified control measures will be applied to selected areas with high incidence in Cambodia, the Lao People’s Democratic Republic and Papua New Guinea.

Biregional cooperation will be strengthened in border areas in China and Cambodia. The implementation of effective control activities in a coordinated manner will help control multidrug resistant *P. falciparum* malaria. This will involve commitments at national, district and local levels. Support for national training activities, especially at the provincial and district level will continue.

The countries’ main task to the year 2000 will be to apply large-scale vector control operations to the high-risk areas. Approximately 20 million people were protected with insecticide-treated mosquito nets and 10 million with indoor residual spraying in 1996. DDT is being phased out and only modest quantities have been used recently in China, Malaysia, Papua New Guinea, and Solomon Islands. Early diagnosis and effective treatment will continue to be strengthened, particularly in the peripheral areas where the health infrastructure is not well developed. Priority will be given to ensure that persons suffering from malaria are promptly treated with effective drug regimens to cure sickness and prevent mortality.

If proper measures are taken, it is projected that within the next 25 years malaria will be eliminated or will no longer be a public health problem (less than 1 case per 1000 population at risk) in China, Malaysia, the Philippines, Vanuatu, and Viet Nam. However, surveillance and control efforts will need to be maintained to prevent a resurgence of cases. Malaria will have reached a low endemicity level in Solomon Islands. Malaria still will be a public health problem in Cambodia, the Lao People’s Democratic Republic, and Papua New Guinea, but mortality will have been greatly reduced.
Chapter 23. Measles

One hundred years ago, measles killed about 30% of the population of Fiji, and similar percentages in other Pacific island countries. As late as 1970, most children in all countries could be expected to catch measles, which was considered a normal childhood illness. Today measles immunization has protected the vast majority of children in the Region from ever catching measles. The first variants of live attenuated measles vaccine were developed in the 1950s. The vaccine in use since the 1980s is freeze-dried and reconstituted just before use. It is very safe, cheap and effective. It is administered with a single injectable dose. In some ways, measles control is a victim of its own success. When measles outbreaks do occur, and they are inevitable due to the build-up of the number of susceptible children over time, even in a highly immunized community, the public becomes alarmed and the media treats it a major story, demanding immediate action. Nevertheless, there is convincing evidence that measles can be eliminated by large-scale immunization campaigns, and it is likely that the disease will follow poliomyelitis as the next disease to be subject to global eradication measures.

THEN AND NOW

Figure 23.1 shows the dramatic decline in measles incidence from 1974 to 1996.

<table>
<thead>
<tr>
<th>Year</th>
<th>Measles Vaccine</th>
<th>Coverage%</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WHO ACTIVITIES

Measles vaccine was the last of the six antigens to be introduced as part of the Expanded Programme on Immunization in the Western Pacific Region. Most of the more populous countries did not introduce universal measles immunization until the early 1980s.

In 1989, the World Health Assembly set the following goal for measles control: "The reduction of measles by 90% compared with pre-immunization levels...by 1995". This was expanded by the World Summit for Children into: "A reduction by 95% in measles deaths and reduction by 90% in measles cases compared to pre-immunization levels by 1995".

Although surveillance for measles is still inadequate in most countries, and it is estimated that only about a third of all measles cases are ever reported, it is possible to see that the countries listed in Figure 23.2 have mostly achieved the goal of effecting a 90% reduction in measles cases from pre-immunization levels.

With regard to mortality from measles, the data are much more unreliable. In developing countries, young
children often die from complications arising from measles infection, such as pneumonia, diarrhoea with dehydration, and meningitis. Case fatality rates (the percentage of measles cases that die from measles) vary from 0.1% to 5% in different countries, but have been known to reach 25% in outbreaks among communities where malnutrition is present.

**Figure 23.2 Reported number of measles cases in the pre-vaccine era and 1996, selected countries of the Western Pacific Region**

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-vaccine era</th>
<th>1996</th>
<th>Reduction in cases by 1996 (%)</th>
<th>Immunization coverage 1996 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>57 605</td>
<td>2 814</td>
<td>95</td>
<td>72</td>
</tr>
<tr>
<td>China</td>
<td>2 377 776 (1978)</td>
<td>68 404</td>
<td>99</td>
<td>97</td>
</tr>
<tr>
<td>Malaysia</td>
<td>9 268 (1982)</td>
<td>460</td>
<td>95</td>
<td>83</td>
</tr>
<tr>
<td>Mongolia</td>
<td>23 702 (1972)</td>
<td>128</td>
<td>99</td>
<td>90</td>
</tr>
<tr>
<td>Philippines</td>
<td>43 648 (1983)</td>
<td>12 356</td>
<td>72</td>
<td>85</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>16 519 (1981)</td>
<td>2 313</td>
<td>86</td>
<td>44</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>122 558 (1977)</td>
<td>5 156</td>
<td>97</td>
<td>96</td>
</tr>
</tbody>
</table>

**ACHIEVEMENTS**

Although immunization has greatly reduced the number of measles cases in the Region, outbreaks continue to occur every few years even in countries that have very high immunization coverage. Recent outbreaks have been experienced in the Philippines and some Pacific island countries. This is because of the accumulation of susceptible children, both those who were not immunized, and those who were immunized but failed to produce the protective antibodies. When the total number of these children reaches a critical mass, an outbreak of measles can be sustained when the virus is introduced into the community. There is convincing evidence from many countries that if the number of susceptible children is reduced by carrying out measles immunization campaigns for children up to the age of 10 or 15 years, transmission of measles can be interrupted for several years. These are the first steps that will need to be taken towards the eventual elimination of measles.

Mongolia has been experiencing periodic measles outbreaks despite high immunization coverage over the last 10 years. A new outbreak of measles was expected in 1996 and 1997, but was averted by timely intervention with a national mass measles immunization campaign conducted in conjunction with poliomyelitis National Immunization Days (NIDs) in May 1996. From 10 to 30 May 1996, a total of 541 441 children aged between 9 months and 11 years were given measles vaccine regardless of immunization status. The coverage rate was 97% of the target. As a result, no confirmed measles cases were reported in 1997 in Mongolia.

The Pacific island countries and areas of the Region have always been very concerned about measles outbreaks, and their vulnerability to importation of measles. In 1997, these countries developed plans to conduct accelerated measles control using mass immunization campaigns for all children aged between 9 months and 15 years. The same approach is being adopted by the Philippines in a nationwide measles campaign scheduled for September to October 1998. Other countries of the Region are making efforts to improve measles surveillance, in preparation for further measles activities once poliomyelitis eradication has been certified.

**UNDERACHIEVEMENTS**

Measles immunization coverage has reached high levels, but measles surveillance has not kept up with progress in immunization. Measles cases are very often underreported so official figures do not represent the extent of the disease. Measles outbreaks may not be investigated in a timely manner, resulting in delays in providing resources to areas affected by an outbreak. In addition, measles mortality data are not readily available, which may be partly due to deficiencies in reporting deaths from complications that are attributable to measles. Even though immunization during measles outbreaks is rarely effective, countries with good surveillance may be in a better position to avert measles deaths during outbreaks by ensuring health centres have the resources to treat measles complications.

**FUTURE**

Measles shares many of the features that have made smallpox and poliomyelitis subject to successful
eradication initiatives in the past. However, as measles can spread from country to country so easily, successful elimination will depend upon a carefully coordinated global initiative which builds upon the systems developed for poliomyelitis eradication.
Chapter 24. Poliomyelitis

Nowadays, many people in the industrialized world are quite surprised to hear that poliomyelitis still exists, as it is regarded as a disease that has disappeared with time. Yet until a few years ago, poliomyelitis was a constant threat to the children of many countries of the Western Pacific Region, not just during occasional epidemics, but year in, year out.

Eradicating poliomyelitis means nothing less than making the virus that causes poliomyelitis extinct from the planet. Just controlling poliomyelitis would not prevent periodic epidemics, that is why a truly global effort has been needed.

In 1954 in the United States of America, Dr Jonas Salk showed that inactivated poliovirus vaccine (IPV) could prevent poliomyelitis. In 1955, extensive immunization of American children with IPV resulted in a steep decline in poliomyelitis. At about the same time, Dr Salk’s fellow countryman, Albert Sabin, developed oral poliovirus vaccine (OPV), from attenuated strains of live poliovirus. However, it was in the Union of Soviet Socialist Republics that OPV had its first large-scale success. In 1959 and 1960, almost 80 million people (37% of the national population) were immunized in a mass campaign. From then onwards OPV was used as a safe and highly effective vaccine throughout the world, with such success that poliomyelitis has become subject to a global eradication initiative.

THEN AND NOW

Figure 24.1 shows the number of poliomyelitis cases reported by countries to WHO. The data from the early 1950s are acknowledged by all countries to have been an underestimate of the problem. An interesting feature of these data is that poliomyelitis was a considerable problem in industrialized countries in the 1950s, while very few reports were available from developing countries. By 1990 reporting had improved, revealing the extent of the problem in developing countries. Figure 24.2 shows the distribution of poliomyelitis cases in the Western Pacific Region in 1990. By this time poliomyelitis had disappeared from industrialized countries. By the end of 1997 it had gone from almost every country in the Region; in that year there were only nine wild-poliovirus-associated cases reported in the Region.

WHO ACTIVITIES

Global eradication

In May 1988, the Forty-first World Health Assembly adopted a resolution to eradicate poliomyelitis from the world by 2000. In that year it is estimated that the global burden of poliomyelitis was about 350 000 cases. In September 1988, the Regional Committee for the Western Pacific adopted a resolution on the eradication of poliomyelitis in the Region by 1995. Since the adoption of these two resolutions, there has been a rapid worldwide reduction in the number of poliomyelitis cases, as shown in Figure 24.3.

**Figure 24.1 Poliomyelitis in the Western Pacific Region (selected years)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Average annual no. of poliomyelitis cases (1951-1955)</th>
<th>Reported poliomyelitis cases (1990)</th>
<th>Reported poliomyelitis cases (1997)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2 187</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cambodia</td>
<td>n.a.</td>
<td>n.a.</td>
<td>8</td>
</tr>
<tr>
<td>China</td>
<td>n.a.</td>
<td>4 623</td>
<td>0</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>34</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Japan</td>
<td>2 414</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>1</td>
<td>91</td>
<td>0</td>
</tr>
</tbody>
</table>
Regional plan of action for poliomyelitis eradication in the Western Pacific

In April 1991, the Regional Plan of Action for the period 1991 to 1995 was finalized. This classified as poliomyelitis-endemic all those countries in which poliomyelitis cases had been reported within the last three years. According to this classification, Cambodia, China, the Lao People’s Democratic Republic, Malaysia, Papua New Guinea, the Philippines and Viet Nam were considered as endemic, while all other countries in the Region (mostly industrialized countries and Pacific islands) were considered as non-endemic. Another endemic country was added when Mongolia joined the Region in 1996. The strategies for poliomyelitis eradication set out in the 1991 Regional Plan of Action were:

1. achievement and maintenance of OPV coverage of more than 80% of the target population;
2. supplementary immunization activities such as immunization days and mopping-up operations, aimed at interrupting wild poliovirus transmission;
3. strengthening of disease surveillance aimed at the prompt detection and thorough investigation of all suspected poliomyelitis cases, and the identification of factors responsible for these cases; and
4. aggressive outbreak control.

All endemic countries were urged to prepare national plans of action to include these strategies. It is interesting to note that, while these 1991 strategies have been followed, there has been considerable adaptation to suit the changing epidemiological situation. Several countries embarked upon very successful eradication activities when routine OPV coverage was much lower than 80%, although coverage climbed rapidly thereafter. Mopping up and outbreak control became very important in the final stages of the initiative although not at the beginning, while surveillance for acute flaccid paralysis (AFP), rather than "suspected poliomyelitis" became the cornerstone of surveillance (see below).

Poliomyelitis in the Philippines – early lessons

From 1958 to 1967, the Philippines reported around 500 cases of poliomyelitis each year. However, as this number was often less than the total number of cases admitted at San Lazaro Hospital, which served only Manila, the national report was clearly an underestimate. Poliomyelitis in the Philippines was serious enough to warrant an early attempt to eradicate the disease. In 1967, with support from the Government of Japan, the Philippines embarked upon a three-year poliomyelitis immunization campaign in selected parts of the country. High coverage was achieved, especially in rural areas, where mobile teams sometimes proceeded from house to house. However, even though the project had previously run an antibody study in the same areas to prove the potency of the vaccine, the effect on the overall incidence of poliomyelitis was disappointing. The evaluation document written at the time noted that, despite high reported coverage in the metropolitan area of Manila, there was a large ‘floating’ population who were not immunized; that the campaign needed to be extended to cover a much larger area, and that surveillance quality needed to be improved. These lessons were taken to heart by the Philippines, which became the first country in the Western Pacific Region to conduct national immunization days (NIDs) in April and May 1993.

Supplementary immunization with oral poliovirus vaccine

Supplementary immunization is conducted by giving two doses of OPV, separated by about one month, to all children under five years of age, regardless of immunization status, over a very wide area. The strategy of supplementary immunization is based upon the need to protect every susceptible child in the community if the wild poliovirus is to be eradicated. In tropical countries and any area where sanitation is poor, wild poliovirus circulates mostly among children under five years of age. Like all vaccines, OPV has
an efficacy of less than 100% (70% to 80% after three doses) and some children may have been overlooked by the immunization services. So, even when reported routine immunization coverage is very high, some children will still remain susceptible to wild poliovirus infection. Supplementary immunization offers an opportunity to protect susceptible children, and, when conducted through very large-scale immunization days, provides the conditions under which the chain of transmission can be interrupted.

**National immunization days**

Figure 24.4 shows the location and extent of NIDs and subnational immunization days (SNIDs) in the Western Pacific Region from 1992 to 1998. The first country in the Western Pacific Region to conduct NIDs was the Philippines in April and May 1993. By the end of that year China and Viet Nam had followed.

The critical factors for the success of NIDs are political commitment at every level, social mobilization and detailed logistical planning.

Each country in the Western Pacific Region has used a slightly different approach to NIDs and each has adapted its approach from year to year. While high coverage is the immediate goal, the real criterion for success is the rate of decline in poliomyelitis incidence measured by the surveillance system.

**Cambodia**

Cambodia conducted its first NID in 1995. It has had the latecomer’s advantage of adapting the experience of others. The NIDs have enjoyed very high level support, having been opened by their majesties the King and Queen of Cambodia in 1995 and 1996. Cambodia has a shortage of health staff to man the 10,000 immunization posts throughout the country, so, in addition to the 10,000 health staff, over 30,000 volunteers have contributed their services. This joint effort has been a great success. Reaching people living in the extensive waterways of the Tonle Sap and Mekong and Bassac rivers has always posed problems for health services, but during NIDs mobile immunization teams travelling in boats and walking on river banks have made it their task to ensure that no child under five years of age is missed.

**The poliomyelitis outbreak in China, 1989–1990**

China experienced an outbreak of poliomyelitis in 1989 and 1990 which afflicted over 10,000 children, about a third of whom were under one year of age. Of these cases, 50% had never received OPV, and only 10% were fully immunized. In response, six provinces that were in a position to provide vaccine began supplementary immunization with OPV in the winter season of 1990/1991. By the 1991/1992 winter season, 27 out of 30 provinces were conducting supplementary immunization, but efforts were not coordinated nationally. Not all provinces conducted two rounds, in fact some provinces conducted only one round in selected areas. Nevertheless, the supplementary immunization strategy proved its effectiveness, as the number of reported poliomyelitis cases in China fell from over 5000 in 1990 to 1327 by the end of 1992. The stage was now set for coordinated NIDs which began in the winter season of 1993/1994.

**China**

The NIDs in China have been an enormous undertaking. The first NIDs took place over four days, one month apart (5–6 December 1993 and 5–6 January 1994) during which over 83 million children aged under four years were immunized. This was the largest single immunization activity to have been carried out at that time. Given that the ability to reach previously unimmunized, or partially-immunized, children is the key to successful NIDs, the Ministry of Health focused on approaches to find and immunize children among mobile populations, particularly in large cities. Despite routine national EPI coverage of over 90%, the Ministry of Health reported after the first NIDs that approximately 10 million children had received their first ever doses of OPV during the NIDs. Since then NID plans have been continuously revised to ensure children who are not fully immunized are reached.

**Lao People’s Democratic Republic**

The Lao People’s Democratic Republic provides an excellent example of how the NID strategy can be adapted to suit the special circumstances of a country. Over three-quarters of the country’s population lives in villages that are not easily accessible by road. Whereas other countries provide immunization posts for the public to call upon, in the Lao People’s Democratic Republic, NIDs have been carried out by teams of health staff visiting villages. As there are few roads, the teams often travel on foot, taking several days to visit every village and complete the immunization round. Since it is difficult to visit villages more
than a few times a year, the NIDs are also used as an opportunity to check immunization records and provide other EPI antigens and supplements where needed.

Papua New Guinea

Papua New Guinea, with its mountain ranges, few roads and many small islands, has perhaps the most formidable logistical and communication problems of all the countries in the Region undertaking NIDs. Nevertheless, for the first NIDs in 1997, 3600 staff and 3200 volunteers in 1700 teams conducted the NIDs at 6000 immunization posts throughout the country. Even though the NIDs coincided with a serious national drought, reported coverage with OPV was over 80%. The Department of Health also took the opportunity to provide measles vaccine for children and tetanus toxoid for pregnant women.

The Philippines

In the Philippines, part of the strategy was a "ceasefire for children", whereby all parties in areas of recent conflict agreed to allow the free access of immunization teams on the days designated for the NIDs. Since then, the Philippines has demonstrated the value of the multisectoral approach. During the NIDs, various commercial enterprises such as gasoline stations and fast-food shops provided their premises for immunization posts, thereby improving public access. In addition, several community service clubs volunteered a variety of services during NIDs including the provision of a network of mobile radios to assist communication among health staff.

Viet Nam

Viet Nam has achieved high routine EPI coverage for many years, using outreach strategies for the mostly rural population. The NIDs were, therefore, organized as a more intensive version of routine immunization. However, after the first year, it became apparent through surveillance data analysis that wild poliovirus was still circulating among children who had never been immunized despite high overall routine and NID coverage. The Ministry of Health adapted the NID strategies by including mobile teams in boats and on foot in areas considered hard to reach. Mobile teams were particularly successful in the vast and highly populated network of waterways of the Mekong Delta area where travel can only be undertaken by small boat. During the third NIDs in 1995, 2300 mobile teams operated in the southern region.

Including other antigens and supplements during national immunization days

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>Poliomyelitis cases</th>
<th>Reduction (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1988</td>
<td>1996</td>
</tr>
<tr>
<td>Africa</td>
<td>4 563</td>
<td>2 071</td>
</tr>
<tr>
<td>America</td>
<td>308</td>
<td>0</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>25 741</td>
<td>1 125</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>2 339</td>
<td>528</td>
</tr>
<tr>
<td>Europe</td>
<td>204</td>
<td>193</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>2 126</td>
<td>194</td>
</tr>
<tr>
<td>Global</td>
<td>35 251</td>
<td>4 111</td>
</tr>
</tbody>
</table>

NIDs are a short-term strategy, usually carried out over a period of a few days, aimed at permanently interrupting the chain of transmission of wild poliovirus. Other diseases that are not subject to eradication are controlled by other EPI antigens through routine immunization, which is not time-limited. Operational experience in the Western Pacific Region has shown that including other antigens in NIDs imposes an additional operational and logistical encumbrance, as they are given by injections, and require trained personnel, different documentation methods, and a large supply of sterile equipment. There is therefore a risk of impairing high OPV coverage while not having any long-term effect on the other diseases concerned. However, in areas where access to routine immunization is irregular, and adequate logistical plans are in place, other antigens have been used successfully during NIDs, especially in more remote parts of the Region (for example in the Lao People’s Democratic Republic). Vitamin A has been
administered during NIDs in several countries. The advantage of Vitamin A is that it can also be administered orally by volunteers.

High-risk response immunization

In early 1997, surveillance data showed that wild poliovirus was continuing to circulate in the Mekong river area and its surroundings in Cambodia, the Lao People’s Democratic Republic and Viet Nam, despite high reported coverage during NIDs. Many of the AFP and poliomyelitis cases reported were found to be inadequately immunized. It appeared that the children had been overlooked during routine immunization and NIDs, but when they developed paralysis they had been taken to hospital for treatment, where they were reported and investigated. A closer analysis of the case investigation data showed that the children concerned were often from highly mobile communities living on the waterways. Traditional ways of offering immunization at fixed posts did not reach these children. New approaches were needed

if wild poliovirus circulation was to be interrupted in 1997. It was decided to hold additional rounds of supplementary immunization during the middle of the year, in all areas considered to be at high risk of continued wild poliovirus circulation. To make sure that no children under five years of age would be missed during these rounds, hundreds of mobile teams would travel from house to house and boat to boat to conduct immunization. To distinguish these rounds of immunization from NIDs, they were called ‘high-risk response immunization’ (HRRIs). The HRRI areas were selected on the basis of AFP surveillance and immunization coverage data. Areas with recent wild poliovirus circulation, poliomyelitis compatible cases and low dose OPV cases were selected. Timely laboratory investigation results have played a major part in the planning of the HRRIs.

In May, June and July 1997, Cambodia, the Lao People’s Democratic Republic and Viet Nam conducted two coordinated rounds of HRRI, covering over 1 million children under five years of age in Cambodia, 75 000 in the Lao People’s Democratic Republic and 1 million in Viet Nam. The failure to detect wild poliovirus under conditions of high-quality surveillance since then in these areas is an indication of the effectiveness of the HRRI.

Surveillance for acute flaccid paralysis

From the outset, it was recognized that having a simple standard case definition and being able to cast a wide enough "epidemiological net", would be critical factors for surveillance. If only poliomyelitis cases were to be reported, it could never be ascertained whether some poliomyelitis cases had been missed. Therefore the symptoms of acute flaccid paralysis (AFP) with which the vast majority of poliomyelitis cases present (but which can also indicate other conditions) was adopted as the standard case definition for suspected poliomyelitis. The rationale was that if all AFP cases are reported, all poliomyelitis cases will be among them. The presence of poliomyelitis can be confirmed after investigation, ultimately by wild poliovirus isolation. This wide AFP surveillance net has the advantage that, in all parts of the world, the conditions not caused by wild poliovirus that present as AFP have been found to occur at a rate of 1 per 100 000 population under 15 years of age. The ability to report all AFP cases not caused by wild poliovirus (non-poliomyelitis AFP) at this rate is a fundamental indicator of AFP surveillance quality.

Establishing AFP surveillance systems in the Western Pacific Region

In 1991, no poliomyelitis-endemic country in the Region had a national surveillance system for AFP, although China was reporting AFP in some areas. However, these countries were all reporting poliomyelitis, through well-established communicable disease surveillance systems. As these disease reports were usually only compiled and published annually, it was not possible to monitor the progress of poliomyelitis eradication using these reporting systems. The solution was to establish separate AFP surveillance systems, either within the communicable disease epidemiology network, or if necessary through a specially-established poliomyelitis eradication unit. At first, most countries were somewhat reluctant to establish separate AFP surveillance systems, but it soon became clear that to detect, report and investigate AFP cases in a timely manner, which included taking stool samples within 14 days of onset, required a capability that the centralized communicable disease reporting systems lacked.

Having established the need for, and shown the capability of AFP surveillance systems, there were still some major obstacles to overcome. One was the need to convince clinicians that all cases of AFP must be reported and investigated for the purpose of poliomyelitis eradication. Many doctors have a great deal of experience in clinically diagnosing conditions that resemble poliomyelitis, such as Guillain-Barré syndrome, and could not see the need to report such cases nor to take stool samples for poliovirus investigation. Clinicians therefore needed to be convinced of the rationale of AFP surveillance through workshops, meetings and distribution of printed material on poliomyelitis eradication.
Another major obstacle was the lack of any regular disease reports at all from many poliomyelitis-endemic areas of the Region. The problem was that, although a separate AFP surveillance system could be set up, it still relied upon clinicians in hospitals (who were usually too busy to conduct case investigation) to function properly. The solution was to develop a new surveillance strategy called “active surveillance”.

**Active surveillance for AFP**

Active surveillance for AFP is a system whereby surveillance staff visit hospitals on a regular basis (usually weekly) to review ward registers and outpatient records and to interview staff to find new AFP cases. Each case is then investigated with the cooperation of the hospital staff, including the taking of two stool samples which are transported in a refrigerated condition to the designated poliovirus laboratory. This “active” system differs from traditional “passive” systems in that the onus is on the surveillance staff, rather than hospital clinicians, to detect, report and investigate new AFP cases. Active surveillance is particularly effective when conducted by EPI staff who are also responsible for poliomyelitis eradication, and have a vested interest in maintaining high surveillance quality. Active surveillance for AFP has successfully improved surveillance quality in all poliomyelitis-endemic countries of the Region (see Figures 24.5 and 24.6). Three important features should be mentioned here. First, when establishing active surveillance it is necessary to begin in only a few hospitals, usually in the national capital. The experience gained can then be used to extend the surveillance nationwide. Second, financial support must be made available to meet the costs of case investigation, which can be quite high in more remote areas. Third, regular supervision, by site visits and feed-back of the results of case investigation, is needed.

**Monitoring acute flaccid paralysis surveillance quality**

Standard indicators have been developed to measure the completeness and timeliness of AFP surveillance. These indicators are monitored at each level (provincial, national, regional) based upon data included in the case investigation form of each AFP case, and linked to the data provided by the poliovirus laboratory. Using these indicators, the surveillance performance required for certification has been established:

1. At least 80% of routine AFP surveillance reports should be received on time and the distribution of reporting sites should be representative of the geography and demography of the country.
2. The AFP surveillance system should detect a non-poliomyelitis AFP rate of \( \geq 1 \) case per 100,000 population aged less than 15 years.
3. 100% of reported AFP cases should be investigated.
4. At least 80% of AFP cases should have two adequate stool specimens examined in an accredited laboratory and a follow-up examination for residual paralysis 60 days after the onset of paralysis.
5. All virus isolation tests, including negative results, must be performed by accredited laboratories.

Figures 24.5 and 24.6 shows how endemic countries have performed in relation to these indicators since 1994.

**Technical Advisory Group on the Expanded Programme on Immunization and Poliomyelitis Eradication**

The Technical Advisory Group on the EPI and Poliomyelitis Eradication (TAG) was established in 1991 to set guidelines, review progress, and make further recommendations for poliomyelitis eradication. The second meeting drew up guidelines for AFP surveillance and supplementary immunization strategies. At the sixth meeting a Plan of Action for Certification and the establishment of the Regional Certification Commission were recommended. The eighth meeting of the TAG was held in June 1997. Among other things, it recommended proactive use of AFP surveillance to identify high-risk areas; established a criteria for HRRI; and drafted a framework for accreditation of poliovirus laboratories in the Region.

**Certification of poliomyelitis eradication**

The certification process involves every country in the world (see box). The point is to eradicate all wild polioviruses, and cease immunizing with poliomyelitis vaccine. Therefore, there must be absolute certainty that eradication has occurred. In February 1995, WHO convened the First Meeting of the Global Commission for the Certification of the Eradication of Poliomyelitis. The Global Commission decided that certification should proceed on a regional basis, with the establishment of Regional Commissions which should review the documentation provided by national committees and eventually certify the respective region as
poliomyelitis-free. In the Western Pacific Region, eight countries (Cambodia, China, the Lao People's Democratic Republic, Malaysia, Mongolia, Papua New Guinea, the Philippines and Viet Nam) are considered as recently-endemic for the purposes of certification. The other 29 countries and areas in the Region are classified as non-endemic. The certification process commenced with non-endemic countries establishing national certification committees and preparing plans of action in 1997, followed by recently-endemic countries in 1998. All countries of the Western Pacific Region must be free of indigenous wild poliovirus for the years 1998, 1999 and 2000 to allow certification to take place at the end of 2000.

Regional Certification Commission

The Regional Commission for the Certification of Poliomyelitis Eradication in the Western Pacific consists of eight members selected for their expertise in a range of subjects including epidemiology, neurology, virology and public health management. The first meeting was held in Canberra, Australia, from 15 to 16 April 1996. This meeting set the structure and standards for certification and approved a regional plan of action to be followed by all countries in the Region. The second meeting of the Regional Commission was held in Manila from 20 to 21 November 1997. At this meeting, the Commission reviewed the national plans of action of non-endemic countries. The third meeting of the Regional Commission will be held in Brunei Darussalam in August 1998.

Poliomyelitis laboratory network

The presence of wild poliovirus in the stools of an AFP case is the most reliable way to diagnose poliomyelitis. In order to be able to make this confirmation of poliomyelitis, stool samples must be taken from the case ideally within 14 days of onset of paralysis, and sent without delay under refrigerated conditions to a laboratory with the resources to culture polioviruses.

To meet this requirement, a network of poliomyelitis laboratories, consisting of specialized reference laboratories, national laboratories, and, in the case of China, provincial laboratories, was established in the Region in 1992. The network consists of 43 laboratories within the Region and is coordinated through the Regional Office in Manila.
At first, the laboratories worked in a rather uncoordinated manner, results were delayed and information to link results to AFP cases was often missing. In 1994, a full-time laboratory coordinator was appointed at the Regional Office and much greater emphasis was placed upon developing the network.

Every country in the Region has a designated poliovirus laboratory, either within or outside the country, to which all stool specimens are sent for analysis. Intratypic differentiation of all viruses cultured from the analysis is carried out by one of three reference laboratories.

As the levels and extent of supplementary immunization and AFP surveillance activities have increased, so has the workload of the network laboratories. The total number of stool specimens collected and processed in poliomyelitis laboratory network laboratories in a three-year period (1995–1997) exceeded 50,000.

The quality and timeliness of laboratory work has rapidly improved in the Region. While in 1994 it was not uncommon to wait for six months or more for results to be available, by the end of 1997, 80% of results were available within 28 days of receipt of the specimen in the laboratory.

ACHIEVEMENTS

Only seven years after beginning the implementation of the regional plan of action, the Western Pacific Region is in the last stages of poliomyelitis eradication. The landmarks in poliomyelitis eradication in the Western Pacific Region are listed in Figure 24.7.

Only nine wild poliovirus associated cases were reported in 1997; eight were reported from Cambodia and one from Viet Nam. In response, Cambodia and Viet Nam conducted supplementary immunization through NIDs, and HRRI in 1997 and early 1998. A total of eight immunization rounds have been carried out in high-risk areas during a 17-month period.

Throughout 1997, surveillance for AFP and polioviruses has been maintained at standards approaching those required for certification. There were 5499 AFP cases reported with onset in 1997 (data as of 27 January 1998) and adequate stool samples were analysed from 83% of these. The last case had onset of illness on 19 March 1997 in Cambodia, and since then no new wild poliovirus has been detected in the Region (as of April 1998). There is therefore good reason to believe that indigenous wild poliovirus
transmission in the Region has finally ceased.

The successes of poliomyelitis eradication have been achieved because of the highest level of support of the countries concerned and international partners. All parties involved in poliomyelitis eradication have been motivated by the goal of ridding the world of poliomyelitis.

Countries which were initially hesitant to concentrate their efforts against a single disease have been convinced by the spin-off effects that poliomyelitis eradication has had on improving the status of immunization services and other public health programmes. Direct benefits have been derived from the resources used in poliomyelitis eradication, including vehicles, equipment, and computers. Other benefits include the training of health staff on disease surveillance, planning, cold chain and logistics. Those countries that had low routine immunization coverage before poliomyelitis eradication commenced have increased their coverage for all antigens.

Quite apart from the eradication of a crippling childhood illness, the legacy of the poliomyelitis eradication initiative will be a fund of resources and trained manpower that can readily be used for other disease control activities.

UNDERACHIEVEMENTS

The most notable underachievement of the poliomyelitis eradication initiative in the Western Pacific Region has been the delay in achieving the goal of eradication by the end of 1995. There were early delays in proceeding with the regional plan of action as soon as the regional resolution had been adopted in 1988. Having adopted the resolution, there was perhaps not sufficient attention devoted to obtaining political commitment, which delayed not only the activities but also fund-raising from partner agencies and governments.

Large-scale poliomyelitis eradication activities were delayed until 1994 in Cambodia, which suffered from both intense transmission of wild poliovirus and political instability. However, once Cambodia was in a position to begin eradication activities, progress was very rapid.

The international poliomyelitis partnership

A remarkable feature of poliomyelitis eradication has been the unprecedented level of international support. Many governments and organizations have given support both for the purchase of vaccine, and for operational costs, which include technical staff posts, surveillance costs, and funds for conducting NIDs. These partners in poliomyelitis eradication have been closely involved in the progress of the initiative through attendance at the TAG meetings and the Interagency Coordinating Committee, and regular reports from WHO. The partners include: the governments of Australia, Japan, Malaysia, the Republic of Korea, and the United States of America, Rotary International and UNICEF. From 1992 to 1997, support for the purchase of OPV totalled US$ 42.8 million and for non-vaccine costs US$ 17.98 million.

In all countries, once the first NIDs had been successfully carried out, there was a much greater commitment to poliomyelitis eradication, especially to supplementary immunization. However, surveillance, which should have developed simultaneously with supplementary immunization, took longer to improve, especially in the case of the laboratory network.

FUTURE

Even though no new cases of poliomyelitis have been reported in the Region since March 1997, all countries are maintaining high standards of surveillance and supplementary immunization. It is expected that these measures will ensure that there will be no further cases of indigenous poliomyelitis in any country of the Region from 1998. Having completed the three-year qualifying period, the Region will be certified as free of poliomyelitis at the end of the year 2000.

While wild poliovirus circulates in any part of the world, there is a risk that the virus may be imported into the Region. For this reason, surveillance must be maintained for a few more years until global certification has been attained. However, it is anticipated that the surveillance systems that have been set up for poliomyelitis will also be used for other diseases, so that the resources and expertise that have proved so successful against poliomyelitis will be put to use against the next disease that will be subject to an eradication initiative, probably measles.
Chapter 25. Schistosomiasis

The eradication of schistosomiasis (often referred to as bilharziasis or snail fever) or its elimination by multiple, integrated intervention techniques is beyond the human and financial resources of most endemic countries. However, a reduction in disease or morbidity due to schistosomiasis is now feasible and can be attained within the limited resources of many endemic countries. The simplicity of diagnostic techniques and the safety and ease of administering effective anti-schistosomal drugs such as praziquantel makes disease or morbidity control affordable, particularly if it is integrated with other programmes. Morbidity control should be coupled with transmission control such as sanitation, health education, provision of safe water supplies and snail control.

THEN AND NOW

In 1948, Schistosoma japonicum was recognized as a public health problem in China, Japan and the Philippines. In the late 1960s, S. mekongi was found to be endemic in Cambodia, the Lao People’s Democratic Republic and in localized sections of the countries bordering the Lower Mekong River. S. malayensis was identified among Orang Asli aboriginal tribes in Malaysia. It is probable that small foci of transmission may yet be discovered within the Western Pacific Region but these will have no major public health significance.

Cambodia

In 1969, officials of the Ministry of Health of Cambodia, together with a WHO consultant, made a general parasitological survey of the inhabitants in Kratie Province and found 40 of 119 persons (33.6%) positive for eggs of schistosomes.

The schistosomiasis control programme was stopped in 1976 due to political turmoil. In 1989, Médecins sans Frontières started a mission in Cambodia. It rehabilitated the Provincial Hospital in Kratie and in collaboration with the Ministry of Health set up a schistosomiasis control programme. In December 1995, the National Malaria Center was designated as the national referral centre for schistosomiasis control in Cambodia. In high transmission areas of Kratie province mass treatment campaigns reduced prevalence from 60% to less than 20% in 1997.

China

For centuries, schistosomiasis has caused suffering and premature deaths among people living along the Chang Jiang (Yangtze River) and in other endemic areas. S. japonicum eggs were identified in a female corpse from the Western Han Dynasty, 2100 years ago. S. japonicum in China was first diagnosed clinically in Changde county, Hunan in 1905.

After the establishment of the People’s Republic of China in 1949, a nationwide survey of schistosomiasis was undertaken. In 1950, the known endemic areas were the plains along the Yangtze and Upper Mekong and included the city of Shanghai and as many as 380 counties in 12 provinces. In 1950, 12 million people were estimated to be infected, out of an exposed population of 100 million in the endemic areas.

Continuous efforts over four decades have led to a 90% reduction in the number of infected persons, compared to 1950. Since the founding of the national control programme in 1955, tens of millions of people have been mobilized to carry out environmental modifications. Health education, scientific research and training, population-based surveys, chemotherapy and mollusciciding have also helped to reduce the prevalence of schistosomiasis. However, schistosomiasis remains a major public health risk in certain areas. A nationwide survey in 1995 estimated that there were 985,084 infected people, mainly in swamp lake and mountainous areas of Southern China which cover five provinces. In the marshlands and lake regions there has been mounting evidence that schistosomiasis is expanding again due to silting on the banks of the lakes, which have become snail habitats. Added to this is the construction of the Three Gorges Dams that will drastically alter the flow of the Yangtze River. The very large lake to be formed by the dam will be between two areas still endemic for schistosomiasis.
The status of schistosomiasis control in China as of the end of 1997 is presented in Figure 25.1.

**Japan**

The disease was first referred to by Fuji, a Japanese physician in 1847. In 1948, only five relatively small foci of transmission were known. In some areas, such as the Chikugo River Basin, prevalence rates of almost 50% were recorded.

A national control programme began in 1950. This resulted in drastic reduction of prevalence. By 1973, only 124 cases out of 18,923 inhabitants of endemic areas were positive after examinations of at least five stool specimens by concentration technique. The last case of human schistosomiasis was detected in 1977.

It is doubtful whether there will be any resurgence of schistosomiasis in Japan under the present conditions. The 1973 Expert Committee on Schistosomiasis Control recommended that the experience in Japan be shared among all countries suffering from schistosomiasis.

**The Lao People’s Democratic Republic**

Schistosomiasis was first detected in a Laotian student in Paris, France, who originally came from an island near Pakse. A WHO survey in 1961 based on an intradermal test using *S. japonicum* antigen showed a prevalence rate of only 0.2%. Another survey in 1967, with support from the Mekong Committee and WHO, showed that Khong island, south of Pakse, was endemic with a prevalence of 11.9%.

The schistosomiasis control project in Khong island was a major WHO-supported initiative. Schistosomiasis control began in Khong island in October 1989 with active participation of the Institute of Malariology, Parasitology and Entomology in Vientiane. After five rounds of praziquantel treatment between 1989 and 1993, the egg-positive rate was reduced from an average of 30% among schoolchildren in the different villages to 0.4% in 1994. The egg-positive rate among adults was very low (0.3%). The long-term objective is to maintain the prevalence at a level of 1% or less, to supplement chemotherapy with improvements to sanitation and water supply, and to run a health education campaign.

**Figure 25.1 Status of schistosomiasis control in China as of 1997**

<table>
<thead>
<tr>
<th>Regions</th>
<th>Total no. of endemic counties</th>
<th>No. of counties where schistosomiasis was eradicated</th>
<th>No. of counties where schistosomiasis is under control</th>
<th>No. of counties where schistosomiasis is still endemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guangdong</td>
<td>12</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Shanghai</td>
<td>9</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fujian</td>
<td>14</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Guangxi</td>
<td>19</td>
<td>19</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Zhejiang</td>
<td>53</td>
<td>53</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hunan</td>
<td>25</td>
<td>5</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Hubei</td>
<td>58</td>
<td>20</td>
<td>4</td>
<td>34</td>
</tr>
<tr>
<td>Jiangxi</td>
<td>37</td>
<td>19</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Anhui</td>
<td>41</td>
<td>13</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Jiangsu</td>
<td>56</td>
<td>29</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>Sichuan</td>
<td>59</td>
<td>24</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Yunnan</td>
<td>17</td>
<td>10</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>400</strong></td>
<td><strong>227</strong></td>
<td><strong>55</strong></td>
<td><strong>118</strong></td>
</tr>
</tbody>
</table>

*Source: Office of Endemic Disease Control, Ministry of Health, Institute of Parasitic Diseases, Chinese Academy of Preventive Medicine.*

**Malaysia**

In 1973, *S. malayensis* was identified in an autopsy of an aborigine who died of another cause in Pahang state. In 1975, *S. malayensis* was found at another autopsy. This prompted a review of autopsies of aborigines which resulted in diagnosis of more cases who had resided in Pahang and Perak states. Schistosomiasis is not a public health problem in Malaysia.
The Philippines

*S. japonicum* was first reported in the Philippines in 1906. In 1908, Garrison examined 4100 prisoners in Manila prison and found 16 cases of schistosomiasis. Six of these were from Samar, five from Leyte and four from Mindoro. These three provinces were later determined to be endemic areas for schistosomiasis.

Selective and mass chemotherapy, depending on the level of prevalence, was made the principal control measure in the Philippines. Prevalence in the endemic areas averaged 10% in the early 1980s. However, chemotherapy was backed up by provision of safe water supplies, health education and snail control. Thus the prevalence among the population at risk of 7.4% in 1986 had been reduced to 4.5% in 1997. The year to year reduction is shown in Figure 25.2. At present, it is estimated that there are 209,000 schistosomiasis cases out of a total at-risk population of 5.1 million in 183 municipalities of the 24 endemic provinces.

**WHO ACTIVITIES**

**Significant WHO activities and campaign**

By direct technical collaboration with endemic Member States, and by stimulating collaboration and cooperation among endemic countries and areas, WHO has provided considerable support for schistosomiasis control. The experience of some endemic countries (e.g. the Lao People’s Democratic Republic) indicates that very significant prevalence reductions can be attained by mass chemotherapy within a short period. With additional emphasis on basic sanitation, control of reservoir hosts, provision of safe water supply, snail control and health education, appreciable reductions can be attained.

Since 1953, WHO has periodically convened meetings of international experts on various aspects of schistosomiasis. For example, the first Expert Committee on Bilharziasis in 1952 dealt with standard procedures for surveys of bilharziasis. Another expert committee in 1964 reviewed control programmes and discussed their objectives, methods of control and factors affecting design, choice of methods of control and techniques for measuring progress of control programmes. The committee observed that control can be subdivided into disease control with the human population as the target and transmission control of the biological cycle. Both are essential to the concept of total control of schistosomiasis. In the 1984 meeting, the Expert Committee developed a strategy for the control of morbidity due to schistosomiasis by chemotherapy.

Two WHO scientific working groups in 1959 and 1964 collaborated in the standardization of drug evaluation procedures used in experimental chemotherapy and in clinical trials. Scientific working groups have subsequently evaluated antischistosomal drugs such as praziquantel.

**Figure 25.2 Prevalence of schistosomiasis among the population at risk in the Philippines (1986–1997)**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. examined</th>
<th>No. +</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>458 291</td>
<td>34 150</td>
<td>7.4</td>
</tr>
<tr>
<td>1987</td>
<td>683 918</td>
<td>44 925</td>
<td>6.6</td>
</tr>
<tr>
<td>1988</td>
<td>423 708</td>
<td>26 953</td>
<td>6.4</td>
</tr>
<tr>
<td>1989</td>
<td>468 355</td>
<td>35 197</td>
<td>7.5</td>
</tr>
<tr>
<td>1990</td>
<td>528 359</td>
<td>34 611</td>
<td>6.6</td>
</tr>
<tr>
<td>1991</td>
<td>1 317 933</td>
<td>79 500</td>
<td>6.0</td>
</tr>
<tr>
<td>1992</td>
<td>1 326 283</td>
<td>55 896</td>
<td>4.2</td>
</tr>
<tr>
<td>1993</td>
<td>1 402 216</td>
<td>54 648</td>
<td>3.9</td>
</tr>
<tr>
<td>1994</td>
<td>771 970</td>
<td>40 446</td>
<td>5.2</td>
</tr>
<tr>
<td>1995</td>
<td>267 346</td>
<td>12 091</td>
<td>4.5</td>
</tr>
<tr>
<td>1996</td>
<td>374 262</td>
<td>15 293</td>
<td>4.1</td>
</tr>
<tr>
<td>1997</td>
<td>404 811</td>
<td>18 301</td>
<td>4.5</td>
</tr>
</tbody>
</table>

The Philippine schistosomiasis control programme from 1953 to 1960 studied the epidemiology, biology of the parasite and its intermediate snail host, *Oncomelania hupensis quadrasi*, and demonstrated that this snail can be controlled by ecological or environmental modifications, such as drainage, filling of wet areas, cleaning of banks, cementing of sides of canals, and streamlining of banks of streams and doing more
intensive rice cultivation.

An important biregional meeting involving the South-East Asia and Western Pacific Regions was held in April 1998 in Manila. The meeting emphasized that two drugs (praziquantel and albendazole or mebendazole) can be jointly administered to control schistosomiasis and soil-transmitted nematodes such as roundworm, pinworm and hookworm. An indispensable activity of WHO, particularly for less-developed endemic nations such as Cambodia and the Lao People’s Democratic Republic, is the provision of trained personnel to initiate epidemiological surveys to establish endemicity and to plan, implement and evaluate control measures.

WHO has also helped some countries to obtain external funding for control measures. For example, WHO collaboration with China in operational research, epidemiology, evaluation and training was helpful for China in obtaining a US$ 71 million World Bank loan to finance its control programme, based mainly on health education and chemotherapy, from 1992 to 1998. WHO has also helped the Philippines make bulk purchases of praziquantel.

**Training, information exchange**

WHO-supported activities in the field of training and information exchange have included support from the Special Programme for Research and Training in Tropical Diseases (TDR) since 1978, joint meetings with the South-East Asia Region of WHO and the holding of technical workshops.

Four collaborating research centres have been designated in the Region. They are: the Department of Medical Biology, Institute of Basic Medical Sciences, University of Tsukuba, Japan, (WHO collaborating centre for chemical control and laboratory culture of amphibious snails host of *S. japonicum*); the Hunan Institute of Parasitic Diseases, Hunan, China, (WHO collaborating centre for research and control on schistosomiasis in lake regions); the Institute of Parasitic Disease of the Chinese Academy of Preventive Medicine in Shanghai, China, (WHO collaborating centre for research and control on malaria, schistosomiasis and filariasis); and the Department of Parasitology, College of Public Health, Manila, the Philippines, (WHO collaborating centre for research on schistosomiasis).

**ACHIEVEMENTS**

In Cambodia schistosomiasis is partially controlled; surveys and surveillance are being expanded. Combined chemotherapy for schistosomiasis and helminth control is taking place.

China has been relatively successful, considering the magnitude of the schistosomiasis problem when the national control programme started in 1950. As of 1997, five of the original twelve endemic provinces in 1950 have eradicated schistosomiasis. Of the 400 endemic counties, schistosomiasis has been eradicated in 227. Only 118 counties (28%) are still endemic.

The reduction of schistosomiasis prevalence in the Lao People’s Democratic Republic to less than 1% in Khong island and other parts of Khong District has been a major achievement. The control programme has been extended to all other endemic areas of Champassak Province.

Japan eradicated schistosomiasis in 1977.

In Malaysia, *S. malayensis* does not pose a major public health problem.

In the Philippines, the results of schistosomiasis control show an encouraging trend, with prevalence among the population at risk dropping from 7.4% in 1986 to 6.6% in 1990 and 4.5% in 1997.

**UNDERACHIEVEMENTS**

Cambodia and the Lao People’s Democratic Republic (which both started their schistosomiasis control programmes only a few years ago) still need to ensure that all possible endemic areas are identified.

More resources will be required for schistosomiasis to be eliminated from all of the endemic counties of China.

Domestic animals, especially cows and pigs, play an important role in the transmission of schistosomiasis in China. As a consequence, schistosomiasis is still endemic in parts of the country, especially in the Dongting Lake Region.

Of the 24 endemic provinces in the Philippines, prevalence of schistosomiasis exceeds 4% in nine
provinces. In four of these provinces prevalence ranges from 8.9% to 18.91%.

There have been recent reports of natural and laboratory-induced praziquantel resistance in schistosomes.

**FUTURE**

WHO will continue to support national schistosomiasis control programmes. In the Philippines, the devolution of health services to the local governments will help control services to reach currently unprotected populations.

More emphasis will be given to supplementing chemotherapy with basic sanitation, safe water supply, health education that is culturally acceptable and snail control. This will enhance the prevention of a number of other communicable diseases as well as reduce water contact.

Current drugs now available for schistosomiasis are adequate for morbidity control, but experience with other infectious diseases suggests that drug resistance may develop. This may have already happened with regard to praziquantel. WHO will therefore encourage development of new drugs.

Trained personnel form the backbone of any schistosomiasis control programme. More attention and effort by WHO and the concerned Member States will be given to organization and undertaking of intensive training courses for different levels of personnel.
Chapter 26. Sexually transmitted diseases, including HIV/AIDS

Sexually transmitted diseases (STDs) have been known for hundreds of years. The discovery of antibiotics 50 years ago and their subsequent wide availability raised hopes that the transmission of common STDs transmission could be controlled. However, this has not occurred and STDs remain a major public health problem in most countries of the Region. It is only recently that new diagnostic techniques have been developed to help in detecting STDs in individuals and to establishing levels of STDs in the general population. With the discovery of the human immunodeficiency virus (HIV), more attention has recently been given to diseases associated with sexual behaviour. This is particularly true since the close relationship between curable STDs and HIV infections is well documented. The continued spread of HIV and many STDs now dictates re-prioritization of public health programmes, re-evaluation of the efficacy of traditional approaches to disease intervention and the development of cost-effective approaches.

THEN AND NOW

The Interim Commission which was set up to carry out essential tasks between the date of signature of the WHO Constitution and the establishment of WHO decided that venereal diseases (VD) were of sufficient importance to warrant immediate action (the other two diseases considered to be of similar urgency were malaria and tuberculosis). By the end of the Second World War many countries of the Region were suffering from devastation and privation resulting from military operations, movement of populations, and disrupted socioeconomic conditions including destroyed medical and health services. All these factors favoured the spread of VD.

Status and trends of STD sexually transmitted diseases in the Western Pacific Region

The data on STDs (other than HIV) contained in the health information reports that countries sent to WHO until 1990 were mostly unreliable. The absence of reliable surveillance data on STDs can be attributed to underreporting, the high rate of asymptomatic infections (particularly among women) and lack of laboratory facilities. In addition, in many countries, STD patients do not like to use government health facilities for fear of stigmatization and prefer to use private practitioners or pharmacists, who do not report cases to the health authority. Furthermore most health departments do not require reporting of STDs other than syphilis or gonorrhoea.

However, despite these limitations, some epidemiological trends can be noted. During the 1950s, a marked decline in VD incidence followed the introduction of long-lasting penicillin. In 1963, an increase in gonorrhoea and syphilis was noted at the global level by WHO. Subsequently, surveys

<table>
<thead>
<tr>
<th>Country</th>
<th>Gonorrhoea Prevalence Rate</th>
<th>Syphilis Prevalence Rate</th>
<th>Chlamydia Prevalence Rate</th>
<th>Trichomoniasis Prevalence Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>n.a.</td>
<td>n.a.</td>
<td>709 000</td>
<td>59 000 (&lt;1%)</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>n.a.</td>
<td>1 400 (&lt;1%)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>177 000 (3%)</td>
<td>236 000 (4%)</td>
<td>236 000 (4%)</td>
<td>n.a.</td>
</tr>
<tr>
<td>China</td>
<td>1 365 000 (&lt;1%)</td>
<td>n.a.</td>
<td>18 202 000 (2%)</td>
<td>n.a.</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>2 342 (&lt;1%)</td>
<td>600 (&lt;1%)</td>
<td>3 745 (&lt;1%)</td>
<td>460 (&lt;1%)</td>
</tr>
<tr>
<td>Japan</td>
<td>n.a.</td>
<td>n.a.</td>
<td>7 380 000 (7%)</td>
<td>n.a.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>64 000 (&lt;1%)</td>
<td>128 000 (1%)</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Mongolia</td>
<td>4 600 (&lt;1%)</td>
<td>8 000 (&lt;1%)</td>
<td>n.a.</td>
<td>6 200 (&lt;1%)</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>93 000 (4%)</td>
<td>93 000 (4%)</td>
<td>533 000 (20%)</td>
<td>n.a.</td>
</tr>
</tbody>
</table>
conducted in the Region revealed that four countries had reported an increase in syphilis prevalence and 11 countries had reported an increase in gonorrhoea. Throughout the 1960s and 1970s, syphilis incidence rates remained high in some countries but decreased in the developed countries of the Region. A regional seminar on venereal disease control held in Manila, in December 1968, noted a considerable regional increase in gonorrhoea, reaching epidemic proportions in some population groups.

Based on data sent by governments, results of ad hoc STD surveys and consultations with country experts, in 1997 the Regional Office developed estimates of STD prevalence in the Region. It has been estimated that more than 35 million new cases of curable STDs (gonococcal, chlamydial, syphilitic and trichomonal infections) occur every year in the Region among persons over 15 years of age. Figure 26.1 shows the estimated prevalence rates for curable STDs in selected countries of the region where reliable prevalence data can be documented. On average, STD prevalence rates vary from 2% to 5% among the sexually-active population and range from 20% to 40% among commercial sex workers, emphasizing the need to target commercial sex workers and their clients as priority groups for STD prevention and treatment.

Recent data from the Philippines and Viet Nam also indicate that the incidence of gonococcal infections may be decreasing in some areas in the Region. This trend has recently been observed in other parts of the world and might be a consequence of the increasing availability and use of antibiotics. However, epidemiological surveillance also shows that the emergence of increasing gonococcal antibiotic resistance in the Region since the beginning of the 1990s, which is probably largely due to the. The increase in resistance often results from inappropriate use of antibiotics. This increase in gonococcal resistance has meant that treatment for gonococcal infections has often had to be adapted, resulting in more costly and less affordable drug regimens.
Very limited data are available on other sexually transmitted diseases, such as genital herpes and genital human papilloma virus. There is a clear need to reinforce STD epidemiological surveillance in the Region to improve treatment procedures and monitor the effect of prevention and control programmes.

**HIV/AIDS status and trends in the Western Pacific Region**

In 1985, there were 132 AIDS cases wereof AIDS reported to WHO from five countries and areas in the Region. The majority of cases were from Australia and New Zealand. By 1990, the cumulative total number of 872 AIDS cases had been reported by AIDS cases from 17 countries. totalled 872 cases, and as of May 1986, a cumulative total of 15 350 583 AIDS and 84 913 HIV infections cases of AIDS had been reported by 3126 countries, an increase of 8.2% over the 1995 figures. As for HIV infections, a cumulative total of 68 355 in 1996 compared to that of 11 702 in 1995 and areas (see Figure 26.3). Analysis of the trends of reported HIV infections shows that an increasing proportion of HIV infections are acquired through heterosexual transmission between heterosexuals (Figure 26.2).

Since 1992, declining epidemics of HIV infections in Australia and New Zealand have reported declining HIV epidemics been observed. In Cambodia and Papua New Guinea, there are increasing HIV epidemics, particularly among heterosexuals. A similar pattern can be seen among injecting drug users in China, Malaysia and Viet Nam. Japan, the

![Figure 26.4 Estimates for HIV prevalence in selected countries and areas of the Western Pacific Region (as of July 1998), August 1997](image)

<table>
<thead>
<tr>
<th>Country/area</th>
<th>Reference Year</th>
<th>HIV prevalence in adults (15-49)</th>
<th>HIV prevalence rate (%) in adults (15-49)</th>
<th>Women among HIV infected population (%)</th>
<th>Sexual cContact (%)</th>
<th>Injecting dDrug uUse (%)</th>
<th>Others (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>1997</td>
<td>120 000</td>
<td>&lt;2.40</td>
<td>50%</td>
<td>95%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1997</td>
<td>66 000</td>
<td>&lt;0.62</td>
<td>20%</td>
<td>20%</td>
<td>75%</td>
<td>5%</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>1997</td>
<td>4 200</td>
<td>&lt;0.19%</td>
<td>50%</td>
<td>95%</td>
<td>&lt;1%</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>1994</td>
<td>300</td>
<td>&lt;0.16%</td>
<td>10%</td>
<td>97%</td>
<td>&lt;1%</td>
<td>3%</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1997</td>
<td>86 000</td>
<td>&lt;0.22%</td>
<td>20%</td>
<td>20%</td>
<td>75%</td>
<td>5%</td>
</tr>
<tr>
<td>Australia</td>
<td>1997</td>
<td>11 000</td>
<td>&lt;0.14%</td>
<td>5%</td>
<td>91%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1997</td>
<td>3 100</td>
<td>&lt;0.08%</td>
<td>40%</td>
<td>80%</td>
<td>15%</td>
<td>5%</td>
</tr>
<tr>
<td>Singapore</td>
<td>1997</td>
<td>3 100</td>
<td>&lt;0.15%</td>
<td>20%</td>
<td>95%</td>
<td>&lt;1%</td>
<td>5%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1997</td>
<td>1 300</td>
<td>&lt;0.07%</td>
<td>15%</td>
<td>95%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Philippines</td>
<td>1997</td>
<td>23 000</td>
<td>&lt;0.06%</td>
<td>30%</td>
<td>90%</td>
<td>&lt;5%</td>
<td>6%</td>
</tr>
<tr>
<td>China</td>
<td>1997</td>
<td>400 000</td>
<td>&lt;0.06%</td>
<td>12%</td>
<td>10%</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>Lao People’s Democratic Republic</td>
<td>1997</td>
<td>1 000</td>
<td>0.04%</td>
<td>50%</td>
<td>95%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>1997</td>
<td>3 100</td>
<td>&lt;0.01%</td>
<td>13%</td>
<td>93%</td>
<td>&lt;1%</td>
<td>7%</td>
</tr>
<tr>
<td>Japan</td>
<td>1997</td>
<td>6 800</td>
<td>&lt;0.01%</td>
<td>5%</td>
<td>50%</td>
<td>&lt;5%</td>
<td>46%</td>
</tr>
</tbody>
</table>

Philippines, the Republic of Korea and some Pacific island countries and areas have very low levels of limited HIV transmission.

However, there is significant underreporting of both HIV and AIDS cases in most countries. After analysing the results of HIV serosentinel surveillance has enabled the Regional Office to make, estimates of HIV prevalence among the sexually active adult population of the Region were made (Figure 26.4). It is estimated that, by the year 1997, more than 700 000 individuals were HIV infected and that at least 43 000 cumulative cases of AIDS had occurred in the Region (16 000 of these AIDS cases occurred
in 1996). In Cambodia the HIV prevalence rate among adults (15-49 years) is above 2%. Countries estimated to have prevalence rates between 0.1% and 1% include Australia, Brunei Darussalam, Malaysia, Papua New Guinea, Singapore and Viet Nam. Countries with estimated prevalence rates among adults (15-49 years) below 0.1% include China; Hong Kong, China; Japan; the Lao People’s Democratic Republic; New Zealand; the Philippines; and the Republic of Korea. No HIV infections had been reported in American Samoa, Cook Islands, Niue, Pitcairn Islands, Tokelau or Vanuatu.

WHO ACTIVITIES

STD prevention and control, 1945–1976

In the post-war period, injection with arsenicals was the main method of treatment used for syphilis. However, this treatment took time, was expensive and also required supervision, since toxic reactions could occur.

In 1949, a WHO Syphilis Study Commission confirmed the effectiveness of using long-lasting penicillin in single or multiple doses for the treatment of syphilis and gonorrhea. The Commission pointed out that the treatment was effective, is not only efficacious, but also inexpensive and simple to apply. The Commission urged WHO to: to disseminate this information to Member States;, to assess the local situation with regard to VD;, to train local personnel in modern methods of control; and to establish VD control pilot projects as necessary.

In the Western Pacific Region, control of VD was an early priority. In 1951, the Regional Director reported to the second session of the Regional Committee at its second session that a Regional Adviser in Venereal Diseases would be one of the first regional advisers appointed in the Regional Office. Before the Adviser reported for duty, short-term consultants were sent to countries that requested WHO collaboration. Two early projects are particularly noteworthy and are outlined below.

Maternal and child VD project in China (Taiwan), 1954—1959

In 1954, the Government of China (Taiwan) started a maternal and child VD project covering Taipeh-Peiou and Keelong. Four WHO staff, a venereologist, a serologist, a nurse and a health educator, were assigned to the project. The programme objectives were to: to evaluate, strengthen, and improve serological laboratories; to, conduct surveys to assess the VD problem; and to train personnel in case finding, contact tracing and rationalizing treatment. The WHO staff were withdrawn in 1959.

A total of 431 units participated in the project, including: 22 health centres; all associated health stations; and several provincial and municipal hospitals, participated in the project. Twenty—two serological laboratories were established. The Armed Forces were also involved in the project. Free treatment was provided for all cases and classes of patients. The results of the STD case finding among 231 878 individuals tested are shown in Figure 28.5.

By 1960, 3.3 million peopleindividuals had been examined, of whom 167 247 (5.51%) were found to be positive by the serologic test for syphilis, 116 771 required treatment, but only 88 247 of these were treated.

A WHO consultant who reviewed the project to determine how it could become more effective highlighted three issues. First, there was shortage of trained personnel, especially epidemiologists in the field. Second, there was a lack of interest in the project by technical personnel. Third, there Government was reluctant to allocate funds for VD control, to take measures to improve case finding and treatment, or to integrate health education into basic health services.

The objectives of the project were to reduce the incidence of VD and to establish, develop and strengthen VD diagnostic laboratory services. To achieve these objectives, the project created a venereal disease centre in Saigon; conducted sample surveys; developed VD control in maternal and child health centres; created and strengthened VD laboratory serology; reorganized the VD control structure; strengthened teaching of VD in medical schools; and drafted legislation on VD control. A WHO medical officer and a public health nurse were assigned to the project.

A total of 149 824 rapid plasmaprogramme reagent and venereal disease reference laboratory tests were carried out in the serological laboratories. The project ceased in 1973.

STDs in the 1970s
A seminar on tropical skin diseases held in Manila, the Philippines, in September 1975 discussed reports that the Betalactamase-producing strain of *Neisseria gonorrhoea*, which is resistant to penicillin, had been reported in many parts of the Region. The seminar pointed out that treatment for gonorrhoea would therefore become more complicated and expensive.

In 1976, the Venereal diseases and treponematosis (VDT) programme was renamed the Sexually transmitted diseases programme (STD). However, despite their concern about the increasing incidence of syphilis, gonorrhoea and STDs, most countries in the Region did little about their prevention and control.

In September 1985, the attention of the Regional Committee expressed its concern about the was called to the presence of 132 cases of AIDS in the Region. The first AIDS cases were reported from Australia (110), New Zealand (11), Japan (7), Hong Kong (3) and China (1). The Regional Committee adopted a resolution which urged Member States to provide appropriate health education to the public and to begin initiate surveillance and reporting of the disease. The resolution further requested the Regional Director to: support the development of laboratory capability; to establish collaborating centres to facilitate the exchange of information on AIDS; and to encourage research and mobilize resources for the prevention and control of AIDS.

At the global level, in 17 January 1986, the Executive Board adopted a resolution on WHO activities for the prevention and control of AIDS. This resolution requested the Director-General to further develop activities within the WHO programme on AIDS and seek additional funds for the support of national and collective programmes. Four months later, the Thirty-ninth World Health Assembly reinforced this concern when it urged the Director-General to explore ways and means of increasing the extent and types of WHO cooperation on HIV prevention and control with countries.

Initially, many developing countries in the Region were concerned to discover whether or not AIDS was present in their country. Since most countries did not have the laboratory capability for the diagnosis and surveillance of AIDS cases, the Regional Office initiated and conducted a number of training courses on the laboratory diagnosis of AIDS. In 1985, the National AIDS Reference Laboratory in Fairfield Hospital, Victoria, Australia, was designated as a WHO collaborating centre to support the development of laboratory expertise of AIDS in the Region.

As early as December 1985, training courses in the immunofluorescence test and the Western Blot for the detection of HIV antibodies were conducted in Malaysia and the Philippines. AIDS diagnostic kits (gelatin agglutination tests) were provided to Fiji, Malaysia, the Philippines and Tonga. Research grants to support HIV sero-surveys on selected population groups were awarded to the Philippines. A regional seminar on the diagnosis and control of STDs, including laboratory diagnosis of AIDS, was held in Singapore in April 1986. Additional training courses to train participants on a new particle agglutination test were conducted in the Philippines and Tonga in 1986. In 1987, the Institute of Virus Research, Kyoto University, Kyoto, Japan was designated as a WHO collaborating centre to support AIDS research development in the Region.

An Interregional Ministerial Meeting on AIDS supported by the Australian Government was held in Sydney, Australia from 21 to 24 July 1987, and adopted the Sydney Declaration on AIDS. This urged participating governments to promptly establish or strengthen national programmes for the prevention and control of AIDS. It also called upon WHO to support and strengthen national programmes to facilitate and coordinate international assistance for the implementation of national prevention and control programmes.

In September 1987, the Regional Committee endorsed the Sydney Declaration on AIDS and a resolution of the Fortieth World Health Assembly establishing the Global Strategy for the Prevention and Control of AIDS. The Regional Committee also expressed concerned at the four-fold increase in the number of AIDS cases in the Region since 1985. The Regional Committee therefore adopted a resolution calling for the urgent development of which resolved that a regional programme for the prevention and control of AIDS should be developed urgently in conformity with that complemented the global strategy., The resolution also recommended that AIDS programmes be integrated within national health systems and as appropriate with activities for the control of other viral diseases prevalent in the

**The Global Programme on AIDS**

WHO began collating and publishing information and organizing meetings on AIDS in 1981. In 1987, WHO established the Special Programme on AIDS (SPA). During the same year, in resolution 42/8, the UN General Assembly recognized the "established leadership and the essential global directing and coordinating role" of WHO in AIDS prevention, control and education. In 1988, the name of the SPA was changed to the Global Programme on AIDS (GPA). The global strategy was based on three main
objectives: to prevent infection with HIV; to reduce the personal and social impact of HIV infection and to mobilize and unify national and international efforts against AIDS. The role of the WHO regional offices played an important role in coordinating policy and strategies with GPA and in actively implementing activities was an indispensable feature of the global fight against AIDS. WHO’s unique regionalized structure provided special organizational opportunities and challenges in pursuing a coherent global health programme. It was a powerful vehicle through which regional, social, economic, political, public health and legal perspectives could be brought to bear. On 1 January 1996 the Joint United Nations Programme on AIDS (UNAIDS) began operations. UNAIDS is cosponsored by UNDP, UNESCO, UNFPA, UNICEF, WHO and the World Bank.

Region. Member States were urged to give high priority to establishing or strengthening comprehensive, immediate and long-term national policies and programmes on AIDS.

In compliance with this resolution, a regional programme for the prevention and control of AIDS was formulated. The main approaches for country programmes included: the establishment and strengthening of national AIDS committees; the formulation of AIDS/HIV prevention and control programmes; development of laboratory capability for the diagnosis of HIV infection; development and strengthening of epidemiological surveillance; provision of safe blood and blood products; health information, education and communication activities; and training of personnel in various aspects of AIDS prevention and control.

In response to the growing epidemic, the late 1980s saw country-level HIV prevention activities gather momentum. WHO support was a key factor in enabling countries and areas to begin responding to the AIDS epidemic. WHO teams visited China, the Cook Islands, Fiji, Guam, Kiribati, Marshall Islands, Malaysia, Papua New Guinea, Samoa, Singapore and Vietnam to orient Ministries of Health towards HIV issues, and to develop national AIDS control programmes.

Work was undertaken by the Regional Office to develop information, education and communication strategies; to train HIV and AIDS counsellors; to improve blood safety and laboratory procedures; and to develop guidelines for the clinical care of people with AIDS. For example, regional activities in 1988 included the first regional workshops on the clinical management of AIDS; safe blood and blood products; health education in the prevention and control of AIDS; the role of the print media in HIV; and nursing and HIV.

By September 1988, the Regional Committee was able to note with satisfaction the establishment of the regional programme on AIDS and to urge Member States who had not done so to formulate national AIDS prevention and control plans.

During this time, the AIDS staff in the Regional Office had also been increased in order to respond to the epidemic. By 1990, Regional Office staff and consultants had made 30 technical visits to 30 countries and areas, which had resulted in the preparation of 19 short-term plans and 14 medium-term plans.

The concern felt across Asia at the HIV and AIDS epidemic was apparent at the first regional conference on AIDS in Asia and the Pacific, which was held in Bangkok, Thailand, in 1989. National AIDS programme managers and health educators discussed new developments in AIDS prevention and control and various aspects of national AIDS programmes.

Even from these very early days, the fight against AIDS involved a range of international partner agencies. For example, a major meeting was held by WHO staff with agency representatives in Manila in 1989 in an effort to coordinate the international response to the epidemic, including support to country programmes. Partner agencies collaborating with WHO in this meeting included the ADB, AIDAB (now AusAID), JICA, UNDP, UNFPA, UNICEF, USAID and the World Bank, together with international nongovernmental organizations.

In the South Pacific, before the establishment of national AIDS prevention and control programmes at country level, an AIDS orientation seminar for potential short-term consultants was held at the WHO Regional Training Centre for Health Development, University of New South Wales, Sydney, Australia. Following this orientation, WHO team visits were made to Cook Islands, Kiribati, Marshall Islands, Papua New Guinea and Samoa to collaborate with local staff in preparing national AIDS prevention and control short-term plans designed to meet immediate needs. The WHO group and the national programme directors then met at the WHO Regional Training Centre for Health Development in Sydney, Australia to review and finalize short-term plans for WHO approval. Once approved, technical services agreements or exchanges of letters were sent to governments to formalize WHO commitments.

Numerous activities took place in 1988. An orientation seminar on AIDS for WHO staff was held in the
Regional Office in April. The Global Programme on AIDS, the development of short- and long-term plans and coordination between Headquarters, the Regional Office, WHO Representatives and Country Liaison Officers and UNDP were discussed.

A WHO AIDS team visited China, Fiji, Guam, Malaysia, Singapore, and Viet Nam to assess their AIDS/HIV situation and to collaborate in the preparation of national AIDS prevention and control plans.

A WHO Training Course on AIDS Counselling was held in Singapore in June. In July, the first WHO-sponsored International Training Course on Clinical Management of AIDS was held at the WHO Collaborating Centre on Health Training at the University of New South Wales, Sydney, Australia.

In August, a Regional Workshop on Counselling Children and Adults with Haemophilia with special reference to AIDS/HIV infection was held in Tokyo, Japan.

In September, the Regional Committee noted with satisfaction the establishment of the regional programme on AIDS in the context of the Global Programme on AIDS. However, it urged Member States who had not done so to formulate national AIDS prevention and control plans.

Meanwhile, a regional workshop on safe blood and blood products was held in Manila, the Philippines. The first workshop on Health Education in the Prevention and Control of AIDS Infection was held in Manila two months later. The first Regional Workshop on Nursing and HIV Infection was held the same month.

A Workshop on the Role of Print Media in AIDS Control was held in Manila in December.

In 1989, the Regional Office participated in the development of an interregional laboratory proficiency exercise coordinated by the WHO collaborating centre on AIDS at the Fairfield Hospital in Australia.

The concern felt across Asia at the AIDS pandemic was very much in evidence in March 1989 at the International Conference on AIDS in Asia and the Pacific, Bangkok, Thailand. National AIDS programme managers and health educators discussed new developments in AIDS prevention and control and various aspects of national AIDS programmes.

From the start, the fight against AIDS involved a range of international partner agencies. Partner agencies including the Asian Development Bank, Australian International Development Assistance Bureau (now known as Australian Agency for International Development, AusAID), Japan International Cooperation Agency, UNDP, UNFPA, UNICEF, United States Agency for International Development and the World Bank met with WHO staff in Manila in April 1989 to discuss the AIDS situation in the Region, problems relating to the Global Programme on AIDS and constraints in implementing national AIDS programmes. The meeting also discussed how to promote better coordination, collaboration and cooperation between multilateral, bilateral and nongovernmental organizations concerned with the AIDS programmes.

In May 1989, the AIDS programme infrastructure in the Regional Office was greatly strengthened with the appointment of four long-term staff consisting of a Regional Adviser, an Epidemiologist, a Laboratory Scientist, an Administrative Officer as well as a long-term consultant on Health Education. The following positions were also established: Medical Officer and Technical Officer in Cambodia and China; Medical Officer and Health Educator based in Fiji to cover the Pacific; Technical Officer in the Lao People’s Democratic Republic; Health Education Specialist and Medical Officer in Papua New Guinea; and a Technical Officer in the Philippines.

This was a very active period for the Regional Office, as can be seen by the meetings that took place from June 1989 to January 1990: a regional workshop on the role of broadcast media in the prevention and control of HIV infection and AIDS in Tokyo, Japan; the third international course on the clinical management of AIDS in Sydney, Australia; a regional training workshop on the organization, administration and management of blood transfusion services in Manila, the Philippines; a workshop on the surveillance and epidemiology of AIDS/HIV infection in Manila, the Philippines; a workshop on counselling in AIDS/HIV infection in the South Pacific in Suva, Fiji; an international workshop held in conjunction with the South-East Asia Region of WHO on condom services and promotion in Seoul, the Republic of Korea; and a workshop on social and behavioural studies related to AIDS in Manila, the Philippines.

During 1989 and 1990, WHO/AIDS teams made visits to Kiribati, Marshall Islands, Papua New Guinea, Solomon Islands and Vanuatu to collaborate in the evaluation of existing short-term plans in the above countries and to prepare medium-term plans as necessary.
As of 1 September 1990, 30 technical visits to 30 countries and areas had been made since the beginning of the programme, resulting in the preparation of 19 short-term plans, 14 medium-term plans and 1 resource mobilization meeting.


By 1990 substantial progress had been made by the regional programme for the prevention and control of AIDS. However, the STD programme lagged behind because of a general failure to recognize the link between how STDs and contributed to the AIDS problem and a consequent lack of budgetary support for STD prevention and control. In 1990 therefore, the Regional Office integrated the programme on STDs into the regional AIDS programme, a development that was endorsed by the Regional Committee that year. Five years later the Regional Committee urged Member States to integrate their AIDS and STD programmes.

The 1990s

A wide range of activities was carried out by the regional STD and HIV/AIDS programme on STDs, including HIV and AIDS from 1990 to 1995. During this period, 22 short-term plans and 21 medium-term plans were implemented and while 12 second-generation medium-term plans were formulated. Since 1993, the Regional Office has distributed a semi-annual Surveillance Report, which has helped to encourage Member States to report cases HIV and AIDS cases. Other important activities during the early 1990s included the establishment of the gonococcal antimicrobial surveillance programme (GASP), workshops on the role of nongovernmental organizations in the prevention and control of AIDS, and workshops on condom logistics and prevention indicators. These various activities were aimed at supporting Member States of the Western Pacific Region to improve the implementation and assessment of their national AIDS programmes. The monitoring of resistance to current drug or antibiotic regimens was established through the gonococcal antimicrobial surveillance programme (GASP) in 1992. Workshops on the role of nongovernmental organizations in the prevention and control of AIDS were conducted in Manila, the Philippines, in September 1992 and in Suva, Fiji, in 1993. A workshop on condom logistics was held in Manila, the Philippines, in February 1994, and another on prevention indicators was conducted in Viet Nam in March 1995.

UNAIDS was established in 1996 (see box on the Global Programme on AIDS). WHO participates in UNAIDS through membership of the UNAIDS Theme Groups in individual countries and by linking with other UNAIDS activities.

WHO has strengthened the regional STD and HIV programme since 1995. This programme focuses on STD, HIV and AIDS epidemiological surveillance and the improvement of STD programmes as a way of reducing STD transmission.

Efforts to improve STD, HIV and AIDS epidemiological surveillance have included the development of a computer program, which enables the epidemiological analysis of prevalence and incidence of STDs, HIV and AIDS at country and regional levels. Regular support is also provided to meetings at country level to reach a consensus on HIV and STD estimates and projections. Two major regional epidemiological meetings were held in Manila in 1997, which enabled country experience to be shared and country and regional projections to be revised.

Another key activity since 1996 has been the provision of technical support and advocacy for improved STD care and treatment and the integration of services at primary health level, through the use of the syndromic approach to STD case management. Training and advocacy materials to support the introduction of this approach have been developed, and are being translated or adapted in Cambodia, China, the Lao People’s Democratic Republic and Viet Nam. Training of trainers courses have also been held.

There is a need to improve STD programme management in a number of countries and areas of the Region. The Regional Office has developed a training course to support Member States to

WHO collaboration in Cambodia

Collaboration to prevent and control STDs and HIV/AIDS in Cambodia started in 1989 when an adviser visited the country to develop HIV testing guidelines. In 1991, WHO returned to Cambodia and assigned its first professional members of staff to support the national AIDS programme. WHO worked actively with the Government to: organize the National AIDS Committee; train health workers in STD and HIV/AIDS prevention and control; initiate a model
improve these programmes. Training activities have included workshops in Fiji and Federated States of Micronesia in 1997, and in Malaysia, Papua New Guinea and the Philippines in 1998. The WHO regional programme is also working to improve STD services and education to sex workers and their clients. A model services project in the Philippines has operated since late 1996 and similar projects in China began in 1998.

There is also an emerging need for support to Member States for AIDS clinical and community care. WHO has supported the development of clinical care protocols and community care initiatives in Cambodia (see box on Cambodia).

**Blood safety**

Blood safety is secured by measures to prevent the transmission of transfusion-associated infections (TTI), and to prevent adverse immunological effects and physiological disorders. In its early stages the HIV epidemic forced the concept of blood safety onto the agenda, since there were many transfusion-associated cases among the first cases of AIDS.

In Japan, all the HIV infections until 1985 occurred among haemophiliac patients who had been treated with infected imported human plasma. A second wave of infections started in 1992 in Japan. In 1996, the HIV prevalence rate among blood donors in the Region ranged from 0% to 7%.

Some countries in the Region are unable to guarantee the safety of their haemophiliac patients. In these countries, a lack of funds, trained staff, adequate equipment, management expertise and the use of paid blood donors puts patients receiving transfusions at risk of being infected by HIV and other TTI.

In Australia and New Zealand, the two countries of the Region where the AIDS cases reporting rate is better than 95%, blood and blood products were responsible for respectively 5% (Australia) and 3% (New Zealand) of cumulated cases at end of 1996. In other countries, the role of blood and blood products in AIDS cases cannot be estimated and is dependent on the prevalence of the HIV virus in the blood donors’ population and on transfusion practices.

Preventing the transmission of HIV (and other TTI) through blood transfusion is linked to the capacity to deliver "clean" blood. The following actions are required:

- systematic screening of all blood donations;
- recruitment of blood donors among low-risk groups;
- medical selection after counselling of each potential donor;
- commitment to a quality assurance "culture" through all the steps of the "transfusion chain", from the recruitment of the blood donor to the follow-up of the patient who has received the transfusion.

From the mid-1980s, efforts in the Region were focused on the screening capacity of laboratories. In the early 1990s, organization, planning and policy development of national blood services were put on the agenda. Current concerns include training of staff to improve blood services at all levels, judicious use of blood and promotion of alternate methods. Distance learning materials have been successfully introduced in China after a workshop held in the Regional Office.

**ACHIEVEMENTS**

A major early achievement was the development of antibiotics, which has allowed the effective treatment and cure of many STDs. Although the early hopes of using antibiotics to eliminate STDs have not been realized, antibiotics have helped to reduce STD
transmission very considerably.

A second major achievement has been the international response to fighting the HIV pandemic. Member States in the Region have made considerable progress in recognizing the scale and nature of the epidemic in their countries, and in developing effective programmes to limit the spread and impact of HIV. Also, many Member States are working with WHO to improve their STD programmes, both to limit the morbidity and consequences of STDs, and to prevent HIV transmission.

UNDERACHIEVEMENTS

To a certain extent, the continued high prevalence of STDs and the emergence of AIDS/HIV are due to developments beyond the health sector. Major economic, social and cultural changes have contributed to increased transmission of STDs, including HIV, among some groups. Population movements, later marriages, more injecting drug use in some countries, increased pre-marital and extra-marital sexual relationships, and widening gaps between the well-off and the poor have all contributed to high-risk behaviour and STD transmission.

Finally, the scale and effectiveness of HIV and STD prevention efforts need to be expanded and improved in many countries. The HIV epidemic continues to grow in many countries and areas. There is an urgent need for governments and communities to increase and improve their efforts, if the scale of the epidemic in the Region is to be reduced.

FUTURE

The development and strengthening of a well based surveillance system for STDs, HIV and AIDS will continue. WHO will also support the integration of programmes on STDs, HIV and AIDS into communicable disease and other related activities in basic health services.

WHO will continue to search for better education, information and communication methods, skills and materials related to STDs, HIV and AIDS prevention and control.

WHO will continue to support research on more effective treatment regimens for STDs, HIV and AIDS.

The training of personnel on various aspects of STDs, HIV and AIDS prevention and control, particularly STD syndromic case management, will remain a priority, as will the emphasis on the delivery of services to the most vulnerable individuals, such as commercial sex workers.

WHO will also increase the support it gives to countries for the development of care for AIDS patients, placing particular emphasis on home-based care for AIDS patients in countries with limited resources.

The promotion of voluntary, non-remunerated, and regular blood donation is a long-term intervention but it will have a sustainable impact on the overall quality of blood and blood services (as has been demonstrated in Hong Kong, China; Malaysia; and the Republic of Korea). Advocacy for quality assurance concepts and the implementation of quality assurance programmes, not limited to the laboratory aspects, will be strengthened. Underachievements in the smaller or less developed countries of the Region will continue to be targeted.
Chapter 27. Smallpox

In 1796, the English physician Edward Jenner first showed that inoculating the arm of a healthy individual with infected material from a mild infection called cowpox (vaccinia), conferred immunity to smallpox. So started a sequence of events that eventually led to a huge international effort coordinated by WHO and ended in the certification of the global eradication of smallpox in Geneva on 9 December 1979. Nowadays, smallpox is a disease of historical interest only, but in the past, with a case fatality rate of up to 20%, it caused the decimation of populations and the collapse of empires.

THEN AND NOW

Smallpox was not a major problem in the Western Pacific Region when WHO was formed in 1948. In contrast to, for example, the countries of the Indian subcontinent, many countries in the Region reported relatively few cases (although cases from this period were greatly underreported and must be treated with caution). Figure 27.1 shows reported cases in 1948 and the year in which smallpox transmission was stopped in selected countries of the Western Pacific Region.

WHO ACTIVITIES

Smallpox eradication is often referred to as one of the greatest public health achievements and as one of the major successes not only of WHO, but of the United Nations system as a whole. Millions of dollars are saved every year because smallpox vaccination is no longer required, and it is difficult to think of a more worthwhile public health achievement. Nevertheless, in its early days, the programme was fraught with obstacles, mostly from within the very system that now acclaims its success.

In 1953, the then Director-General of WHO, Dr Brock Chisholm proposed a global smallpox eradication programme to the World Health Assembly. It was rejected as being too complicated, although the overambitious and far more costly and complex malaria eradication programme was proposed as a matter of high priority.

The first attempt at a global push against smallpox was made in June 1958, when the Eleventh World Health Assembly adopted a resolution to eradicate smallpox. No target year was stated, which was probably due to the uncertainty of the outcome at that time. In that year 63 countries reported a total of 77,555 cases to WHO, though this is known to be a gross underestimate. The 1958 resolution called upon all smallpox-endemic countries to vaccinate their populations. Initially the Global Smallpox Eradication Programme gave the responsibility to the countries themselves to conduct national campaigns to vaccinate at least 80% of their total populations, while WHO was given the role of providing technical support and training. The effort seems to have been rather half-hearted and the smallpox programme accounted for only 0.6% of WHO’s total expenditure between 1959 and 1966. One reason for this was that at that time smallpox eradication activities had to compete for resources with the malaria eradication programme.

In the Western Pacific Region, the country with the largest number of smallpox cases was China, which carried out an initial nationwide vaccination campaign using specially recruited vaccinators, followed by revaccination every six years by village doctors. In some provinces, such as Yunnan, additional campaigns were needed. Unlike recent poliomyelitis campaigns which have been targeted at children only (usually under five years of age), smallpox campaigns had to reach the whole population. For example, massive campaigns which reached over 90% of the population resulted in a decline in smallpox in Yunnan from 661 cases in 1958 to zero in 1962. Elsewhere in the Region, WHO supported smallpox eradication efforts in countries such as
Cambodia and the Philippines. In these two countries, between 1960 and 1965, mobile teams conducting treponematoses surveys and resurveys in smallpox-endemic areas included smallpox vaccination in their activities.

Of course, many of the countries afflicted with smallpox could not support the programme without external support and, not surprisingly, by 1963 there had been little progress. Out of the 44 endemic countries, 14 were conducting eradication programmes, 22 had programmes on paper only, and 8 had done nothing. Only about 5% of cases were being reported, there was very little external funding support, and there was considerable resistance to establishing a special smallpox budget, as the malaria eradication programme was having financial and technical difficulties. There were doubts too, about the likely success of smallpox eradication using the existing strategy of vaccinating 80% of the population, which was considered to be impossible in many areas. However, the Union of Soviet Socialist Republics continued to urge global eradication and provided smallpox vaccine (approximately 140 million doses a year) to a number of countries, including India.

Eventually, in 1965 global coordination was enhanced when WHO first established a separate smallpox eradication unit in Headquarters, with one medical officer and a secretary. In the same year, the United States of America began active technical and material support for the smallpox programme.

In 1966 the Nineteenth World Health Assembly decided to establish a special allocation for an intensified programme. At the end of 1966 there were only seven WHO staff assigned to smallpox eradication worldwide. Despite advocating intensified efforts against smallpox, senior WHO officials did not at first provide adequate funds. On the contrary, funds were cut and regional offices were instructed to use smallpox funds to develop basic health services as the highest priority. It was argued that strengthening basic health services was the highest priority and smallpox eradication would result from this approach. Despite these difficulties, in cooperation with the Centers for Disease Control and Prevention, Atlanta, United States of America, new staff were recruited and national plans were established. Steps were taken to increase surveillance, which had been inadequate. It is now estimated that there were 10 to 15 million cases in 44 countries at that time, although only 131 000 cases were reported in 1967.

In 1967 the Intensified Smallpox Eradication Programme began. Great efforts were required to obtain funding for global vaccine requirements and eventually over 40 countries contributed, with the Union of Soviet Socialist Republics and the United States of America as the principal partners.

At about this time the programme began to accelerate rapidly, helped by two innovations, the introduction of the bifurcated vaccination needle, and the search and containment strategy. The bifurcated needle was simple to use, cost only US$ 5 (1970 price) per thousand needles and could be used after very little training. It could be sterilized by flaming or boiling and used for over 100 vaccinations. The search and containment strategy worked by sending teams to investigate reports, search for additional cases, and
contain the outbreaks by isolating patients and vaccinating entire villages in a specified area around the case. Initially there were problems with vaccine quality, and WHO support was needed to improve production methods and quality control. The freeze-dried vaccine that was used exclusively in the later stages of the Smallpox Eradication Programme had the enormous advantage of being heat-stable for at least one month in almost any climate. Thus vaccinators could carry both the vaccine and bifurcated needles in their shirt-pockets as they travelled in the field on surveillance and containment duties.

ACHIEVEMENTS

Any doubts about the potential success of the programme were dispelled when in the course of only three and a half years (1967–1970), 20 contiguous countries in West and Central Africa were rendered smallpox-free. Having convinced the doubters, the smallpox campaign was now able to grow into a massive international effort. In the ten-year period from 1967 to 1977, almost 700 advisers from 55 countries, and over 200,000 national health officers and volunteers had given their services to the campaign.

At this stage it should be emphasized that the Western Pacific Region was never a major participant in the programme because smallpox had been eradicated from the Western Pacific Region before the intensification of the Smallpox Eradication Programme in 1967 (see above). However, the two last countries to be certified by the Global Commission as being free of endemic smallpox were both from the Region. Cambodia and China were both certified as being free from endemic smallpox on 9 December 1979, although in fact smallpox had not been endemic in either country since the 1950s. In China, as in other countries, some provinces experienced cases even after smallpox had been eradicated in the rest of the country. Yunnan province was the last focus of smallpox in China and the last case of smallpox in China occurred in 1961 in Monglian county, Yunnan province, on the border with Burma (now Myanmar). Cambodia was last endemic in 1959. In both cases late certification was for political reasons; in China’s case because the People’s Republic of China did not resume its membership of WHO until 1972 and in Cambodia’s because of the history of conflict in that country.

Worldwide progress continued. While in 1967, 31 countries had been endemic, this had been reduced to 17 countries by 1970 and to 6 by 1973. In the 1970s, intensive efforts were made to eradicate smallpox in the Indian subcontinent. Thousands of cases were found, especially when the international teams stepped up their efforts in late 1973. However, by using the search and containment strategy and vaccinating everybody in affected villages and for a five-mile radius around them, the campaign achieved rapid results. The last case occurred in Pakistan in 1974, and in India, Nepal and Bangladesh in 1975.

By 1976 only Ethiopia remained infected, but civil war and logistical problems hampered efforts and cases were imported into Somalia which had previously been smallpox-free. The last endemic case of smallpox in the world was Ali Maow Maalin, a Somali cook, who developed the disease on 26 October 1977. No other cases have been detected despite intensive searches. However, an unfortunate accident resulted in two people becoming infected from laboratory specimens in Birmingham, United Kingdom, in 1978.

The certification of eradication began in 1973 with the establishment of international commissions. Recently-endemic countries became eligible for certification after two years without cases despite intensive searches for all rash with fever cases. The process of certification was carried out first by the preparation of country reports by the countries concerned, in collaboration with WHO staff. Once the documentation was judged to be sufficient, groups of independent international experts known as international commissions visited the countries to validate the information provided in the reports. Countries of the Western Pacific had not needed the support of the WHO smallpox eradication programme because they had eradicated the disease before the establishment of the global effort. Nevertheless it was necessary to obtain information from them that would lead to their certification. This information was received both from country visits by independent experts and from country reports supported by data from the WHO Regional Office.

Stocks of the variola virus have been held at the Centers for Disease Control and Prevention, Atlanta, United States of America and the Russian State Centre for Research on Virology and Biotechnology, Koltsovo, Russian Federation. After noting that sequence information on the genome of variola virus strains and the cloned DNA fragments allowed scientific questions about the virus to be resolved and that the escape of the virus represented a serious risk, in 1996 the World Health Assembly recommended that all stocks should be destroyed by 30 June 1999.

UNDERACHIEVEMENTS
It may seem inappropriate to discuss underachievements of a programme that has successfully eradicated a disease and has resulted in huge savings in both human and financial terms. However, there is no doubt that smallpox could have been eradicated earlier if the resources and leadership had been made available for eradication activities soon after the eradication resolution had been made.

CONCLUSIONS

Smallpox is the first disease in history to have been eradicated and much has been learnt from the experience. As a result, poliomyelitis is now set to become the second disease to be eradicated. Once a renewed commitment to smallpox eradication had been made in the mid-1960s, progress was rapid and a remarkable feature was the excellent management of the programme, which fostered an atmosphere of innovation and adaptation of strategies to local conditions, and allowed immediate feedback of evaluation findings into programme operations. Smallpox eradication was a targeted, time-limited programme with full-time technical staff (a ‘vertical’ programme). However, because it worked through national health services it also contributed to their development, particularly for providing other immunizations.

The history of smallpox eradication is both a triumph and a study in missed opportunities. The mistakes should be understood and avoided, while the best features have been put to use against poliomyelitis, and will later be used against other diseases.
Chapter 28. Trachoma and other causes of blindness

The main causes of blindness in the Region vary from country to country, but the most common are infection, vitamin A deficiency, birth injuries and poor hygiene in childhood; injuries and trauma in adolescents; and cataract and glaucoma in adults. Trachoma affects all ages. Two-thirds of blindness is related to preventable or curable causes.

During the early years of WHO's work in the Region, considerable efforts were made to eliminate trachoma as a public health problem. Trachoma has always been linked with poverty, overcrowding, poor personal hygiene and sanitation. It tends to be endemic in developing countries and in isolated areas. It is one of the oldest diseases documented and was known during the era of the pharaohs in Egypt. Thanks in part to interventions sponsored by WHO, trachoma has now almost disappeared from most countries and areas in the Region. In recent years particular attention has been paid to cataract interventions. As people in the Region live longer lives, cataract, which is essentially a disease that affects older persons, is likely to draw more attention from both WHO and national governments.

THEN AND NOW

The quality of available information on blindness in the Region is limited and uneven. However, in 1950 trachoma was a major cause of blindness in all developing countries of the world. In 1959, a WHO Scientific Group on Trachoma Research estimated that there were 400 million cases worldwide. Currently, it is estimated that about 6 million people are irreversibly blind from trachoma and 146 million active cases need treatment. Trachoma is responsible for 15% of the world’s blind. Trachoma has now been controlled in most of the Western Pacific Region.

The earliest account of the presence of trachoma in the Region was taken from the conclusions of the joint Office International d’Hygiène Publique (OIHP)/WHO Study Group on Trachoma which met in Paris, France in October 1948. The group noted that “trachoma was present ... in nearly every country of the world; and that it showed a high endemicity in several countries in Asia. It was practically non-existent in Australasia”.

Trachoma was known to occur in Hong Kong, the Philippines and Sarawak in 1952 but these countries and areas did not consider the disease a sufficiently important health problem to warrant specific control programmes. Trachoma was highly endemic in China (Taiwan) in the early 1950s. This led to the implementation of a trachoma control project, jointly supported by UNICEF and WHO, which came to be known as one of the largest campaigns in the world against trachoma.

In 1951, Viet Nam reported prevalence rates of trachoma ranging from 30% in south Viet Nam to 65% in north Viet Nam, giving a national case load of some 9 million. A survey conducted in 1957 indicated a prevalence of 65% for active trachoma. Subsequent surveys showed a declining prevalence of 19.9% in 1986 and 17.5% in 1990. As Viet Nam had a population of about 64 million in 1990, it was estimated that about 11 million people had trachoma.

General improvements in socioeconomic and environmental conditions as well as improvements in personal hygiene have significantly reduced the prevalence of trachoma. Surveys carried out in Cambodia in 1996, in Mongolia in 1991–1992 and in Papua New Guinea in 1979–1980 showed declining prevalences of trachoma. In most countries of the Region, trachoma is no longer considered a public health problem.

Cataract is the main cause of blindness among older persons. Prevalence of cataract may have even increased in the Region over the last fifty years. There are two main reasons for this. First, far more people are living to an age at which they develop cataract. Second, there is some evidence to suggest that onset of cataract is taking place at an earlier age, especially in tropical climates. Cataract is now the single largest cause of blindness, responsible for 50%–70% of all blindness. This proportion is likely to increase in future both because of the growing population of older persons and because of the increasing backlog of cases waiting for surgical removal.
Ocular trauma and glaucoma have contributed to vision loss in almost all countries of the Region throughout the period, but they have caused far fewer cases of blindness than either trachoma or cataract.

In 1998, it is estimated that the Western Pacific Region accounts for over 20% of the world’s blind. The Region contains some 8 million blind people, about 80% of whom are in China, the Philippines and Viet Nam. Prevalence rates are reported to be in the range 0.5% to just over 1%. WHO has established a long-term objective in the Region of reducing national blindness rates to less than 0.5%, with no more than 1% in any part of the country.

**WHO ACTIVITIES**

**Prevention of blindness**

The main thrust of the WHO prevention of blindness programme has always been to assess the common blinding disorders, support national programmes, train personnel to provide eye care, particularly at the primary and referral levels, and support the development of appropriate technologies to control blinding disorders at the peripheral level.

The joint OIHP/WHO Study Group on Trachoma in 1948 already referred to reviewed the geographical distribution of the disease, its characteristics, etiology and measures for its treatment and control. In 1950, the Third World Health Assembly adopted a resolution recommending a “study of the problem of trachoma and the possibilities of successfully eradicating it by the application of modern methods of control”. The first WHO Expert Committee on Trachoma was convened in 1952. Further resolutions on the prevention of blindness were passed in 1969, 1972 and 1975.

By the 1960s, it was gradually realized, that as well as trachoma, there were other important causes of avoidable blindness, e.g. cataract and glaucoma. In 1972, the first WHO Study Group on the Prevention of Blindness was convened, reflecting the growing recognition of blindness as an international problem. In 1975, a resolution was adopted by the Twenty-eighth World Health Assembly encouraging Member States "to develop national programmes for the prevention of blindness especially aimed at the control of trachoma, xerophthalmia, onchocerciasis and other causes and to introduce adequate measures for the early detection and treatment of other potentially blinding conditions such as cataract and glaucoma".

Development of a regional programme on prevention of blindness was constrained by the fact that different causes of blindness fell under different WHO programmes. Thus in the 1970s trachoma and other eye infections were the responsibility of the Regional Adviser in Communicable Diseases. Cataract, glaucoma, diabetic and hypertensive retinopathy were dealt with by the Regional Adviser in Chronic Diseases. Xerophthalmia and vitamin A deficiency were the responsibility of the Regional Adviser in Nutrition. Blindness due to injury and other aspects of the work environment fell within the remit of the Regional Adviser in Health Services Development. However, by the early 1980s, the advantages of an approach that integrated the various causes of blindness was being recommended. At Regional Office level, the programme on prevention of blindness was formed in 1980.

Since the beginning of the Primary Health Care era, WHO has promoted the incorporation of prevention of blindness programmes into existing structures of health care and has supported the delivery of such services as an essential part of primary health care and with community participation. At the regional level, an important regional workshop on this theme was held in Manila in December 1981. Among the recommendations of the workshop were:

1. national programmes for the prevention of blindness should be developed and implemented within the framework of primary health care;
2. in order to identify priority areas, more data on blindness should be collected through population-based surveys;
3. a national committee on prevention on blindness should be formed.

By the end of the decade, national programmes for the prevention of blindness were well established in Australia, Hong Kong, Japan, New Zealand and Singapore. New programmes had been formed in China, Fiji, Kiribati, the Lao People’s Democratic Republic and the Republic of Korea. These were followed by the establishment of programmes in Malaysia and the Philippines.

Lack of precise knowledge of the extent of blindness in the Region has been an inhibitor to formulation of effective national blindness prevention programmes. In the late 1980s therefore, WHO supported
information gathering activities in China, Fiji, Kiribati, the Lao People’s Democratic Republic and Viet Nam.

Since the Seventh General Programme of Work (1984–1989), WHO has emphasized simple eye hygiene, treatment for common eye ailments and preventable blindness, and rehabilitation of the curable blind.

Training has been an important element of WHO’s support to Member States. During the 1980s, WHO supported China, Fiji, the Lao People’s Democratic Republic, Malaysia, Papua New Guinea, the Philippines, the Republic of Korea, Tonga, Vanuatu and Viet Nam in more than 15 national training courses on the prevention of blindness. The main areas covered by the courses were: planning and management; primary eye care; introduction of WHO’s simplified trachoma grading system; cataract surgery; eye trauma treatment and establishment of eye banks. In China, the Lao People’s Democratic Republic, the Philippines and Viet Nam, the national courses were supplemented by training on primary eye care.

The regional framework document *New horizons in health* draws attention to the need to promote health in later years, particularly in light of ageing populations throughout the Region. In this regard, several countries have carried out extensive cataract programmes. China conducted 500 000 cataract operations between 1988 and 1991, while in Viet Nam a cataract surgery programme began in the late 1980s. By 1990, over 10 000 operations a year were being carried out. In the Philippines, a national short-term plan to train 12 000 nurses and midwives and 40 000 barangay (community-level) health workers was formulated in 1990. The aim of the plan was to carry out 320 000 cataract operations.

A recent development in this regard has been a cataract intervention programme carried out in the Lao People’s Democratic Republic, with extrabudgetary support provided by the Republic of Korea. The programme began in 1996. By April 1998, almost 4000 cataract surgeries had been performed. This programme has demonstrated that the cost of restoring sight by operating for cataract and providing glasses is only US$ 25 per person.

In 1996, the WHO Alliance for the Global Elimination of Trachoma was established under the auspices of WHO. It is to be a coordinating body of interested parties and is open to nongovernmental organizations, bilateral and multilateral agencies, as well as scientific and research institutions. It has set a long-term goal of eliminating trachoma by the year 2020.

There are three WHO Collaborating Centres for Prevention of Blindness in the Region. They are: the Beijing Institute of Ophthalmology, China; the Department of Ophthalmology, Juntendo University, Tokyo; and the Department of Ophthalmology, University of Melbourne, Australia. These collaborating centres have supported countries to upgrade their capabilities for the prevention of blindness through training, information exchange, conduct of applied research and research on specific technical aspects of blindness.

**Trachoma strategies**

The WHO strategy in the 1950s and 1960s was based on "specific campaigns". The components of the anti-trachoma campaigns were based on field work and research undertaken in countries such as Algeria, Brazil, Burma, China, Morocco, Syria, and Viet Nam. The main activities were: preventive treatment; surgical treatment of trichiasis/entropion; and health education. In the Western Pacific Region two of the largest campaigns have been in China (Taiwan) and Viet Nam.

**Trachoma control activities in China (Taiwan)**

The trachoma control project that was started in China (Taiwan) in the 1950s was jointly sponsored by WHO and UNICEF and was one of the largest trachoma campaigns ever carried out. It involved an island-wide mobilization of the health and education sectors as well as collaboration between the Government, UNICEF and WHO. By June 1956, over 2 million children had been examined and treated through the combined efforts of 365 health station teams (physicians and nurses) and about 83 school teams.

A clinical trial using various treatment schedules was started in 1957. The results showed that: trachoma in China (Taiwan) was susceptible to antibiotic treatment; tetracycline ointment was as effective as, if not better than, chlortetracycline; and the intermittent schedule was both more economical and more effective than the continuous schedule.

A study of the epidemiological consequences of the treatment of trachoma was also carried out, the results of which, together with those of a clinical trial, formed the basis of a redefined trachoma control project in 1962. By 1970, the disease was reported to have disappeared everywhere except in remote
mountain districts, where children did not attend school regularly to receive treatment.

**Trachoma activities in Viet Nam**

WHO collaborated with the Government of Viet Nam to assess the extent of trachoma in Viet Nam in 1971. Technical support was provided in order to establish the criteria for the diagnosis of trachoma as a basis for case-finding and for organization of treatment.

It was recommended that the younger generation be protected by organizing collective treatment in institutions for orphans, children’s day centres and primary schools. Furthermore, it was emphasized that the trachoma control activity should not be undertaken as a short-term special campaign but as an integral part of public health services.

Provincial trachoma control stations have been set up since 1962 and a trachoma control network has been established. Eye health personnel have been trained to serve in communal health centres, provide supplies to health centres, perform entropion operations and conduct social mobilization for prevention and control of trachoma. Some 44 such trachoma control stations have been established in 53 provinces.

The Government has prioritized for treatment those children below 15 years of age who are living in areas of high prevalence. It has set a target of treating about half a million patients each year (1991–1995 plan).

**ACHIEVEMENTS**

- An essential eye care system with referral services has been developed in nine developing countries in the Region (China, Fiji, the Lao People’s Democratic Republic, Malaysia, the Philippines, Papua New Guinea, the Republic of Korea, Singapore and Viet Nam).
- The huge backlog of cataract cases needing operations has been reduced to a manageable level in all countries and areas in the Region.
- Blindness prevention programmes which incorporate trachoma control have been established in several countries of the Region. In many countries, blindness prevention activities have been integrated into other existing health programmes, such as maternal and child health.
- The trachoma control project in China (Taiwan) was responsible for eliminating the disease from most of the island by 1970.
- With WHO collaboration, the Government of Viet Nam has embarked on a trachoma control programme which, together with improving economic conditions, is expected to further reduce the prevalence of trachoma.

**UNDERACHIEVEMENTS**

- The provision of adequate eye care has traditionally been identified with the availability of specialized eye services and of ophthalmologists. Although it has recently been accepted that, particularly in developing countries, appropriate technology and properly trained health workers can be effective in preventing and controlling trachoma and cataract in particular, it has taken some time for this realization to take hold in some countries.
- Prevalence data for blindness are very limited, particularly with regard to trachoma. The epidemiology of trachoma is such that only population-based surveys are relevant. Surveys of schoolchildren are of limited value in view of low rates of school attendance, especially in areas where trachoma is prevalent. In some countries, such as Viet Nam, the lack of medicines for the treatment of trachoma has slowed down control efforts.
- Prevention of blindness programmes are still accorded low priority in many countries of the Region. There remains a serious shortage of ophthalmologists in the Western Pacific Region. In 1995, it was estimated that the regional ratio of ophthalmologists to population was 1:28 000 to 1:1 million.
- Xerophthalmia, which is a major preventable cause of blindness in children, is still a problem in part or all of Cambodia, China, Kiribati, the Lao People’s Democratic Republic, Marshall Islands, the Federated States of Micronesia, Papua New Guinea, the Philippines, Solomon Islands, Vanuatu and Viet Nam. The blinding forms like keratomalacia are very rare.

**FUTURE**
WHO will continue to work towards achieving its long-term objective in the Region of reducing national blindness rates to less than 0.5%, with no more than 1% in any part of the country. Another aim is for most countries and areas to have sufficient facilities and resources for the restoration of sight to the curable blind and for the prevention of trachoma and xerophthalmia. The prevention of xerophthalmia in countries where it constitutes a public health problem will continue to be through high doses of Vitamin A every four to six months in children and through small daily or weekly doses in pregnant women, followed by a high dose after delivery. This approach will be gradually replaced by dietary improvement and food fortification with Vitamin A.

WHO will continue to support countries in gathering information on the major causes, magnitude and distribution of blindness.

The transfer of appropriate technology for the prevention and treatment of blindness due to major causes such as cataract, trachoma, xerophthalmia, ocular trauma and glaucoma will be promoted.

Health education, community participation and involvement of different sectors in eye care as part of primary health care will be encouraged and facilitated.

Furthermore, training of health workers and health auxiliaries will continue to be promoted by WHO, based on the principle that many of the most effective health interventions can be carried out at the community level and do not require a sophisticated medical education.

Support will continue to be given for research, including the development of new technologies for blindness prevention.

Early diagnosis of low vision among older persons requires more attention in the future.
Chapter 29. Tuberculosis

Until the end of the Second World War, any reduction in tuberculosis prevalence could be attributed mainly to improvements in nutrition, housing, sanitation, social security and living standards. Medical care for tuberculosis, including surgical treatment, was offered only as a specialist service for individual patients in sanatoria or chest clinics. Because of the scarcity of highly trained specialists and the expense involved in diagnosis and institutional treatment, only a small number of patients could benefit from such care and tuberculosis continued to be responsible for many deaths worldwide. Even with treatment, the prognosis for tuberculosis patients was poor.

THEN AND NOW

The confirmation of the protective value and safety of bacille Calmette-Guérin (BCG) vaccination was a landmark in the history of tuberculosis control. Although BCG vaccination was first tried on human beings in 1922, vaccination was not used on a large scale until after 1945. One reason was that many doctors remained sceptical about its effectiveness until 1950, when a controlled clinical trial on the effects of BCG vaccine was carried out by the British Medical Research Council.

After the Second World War, the development of specific anti-tuberculosis drugs resulted in a significant breakthrough in the fight against tuberculosis. The drugs were first used in sanatoria and then used as ambulatory treatment. However, treatment was long and often not very successful. The introduction of short-course chemotherapy (SCC) which combined several drugs, including rifampicin, shortened the duration of treatment to six months. SCC also had a high cure rate, which raised expectations that tuberculosis could be controlled using simple methods. However, scarcity of resources and non-compliance with treatment regimens often resulted in several interruptions in the course of a patient’s treatment. This was coupled with low cure rates and a growing number of multidrug-resistant cases. Tuberculosis therefore started to increase again in both developing and developed countries. In 1993, WHO declared tuberculosis to be a “global emergency”. WHO stressed the need for more political commitment and proposed the directly-observed treatment, short course (DOTS) strategy as the most effective response to a growing problem. However, as of February 1998, only 36% of cases are treated with DOTS across the Region.

Regional data and tuberculosis trends from 1948 to 1997

The introduction of effective anti-tuberculosis drugs and the protective value of BCG vaccinations meant that between 1948 and 1970 tuberculosis mortality and morbidity steadily declined in most of the countries and areas in the Region. The speed of these reductions varied a great deal, depending to a considerable extent on the organization and efficiency of national tuberculosis control services.

Figure 29.1 shows mortality rates from all forms of tuberculosis from 1947 to 1970 in seven countries and areas. During the period 1947–1970, a marked reduction of the mortality rate was observed in many countries. However, the reduction was much more pronounced during the first 10-year period and reached 79.9% in Australia, 76.9% in China (Taiwan), 74.9% in Japan and 71.5% in New Zealand.

Data from the countries that kept vital statistics reveal that in 1970 tuberculosis remained an important cause of death in the Region. In that year, it was the second leading cause of death in the Philippines, fifth in China (Taiwan) and Hong Kong, eighth in Japan and Singapore and twentieth in New Zealand.

Case notification of tuberculosis is not available for the 1950s and 1960s but estimates made from tuberculosis prevalence surveys in several countries provide a measure of the extent of the problem (Figure 29.2).

The trend of case notification was relatively erratic between 1975 and 1984, mainly because of uneven standards of reporting from year to year (Figure 29.3). Between 1985 and 1993, case notifications more than doubled due to improvements to notification processes and the extension of SCC programmes. The rise in 1995 and 1996 is mainly due to expansion of the DOTS strategy, in particular in China, which
improved case management and encouraged many cases to come forward for treatment.

**Prevalence surveys**

Prevalence surveys were conducted in selected countries during the 1960s, 1970s and 1980s to ascertain the extent of the tuberculosis problem and to evaluate the effectiveness of national tuberculosis programmes. Since it is costly to conduct nationwide tuberculosis prevalence surveys, in most countries in the Region workers who were engaged in routine BCG vaccination and tuberculosis case-finding were used to carry out the surveys with little extra effort and at little extra cost. WHO collaboration in most cases has been limited to selecting the sample population and analysing the results of the survey.

Results of prevalence surveys conducted in selected countries are shown in Figure 29.2. It is noticeable that while tuberculosis is decreasing steadily in some countries (e.g. the Republic of Korea) it remains constant or is even increasing in others (e.g. in China and the Philippines). In China and the Philippines, SCC has been widely used but treatment compliance has not always been strictly enforced.

**Impact of HIV on tuberculosis**

Studies conducted in Africa, Asia and the United States of America show that a person who is co-infected with tuberculosis and HIV has 30 times more chance of developing tuberculosis than a person who is infected only with tuberculosis. Since it is estimated that approximately half the population of the Region is already infected with the tuberculosis bacilli, the spread of HIV infection may have a major impact on tuberculosis incidence.

HIV-related tuberculosis has been reported in some countries in the Region since early 1990. However, with the exception of Cambodia, Malaysia and Viet Nam, tuberculosis/HIV co-infection is still low in the Region as a whole. In Cambodia, the first nationwide random HIV surveillance conducted on tuberculosis patients with WHO technical support in 1996 showed that 3.9% of patients were HIV-positive. The same year in Phnom Penh, sentinel surveillance showed that 11.5% of patients were HIV-positive (a similar survey in 1992 had found no HIV-positive patients). It is estimated that the number of HIV-positive tuberculosis patients will increase from 12% to 26% by 2000.

In Malaysia, the reported number of HIV-related tuberculosis cases has been increasing since 1990. In 1996, 262 HIV-related tuberculosis cases were reported, around eight times the number in 1991. In Johor state, 105 tuberculosis patients out of 851 cases (12.3%) were HIV-positive in 1996.
In Viet Nam, only 0.9% of tuberculosis patients in 30 provinces were HIV-positive in 1997. However in Ho Chi Minh City, 6% of patients were

**Figure 29.2 Prevalence of pulmonary tuberculosis and annual risk of infection in selected countries in the Western Pacific Region, 1962–1997**

<table>
<thead>
<tr>
<th>Country</th>
<th>Year survey completed</th>
<th>Age group</th>
<th>X-ray positive (%)</th>
<th>Bacteriological positive* (per 1000)</th>
<th>Annual risk of infection (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>1968</td>
<td>0</td>
<td>1.5</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>China (Taiwan)</td>
<td>1968</td>
<td>10</td>
<td>2.8</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>1979</td>
<td>0</td>
<td>0.7</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1984</td>
<td>0</td>
<td>0.5</td>
<td>2.0**</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>0</td>
<td>0.5</td>
<td>1.7**</td>
<td>1.0</td>
</tr>
<tr>
<td>Fiji</td>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td>0.9***</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>1965</td>
<td>5</td>
<td>5.2</td>
<td>10.1</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td>1970</td>
<td>5</td>
<td>4.4</td>
<td>8.1</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>1975</td>
<td>5</td>
<td>3.3</td>
<td>7.8</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>1980</td>
<td>5</td>
<td>2.5</td>
<td>5.3</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>1985</td>
<td>5</td>
<td>2.1</td>
<td>4.2</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>5</td>
<td>1.6</td>
<td>2.0</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>5</td>
<td>0.8</td>
<td>1.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Malaysia (West)</td>
<td>1970</td>
<td>15</td>
<td>0.74</td>
<td>5.7</td>
<td></td>
</tr>
<tr>
<td>Laos (Paksé)</td>
<td>1967</td>
<td>15</td>
<td>3.6</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>1968</td>
<td>5</td>
<td>2.1</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(P.P-3 Prov.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td></td>
<td></td>
<td></td>
<td>0.8***</td>
</tr>
<tr>
<td>Philippines</td>
<td>1964</td>
<td>5</td>
<td>4.0</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Minglanialla)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1982</td>
<td>10</td>
<td>4.2</td>
<td>8.6*</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>1997</td>
<td>10</td>
<td>4.2</td>
<td>8.2*</td>
<td>2.3</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1962 (Saigon/Cholon)</td>
<td>10</td>
<td>10.4</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1986</td>
<td></td>
<td></td>
<td></td>
<td>2.8***</td>
</tr>
<tr>
<td></td>
<td>(Ho Chi Minh City)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1987 (Hanoi)</td>
<td></td>
<td></td>
<td></td>
<td>0.3***</td>
</tr>
</tbody>
</table>

* Bacterial positive means culture and/or smear positive except ** which included culture positive only.

*** Tuberculin survey only.

**Figure 29.3: Notified cases of tuberculosis in the Western Pacific Region (1975–1996)**
HIV-positive, compared to 1% in 1994. Close surveillance of HIV seroprevalence in tuberculosis cases will also be needed in Papua New Guinea, the Philippines and in some areas in China, particularly Yunnan Province.

### Emergence of drug resistance

Since chemotherapy has been used, there has been concern about drug resistance. During prevalence surveys conducted in several countries of the Region, efforts were made by bacteriologists to assess the extent of primary drug resistance among newly discovered cases without a history of previous chemotherapy. In China (Taiwan), a 1967 survey found that 39.3% of cases were found to carry organisms with primary resistance: 20.3% to one drug, 13.5% to two drugs and 5.6% to all three of the principal drugs used. In the Republic of Korea, the 1970 survey discovered that 23.9% carried organisms with primary resistance: 10.9% to one drug, 6.5% to two drugs and 6.5% to three drugs. In Japan, the percentage of cases presenting primary drug resistance in the last three surveys was reported as 9.5% in 1958, 15.8% in 1963 and 9.1% in 1968. However, techniques for assessment were not standardized so comparisons between countries were not possible. Subsequently, drug resistance appeared for newly discovered drugs such as rifampicin and ethambutol. In 1997 in the Republic of Korea, primary drug resistance to at least one drug has decreased to 10% while in Viet Nam in the same year and using the same technique it was 32.5%.

### WHO ACTIVITIES

#### Tuberculosis control before the combined treatment regimen

Before the widespread use of combined anti-tuberculosis drugs regimens, activities were focused on BCG vaccination, active case finding using mass miniature radiographs and isolation of patients in sanatoria. Isoniazid (INH) was introduced in the early 1950s and used by many countries until the early 1960s with unsatisfactory results. Many patients were isolated and treated in sanatoria or institutions until combined anti-tuberculosis drugs were introduced in the early 1960s.

BCG vaccination has long been recommended by WHO as the major tuberculosis control measure. Soon after the end of the Second World War, many countries launched BCG vaccination campaigns as emergency measures in collaboration with WHO and UNICEF. However, as a rule, the countries and areas of the Pacific did not begin BCG vaccination campaigns until after 1963, when the freeze-dried, heat-stable BCG vaccine was introduced. In almost all countries and areas vaccinations were performed by general health services staff.

Efforts have been made by WHO to standardize BCG vaccine...
production so that the vaccines used in all tuberculosis control programmes are of a high quality and high potency. In the 1970s, there were at least six BCG vaccine production laboratories in the Western Pacific Region: Alabang, the Philippines; Melbourne, Australia; Saigon, Viet Nam; Seoul, the Republic of Korea; Taipei, China (Taiwan); and Tokyo, Japan. All of them began by producing the liquid vaccine, except for the centre in Tokyo which produced heat stable, freeze-dried vaccine from the outset.

**Introduction of domiciliary treatment using combined regimens**

Combined regimens which improved the cure rate were introduced in most of the countries and areas in the Region in the mid-1960s.

For a community-wide tuberculosis control programme, it is usually necessary to organize domiciliary drug treatment. In order to compare the effect of domiciliary treatment with that of hospital treatment when the same antituberculosis drugs were used, and to discover which of the available drugs (or drug combinations) were most suitable for domiciliary treatment, a large project was carried out in Madras, India. This was a combined study by the Indian Council of Medical Research and WHO. The Medical Research Council of the United Kingdom undertook the research on behalf of WHO, and lent the Organization several of its personnel who had experience of tuberculosis chemotherapy trials.

The routine drug regimens used in the majority of countries and areas of the Region were for one to six months initial treatment with three drugs were followed by two drugs, for the next 16 to 22 months.

Although combined regimens made ambulatory treatment possible, initially it took a long time and many patients did not complete their treatment. It was the introduction of rifampicin that began a new era of chemotherapy. SCC regimens, which include rifampicin, shorten the total treatment time from around two years to less than one year. The therapy consists of two months’ intensive intake of four drugs (isoniazid, pyrazinamide, rifampicin and streptomycin), followed by the oral administration of two drugs (INH and rifampicin), either daily or intermittently, usually for a period of four to six months. This therapy was implemented to a varying degree by most countries of the Region from 1985.

**National tuberculosis programmes**

From the mid-1950s national tuberculosis programmes (NTP) have been established in most countries of the Region according to guidelines recommended by WHO. The main principles recommended by WHO during the 1950s and 1960s were as follows:

1. Epidemiologically, the services must be nationwide and planned on a long-term basis.
2. Administratively, the activities must be integrated into the general health structure of the country.
3. Technically, the selection of target groups and control methods must be based on cost-benefit considerations.
4. Socially, the needs of the population must be met first by providing adequate services for persons with tuberculosis symptoms who report for treatment.
5. Economically, all measures adopted must be within the available resources of the country.

These principles were accepted by the majority of the health authorities in the Region.

The first tuberculosis control project supported by WHO in the Region started in the Federation of Malaya in January 1951. From 1951 to 1955, WHO support was mostly confined to the BCG vaccination campaigns launched in Brunei, Cambodia, China (Taiwan), Hong Kong, Malaya, Netherlands New Guinea, the Philippines, Sarawak, Singapore and Viet Nam. Later, WHO advisory services were extended to every country and area of the Region. Technical collaboration between countries and WHO included epidemiological surveys, BCG vaccination, case finding by microscope, introduction of chemotherapy regimen and case management, operational research and surveillance programmes.

During the second seminar on tuberculosis control for the Western Pacific Region, held in Seoul, the Republic of Korea, in October 1971, the participants recommended that, on the basis of the
experience gained in the past 15 years, passive case-finding by microscopic examination of the sputa of patients with long-standing respiratory symptoms should be given preference over mass miniature radiography in countries with high tuberculosis prevalence but limited treatment resources.

Since 1980, WHO has collaborated closely with many of the countries and areas in the Region to introduce first the SCC regimen and most recently the DOTS strategy to achieve the global targets of a cure rate of 85% and a case detection rate of 70%.

Directly-observed treatment, short course

From the early 1990s, WHO's main collaboration with national tuberculosis programmes has focused on curing patients rather than finding cases. WHO has collaborated with countries to improve the quality of microscopic diagnosis, to provide free SCC regimens with directly-observed treatment, and to introduce standardized reporting and recording systems. To introduce DOTS, different approaches have been applied to different country situations (see Figure 29.4).

Human resource development for national tuberculosis programmes

WHO has played a major role in training national staff for tuberculosis control. In 1953, the First Pan-Pacific Tuberculosis Conference was held in Manila under the joint auspices of the Philippine Department of Health, the Philippine Tuberculosis Society and WHO. Tuberculosis refresher courses for national medical officers in the South Pacific area were held in collaboration with South Pacific Commission in 1959, 1964, 1969, 1974 and 1980. These courses helped to update national programme managers on new techniques for tuberculosis control.

In 1960, the first WHO regional tuberculosis seminar was held in Sydney in collaboration with the Government of Australia. The second WHO regional seminar on tuberculosis control was held in October 1971 in Seoul, the Republic of Korea to strengthen the technical and managerial capabilities of tuberculosis workers. In 1992, WHO published a training module "Management of tuberculosis programmes at district level". An intercountry training course was organized at the Regional Office in 1993 and attended by 23 participants from nine countries of the northern part of the Region. For the southern part of the Region, a workshop on the same subject but including leprosy elimination was jointly organized in Fiji in 1994 by WHO, the South Pacific Commission and the Pacific Leprosy Foundation. A third workshop was organized in 1995 in Phnom Penh, Cambodia to further disseminate technical guidelines for the management of tuberculosis programmes. In order to reach the large number of tuberculosis programme managers who have not been exposed to the rational and scientific basis of modern tuberculosis control, the Regional Office organized a training course on the "Management of tuberculosis programmes at intermediate level" in Beijing, China in 1997. As a result of these numerous training activities, the DOTS strategy advocated by WHO is now expanding in all countries and areas of the Region.

A biregional workshop for the WHO Western Pacific and South-East Asia Regions was organized in collaboration with the Government of Japan and the Japan Anti-Tuberculosis Association in November 1993. The workshop discussed and approved the "Framework for effective tuberculosis control" developed by WHO. Another biregional workshop was organized in Sydney with the collaboration of the Government of Australia and the Australian Agency for International Development (AusAID) in February 1997 to introduce a training module on "Management of tuberculosis programmes at national level".

Since 1966, the WHO/Japan international tuberculosis training course organized in Tokyo, Japan, has been held every year. A total of 1316 participants from 77 countries had been trained by 1997. Post-course visits were made to the Republic of Korea or Viet Nam to link the classroom instruction to operation of national control programmes.

Establishment of global drug resistance surveillance

As drug resistance has become a critical problem, since 1994 WHO has strengthened regional surveillance of drug resistance with the collaboration of three international reference laboratories
(Research Institute of Tuberculosis (RIT), Japan; Korean Institute of Tuberculosis, the Republic of Korea; Laboratory of Microbiology and Pathology, Queensland, Australia). Technical support was provided to several countries including China, Malaysia, and Viet Nam in order to strengthen laboratory capacity and improve surveillance methodology.

**Figure 29.4 Percentage of the population having access to DOTS in 1994 and 1997 in six countries in the Western Pacific Region (%)**

Surveillance of HIV and tuberculosis

To monitor the spread of HIV infection in Cambodia, Malaysia, Papua New Guinea and Viet Nam, WHO is establishing surveillance of HIV infection among tuberculosis patients.

Collaboration with other agencies

UNICEF has collaborated with WHO in supporting national tuberculosis programmes for more than 20 years. During the first six years, UNICEF support was confined mainly to the implementation of BCG vaccination campaigns but in the latter half of the 1950s, it was extended to include the operation of tuberculosis prevalence surveys and national pilot area projects for tuberculosis control. Expenditure from 1951 to 1970 amounted to US$ 3.5 million.

Collaboration with the World Bank includes the Infectious and Endemic Disease Control project in China, the Disease control and health development project in Cambodia and the Urban health nutrition project in the Philippines. WHO is also collaborating closely with bilateral agencies such as AusAID in Papua New Guinea, the Danish International Development Agency (DANIDA) in Mongolia, French Cooperation in Cambodia, Japan International Cooperation Agency (JICA) in the Philippines, and the Government of the Netherlands in Viet Nam. Several nongovernmental organizations – including the Damien Foundation, Belgium, International Union against Tuberculosis and Lung Disease (UATLD), The Royal Netherlands Tuberculosis Association (KNCV) and World Vision – have collaborated closely with WHO to develop tuberculosis control programme.

**ACHIEVEMENTS**

**High BCG coverage in the Region**

Since BCG vaccination was introduced in the early 1950s, coverage of the susceptible population has been high in many countries in the Region. By 1970, over 12 million children (about 5% of the total population) were vaccinated each year with BCG.

Currently BCG vaccine is given to more than 90% of newborn infants as an integrated part of the
Integration of national tuberculosis programmes into primary health care systems

By the mid-1970s national tuberculosis programmes had been established in most parts of the Region according to guidelines recommended by WHO. In many cases the programmes were fully integrated into general health services.

Australia and New Zealand had controlled tuberculosis by the 1960s. By the 1980s, these two countries had been joined by Hong Kong, Japan, the Republic of Korea and Singapore. Tuberculosis is no longer a major health problem in any of these countries and areas.

UNICEF/WHO collaboration with the national tuberculosis control programme of the Republic of Korea from 1962 to 1973 is an excellent example of how international partners can be efficiently involved in a relatively short time. The project achieved high BCG coverage through the integration of BCG into the Expanded Programme on Immunization, the development of microscopy centres in most health centres, the introduction of SCC and regular national prevalence surveys to evaluate the programme. All these activities were operated entirely through the primary health care system in collaboration with the Korean Anti-Tuberculosis Association (KNTA). During the 12-year period from 1962 to 1973, more than 23.2 million infants and children were vaccinated with BCG (over 60% of the age groups involved). The number of infectious cases of tuberculosis dropped from 257 000 in 1962 to 145 000 in 1973, a reduction of 42.5% during the period.

Implementation of directly-observed treatment, short-course

The DOTS strategy was introduced in the Region in the early 1990s and has been implemented extensively by several countries in the Region with high tuberculosis prevalence. In Cambodia, each district had to reach a level of performance to qualify for the implementation of the SCC. By the end of 1997 more than 90% of districts were applying DOTS as a routine strategy. In China, a DOTS programme supported by the World Bank (Infectious and Endemic Disease Control Project), is being implemented with the collaboration of WHO in 13 provinces. It has achieved a cure rate of over 90%. In 1996, 560 million people had access to DOTS in China. In Viet Nam, the Ministry of Health launched a national tuberculosis programme in collaboration with the KNCV. During the initial 10-year period, the programme was developed gradually with modest external financing. Since 1997, the programme has been boosted by a World Bank loan. By the end of 1997, 90% of the districts were covered by SCC. In the Philippines, a new approach using DOTS began in three provinces in late 1996 in collaboration with WHO. The cure rate has improved from around 60% to more than 80% in these provinces. As of February 1998, 8% of rural health units are implementing DOTS.

Establishment of a drug resistance surveillance system in the Region

Since the drug resistance surveillance project was started in 1994, 12 countries in the Region have been surveyed for drug resistance in collaboration with international reference laboratories. Five countries have already completed the surveillance. WHO Headquarters, in collaboration with the regional offices, published a monograph entitled Anti-tuberculosis drug resistance in the world in 1997.

UNDERACHIEVEMENTS

Shortage of funds for anti-tuberculosis drugs

Regular supplies of anti-tuberculosis drugs have not been secured in many countries. A number of countries still depend on external support for supplies of anti-tuberculosis drugs. This brings into question the sustainability of the programmes.

Low coverage of DOTS implementation

Although it has been successfully introduced in several countries in the Region within a short period, DOTS is still at an early stage or being implemented only partially in many countries. Across the Region, only 33% of cases are treated with DOTS, and 48% of the total population of the Region has access to DOTS.

FUTURE

Implementing DOTS regionwide
To increase DOTS coverage from 48% to 80% of the population in the Region by 2000 and 100% in 2010, efforts will be concentrated on countries with a high prevalence of tuberculosis, in particular China, the Lao People’s Democratic Republic, Papua New Guinea, the Philippines and Viet Nam.

Enhancement of human resources for tuberculosis control

To disseminate DOTS more widely, the Regional Office will continue to support human resource development through training courses for tuberculosis management, laboratory quality control and workshops for NTP managers. These activities will be held in collaboration with other international organizations and the four collaborating centres for tuberculosis in the Region.

Enhanced surveillance of tuberculosis

In collaboration with the AIDS and sexually transmitted diseases programme, support for surveillance will be provided to countries where there is high HIV/tuberculosis co-infection. Such countries include Cambodia, Malaysia and Viet Nam.

Drug resistance surveillance in the Region will be extended to include Cambodia, Fiji, the Philippines and three provinces in China. WHO will continue technical support for the three international reference laboratories in the Region.

Tuberculosis elimination in industrialized countries

While most of the industrialized countries in North America and Europe expect to eliminate tuberculosis by 2030 (meaning that the incidence of sputum smear-positive tuberculosis will be reduced to 1 per 1 million population), few countries in the Western Pacific Region expect to achieve elimination by this date. Although tuberculosis is no longer a major public health problem in Australia or New Zealand, the number of tuberculosis cases in these two countries has not declined during the last decade due to lack of public concern about tuberculosis and the importation of tuberculosis by immigrants. The number of tuberculosis cases in Hong Kong, China; Japan; the Republic of Korea; and Singapore is still too high to expect the incidence of all forms to drop below 1 per 100,000 population in the foreseeable future. Some countries (e.g. Japan and Singapore) where tuberculosis infection is low and tuberculosis is no longer a major health problem have developed plans for eliminating tuberculosis.
Chapter 30. Typhoid

Typhoid fever is a well documented infectious disease. The bacillus, *Salmonella typhi*, was first isolated from the spleens of infected patients by Gaffkey in Germany in 1884.

THEN AND NOW

By 1948, the methodology of clinical and laboratory diagnosis of typhoid had been established and statistical data were available in many countries of the Region. In the Western Pacific Region, most countries and areas reported large numbers of typhoid cases during 1948. For example, in that year the Philippines reported an incidence rate of 3.8 per 100,000 population. In some countries, serious outbreaks were reported; in the Republic of Korea for example, 81,575 cases with 14,051 deaths were reported in 1951.

In 1948, Theodore Woodward and his colleagues in Malaysia discovered that chloromycetin (chloramphenicol) was effective in the treatment of typhoid patients. The introduction of antimicrobial therapy markedly reduced the case fatality rate of typhoid fever and various treatments using new antimicrobial drugs followed. So long as proper treatment was given, case fatality rates dropped to less than 1%, compared with 10%–30% before the introduction of chemotherapy.

However, like other microorganisms, the typhoid bacilli acquired resistance to chloramphenicol. During the 1970s, outbreaks of chloramphenicol-resistant *S. typhi* occurred in America and Asia. In the 1980s and 1990s, multi-drug resistant *S. typhi* appeared.

Today, WHO estimates that there are about 16 million cases of typhoid fever worldwide every year. Almost 80% of cases and deaths are in Asia (for example, in Indonesia there are an average of 900,000 cases per year and more than 20,000 deaths). Most of the others occur in Africa and Latin America. In the Western Pacific Region, improvements to sanitary conditions have meant that the number of cases has gradually decreased in countries and areas such as Japan, Hong Kong and the Republic of Korea. Figure 30.1 shows the cases of typhoid fever in Japan since 1945. In other countries in the Region, the disease remains a serious public health problem. In 1995, for example, China reported 68,013 cases with 100 deaths and Viet Nam reported 30,901 cases with 23 deaths. In China, the number of cases has been continuously decreasing since 1991, while in Viet Nam the number of cases has increased since 1991 (there have been over 20,000 cases annually since 1994). In the Philippines, there were 14,926 cases in 1992, an incidence rate of 22.84 per 100,000 population.

WHO ACTIVITIES

Sanitary improvement

As typhoid fever is a food- and waterborne disease, like other enteric infections, it can be controlled through improvements to environmental hygiene, although heavy expenditure on environmental sanitation is a slow process. Many programmes described in other parts of this volume, especially those on environmental sanitation, contribute to typhoid control.

Antimicrobial resistance

Antimicrobial resistance is a growing concern worldwide. Outbreaks of the chloramphenicol-resistant *S. typhi* strain in Asia and South America have led to increases in the typhoid case fatality rate. Antimicrobial resistance surveillance is therefore a significant activity for WHO. In the Western Pacific Region, there are 14 surveillance sites: Australia; China (two sites); Fiji; Hong Kong, China; Japan; Malaysia; New Zealand the Philippines; the Republic of Korea; Singapore; Tonga and Viet Nam. These sites report resistance to ampicillin, cefotaxime, chloramphenicol, co-trimoxazole and fluoroquinolone. In 1995, most of the surveillance sites reported about 10% resistance to chloramphenicol.

Vaccine development
During the 1960s, WHO was actively involved in a number of typhoid vaccine trials which aimed to assess the efficacy and safety of typhoid vaccines. Controlled field trials of typhoid and paratyphoid vaccines, covering nearly 2 million people, were carried out in Guyana, Poland, the Union of Soviet Socialist Republics, and Yugoslavia, as well as in Tonga in the Western Pacific Region. Eighteen laboratories in various countries collaborated in an evaluation of the potency of typhoid and paratyphoid vaccines. These studies indicated that one dose of a potent typhoid vaccine was enough to protect 70%–90% of the population in endemic areas for three or more years. It was also demonstrated that two doses of one type of paratyphoid B heat-killed vaccine protected more than 70% of those who had been vaccinated. The vaccines in those days demonstrated considerable reactogenicity and were effective for only a few years. To overcome this, two vaccines have recently been developed, Vi polysaccharide vaccine and oral live attenuated vaccine. Both vaccines demonstrated 66%–96% efficacy for five years in field trials. However, because they are relatively expensive, practical application of the vaccines is still limited to special groups, e.g. school-age children in high incidence areas and travellers over five years of age travelling to highly endemic zones.

ACHIEVEMENTS

Typhoid is virtually under control in many countries of the Region, including Australia, Brunei Darussalam, Japan, Malaysia, New Zealand, the Republic of Korea, Singapore and many Pacific island countries.

UNDERACHIEVEMENTS

Although typhoid fever research indicates that the disease is a serious public health concern in developing countries, the lack of laboratory diagnosis capability in the Region has inhibited the collection of precise incidence and prevalence data. There is a need to improve laboratory-based diagnosis in many countries and areas.

FUTURE

As the economies in many developing countries in the Western Pacific Region grow, the sanitary condition of currently typhoid-endemic countries will improve. Consequently the number of cases of typhoid fever can be expected to decrease. However, in order to expedite the elimination of typhoid fever, Member States and WHO will strengthen their capacity for typhoid fever surveillance by improving laboratory-based surveillance.

WHO support to countries to control typhoid will also focus on improvements to sanitation. Intersectoral collaboration, at both national and international levels, will be essential if the disease is to be controlled in endemic countries.
Chapter 31. Yaws (endemic treponematosis)

Yaws is a disease that primarily affects rural children. The infectious agent is a spirochete and the disease is transmitted by direct contact. Worldwide prevalence was dramatically decreased by mass penicillin treatment campaigns promoted by WHO in the 1950s and 1960s.

THEN AND NOW

In 1951, yaws was prevalent in the rural, warm, humid tropical areas in the Region, which were characterized by poor sanitation, poverty and inadequate health facilities. The feasibility of controlling yaws by mass treatment of penicillin was first brought to the attention of endemic countries at the First Symposium on Yaws Control held in Bangkok in 1952. Because of the successful implementation of mass campaigns, in many cases initiated by WHO, yaws has virtually disappeared from the Region.

WHO ACTIVITIES

At its second session in 1951, the WHO Regional Committee for the Western Pacific agreed that the eradication of epidemic, endemic and other diseases such as yaws should be stimulated in the Region. Consultants and the full-time Regional Adviser in Venereal Diseases and Treponematosis (VDT) visited endemic countries to give technical advice in assessing the extent of yaws, to conduct case-finding surveys, and to train local staff in clinical and laboratory diagnosis.

The first national yaws control project in the Region, with technical advice provided by WHO and supplies by UNICEF, was initiated in the Philippines in 1951. By 1961, projects had been established in the Lao People’s Democratic Republic (1953); Malaya (1954); Fiji, the Netherlands New Guinea and Western Samoa (1955); British Solomon Island Protectorate (BSIP) (1956); Gilbert and Ellice Islands (GEIC) (1957); New Hebrides (1958); Cambodia (1959); and Tonga (1962). Cook Islands and Papua New Guinea had their own programmes. An Interregional Treponematosis Advisory Team (TAT), consisting of a medical officer, a serologist and a nurse/administrative officer based in the South Pacific, provided technical backing. WHO consultants also visited Cook Islands, Portuguese Timor, Sabah and Sarawak. Australia operated a programme in Papua New Guinea, which at that time it administered as a United Nations Trust Territory.

The main approaches of the national yaws control projects were training of national personnel in clinical and laboratory diagnosis and modern treatment methods. National personnel were trained to conduct surveys and resurveys to assess yaws prevalence and incidence. Selective or mass treatment with penicillin aluminum monostereate was carried out. Every effort was made to integrate the yaws campaign with basic health services.

ACHIEVEMENTS

Figure 31.1 shows the decrease in yaws prevalence to 1965. In the initial surveys, low endemicities were observed in Cambodia, Cook Islands, GEIC, the Lao People’s Democratic Republic, the Philippines and Tonga, ranging from 2% to 2.4% active cases and from 0.03% to 0.45% infectious cases. High endemicities were observed in the BSIP, Fiji, Malaya, New Hebrides and Western Samoa, ranging from 11% to 28% active cases and 2.9% to 7.3% infectious cases.

Great stress was placed on the importance of surveys and resurveys. Resurveys carried out in the

Figure 31.1 Prevalence of yaws: initial surveys and resurveys, WHO/UNICEF Yaws Control Project

<table>
<thead>
<tr>
<th>Country/area</th>
<th>Initial surveys 1950s</th>
<th>Resurveys 1960s</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population examineda</td>
<td>Total active (%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1960s indicated that yaws was on the verge of being eliminated.

Successful integration of the yaws programme into other communicable disease and basic health service activities was an important element in the programme’s success in the Western Pacific Region, as elsewhere in the world. For example, treatment for the disease was often carried out at the same time as BCG and smallpox vaccinations and rural health care activities.

UNDERACHIEVEMENTS

When yaws has been treated as a special programme, personnel, logistics, funding and national support have generally been adequate. However, when the prevalence of yaws has dropped to a low level and the disease is no longer considered a public health problem, declining interest by national governments and lack of budgetary support has occurred in some countries. Carrying out resurveys to determine pockets of infection which may serve as future foci for re-emergence of the disease may not be possible. As a result, smouldering infection may spread, nullifying previous achievements. For this reason it is essential to integrate yaws control projects into basic health services, which should be able to contain the few cases that remain after selective or mass treatment.

FUTURE

In areas where yaws is still reported, efforts should be made to integrate yaws control activities with other communicable disease or basic health programmes. Research on why yaws persists in some areas, yaws serology, and improved regimens will continue to be supported.
Chapter 32. Emerging and re-emerging communicable diseases

By the 1970s, great progress had been made in the prevention and control of communicable diseases. Identification of many of the bacteria and viruses which cause major communicable diseases in humans had been followed by the discovery of antibiotics and development of vaccines. When WHO declared the eradication of smallpox on 9 December 1979, many could have been forgiven for believing that the control of communicable diseases was within our reach. The HIV pandemic in the late 1980s, followed by outbreaks of plague in India in 1994, and Ebola in Zaire in 1995, have led to a new realism with regard to the control of communicable diseases.

THEN AND NOW

Over the last two decades, more than 20 emerging communicable diseases have been identified (Figure 32.1). These emerging diseases include HIV/AIDS, Ebola haemorrhagic fever and the new variant of Creutzfeldt-Jakob disease (nvCJD). Some, such as HIV/AIDS and hepatitis C, have seriously affected large numbers of people worldwide. Others, such as Ebola, nvCJD and influenza A (H5N1) virus, posed significant threats although there were far fewer cases.

Meanwhile, well-known diseases once thought to have been conquered, such as tuberculosis, plague, cholera, dengue fever/dengue haemorrhagic fever, yellow fever and diphtheria are re-emerging as public health threats in many countries after a period of decline in incidence. The spread of antimicrobial resistance is another emerging global public health issue.

In the Western Pacific Region, a number of outbreaks of emerging and re-emerging diseases have been reported. For example, HIV/AIDS has been reported from most countries and areas and in some the number of cases is increasing rapidly. Outbreaks of emerging and re-emerging communicable diseases in the Region since 1995 are listed in Figure 32.2. Since 1995, the Region has experienced outbreaks of both emerging diseases, such as those caused by *Escherichia coli* O157 and H5N1 influenza, and re-emerging communicable diseases, such as cholera, dengue, meningococcal meningitis and diphtheria. The *E. coli* O157 outbreak in Japan in 1996 (9578 cases with 11 deaths) clearly demonstrated that even a developed country is not spared from the threat of emerging diseases.

Factors associated with the emergence and re-emergence of communicable diseases

Many factors contribute to the appearance of new diseases and the resurgence of well-known diseases. Rapid and frequent international travel and the globalization of the food trade have expedited the spread of communicable diseases. Urbanization without adequate health infrastructures in developing countries has also contributed to a steady increase in communicable diseases.

Table 32.1 Emerging communicable diseases in the world since 1973

<table>
<thead>
<tr>
<th>Year</th>
<th>Pathogen</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>Rotavirus</td>
<td>Major cause of infantile diarrhoea worldwide</td>
</tr>
<tr>
<td>1975</td>
<td>Parvovirus B19</td>
<td>Fifth disease; Aplastic crisis in chronic hemolytic anaemia</td>
</tr>
<tr>
<td>1976</td>
<td><em>Cryptosporidium parvum</em></td>
<td>Acute enterocolitis</td>
</tr>
<tr>
<td>1977</td>
<td>Ebola virus</td>
<td>Ebola haemorrhagic fever</td>
</tr>
<tr>
<td>1977</td>
<td><em>Legionella pneumophila</em></td>
<td>Legionnaires’ disease</td>
</tr>
<tr>
<td>1977</td>
<td>Hantaan virus</td>
<td>Haemorrhagic fever with renal syndrome (HFRS)</td>
</tr>
<tr>
<td>1977</td>
<td><em>Campylobacter spp.</em></td>
<td>Enteric pathogens (Diarrhoea)</td>
</tr>
<tr>
<td>1980</td>
<td>HTLV-1</td>
<td>Leukaemia (T-cell lymphoma)</td>
</tr>
<tr>
<td>1981</td>
<td><em>Staphylococcus</em> toxin</td>
<td>Toxic shock syndrome associated with tampon use</td>
</tr>
<tr>
<td>1982</td>
<td><em>E. coli</em> O157:H7</td>
<td>Haemorrhagic colitis; haemolytic uremic syndrome</td>
</tr>
<tr>
<td>1982</td>
<td>HTLV-II</td>
<td>Hairy cell leukaemia</td>
</tr>
<tr>
<td>1982</td>
<td><em>Borrelia burgdorferi</em></td>
<td>Lyme disease</td>
</tr>
</tbody>
</table>
The growing incidence of communicable diseases. Ecological changes caused by the destruction of tropical forests has increased exposure to disease vectors and reservoirs of unknown pathogenic microorganisms. Resistance to anti-bacterial drugs among bacteria such as *Mycobacterium tuberculosis*, *Neisseria gonorrhoea* and *Staphylococcus aureus* has been accelerated by poor prescribing habits and misuse of antimicrobial drugs.

**WHO ACTIVITIES**

Until 1995, WHO coped with public health problems posed by emerging and re-emerging diseases through each disease-specific programme. This was done by working with governments to prepare disease control plans, implement emergency preparedness activities, and mobilize and coordinate international collaboration.

In May 1995, the Forty-eighth World Health Assembly adopted a resolution which urged Member States and WHO to establish and ensure appropriate systems to combat emerging and re-emerging infectious diseases. The resolution requested WHO to improve disease surveillance of emerging and re-emerging communicable diseases through the strengthening of laboratory diagnosis; to accelerate information exchange on communicable diseases among Member States; to prepare for outbreaks of communicable diseases at global, regional and national levels; and to respond to outbreaks by coordinating urgent disease control activities.

A new Division of Emerging and Other Communicable Diseases Surveillance and Control (EMC) was

### Table 32.2 Selected outbreaks in the Western Pacific Region from 1995

<table>
<thead>
<tr>
<th>Year</th>
<th>Outbreak</th>
<th>Country/area</th>
<th>Cases and deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>HIV/AIDS</td>
<td>World</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>HHV-6</td>
<td>Japan</td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td><em>Ehrlichia chaffeensis</em></td>
<td>China</td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>Guanarito virus</td>
<td>Brazil</td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td><em>Vibrio cholerae</em> O139</td>
<td>South America</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>Hantavirus</td>
<td>Italy</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>Sabia virus</td>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>Prion</td>
<td>Australia</td>
<td></td>
</tr>
</tbody>
</table>

a As of 25 March 1998.
established at WHO Headquarters in Geneva in October 1995. In April 1996, the Regional Office for the Western Pacific established an Outbreak Response Task Force so as to be able to respond promptly to life-threatening communicable disease outbreaks within the Region, including those associated with natural disasters. The Task Force was charged with coordinating outbreak control, establishing a regional network for surveillance and information exchange, and coordinating the provision of supplies and equipment. In September 1996, the Forty-seventh session of Regional Committee declared the management and control of emerging and re-emerging communicable diseases to be the seventh regional priority.

WHO highlighted the importance of emerging communicable diseases in its 1996 World Health Report, *Fighting disease fostering development*. The theme for World Health Day 1997 was emerging infectious diseases: “Global alert, global response”. In the Western Pacific Region, the emerging disease control programme was strengthened in 1998 under the slogan “Protect yourself, protect others”.

In order to strengthen international collaboration for the prevention and control of communicable diseases, two WHO bi-regional meetings on communicable diseases were conducted by the Regional Offices of the Western Pacific and South-East Asia. One was held in India in 1996 and another in China in 1997. In Hong Kong, China; the southern provinces of China; and Macao, meetings on communicable diseases have been held every two years since 1988. In the Pacific islands, a Pacific Islands Meeting on Public Health Surveillance was conducted in Noumea, New Caledonia, in 1996 in collaboration with the Pacific Community (formerly the South Pacific Commission) and UNICEF. The major outcome of the meeting was the establishment of the Pacific Health Surveillance Network (PACNET), an Internet-based information network.

**ACHIEVEMENTS**

**Establishment of regional stockpiles**

In accordance with the plan of action of the regional Outbreak Response Task Force, in 1996 regional stockpiles of items such as insecticides and cholera kits were stockpiled in three strategic countries: Cambodia, Fiji and the Philippines. These stockpiles have been effectively mobilized during outbreaks of dengue haemorrhagic fever and cholera in Cook Islands, Fiji, the Lao People’s Democratic Republic, Mongolia and the Philippines.

**Development of surveillance on antimicrobial resistance**

At the global level, surveillance of antimicrobial resistance is being strengthened through training courses and the distribution of WHONET, a surveillance-supporting computer programme. In the Western Pacific Region, there are three regional antimicrobial surveillance systems - one for general bacterial diseases (Network on Antimicrobial Resistance) and the others for gonococcal infections (Gonococcal Antimicrobial Surveillance Programme) and tuberculosis (Drug-Resistance Surveillance on Tuberculosis). Each surveillance system covers the whole Region to detect antimicrobial resistance.

Laboratory-based surveillance of various communicable diseases has been strengthened in many Member States through technology transfer, training of national staff, workshops conducted by WHO and distribution of the WHO Communicable Disease Surveillance Kit.

**Revision of the International Health Regulations**

The International Health Regulations (IHR) were adopted by the Twenty-second World Health Assembly in 1969 and revised in 1973. They are designed to ensure maximum security against the international spread of diseases with minimum interference to travel and trade. The current regulations cover only three diseases: cholera, yellow fever and plague. In order to ensure an effective international response for all outbreaks of international importance, WHO is now in the process of revising the IHR to apply a syndromic approach to disease reporting. This will enable outbreaks of as yet unidentified disease syndromes to be reported globally at an earlier stage, and appropriate international measures to be taken. The draft of the new IHR was completed in January 1998 and field trials are currently underway in selected Member States in the Region: Japan, the Philippines, Singapore and Viet Nam. When the draft text is revised, the new IHR will be submitted to the World Health Assembly in 2000.

**Outbreak response**

WHO has collaborated with various Member States in the prevention and control of outbreaks. In the Region, the Regional Office has rapidly dispatched experts to the epidemic sites (see Figure 32.2). Logistical support has also been provided. Following the discovery of human cases of influenza A (H5N1),
the Regional Office sent a WHO team to southern China to assess the influenza situation. To help to ensure the dispatch of experts in a timely manner, the Government of Japan has agreed to develop a national register of experts in 1998.

**Dissemination of information**

One of the important roles of WHO during outbreaks is to disseminate accurate and timely information to the Member States and the public through various media. In addition to routine WHO publications and electronic information sources, such as the WHO Weekly Epidemiological Record (WER) and global and regional press releases, dissemination of information is facilitated through the Communicable Disease Bulletin published by the Regional Office, PACNET, and the list of outbreaks of communicable diseases issued by EMC at WHO Headquarters.

**UNDERACHIEVEMENTS**

Speed of notification is essential if outbreaks of emerging and re-emerging diseases are to be combated effectively. In the past, shortcomings in some countries’ surveillance systems have resulted in delays in notifying WHO and other countries of disease outbreaks. The revised International Health Regulations, which are scheduled to be completed in 2000, will help to address this issue.

**FUTURE**

Preparedness for emergency situations must continue to improve at both regional and national levels. The regional stockpiles will be periodically monitored and updated.

Regional information networks on communicable diseases that link WHO collaborating centres, international agencies, and institutions will be established using an electronic-mail system. These networks will be linked to the global communicable diseases information system coordinated by WHO Headquarters.

Antimicrobial resistance surveillance in the Region will be strengthened by increasing the number of monitoring laboratories in different locations. The regional antimicrobial resistance system for general bacterial diseases (Network on Anti-microbial Resistance) will be integrated into the global surveillance on antimicrobial resistance.
Chapter 33. Cancer

Cancer is widely recognized as one of the most formidable human afflictions. It exists in more than 100 forms and has many causes, from genetic factors to infections. Probably more than any other single disease, cancer provokes fearful images of pain, disfigurement and inevitable death.

THEN AND NOW

In 1948, cancer was not regarded as common disease in developing countries of the Western Pacific Region. Inaccuracy of medical diagnosis and lack of cancer registries meant that epidemiological data were not available in many developing countries of the Region. By the late 1990s, however, cancer had become a major public health issue throughout the Region. It is now one of the five leading causes of death in 26 countries and areas of the Region. It is estimated that, among the approximately 1.6 billion people in the Region, some 3.5 million cancer cases occur each year. Of these, approximately 2 million cancer patients are male and 1.5 million are female.

The mortality rates for cancer exceed 100 per 100 000 population in Australia, China, Japan, New Zealand, the Republic of Korea and Singapore. In China alone, deaths from cancer amount to 1.3 million each year.

The number of deaths from cancer among males in Australia, Japan, New Zealand and Singapore increased from 1950 to 1989 (Figure 33.1). With the exception of Japan, these countries also saw an increase in female cancer mortality (Figure 33.2).

A great proportion of the increase in cancer mortality in these countries is due to a rise in the prevalence of lung cancer (Figures 33.3 and 33.4). This is attributed to the increasing prevalence of cigarette smoking among both sexes.

Population-based cancer registration is carried out in 15 countries and areas in the Region. From the incidence data these countries provide, the International Agency for Research on Cancer (IARC) has made comparative estimates for 1990 (Figures 33.5 and 33.6). There are only small differences between rates for children (0–14 years of age) in the 11 countries, as the risk of developing childhood cancer is less affected by lifestyle and environmental factors than the risk for adult cancer. Among adults, age-specific rates progressively and dramatically increase with increasing age. There is, however, a wide variation between countries in age-standardized rates for adults. This can be attributed to differences in the prevalence of unhealthy lifestyles and environments, notably tobacco smoking and chewing, unhealthy diets, Hepatitis B infection, and human papilloma virus transmission.

Among males, the highest rates of cancer were in Australia, China, Hong Kong, Japan and New Zealand, all of which exceeded 250 per 100 000 males. The most numerous cancer sites were those in the stomach, lungs, liver, oesophagus (mainly in China), colon/rectum, mouth/pharynx, and prostate (mainly in Australia and New Zealand).

The age-specific incidence rates (ASR) among females were lower than those of males, with only New Zealand having an ASR of more than 250 per 100 000. This was followed by Australia, China and Hong Kong where rates were more than 200 per 100 000, and by Singapore and Viet Nam where the rates were approaching 200 per 100 000 females. The most numerous cancer sites for women were the breast, cervix, stomach, lung, liver, oesophagus (mainly in China), colon/rectum, and mouth/pharynx.

Figure 33.1 Trends in mortality of cancer in males in selected countries (deaths per 100 000 population)
Figure 33.2 Trends in mortality of cancer in females in selected countries (deaths per 100,000 population)

Figure 33.3 Trends in mortality of lung cancer in males in selected countries (deaths per 100,000 population)

Figure 33.4 Trends in mortality of lung cancer in females in selected countries (deaths per 100,000 population)
WHO ACTIVITIES

Cancer research and development of clinical diagnostic and treatment technologies has mainly been carried out by pharmaceutical companies, various medical institutions, universities and health agencies. WHO’s role has been to encourage and to some degree coordinate these activities. In prevention and control of cancer, WHO acted as a catalyst in the development of preventive strategies, the establishment of national cancer control programmes, the promotion of cancer pain relief and cancer registry, and training of health workers.

Cancer control and research activities in the first 20 years

Cancer research was conducted on an impressive scale during WHO’s first 20 years. International work on cancer concentrated on coordination of local statistical studies and provision of fellowships for advanced studies abroad. In 1951, a WHO Subcommittee on the Registration of Cases of Cancer discussed the statistical classification of neoplasms. A modified classification for malignant neoplasms was included in the Seventh Revision of the International Statistical Classification of Diseases, Injuries
and Causes of Death. Around the same time, cancer registries were introduced in countries where medical and statistical services were sufficiently developed.

In 1955, a WHO group of experts advised that countries should adopt and apply uniform definitions, nomenclatures and diagnostic criteria for cancer. The group also recommended that selected national laboratories should be established as international reference centres for defining pathological conditions and types of cancerous tissues. At its seventeenth session in 1956, the Executive Board endorsed the group’s suggestion.

In 1957, following a resolution adopted by the Tenth World Health Assembly, a histopathological nomenclature and classification manual was published by WHO. The international reference centres, established by WHO, contributed greatly to the definition and classification of cancers. In the Western Pacific Region there is a reference centre for skin tumours in Perth, Australia.

In accordance with recommendations made by a WHO scientific group in 1959, WHO activities on cancer began to focus on epidemiological and pathological studies, and activities designed to promote prevention and treatment. Many epidemiological studies were carried out on the factors associated with the development of neoplasms, particularly lung and breast cancers and lymphomas. A programme on histopathological nomenclature and classification of cancers was developed.

In the period from 1961 to 1965, many recommendations on cancer control activities were made by WHO expert committees involved in chemotherapy of cancer, early detection and therapy of precancerous conditions, cancer treatment and development of national cancer control programmes. In 1965, the International Agency for Research on Cancer (IARC) was established, as a specialized body of WHO. The Agency concentrates on environmental biology (carcinogenesis) and cancer epidemiology (etiological aspects), while WHO activities has increased its activities in the areas of cancer control, clinical research and training and education.

**Cancer registries and epidemiological reviews**

Accurate epidemiological data on cancer are critical to assess the disease burden and develop appropriate policies and control programme. At its sixty-first session in 1978, the Executive Board adopted a resolution recommending a regular review of cancer

within each of the WHO regions. A review of cancer in the Western Pacific Region, prepared for the thirtieth session of the Regional Committee in 1979, noted that cancer mortality and incidence data were not available in many developing countries and only admissions to large city hospitals were recorded. The Regional Committee therefore adopted a resolution to direct cancer control activities towards promoting national cancer information systems, particularly the development of population-based and hospital-based cancer registries to facilitate the assessment of the nature and magnitude of the cancer problem. Since 1979, population-based or hospital-based cancer registries were established in Australia, some cities of
China, Fiji, Malaysia, New Zealand, the Philippines, the Republic of Korea, and Singapore. However, registries in Fiji and Papua New Guinea were limited mainly to histologically confirmed cases.

In order to undertake proper data collection and analysis to compare cancer information, WHO has emphasized the use of standardized methods, including standard nomenclature and classifications. To assist in this process of standardization, a guide, *Cancer registries: principles and methods*, and standardized computer software have been developed by IARC.

International courses on cancer epidemiology, organized jointly by IARC and the Regional Office, were held in Australia in 1978 and in China in 1979. The aim of the courses was to improve the knowledge and skills of cancer control professionals and to strengthen cancer registries in countries of the Region.

A regional seminar on cancer epidemiology and control, held in 1985, reviewed the role of cancer registries in cancer control. Owing to the lack of facilities, manpower and financial resources for cancer registries in some countries, it was suggested that occasional surveys could be a possible alternative approach.

In 1996, a regional working group on cancer prevention and control recommended that all countries and areas, except the smallest countries, should have at least one cancer registry capable of monitoring cancer incidence and survival rate. The working group also provided a set of recommendations on strengthening cancer registries.

**Development of national cancer control programmes**

Medical knowledge is now at a level to allow the prevention of at least one third of all cancers, cure a further one third if there is early diagnosis, and adequately control the symptoms of the remaining third. A major objective of the WHO cancer control programme is to translate this knowledge into practice by developing systematic national cancer control programmes. In 1979, a WHO regional working group reviewed and endorsed the regional medium-term programme for cancer control. Technical Guidelines for cancer control were further developed during a regional seminar on cancer epidemiology and control, held in Singapore in October 1985. During the past two decades, WHO has supported numerous training courses and provided technical and financial support in formulating national policies and setting national goals and priorities in developing national cancer control programmes. A volume on *National cancer control programmes: policies and managerial guidelines* was published in September 1993, following a meeting of the WHO International Working Group on National Cancer Control Programmes.

**Development and implementation of comprehensive cancer control strategies**

WHO has played a major role in the development of cancer control strategies based on scientific evidence, and has provided technical support to countries to implement those strategies. In 1975, a WHC regional working group identified four essential elements for cancer control strategies: prevention; detection; diagnosis and treatment; and rehabilitation. Further meetings have concluded that cancer control activities should be directed towards primary prevention, early detection, effective treatment and palliative care, particularly pain relief, which were set as the priorities for the programme in the Region.

Primary preventive measures have specifically targeted tobacco control and hepatitis B vaccination. Other preventive measures have included promotion of safe blood transfusion, safe sexual practices to prevent hepatitis B and C infection; and the adoption of healthy diets, including reduction of alcohol intake. The strategy also includes reduction of alcohol intake; reduction of occupational and environmental exposure to carcinogens; and avoidance of prolonged exposure to the sunlight.

In recent years, WHO strategies on early detection and screening of cancer, particularly for cervical and breast cancer have been introduced and implemented in many countries. Early detection of cancer has been promoted through health education and training. Currently, WHO has encouraged the only mass screening for cervical cancer by Pap smear and breast cancer by mammography. However, expensive screening programmes for breast cancer by mammography are not appropriate for developing countries. In addition, population-based screening programmes are useful only where investigative, diagnostic and treatment services able to cope with detected cancers are available. Therefore mass screening may not be immediately feasible in many developing countries. The WHO Collaborating Centre for Primary Prevention, Diagnosis and Treatment of Gastric Cancer, National Cancer Centre, Tokyo, Japan, has carried out extensive research on early detection and screening of gastric cancer and has provided strong technical support to the successful development of a national programme for screening of gastric cancer by endoscopy in Japan.

For effective treatment WHO has emphasized the proper development of treatment facilities and services.
including radiotherapy. The importance of prioritizing cancer treatment in favour of cost-effective interventions for which a high probability of cure has been demonstrated has also been stressed.

Cancer pain relief is the only humane and pragmatic option for patients with incurable cancer, and has a great impact on the quality of life of the patients and their families. In 1982, a WHO working group in Milan, Italy, prepared draft guidelines on cancer pain relief. A further meeting in 1984, led to a manual on *Cancer pain relief*, which was published in 1986. In 1989, report of a WHO expert committee, *Cancer pain relief and palliative care*, recommended that the concept of palliative care should be expanded to include all aspects of suffering of cancer patients at all disease stages. The most recent WHO publication on cancer pain relief is *Cancer pain relief: with a guide to opioid availability*, which was published in 1996.

In the Western Pacific Region, implementation of cancer pain relief started in 1986 and has become an important and active component of cancer control programmes in many countries and areas of the Region. Two regional workshops have been organized with the support of the WHO Collaborating Centre for Cancer Pain Relief and Quality of Life, based at Saitama, Japan in 1990 and 1998. WHO cancer pain relief methods have been introduced and emphasis has been placed on developing palliative care by strengthening the education and training of health professionals. Cancer pain relief is now a suggested part of the curriculum for medical doctors, nurses and other health workers.

In 1996, a regional working group recommended that important measures should be taken to ensure the supply of necessary drugs for cancer pain relief in the Region, including amendment of narcotic regulations and legislation, and improvements in the supply, distribution and ways of prescribing opioids.

**Cancer research**

Cancer research has stressed the importance of epidemiological studies on the etiology of certain cancers to determine preventive measures and operational research on control methods. Important research subjects supported by WHO have included the etiology of liver cancer; determining the most appropriate treatment methods under local conditions in developing countries, particularly with respect to radiotherapy surgical therapy and chemotherapy; research on new chemotherapeutic agents, especially from natural substances such as medicinal plants; development of mechanisms for collection of epidemiological data on cancer; and a survey on the physicians’ and nurses’ attitudes to and knowledge of cancer pain relief.

In 1981, a regional symposium on nasopharyngeal carcinoma (NPC) in Guangzhou, China, reviewed the epidemiology of NPC. The symposium recommended strategies for research and control of NPC which emphasized conducting controlled case studies in high-risk and low-risk areas; cohort studies with a five-year follow-up; and laboratory investigation on environmental carcinogens. The Cancer Institute, Sun Yat Sen University of Medical Sciences, Guangzhou, China, which has been a WHO collaborating centre for research on cancer since 1980, has carried out research on NPC.

IARC and the Regional Office have collaborated extensively in cancer epidemiology, particularly the epidemiology of liver cancer, oesophageal cancer and, in some countries of the Region, oral cancer. Since 1995, an IARC randomized controlled trial to determine whether physical and self-examination can reduce mortality from breast cancer by 20%–30% over a period of five to ten years, and thereby reduce the incidence of advanced breast cancer, has been undertaken in Manila, the Philippines, in collaboration with the Regional Office. Currently, the trial has approached to the stage of follow-up of screened cases through cancer registries.

WHO collaborating centre in the field of cancer control and research have undertaken numerous studies on cancer epidemiology and prevention, technology transfer, development of technology for treatment and diagnosis of cancer, and training. One example is the WHO Collaborating Centre for Histological Classification of Upper Respiratory Tract Tumour, National University of Singapore, which has contributed to the development and implementation of the WHO histological classification of upper respiratory tract tumours in clinical, epidemiological and pathological studies.

**ACHIEVEMENTS**

WHO cancer control strategies have been widely accepted and have helped to guide the development of cancer control programmes in many countries and areas of the Region. In primary prevention of cancer, tobacco control has been recognized by governments as the most effective means of preventing cancer. Anti-tobacco activities have taken place in most countries and areas in the fields of legislation, administration and education. Reductions in tobacco use will eventually lead to decreases in tobacco-related cancer, particularly lung cancer and oral cancer. Hepatitis B vaccination has been integrated into the Expanded Programme on Immunization in 34 countries and areas of the Region. It is anticipated that increased Hepatitis B vaccinations will prevent many cases of liver cancer.
The importance of early detection and screening of cancer is being increasingly recognized. Precancerous warning and early signs of cancer are now better recognized and understood by health workers and the general public as a result of health education. Pap smear screening programmes for cervical cancer are well developed in Australia; China; Hong Kong, China; Japan; Malaysia; New Zealand; the Republic of Korea and Singapore and are available to some degree in other developing countries of the Region. Mammography screening programmes for breast cancer have been developed in some developed countries of the Region.

WHO has played a significant role in training of health workers in diagnosis and treatment of cancer. Facilities for cancer curative services and the availability and accessibility of various therapies and combinations of therapies have greatly improved in many countries and areas of the Region.

Cancer pain relief was initiated by WHO in the 1980s and since then has been vigorously promoted and supported by the organization in most countries and areas of the Region. Currently, cancer pain relief services are well developed in Australia, Japan and New Zealand and are available with various degrees of coverage and effectiveness in most developing countries of the Region.

With WHO’s support and guidance, national cancer control programmes have been initiated and developed in 11 countries and areas of the Region. These programmes have promoted multisectoral and multidisciplinary collaboration and cancer control has been incorporated into health and public policies throughout the Region.

There are now population-based cancer registries which are members of the International Association of Cancer Registries in 15 countries and areas of the Region. Cancer epidemiological information systems, comprising cancer registries, government statistical reporting, and periodic surveys have been established and are functioning in many countries and areas of the Region.

UNDERACHIEVEMENTS

Although there has been significant progress in cancer prevention and control in many countries and areas in the Region, not all have yet developed national cancer control policies and programmes which emphasize primary prevention and promotion of healthy lifestyles. In addition, WHO cancer control strategies have not been translated into practice in all countries and areas.

Conditions in many developing countries and areas mean that it is not always feasible to develop extensive Pap smear cervical screening programmes or breast cancer screening programmes using mammography combined with physical and self-examination. Similarly, cancer pain relief and palliative care programmes with substantial coverage and satisfactory pain relief are generally available only in the developed countries of the Region.

FUTURE

A future priority for cancer prevention and control will be the continued development and strengthening of national cancer control programmes, focusing on integrated approaches and multisectoral collaboration. For small countries and areas in the Region, it may be more appropriate to develop integrated programmes for noncommunicable diseases, including cancer, as part of the national health plan.

It is important that WHO cancer control strategies should be further employed in countries and areas where they have not yet been accepted. This particularly applies to the integration of cancer control into primary health care. Prevention and control of cervical and breast cancer, including the development of screening programmes, should be integrated into maternal health care and human reproductive health programmes.

The strengthening of palliative care and pain relief programmes in the Western Pacific Region is another area for the future. In particular the education and training of health professionals should be improved, palliative care expertise should be strengthened in developing countries, appropriate adjustments should be made to drug regulations and administration, and availability of pain relief drugs should be improved.
Chapter 34. Cardiovascular diseases

Cardiovascular diseases (CVD) include ischaemic heart diseases, hypertension, stroke and rheumatic heart diseases. The etiology and pathophysiology of these diseases are complex, but it is known that major risk factors include unhealthy lifestyles and behaviours and a complex interaction between environmental and genetic factors. Ageing populations and rapidly changing lifestyles (in particular, tobacco smoking, unhealthy diets, and lack of exercise) mean that cardiovascular diseases are increasing in almost all developing countries of the Region. However, the mortality of cardiovascular diseases is decreasing in developed countries as a result of long-term promotion of healthy lifestyles and community prevention measures.

THEN AND NOW

In 1948, CVD were already an important health issue in developed countries of the Region. However, compared with communicable diseases and malnutrition, they did not pose a major problem in developing countries.

Fifty years later, the picture has changed dramatically. CVD are now one of the leading causes of death in 32 of the Region’s 37 countries and areas. No fewer than 3 million deaths per year in the Region are due to these diseases. Although the mortality of CVD in Australia, Japan, New Zealand and Singapore has been decreasing due to long-term health promotion and community prevention measures, mortality due to CVD in many developing countries is increasing, and is now even higher than in some developed countries in the Region (Figure 34.1). Trends in age standardized mortality of cardiovascular diseases in males and females are shown in Figures 34.2 and 34.3.

Hypertension contributes to increased incidence of stroke, coronary heart disease and heart failure, so it is significant that the prevalence of hypertension now exceeds 10% in 19 countries and areas of the Region. Morbidity and mortality due to coronary heart disease are now rising in many developing countries of the Region.

Stroke is responsible for considerable death and disability in the Region. In China, it has been estimated that there are 1.6 million new cases each year and 1 million deaths. Rheumatic fever and rheumatic heart diseases (RF/RHDs) are still major health issues in some parts of China, the Lao People’s Democratic Republic, Mongolia, the Philippines, Tonga and Viet Nam.

WHO ACTIVITIES

The first twenty years of WHO: cardiovascular research

At the global level, a number of important meetings were held in the 1950s to establish how the new United Nations agencies could best combine in a campaign against CVD. WHO work was concentrated on research on the etiology and pathology of cardiovascular diseases. A meeting of a joint FAO/WHO expert committee in 1954 examined the relationship between diet and health, with particular reference to more developed countries and segments of the population in many other countries. The committee stressed the link between habitual diet and the development of degenerative heart diseases. In 1955, a WHO study group reviewed the etiology of atherosclerosis and

Figure 34.1 Age-standardized sex-specific mortality of all cardiovascular diseases for selected countries (ICD 25-30) per 100,000 population

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>1994</td>
<td>263.4</td>
<td>273.8</td>
</tr>
<tr>
<td>China - rural</td>
<td>1994</td>
<td>228.5</td>
<td>163.8</td>
</tr>
<tr>
<td>China - urban</td>
<td>1994</td>
<td>258.3</td>
<td>191.0</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>1995</td>
<td>329.5</td>
<td>377.1</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>1994</td>
<td>123.8</td>
<td>86.7</td>
</tr>
</tbody>
</table>
ischaemic heart disease and recommended research directions which might help to establish a clearer picture of the factors responsible for cardiovascular diseases.

Since so much of the etiology and pathology of CVD was still imperfectly understood, in 1955 another WHO study group recommended that priority be given to research into the complex nature of these diseases and that clinical and pathological criteria and terminology be standardized. In 1957 the Study Group on Classification of Atherosclerotic Lesions produced standard definitions and classifications. These standard definitions and classifications made an important contribution to the advancement of pathological diagnosis and clinical research.

Because research was being carried out by various institutions in different parts of the world, two scientific groups convened by WHO in 1959 and 1961 recommended internationally coordinated research on CVD. This call was echoed by a resolution of the Nineteenth World Health Assembly in 1966. WHO support for research has included epidemiological, pathological and clinical research.

Epidemiological assessment of cardiovascular diseases

Epidemiological assessment of CVD has always been one of the priorities of the WHO programme. WHO’s work has contributed to analysis of the disease burden and the provision of the baseline data. Such data are essential for developing national policies and programmes and establishing priorities.

At country level, epidemiological surveys, studies and data collection and analysis in different countries have been supported by WHO. The WHO CVD programme has placed special emphasis on epidemiological skills and methodology. These skills have been developed through training, fellowships and consultant support.

Epidemiological monitoring and data collection systems have been established in most countries of the Region. Availability of baseline data on mortality of CVD, the prevalence of hypertension, mortality of stroke and risk factor prevalence has greatly improved over the last 50 years.

At the regional level, epidemiological assessment has been an important part of the agenda of all regional workshops, seminars and working groups since 1975. Assessment of epidemiological trends has revealed that cardiovascular diseases have been steadily increasing and have become a leading cause of death in most countries of the Region. These trends will continue due to increasing levels of hypertension, smoking, obesity and physical inactivity. Such assessments provide scientific evidence to support the need for intensified prevention and control of CVD.

The regional working group on integrated prevention and control of CVD and diabetes held in 1997 pointed out that baseline disease and risk factor data are essential. It recommended that development of simplified and appropriate monitoring systems for disease trends and food patterns and other risk factors in countries with limited resources should be supported.

Meanwhile, a recent initiative, a regional epidemiological profile on CVD and diabetes is almost complete. It has been developed in collaboration with the WHO collaborating centre for population-based CVD prevention programme in Tasmania, Australia.

Regional and country programmes on prevention and control of CVD have complemented global initiatives closely. A global programme, the Monitoring of Cardiovascular Diseases (MONICA) project was established in 1984 by WHO in 38 population centres in 27 countries. The project has measured trends in mortality and morbidity from coronary heart disease and cerebrovascular diseases and assessed the extent to which they were related to changes in known risk factors. It has also established a set of criteria to enable data on CVD risk factors to be collected in a standardized way. There are four MONICA centres in the Region, two in Australia, and one each in China and New Zealand.

Development of preventive strategies and community-based programmes
Since the 1970s, accumulated scientific evidence from epidemiological studies and research on preventive medicine has shown that cardiovascular diseases are associated with unhealthy lifestyles and human behaviours. It has also been demonstrated that community-based interventions to modify unhealthy lifestyles and behaviours provide one way of preventing and controlling cardiovascular diseases. Therefore, the regional programme on prevention and control of CVD has concentrated on development of community-based prevention and control and on research and training, mainly for hypertension, stroke and ischaemic heart diseases.

In 1975, a regional seminar concluded that priority should be given to defining the extent of hypertension in the Region and the pattern and distribution of ischaemic heart diseases and their risk factors. In line with primary health care, the seminar stressed the need to develop community-based CVD control, establish a national steering committee and train health workers in community-based prevention and control strategies. With WHO support, community-based programmes on prevention and control of CVD were initiated or strengthened in many countries of the Region.

During the 1980s, the epidemiological transition meant that there was a change in the disease profile of many developing countries, from communicable to noncommunicable diseases (NCD). In response to increasing trends in CVD, the Regional Committee at its thirty-fourth session in 1983 and two years later at its thirty-sixth session, emphasized the importance of prevention and control of CVD.

Since these meetings, assessment of the disease burden and development of community-based programmes have been major thrusts of the prevention and control of CVD in the Region. Interventions have been substantially expanded to include not only the diseases themselves but also risk factors such as smoking; unhealthy diets, in particular excessive salt intake; and lack of physical exercise. Recently health promotion in many countries of the Region has concentrated on promoting supportive political and social environments in order to modify these risk factors.

In 1989, the Regional Office convened a regional workshop on the epidemiology and control of CVD and diabetes. A major conclusion of the workshop was that strategies on prevention and control of CVD aimed at the entire population should be emphasized. It was argued that this was likely to lead to a greater reduction in disease incidence and to be more cost-effective than strategies that focused only on high-risk groups. The workshop also recommended that primary and secondary prevention of CVD should be applied in combination because a major impact on community patterns of cardiovascular diseases could be achieved by efficient secondary prevention activities. Guidelines on developing a control programme were prepared, including examples for a diabetes control programme and a community hypertension control programme.

It has long been recognized that changes to lifestyles contribute significantly to increases in NCD, including CVD. For example, tobacco smoking causes lung cancer, oral cancer and ischaemic heart disease; unhealthy diets cause cardiovascular diseases, diabetes and some cancers. Obesity and physical inactivity increase the risk of hypertension and diabetes. As the economies and societies of many countries in the Region have changed out of all recognition in the 1980s and 1990s, the issue of "lifestyle-related diseases" has become a priority. In 1991, the Regional Committee at its forty-second session organized a technical discussion on "Changing lifestyles and health". The meeting pointed out that there were already more deaths from lifestyle diseases in the developing world than in developed countries and that there would be nearly twice as many by the early 21st century. Major efforts are required, first to contain adverse trends, and then to encourage favourable ones through health promotion. Since 1991, lifestyle-related diseases have drawn more attention from the general public and governments in the Region. Promotion of healthy lifestyles has become a major theme of the WHO CVD programme and health campaigns and health education in most countries of the Region.

In the area of training, regional courses on epidemiology and control of CVD at the community level have been held in many countries since 1978. In the past 20 years, WHO fellowships and technical training have been frequently used to enhance community-based programmes in the Region.

Development of integrated approaches for prevention and control of cardiovascular diseases

The Thirty-eighth World Health Assembly adopted a resolution emphasizing the integrated control of several chronic NCD, notably cardiovascular diseases, cancer and diabetes. Because CVD and diabetes have some risk factors in common, an integrated prevention and control programme was recognized as the most effective way of combating both groups of diseases.

An integrated approach for prevention and control of CVD is especially appropriate for small countries where separate disease control programmes are not feasible or cost-effective in terms of finance and
human resources. In 1982, a workshop attended by the Australian Development Assistance Bureau (ADAB, now the Australian Agency for International Development, AusAID), the South Pacific Commission (SPC, now the Pacific Community) and WHO held in Noumea, New Caledonia agreed to intensify prevention and control of CVD and diabetes in Pacific countries through integrated primary prevention and community-wide initiatives. In 1983, a joint WHO/SPC mission supported by ADAB visited Cook Islands, Fiji and Kiribati. The mission assessed the epidemiology of CVD, recommended integrated strategies and proposed programme priorities. Special attention was given to modifying unhealthy lifestyles through health promotion. In 1985, a further WHO/SPC survey on CVD and diabetes was conducted in Vanuatu. Since then, integrated programmes have been established in Fiji and other Pacific island countries.

In 1986, a global WHO Integrated programme for community health in noncommunicable diseases ("Interhealth") was launched. The project demonstrated how an integrated programme can be implemented in populations at every stage of the demographic and epidemiological transition. At the core of the programme are interventions aimed at reducing major risk factors in the community through integrated community-oriented activities for health promotion and health maintenance. A project in Tianjin, China, is an Interhealth project which, with strong support from the Regional Office, has been able to demonstrate that levels of smoking and salt intake have been reduced since the project began and that blood pressure levels and deaths due to stroke have consequently been reduced.

Implementation of the integrated approach in China began in large cities such as Beijing, Shanghai and Tianjin and has been extended into other large and medium-sized cities. Nutrition interventions and promotion of a healthy diet have been used as entry points for the integrated approach in Malaysia. National programmes on integrated prevention and control of NCD with an emphasis on diabetes control and prevention of CVD have been developed in the Federated States of Micronesia, Fiji, French Polynesia, and Singapore. A characteristic of the integrated programme is the strengthening of the promotion of healthy lifestyles through multisectoral and multidisciplinary collaboration, particularly focusing on development of appropriate policies and supportive environments.

Since integrated programmes have not been widely developed in most countries of the Region, in 1996 a regional working group recommended that integrated prevention and control of CVD and diabetes should be given high priority at both regional and country levels. A regional plan for integrated prevention and control of CVD and diabetes was developed.

In 1998, the Executive Board adopted an important resolution on what it described as "the rising trend and bleak forecast" for developing countries experiencing both communicable and noncommunicable diseases. The resolution urged that a global strategy for integrated prevention of NCD be developed in line with the renewed health-for-all policy for the 21st century. It also recommended that collaboration with governments, nongovernmental organizations and the private sector be strengthened.

Prevention and control of rheumatic fever and rheumatic heart disease

In the early years of WHO, activities in the area of CVD also concentrated on research on etiology, standardization of clinical and pathological criteria and prevention of rheumatic fever and rheumatic heart disease (RF/RHD). Special attention was given to efficient prophylaxis for RF/RHDs. Penicillin is effective for treatment of acute haemolytic streptococcal infection which may cause RF/RHD.

Adequate treatment of acute haemolytic streptococcal infection by penicillin was widely recommended for prevention of RF/RHD. In 1966, the WHO expert committee recommended the establishment of pilot centres to carry out preventive programmes against RF and a network of WHO reference laboratories for bacteriological and serological diagnosis of group A streptococcal infections.

In the Region, two regional seminars held in 1968 and 1979 conducted a systematic review of the etiology and pathogenesis of RF/RHD and the epidemiology of streptococcal infection. The primary and secondary prevention of these disorders were further emphasized.

Since then, improved accessibility to primary health care for children suffering from sore throats and training of health workers to recognize symptoms of RF/RHDs have become important planks in the regional strategy. The school-based programme was developed to educate schoolchildren and their parents, to train school teachers and to provide a mechanism so children with suspected streptococcal infections could be referred to hospitals for further diagnosis and treatment.

In order to strengthen regional actions in association with the WHO global programme for intensifying prevention and control of RF/RHDs, a regional meeting of national programme managers for the prevention of RF/RHDs was held in 1985. The programme was supported by the Arab Gulf Programme
for United Nations Development Organization. China, the Philippines and Tonga participated in the programme. After that, case finding, registration, and surveillance of suspected cases were strengthened. In the late 1980s, WHO further stressed the importance of an adequate supply of benzyl penicillin or appropriate substitutes for secondary prevention.

With WHO support, secondary prevention from RF/RHDs in schoolchildren has been extended in China, the Philippines, Tonga and Viet Nam. Laboratory diagnosis of streptococcal infection has been improved in all these countries. Currently, incidence and prevalence of RF/RHD are declining in China, the Philippines and Tonga.

ACHIEVEMENTS

Surveillance systems for CVD have gradually been established in many countries and areas. Data collection and analysis in the Region have been standardized with WHO support and the application of WHO technical guidance, particularly MONICA methods. Available baseline epidemiological data, including incidence, prevalence and mortality data, have been improved, which has enabled a clearer assessment of the disease burden.

WHO support for etiological research and community prevention projects (both globally and regionally) has made a significant contribution to understanding the etiology and pathogenesis of CVD. It has also identified associations between risk factors and diseases. This has enabled WHO to develop a set of evidence-based strategies for prevention and control of CVD.

National policies and programmes on integrated prevention and control of CVD have been initiated and implemented in 11 countries and areas of the Region. National coordinating bodies or focal points in governments for prevention and control of CVD or NCD have been appointed.

WHO has supported the training of human resources for prevention and control of CVD. There are now many well-trained epidemiologists, public health professionals, health educators, medical doctors with public health skills and primary health workers in the Region who have benefited from WHO’s support for training. Nine WHO collaborating centres in the field of CVD have been established in the Region and now form a regional network on prevention and control of CVD. Information exchange at regional, national and institutional levels now takes place on a regular basis.

UNDERACHIEVEMENTS

At the regional level, CVD incidence, prevalence and mortality continue to increase, despite continuous efforts by WHO and Member States. In large part, this is due to the rise in major risk factors such as smoking, high-fat diets and lack of physical exercise.

Despite continuous emphasis on primary prevention of CVD, the hospital-based high-technology curative approach still attracts considerable attention from governments and the general public and consumes the major part of the health budget for CVD.

Prevention and control of CVD within the existing health system, particularly in primary health care, have been promoted for two decades. Nevertheless prevention and control of CVD have often not been well integrated into national primary health care strategies. Many countries suffer from a lack of adequately trained primary health care workers in the field.

Despite advances in collection of statistics on CVD, comprehensive data is still lacking in many developing countries in the Region.

FUTURE

In future, WHO will play particular attention to those countries which are currently experiencing a "double burden" of disease, i.e. levels of noncommunicable diseases are rising, while communicable diseases remain at high levels.

Regional strategies and a plan on integrated prevention and control of CVD and diabetes will be finalized and implemented in 1998, in line with recommendations contained in EB101.R9 on prevention and control
of noncommunicable diseases.

Development of national policies and a programme on prevention and control of cardiovascular diseases and other noncommunicable diseases will be further supported in countries where such policies and programmes have not yet been formulated.

Primary prevention will be stressed. Healthy lifestyles, particularly nonsmoking, healthy eating and physical exercise, will be further promoted particularly in countries and areas undergoing social and economic transition.

WHO will re-define the roles of primary health care workers to include prevention and control of noncommunicable diseases and prepare guidelines on the prevention and control of noncommunicable diseases for such workers.

Secondary prevention of hypertension, diabetes in the community, and RF/RHDs in schools will be further developed.
Chapter 35. Diabetes mellitus

There are two main forms of diabetes: insulin-dependent diabetes (IDDM, known as Type 1 diabetes) and non-insulin-dependent diabetes (NIDDM, known as type 2 diabetes). In IDDM, the pancreas fails to produce the insulin which is essential for survival. This form develops most frequently in children and adolescents, but is increasingly being found later in life. NIDDM is much more common and accounts for about 90% of all diabetes cases worldwide. This form of diabetes occurs principally in adults and results from the body’s inability to respond properly to the action of insulin produced by the pancreas.

THEN AND NOW

Data on diabetes mellitus from 1948 are scarce. However, diabetes (particularly NIDDM) is now one of the most daunting challenges to public health in the Region. This is both because its prevalence is increasing rapidly and because the complications associated with it impose a heavy burden on health care systems and on the quality of life of patients. Recent data show that the prevalence of diabetes now exceeds 8% in 12 countries and areas of the Region. There is particularly high prevalence of diabetes in Pacific island countries (see Figure 35.1). The current number of diabetics in the Region is estimated to be 30 million. It is estimated that by 2025 there will be at least 55 million adults with diabetes in the Region. There will be about 38 million adults with diabetes in China and 9 million in Japan.

Due to rapid changes in lifestyle, risk factors such as obesity, unhealthy diets and physical inactivity have become widespread throughout the Region. Diabetes is increasing in many countries of the Region, particularly those where the greatest social and economic changes have occurred (see Figures 35.2).

WHO ACTIVITIES

In the early years of WHO, diabetes was not identified as a major disease and there were few activities conducted in the Western Pacific Region. In the past 20 years, increasing prevalence and a deeper understanding of both the burden diabetes imposes on health systems and the importance of its complications have drawn the attention of governments and health sectors.

The first WHO Global Expert Committee on Diabetes Mellitus met in 1965 and published a classification of patients according to age of recognized onset. In 1979, the definition and classification of diabetes were reviewed by another WHO committee. New diagnostic criteria and procedures were recommended. The epidemiology and etiology of diabetes were reviewed. The committee called attention to the need to improve the health and quality of life of diabetics.

In 1982, a regional workshop on diabetes control in the South Pacific reviewed available knowledge and identified areas for further studies on diabetes control. Diabetes was recognized as a particularly serious health issue in South Pacific countries. The same year, a draft programme on integrated diabetes and cardiovascular diseases (CVD) intervention in the Pacific was formulated in collaboration with the WHO Collaborating Centre for Epidemiology of Diabetes and Health Promotion for other Noncommunicable Diseases, International Diabetes Institute, Melbourne, Australia.

Figure 35.1 Prevalence of diabetes in selected countries and areas of the Western Pacific Region, percentage of total adult population (most recent available data)
In 1983, a joint mission from the Regional Office and the South Pacific Commission (SPC, now Pacific Community) visited Cook Islands, Fiji and Kiribati to assess the possibility of developing a noncommunicable diseases (NCD) prevention and control programme in the South Pacific. Following a recommendation by this mission, the National Diabetes Centre was established in Suva, Fiji, in September 1984, to provide training for health personnel as well as public education in diabetes. WHO provided initial supplies and equipment for this centre. Another mission was sent to Vanuatu in 1985 to conduct a survey of diabetes and CVD. WHO collaboration has also been extended to many other Pacific island countries.

Figure 35.2 Prevalence of diabetes in China and the Republic of Korea, percentage of total adult population (1971–1993)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>n.a.</td>
<td>0.9</td>
<td>1.3</td>
<td>n.a.</td>
<td>2.51</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>1.5</td>
<td>n.a.</td>
<td>n.a.</td>
<td>7.9</td>
<td>9.1</td>
</tr>
</tbody>
</table>

n.a. data not available.

In 1985, a WHO global study group reviewed the advances in the understanding of diabetes and its treatment and concluded that NIDDM appears to be caused by a number of environmental factors acting on genetically susceptible individuals. The group also observed that obesity, physical inactivity and deficiencies of specific nutrients play important roles. The group made recommendations for the prevention and control of diabetes, including updated methods and criteria for diagnosis, revised classification of types of diabetes, improved clinical and epidemiological methods and criteria for recording diabetes complications, diabetes education, preventive strategies and methods. Better control of diabetes complications was also emphasized.

In response to the worldwide increase in diabetes, in 1989 the Forty-second World Health Assembly adopted a resolution on prevention and control of diabetes mellitus, which invited all Member States to assess the national importance of diabetes, to implement population-based measures to prevent and control diabetes, to share training and further education in the clinical and public health aspect of diabetes, and to establish a model for an integrated approach to the prevention and control of diabetes at community level.
In the same year, WHO developed guidelines for a national programme for diabetes mellitus. The guidelines outlined measures to determine the national or local importance of diabetes and to develop appropriate policies and programmes. The guidelines use multidisciplinary and intersectoral approaches to formulate and evaluate a diabetes programme. The development of national diabetes programmes was seen as the key to implementing resolution WHA42.36. The guidelines have subsequently been widely distributed.

In 1989, a regional workshop on the epidemiology and control of cardiovascular diseases and diabetes mellitus reviewed diabetes patterns (NIDDM, IDDM and impaired glucose intolerance) and CVD, risk factors and the development of prevention and control programmes. Because the two groups of diseases share many risk factors, an integrated approach to the prevention and control of diabetes and CVD was recommended. Preventive and curative health care should not be separated. The workshop further recommended that the programme needed to be gradually expanded from local trial areas until it became a nationwide programme.

In 1991 and 1994, the first and second international conferences on health technology in the field of diabetes were held in Kyoto, Japan, by WHO and the WHO Collaborating Centre for Diabetes Treatment and Education. The first conference concluded that diet, lack of physical activity, and obesity, as well as genetic factors, all appeared to have contributed to the modern diabetes epidemic and that programmes should focus on these factors. The second conference identified suitable and affordable technologies for developing countries such as the use of insulin as lifesaving therapy and the monitoring of metabolic control. However, there is still the continuing need for the programme to develop specific activities such as research in the etiology and pathogenesis of diabetes, patient education and the provision of essential drugs such as insulin.

WHO, in collaboration with the International Diabetes Federation, has cosponsored World Diabetes Day since 1991. The event takes place on 14 November every year.

In 1992, WHO convened the WHO Global Study Group on Prevention of Diabetes. Among its many significant recommendations, the Study Group urged governments to establish national diabetes programmes encompassing primary, secondary and tertiary prevention components, where possible integrated with other NCD programmes. National targets should be established for reducing the loss of vision, kidney failure, amputation, heart attack, stroke and adverse outcome of pregnancy in people with diabetes. Insulin as an essential life-saving drug should be available in all countries.

The Asian-Pacific NIDDM Policy Group, composed of the International Diabetes Federation, Western Pacific Region and the WHO Regional Office for the Western Pacific, met in 1994. After wide consultations with countries and areas of the Region, a policy document was published in 1995: Non-insulin dependent diabetes mellitus (NIDDM) - Practical targets and treatments. The document is a practical guide to diagnosis and management of diabetes and its complications, in particular to self-care and self-monitoring. It has been widely distributed and translated.

In 1994, WHO sponsored the first global meeting on the implementation of national diabetes programmes. The meeting emphasized practical aspects of national programme implementation and specified the roles to be played by health care providers, people with diabetes, allied agencies and national and international administrative structures in the development and implementation of national diabetes programmes.

With WHO support, activities to develop national programmes (including prevention of diabetes, epidemiological studies and surveys, patient education, community-based diabetes management and diabetes screening) have been carried out in Australia, China, Fiji, Japan, Malaysia, the Federated States of Micronesia, the Philippines, the Republic of Korea, Samoa, Tonga, and many other countries of the Region.

In 1997, the Regional Office convened a regional working group on integrated prevention and control of CVD and diabetes in Malaysia. The group concluded that prevention and control of diabetes needs to receive priority. It also recommended that effective, culturally-appropriate intervention strategies, based on a community approach which also addresses the social environment of the community at risk, need to be implemented. Diabetes care and prevention of diabetes-related complications need to develop out of integrated management rather than acute care. Cooperation between patients, their families and professional care providers needs to be maximized. An ecological
model of diabetes shifts the emphasis of the study of diabetes from metabolic defects and genetic susceptibility towards viewing diabetes as a physiological response to a pathological environment. This shift of emphasis moves intervention strategies towards a more integrated public health approach.

**ACHIEVEMENTS**

Epidemiological data have greatly improved over the last 50 years. In particular, the many surveys and epidemiological studies in the Region have given a far clearer idea of diabetes prevalence. The importance of prevention and control of diabetes is now recognized in the countries and areas of the Region where it is a major health issue.

The WHO strategies on prevention and control; definition and classification; and criteria and procedures for diagnosis of diabetes have been widely introduced throughout the Region. Strategies on prevention and management of diabetes have been applied to some degree in national programmes or control activities in most countries and areas where diabetes is prevalent. Development of national programmes on prevention and control of diabetes or integrated NCD have been carried out throughout the Region.

Regionwide partnerships on control of diabetes have been established with government agencies such as the Australian Agency for International Development; nongovernmental organizations such as the International Diabetes Federation, Western Pacific Region; WHO collaborating centres; and major national institutions and health professionals.

**UNDERACHIEVEMENTS**

Epidemiological assessment of diabetes at country level is not regularly updated. Epidemiological data on diabetes complications and on the impact of diabetes on economic and health care development (such as those carried out elsewhere in the world) are lacking in the Region. Although such data are very important for national health planning and policy development, accurate clinical diagnostic techniques, medical records and health economics expertise are not yet of a sufficiently high standard to produce them.

Primary prevention of diabetes involves modifying unhealthy lifestyles, particularly those leading to obesity, unhealthy diets and physical inactivity. Health promotion needs to be further intensified.

Prevention, diagnosis and treatment of diabetes are not sufficiently emphasized in medical curricula in the Region. Expertise in preventive and curative diabetes is usually developed in specialist training. Insufficient training of family doctors, community health workers, and health educators has inhibited the development of diabetes care in community health services. Undiagnosed and improperly treated patients account for numerous complications and many premature deaths.

**FUTURE**

Regional strategies and a plan for integrated prevention and control of diabetes will be further revised in the light of an Executive Board resolution in 1998.

Development of national programmes on prevention and control of diabetes or integrated NCD strategies will be further supported in countries where national programmes have not been formulated.

Priority will be given to health promotion, with an emphasis being placed on establishment of supportive political and social environments in which unhealthy diets, physical inactivity and obesity can be modified.

Community health services in the Region will continue to make a major contribution through training, development of diabetes care and patient education. Community-based diabetes management programmes will be further strengthened.
Chapter 36. Reproductive, child and women’s health

The importance of reproductive, child and women’s health issues was recognized from the very start of WHO’s activities in the Western Pacific Region. The Regional Director’s Report to the second session of the Regional Committee in 1951 pointed out that: “The protection of the health of mothers and children is now considered as one of the most, if not the most, important functions of a health service in any country”.

Thirty-eight years later, the Regional Director’s Report to the thirty-ninth session argued that maternal and child health (MCH) remained as important as ever: “Because of the sheer magnitude of the target population, who constitute two thirds of the total population in developing countries, the MCH/family planning programme clearly plays a decisive role in attaining the health-for-all goal in the Region”.

THEN AND NOW

Regional data and reproductive health trends (1948–1998)

Data from the early years of WHO operations in the Region are scarce and often comparisons cannot easily be made. Early reports from some Member States to sessions of the Regional Committee give some indication of MCH in the Region, but not all Members were able to provide data. As data collection began to improve, and methods became more standardized across the Region, a clearer picture of the health of women and children in the Region began to emerge. The data also showed a clear distinction in many of the indicators between the developed and the developing countries in the Region.

Maternal mortality ratios and infant mortality rates

Brunei Darussalam reported an infant mortality rate (IMR) of 93.07 per 1000 births in 1959, this had fallen to 69.18 per 1000 in 1960. The drop in infant mortality was attributed to ‘Operation Kinabalu’, an anti-infant death campaign introduced in 1959. On the other hand, Fiji reported an IMR of 38.94 in 1957, but this had risen to 42.59 by 1959.

Hong Kong’s data on IMR showed a decrease from 60.9 per 1000 births in 1956 to 26.4 in 1964. By 1970, IMR had fallen further to 21.8 and by 1974 to 17.4. However, between 1956 and 1969 the maternal mortality ratio (MMR) rose from 90 per 100 000 live births to 150 per 100 000 live births. It rose slightly over the next five years and in 1974 it stood at 160.

Japan had more extensive data than many of the other Member States of the Region, and could show a decrease in IMR from 61.7 per 1000 births in 1948 to 30.7 in 1960, and down to 13.1 in 1970.

The MMR per 100 000 live births had also fallen, from 157 in 1948 to 116 in 1960.

The IMR in Malaysia per 1000 live births fell from 76 per 1000 in 1957 to 45 in 1967, and MMR per 100 000 live births fell from 320 in 1957 to 168 in 1967. North Borneo reported an infant mortality of 74 per 1000 births in 1960.

The Philippines had the highest reported IMR in the Region of 101.6 per 1000 live births in 1950. This had fallen to 72.4 by 1959, still the highest known IMR in the Region. MMR fell from 370 per 100 000 live births in 1950 to 260 in 1959. In its report to the twelfth session of the WHO Regional Committee for the Western Pacific, the Philippines indicated that annually, over 2000 women died in child-bearing, and the population of women of child-bearing age was estimated to be approximately 3.3 million in 1958.

The disparity between developed and developing countries is highlighted by data from the early 1980s (Figure 36.1).

By the fortieth session of the Regional Committee in 1989, the Regional Director could report that 25 out of the then 31 countries and areas reporting on infant mortality had achieved a rate of below 50 per 1000 live births, and there had been a progressive decline in the IMR of almost all the countries and areas in the Region.
The most recent data on MMR and IMR are given in Figure 36.2.

**Total population, growth, birth and total fertility rates**

Since 1950, the population of many countries and areas in the Region has more than doubled. The populations of Hong Kong, Mongolia and the Philippines have tripled. That of Brunei Darussalam has grown from 40,657 in 1947 to 296,000 in 1995.

Growth rates throughout the Region ranged from just over 1% per annum for the Republic of Korea to 4.9% per annum for Singapore in 1950. Current percentage growth rates range from negative for Niue and Tokelau (mainly due to outmigration) to 3% or over for Brunei Darussalam, the Federated States of Micronesia, Macao, the Marshall Islands and Solomon Islands. At current growth rates, population doubling time is 30 years or less for Brunei Darussalam, Cambodia, the Lao People’s Democratic Republic, the Philippines and several of the Pacific island countries and areas. Longer population doubling times are given for the more developed countries, from 64 years for Singapore to 289 years for Japan.

Birth rates in Hong Kong and Japan fell considerably, from 39.7 per 1000 population in 1956 to 19.9 in 1970 for Hong Kong, and from 33.5 in 1948 to 18.8 in 1970 for Japan. However, Japan’s birth rate per 1000 population had dropped as low as 17.2 by 1957, and had begun to rise again slightly by 1970. The current crude birth rate for Japan is 10.0, the lowest in the Region. Low current birth rates are also reported for Australia (14.1), China (17.7), Hong Kong (11.8), Republic of Korea (15.9), Macao (14.0), New Zealand (16.14), Niue (15.12) and Singapore (15.7). The highest crude birth rate is Cambodia, at 45 per 1000 population. Many Pacific island countries and areas have birth rates between 22 (e.g. New Caledonia 22.0, Palau 22.6) and 37 (Solomon Islands).

Total fertility rates in the Region have decreased for most countries and areas for which data since 1950 are available. Fiji’s total fertility rate was one of the highest reported, at 6.59, in 1950, but had dropped to 2.62 by 1995. Likewise, total fertility rates for China, Fiji, Malaysia, Mongolia, the Republic of Korea and Singapore have halved over the past 45 years. The picture is different for Papua New Guinea, where total fertility rate has only fallen from 6.21 to 4.7 over the same period, Viet Nam has seen a drop from 5.48 to 3.1, and the Federated States of Micronesia from 5.9 to 4.6. The total fertility rate for the Lao People’s Democratic Republic has decreased from 5.9 to 5.6.

**Figure 36.1 Maternal mortality ratios in the Western Pacific Region selected countries (early 1980’s)**

<table>
<thead>
<tr>
<th>Developed countries</th>
<th>MMR (per 100 000)</th>
<th>Developing countries</th>
<th>MMR (per 100 000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Philippines</td>
<td>90 (1983)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Republic of Korea</td>
<td>41 (1981)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Viet Nam</td>
<td>100 (1982)</td>
</tr>
</tbody>
</table>

**Life expectancy at birth for women**

The lowest life expectancies at birth for women reported for the Region in 1950 were Cambodia (40.8 years), China (47.5), Laos (39.2), Mongolia (46.5), Papua New Guinea (34.5), the Philippines (47.5), the Republic of Korea (49) and Viet Nam (39.2). Papua New Guinea was unique among countries for which data is known, in that it was the only country where women’s life expectancy at birth was shorter than that of men. The more developed countries typically had much higher life expectancies at birth for women, the highest being New Zealand at 72.9 years. Others where life expectancy at birth was over 60 years for women included Australia, Fiji, Hong Kong, Japan and Singapore.

Recent figures indicate that life expectancy at birth for women in the Region is now over 70 years for 22 countries and areas, and between 60 and 70 for a further 10 countries and areas. The improvement in life expectancy has not been so marked in Cambodia (55 years), the Lao People’s Democratic Republic (51 years) and Papua New Guinea (58 years). Life expectancy for women in Papua New Guinea is now two years longer than that of men.

**Evolution in delivery practices and medical care**
The Western Pacific Region Data Bank on Socioeconomic and Health Indicators for 1980 gave figures for the numbers of nursing/midwifery personnel per 10,000 population (most of the data are from the 1970s). Australia and New Zealand had 60.4 and 57.8 nursing/midwifery personnel per 10,000 population, but few other countries or areas in the Region were as well served. Singapore had 41.7, but the figures for the other countries were far lower. Of the 31 countries and areas that supplied figures, 11 had fewer than 10 nursing/midwifery personnel per 10,000 population, and a further 12 were between 10 and 20. The Data Bank for 1990 reported figures from the 1980s that showed eight countries or areas with fewer than 10 nurses/midwives per 10,000 population, and 10 countries or areas between 10 and 20. The pattern was similar, with American Samoa, China, Malaysia, the Philippines and Wallis and Futuna remaining low. The Lao People’s Democratic Republic had made a dramatic improvement in the number of nurses/midwives, from 0.3 per 10,000 population in 1979 to 14.3 in 1986. Viet Nam, however, showed a drop from 16.1 to 10.8 per 10,000 population.

Current available figures indicate an improvement in the numbers of nurses/midwives, with only three of the countries that reported data having fewer than 10 per 10,000 population.

**Figure 36.2 Maternal mortality ratios and infant mortality rates in countries of the Western Pacific Region**

<table>
<thead>
<tr>
<th>Country/Area</th>
<th>IMR (per 1000 live births)</th>
<th>Year</th>
<th>MMR (per 100 000 live births)</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Samoa</td>
<td>50.0</td>
<td>1993</td>
<td>12.96</td>
<td>1995</td>
</tr>
<tr>
<td>Australia</td>
<td>4.9</td>
<td>1994</td>
<td>5.7</td>
<td>1995</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>0.0</td>
<td>1995</td>
<td>7.9</td>
<td>1995</td>
</tr>
<tr>
<td>Cambodia</td>
<td>473.0 (est.)</td>
<td>1995</td>
<td>115.0</td>
<td>1995</td>
</tr>
<tr>
<td>China</td>
<td>61.9</td>
<td>1995</td>
<td>36.4</td>
<td>1995</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>0.0</td>
<td>1995</td>
<td>4.0</td>
<td>1995</td>
</tr>
<tr>
<td>Fiji</td>
<td>31.5</td>
<td>1994</td>
<td>21.0</td>
<td>1996</td>
</tr>
<tr>
<td>French Polynesia</td>
<td>0.0</td>
<td>1995</td>
<td>12.4</td>
<td>1995</td>
</tr>
<tr>
<td>Guam</td>
<td>0.0</td>
<td>1994</td>
<td>9.0</td>
<td>1991</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>11.2</td>
<td>1994</td>
<td>4.8</td>
<td>1994</td>
</tr>
<tr>
<td>Japan</td>
<td>6.1</td>
<td>1994</td>
<td>4.2</td>
<td>1994</td>
</tr>
<tr>
<td>Kiribati</td>
<td>225.0</td>
<td>1993</td>
<td>54.0</td>
<td>1995</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>13.0</td>
<td>1995</td>
<td>8.56</td>
<td>1995</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>656.0</td>
<td>1995</td>
<td>125.0</td>
<td>1995</td>
</tr>
<tr>
<td>Macao</td>
<td>0.0</td>
<td>1995</td>
<td>5.6</td>
<td>1995</td>
</tr>
<tr>
<td>Malaysia</td>
<td>28.0</td>
<td>1994</td>
<td>11.0</td>
<td>1994</td>
</tr>
<tr>
<td>Mariana Islands, Commonwealth of the</td>
<td>84.0</td>
<td>1995</td>
<td>5.3</td>
<td>1995</td>
</tr>
<tr>
<td>Northern</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marshall Islands, Republic of the</td>
<td>0.0</td>
<td>-</td>
<td>26.42</td>
<td>1994</td>
</tr>
<tr>
<td>Micronesia, Federated States of</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>226.0</td>
<td>1994</td>
<td>25.0</td>
<td>1994</td>
<td></td>
</tr>
<tr>
<td>Mongolia</td>
<td>185.0</td>
<td>1995</td>
<td>44.6</td>
<td>1995</td>
</tr>
<tr>
<td>Nauru</td>
<td>0.0</td>
<td>1994</td>
<td>26.0</td>
<td>1994</td>
</tr>
</tbody>
</table>
Attendances at family planning (FP) clinics in Fiji increased rapidly in the early 1960s and in 1964 totalled 18,084. In 1965, the government of Fiji reported that the promotion of a FP campaign was a declared instrument of government policy. The birth rate per 1000 population had fallen from 41.78 in 1959 to 37.82 in 1964.

A ten-year national FP programme to reduce the natural increase rate of the population to 2.0% by 1971 and to 1.5% by 1980 was prepared by the Republic of Korea. In Japan, induced termination of pregnancy was made legal under certain medical and social circumstances in 1948, partly in response to the explosive expansion of population caused by the repatriation of Japanese soldiers and the high live-birth rates. Reported induced terminations increased to more than 1 million per year. The Government decided in 1952 to encourage FP to reduce risks of terminations to women’s health. Nurses and midwives would play a role as ‘contraception instructors’. Starting in 1963, FP guidance was provided to newly married couples. A 1964 survey estimated that 52% of couples used contraceptive methods, and the number of terminations had dropped to 879,000 cases in 1964.

It is possible to group the countries and areas in the Region which provided information on attitudes or policies towards FP to WHO in 1969 into seven groups:

1. countries with government policies and FP programmes – China (Taiwan), Japan, the Republic of Korea, Singapore, Tonga and West Malaysia;
2. areas with FP programmes – Fiji, Gilbert and Ellice Islands, Papua and the Trust Territory of New Guinea, and Trust Territory of the Pacific Islands;
3. countries and areas with private FP programmes supported by the government – Hong Kong and East Malaysia (Sabah and Sarawak);
4. those with private FP activities which were unofficially supported or not opposed by the government – Australia, Laos, New Zealand, the Philippines and Viet Nam;
5. those where the government was considering FP programmes - the British Condominium of the New Hebrides and British Solomon Islands Protectorate;
6. those where the government was not in favour of FP – Brunei, Cambodia and the French Condominium of the New Hebrides; and
7. those on which no information was available to the Regional Office - American Samoa, Cook Islands, Nauru, New Caledonia, Portuguese Timor, Ryukyu Islands, and Western Samoa.
WHO ACTIVITIES

Improvement of midwifery skills and delivery practices

The provisions that existed for the health care of mothers and children in the countries of the Region varied greatly when the Regional Office was set up in 1950. Very few government health administrations included a MCH administrative unit at the national level. In some countries, the limited services provided for mothers and children did not include preventive care, as practically all available resources had been directed to meet the pressing need for increased facilities for curative treatment. Other countries had established basic MCH facilities, but these were limited in scope. A few countries had well-developed health services where many of the chief dangers to MCH had been largely brought under control and attention was directed at special problems.

It was evident that, in most countries, one of the greatest handicaps to developing effective MCH programmes was lack of trained personnel. This deficiency was seen at all levels and in all aspects of the programme, administration, supervision, service and training. Some countries required full training and licensing of all practising midwives. Others were planning training activities. Domiciliary midwifery was still in the early stages of development in Cambodia and the Republic of Korea. In addition, many countries lacked the facilities for expanding MCH activities and were unable to provide the necessary equipment and supplies.

The Regional Office has provided specialist advisers – doctors, nurses, midwives – to work with governments for periods varying from a few weeks to several years since the early years. Training opportunities overseas have also been provided since the 1950s. For instance, a midwifery programme in the Philippines began in 1950, with UNICEF and WHO supporting the Government of the Philippines in developing programmes to improve services directly related to mothers and children. National coverage of health services had been expanding very rapidly, with the establishment of rural health units and barrio health stations. A very large proportion of health service activities were concerned with MCH – local health agencies estimated that approximately two-thirds of their work was with mothers and children. A WHO senior nurse/educator was assigned to the Philippines from October 1953 to December 1958 to collaborate in midwifery training. Education included programmes of study in schools of midwifery recognized by the Department of Education (private schools). There were in-service and pre-service programmes for nurses and midwives (licensed and traditional birth attendants, or hilots) under the Department of Health. The end of project report, stated that by 1961 the MMR had been reduced by around 30% from 1950 levels, from 370 per 100 000 live births to 260 per 100 000 live births. IMR had fallen from 101.6 per 1000 live births in 1950 to 72.4.

By 1961, WHO could report that encouraging progress had been made. MCH administrative units had been established in almost all countries and areas of the Region, and the leadership of national MCH programmes was being progressively strengthened by the increasing numbers of medical, nursing and midwifery personnel prepared for positions in administration, teaching and supervision.

The role of the midwife continued to evolve. In 1967, the Regional Director’s Report to the eighteenth session of the Regional Committee commented on this:

More and more the midwife, fully-qualified as well as auxiliary, and sometimes even the traditional birth attendant, is becoming the focal point of the MCH work provided she is properly supervised. Her easy access to the homes and minds of the people qualify her to be the health educator “par excellence” and now that her training has been expanded to include child care, she is able to provide excellent protection for mother and child from the moment of conception until the time the child reaches its first birthday.

The target of 70% of births to be supervised by a trained birth attendant by 1989 meant major efforts to increase expansion of MCH services. However, the Regional Director’s Report for 1983–1985 commented that: “One of the most critical aspects of national MCH/FP programmes is the shortage of trained personnel”.

By mid-1980s it had been recognized that globally every year half a million women die prematurely due to conditions related to pregnancy and childbirth. At the Safe Motherhood Conference cosponsored by the World Bank, UNFPA and WHO, held in Nairobi, Kenya in 1987, Dr Halfdan Mahler, then Director-General of WHO, said: "...[Maternal mortality] is a neglected tragedy, and it has been neglected because those who suffer it are neglected people, with the least power and influence over how national resources shall be spent; they are the poor, the rural peasants, and above all, women." The conference called for immediate and concerted action at the national level to prevent the continued worldwide tragedy.

Since 1987 WHO has been very active in this field. The maternal
health and safe motherhood programme has been at the forefront of international efforts to reduce maternal mortality and morbidity. The technical tools developed by WHO during the last 10 years are now in use in most of the developing countries and provide the means to improve the health of mothers and families.

In a renewed effort to solve the problem of delivering sustainable health care services to mothers and children, the Mother-Baby Package has been developed as part of WHO’s global Safe Motherhood Initiative. It describes interventions that focus on FP to prevent unwanted and mistimed pregnancies, to provide basic maternity care for all pregnancies and to offer special care for the prevention and management of complications during pregnancy, delivery and postpartum. The goals of the Mother-Baby Package are to reduce MMR to half of 1990 levels by 2000, to make substantial reductions in maternal morbidity; to reduce perinatal and neonatal mortality rate from 1990 levels by 30%–40%; and to effect substantial improvements to the health of newborn babies.

Midwives have a central role in the Mother-Baby Package:

The person best equipped to provide community-based, technologically appropriate and cost effective care to women during their reproductive lives is the person with midwifery skills who lives in the community alongside the women she treats....Most interventions related to care of the mother and newborn are within the capacity of a person with midwifery skills. Experience shows that upgrading the skills of midwives to enable them to respond to obstetric emergencies can reduce maternal mortality. However, additional support is needed from doctors and obstetricians for the management of certain complications and the provision of surgical interventions. Special training in essential obstetric care should be available for these categories of health care providers.

Training of traditional birth attendants and fostering safe deliveries in medical institutions

Although in some parts of the Region in the early 1950s over 90% of confinements took place in hospital, with either a physician and an obstetrical nurse or a midwife in attendance, in large areas of the less developed countries, the only attendant on whom a mother could rely was a relative or an untrained traditional birth attendant (TBA).

The TBA has long been recognized as an integral part of MCH care in the Region. Using and involving the TBA is essential in many areas where more skilled midwifery services are unavailable or access to such services is difficult. The TBA may be a woman who has experience of many births, or simply a neighbour or relative who happens to be on the spot at the time of delivery and renders whatever assistance she can. The TBA may follow traditional practices that can be harmful to the mother or newborn, or she may have some knowledge of safer procedures. In addition to improving their standards of care at childbirth, the training of TBAs as auxiliary midwives means that TBAs are able to educate women and help to develop MCH programmes:

WHO’s work on traditional midwives has demonstrated that "uneducated" people can make valuable contributions if they are given the training, the incentives and the confidence to do so. These traditional practitioners used to be ignored, maligned, even considered dangerous. As a result of WHO’s catalytic and promotional work, they are increasingly looked on as a great resource for bringing selected primary health care to all.

An Expert Committee on Midwifery Training was convened in August 1954 to consider the training of midwifery personnel at all levels, with particular reference to those areas where maternity care services were less well developed and where auxiliary midwifery personnel were required. The committee discussed the importance of understanding the customs, beliefs and traditional practices of the people for whom midwifery services were to be provided.

Progress in training TBAs has continued wherever they form an important part of local MCH care. For instance, in Samoa, 125 traditional birth attendants were trained on Upolu Island during 1977. By the end of 1978, all traditional birth attendants in the country were trained and provided with midwifery kits for use in the villages.

Testing baby's reflexes in a health centre in Suva, Fiji

In the primary health care era, Member States
approached the task of developing primary health care in different ways. However, training at the grass-roots level remained fundamental. Traditional practices related to reproductive health were reviewed by the Regional Office in 1995–1996, and the need to take traditional practices into account when designing reproductive health programmes was recognized. However, it has also been recognized that the role of the TBAs has to be correctly assessed, taking into account local conditions, traditions and legislation. There have been a number of successful attempts to integrate the services of TBAs into the overall MCH services in the Region, e.g. in Malaysia.

Promotion of maternal and child health care through primary health care activities and community awareness

There was early recognition that more effective care could be provided through closer coordination of preventive and curative health services for mothers and children and through integration of MCH services into the general health programme. This integration was one of the main subjects discussed at a Conference on Maternity Care in Manila, the Philippines, in 1959. By making women aware of the simple things they could do themselves to improve their health and that of their children, pressures on health services for curative interventions could be lessened. An active programme of information and education to the public would help give women the health knowledge they needed.

MCH care was specified as one of the eight components of primary health care in the Declaration of Alma-Ata in 1978. The Regional Office had already begun working on MCH in the primary health care context:

Development of primary health care is at various stages in different countries or areas of the Region. Strong endorsement by UNICEF and WHO spurred governments to intensify their efforts to extend health service coverage through affordable means”.

Most Member States of the Region sent representatives to the Alma-Ata Conference. Following the conference, activities in primary health care were intensified. All Member States had accepted the basic concept of primary health care by 1981. The Regional Director’s report for 1985–1987 noted that by the end of the century, more than half the population would be living in towns, thus there was a need for primary health care specific to the urban situation.

Development and dissemination of fertility regulation methods

Population issues began to gain prominence in the 1960s. The Technical Discussions at the eighteenth session of the Regional Committee in 1967 looked at this issue in relation to MCH and other aspects of health:

Throughout the broad spectrum of public health concern, ranging from disease control to clinical services, the achievement of our ultimate goal has been considerably offset by too rapid population growth....The problem of population growth is acute, and the need is most urgent in most of the countries which need family planning.

The Regional Director’s Report to the same session of the Regional Committee noted that: “There is almost everywhere a growing interest in family planning...”, and during the Technical Discussions it was also noted that “...for the first time, efforts were being made at the regional level to organize family planning activities. The topic of the discussions was significant since the interaction between health and population dynamics had become a universal concern”.

By 1969, the necessary technical resources and skills were being developed within the Regional Office in response to a resolution requesting the Regional Director to expand activities in this field. FP components were already included in many WHO projects. A course on the health aspects of population dynamics was organized in 1970, and soon efforts were being taken to promote the integration of FP activities into the general basic health services programmes in several countries of the Region in response to requests from governments, frequently in collaboration with UNICEF. Training in FP covered all areas, from technical...
training for medical staff to community awareness programmes on integrating FP into health services.

The Special Programme on Research, Development and Research Training in Human Reproduction (Special Programme), a programme for research into the biology of human reproduction and the medical aspects of fertility and sterility control was began in 1965. The strategy was to strengthen research centres in the developing world by training their scientists, supplying equipment, providing consultants and other support so that they could become self-reliant in carrying out the research their countries needed, and to foster collaboration and global research and development. By the end of the 1970s, the Special Programme had collaborating centres in Manila, the Philippines; Seoul, the Republic of Korea; Singapore; and Sydney, Australia and was involved in institution strengthening in China. Training grants and fellowships involved studies in fertility regulation, psychosocial aspects, health services research in FP and research in infertility. There were also interregional courses in fertility management and MCH care for senior teachers in Singapore.

Clinical studies on many aspects of different contraceptive methods continued to be a part of the Special Programme. By 1983, there were seven collaborating centres for clinical research on human reproduction and by 1987, 27 research institutions in eight countries or areas conducting biomedical research related to human reproduction were being strengthened through the Special Programme.

Recent activities outside the Special Programme included supporting the formulation of a birth spacing policy for Cambodia, stressing the message that the correct timing and proper planning and spacing of pregnancies are the key interventions in reproductive health programmes to reduce morbidity and mortality of mothers and children, and underlining the fact that the overall decline in many countries’ total fertility rates has generally helped to improve women’s health. WHO has also been providing technical support to UNFPA-funded country projects and programmes since the mid-1970s.

**Improvements to the status of women and freedom of reproductive choices**

The status of women in society is affected by political, economic, social and cultural norms. These factors influence women’s health directly or indirectly, through poor nutrition, lack of access to health care, lack of control over number of pregnancies, lack of education, among others.

Lack of education is a key determinant of MCH. Maternal education strongly enhances the chances of child survival as measured by nutritional status, infant mortality and child mortality. A child whose mother has not gone to school is 2.5 times more likely to die than a child whose mother has had seven or more years of schooling.

Educating women helps to improve their status in their homes and in society. Educated women assume greater control in family decisions, receive better treatment at clinics and hospitals and participate more in community affairs. The comparative advantage of educated women over their non-educated counterparts is not limited to having healthier children. Female education also results in other social gains, such as improved women’s health and reduced fertility. A wealth of information has also shown that educating women not only brings social gains, but also has tremendous economic advantages as well. Educated women tend to marry later and choose to have fewer children. They are more productive and earn more. Wages of women rise by 10%–20% for each additional year of schooling.

Women’s organizations are now being involved in WHO’s work, and this will affect women’s status in several ways, not least because women’s organizations have a wide resource base for gathering information. For example, the Women’s Union of Viet Nam was involved in a needs identification and project formulation exercise during the period 1987–1989, and the Federation of Lao Women was involved in the formulation and implementation of a national MCH and birth spacing project. Women’s groups have also been involved in helping to increase coverage of immunization programmes.

Collection of appropriate health and social indicators often reveals inequities between the genders and discloses cultural or economic conditions that may favour one gender at the expense of the other. The Regional Office has adapted and improved data collection over the years so that the true picture of reproductive health and the factors that influence it, including women’s status, is revealed.

**Collaboration with the Expanded Programme on Immunization on tetanus toxoid immunization**

UNICEF and WHO have collaborated extensively through the Expanded Programme on Immunization (EPI), in particular to provide technical and financial support to overcoming difficulties of expanding immunization to underserved areas. All developing countries of the Region had adopted the WHO-recommended immunization schedule by 1987, aimed at fully immunizing all children under one year of age. Provision of tetanus toxoid was identified by a regional workshop on innovative approaches to
maternal and child health and family planning, held in Manila in September 1986 as an appropriate technology to be used by MCH and FP health workers at all levels. In 1996 the Regional Director’s Report noted that one of the contributing factors to the remarkable improvements in the health status of children that had been achieved in most countries and areas of the Region was the expanded coverage of immunization programmes, including tetanus toxoid given to mothers during pregnancy.

Expansion of maternal and child health care to women, family and reproductive health

The importance of seeing MCH issues in their broadest context was clearly brought out in the technical discussions at the eleventh session of the Regional Committee in 1960:

MCH should not be considered as a specialized, separately administrative service, but as an integral part of the total health service organization and operation. This is especially true where such hazards exist as poor sanitation, malnutrition and communicable diseases. These underlie many of the conditions insufficiently dealt with when individual care is given to a mother or infant. A home visit to a mother or a child should be made as a family visit. The health needs of the whole family should be observed and catered to instead of such visits being allowed to become a routine maternity or child care observation for recording purposes. In providing MCH services, one should be on guard against the tendency to concentrate activities of antenatal work and conduct of deliveries to the neglect of infant and child care. Infant and child care should, therefore, be extended beyond the neonatal period to at least the time when the infant is weaned and when communicable diseases seem most prevalent.

The concept of family health inter-linking MCH, FP, nutrition and health education had gained wide acceptance by the twenty-fourth session of the Regional Committee in 1973. Family health was considered an "approach whereby an effort is made to improve the health of the various individuals in the family through multidisciplinary services and thus influence society as a whole".

In the late 1970s, the health needs of adolescents in rapidly changing and increasingly urbanized societies became an issue. The issues of teenage pregnancy and fertility management were raised by two working groups that met in Manila in 1980. In 1981, a seminar on youth and adolescent health was held in the Cook Islands. The creation of national adolescent health policies and programmes has become a priority in recent years and specific training and education programmes for young people have been conducted as part of broader reproductive health projects.

Production of educational material

A large variety of information, education and communication (IEC) material is continuously being developed by the Regional Office and widely disseminated, along with material received from other agencies or WHO Headquarters. Approximately 600 reproductive health managers and service providers in the Region receive regular publications and advocacy material. Production of IEC material has contributed to an additional involvement of the male partner and to increased community awareness. IEC material was developed to provide women with more self-determination and with wider reproductive choices. Aware that sexuality is a taboo issue in many communities, the Regional Office developed and printed Teaching Modules for Education in Human Sexuality and Teaching Modules for Continuing Education in Human Sexuality as part of the HIV/AIDS Reference Library for Nurses.

WHO’s contribution to the major international conferences

The International Conference on Population and Development was held in Cairo, Egypt, in 1994. WHC had already started promoting reproductive health from a broader perspective as opposed to purely mother and child health services before the conference. In 1992, WHO published Reproductive health: a key to a brighter future, in which fertility regulation was recognized as important for reducing population growth rates. The document also stressed the link between reducing population growth and achieving sustainable development.

In preparation for the Fourth International Conference on Women, held in Beijing, China, in 1995, the Regional Office prepared eight monographs covering a wide variety of women’s issues; 2500 copies of each were distributed at the conference. The topics covered included reproductive health, ageing,
maternal education and child health, abortion, lifestyle changes and their impact on women’s health and women’s health profiles of Australia, the Philippines and Viet Nam. Focal points for women’s issues were identified in several countries and a panel discussion on the health of women in the Region was held during the conference.


Close collaboration between UNICEF and WHO has been a feature of practically all MCH programmes in the Region. Collaboration has taken several forms, for example in some projects undertaken by governments and supported by UNICEF, WHO has provided technical advice. The International Planned Parenthood Federation (IPPF) and the United Nations Population Fund (UNFPA) have been active partners in many aspects of FP and fertility regulation projects.

ACHIEVEMENTS

Reductions in maternal mortality ratios, infant mortality rates, total fertility rates, and population growth rate

When WHO’s work began, most countries of the Region were still suffering from the effects of the Second World War. Infant mortality was high, and in some less developed countries, half of all children died before they reached their first birthday.

IMRs have improved dramatically. In 1970, Cambodia had IMRs of 176 per 1000 and 142 per 1000 for female infants and for male infants, respectively. These IMRs fell to 120 and 103 in the 1990s. Similar decreases have occurred in the Pacific islands, which have reported reductions over 20 years: Fiji from 65 to 17 for females and from 75 to 21 for males; the Marshall Islands from 97 to 50 for females and from 115 to 53 for males; and Papua New Guinea, from 102 to 67 for females and from 101 to 66 for males. Such improvements may be attributed largely to public health measures such as immunization, education about dehydration and promotion of breast-feeding.

The Region can boast some of the lowest IMRs in the world, with fewer than 5 infant deaths per 1000 live births for several countries and areas, including Hong Kong, Japan and Singapore. Australia, Brunei Darussalam and New Zealand have IMRs that have fallen below 10 per 1000 since 1985.

MMRs had also declined throughout the Region, and many countries and areas are well on the way to achieving the goal of halving maternal mortality by 2000, set during the Safe Motherhood Conference in Nairobi, Kenya, in 1997.

Total fertility rates have decreased for most countries and areas for which data since 1950 are available. Fiji’s total fertility rate was one of the highest reported, at 6.59, in 1950, but had dropped to 2.62 by 1995. Likewise, total fertility rates for China, Fiji, the Republic of Korea, Malaysia, Mongolia, and Singapore have halved over the past 45 years. The picture is different for Papua New Guinea, where total fertility rate has only fallen from 6.21 to 4.7 over the same period, Viet Nam has seen a drop from 5.48 to 3.1, and Micronesia from 5.9 to 4.6. However, the total fertility rate for the Lao People’s Democratic Republic has actually increased, from 5.9 to 6.8.

Improvements to obstetric practices

One of the major functions of the Regional Office continues to be the establishment of norms, guidelines and protocols for the delivery of reproductive health.

Through the primary health care approach, the Regional Office has been promoting delivery of health care for mothers and children at community level, with an increased community participation and in an integrated and comprehensive manner. Other essential elements of care, such as provision of essential drugs, water supply and sanitation, education and information, availability of safe and modern contraceptive methods, development of the health system, identification of cases at risk and referral etc. continue to be at the forefront of activities promoted by the Regional Office.

Considerable efforts have been made to increase the capability of service delivery of different categories of health workers, through the revision of basic training curricula in nursing, midwifery, medical schools and faculty of medicine. At the same time, qualified personnel continue to receive in-service refresher training, integrating various reproductive health concerns and including new elements, such as the syndromic approach to treat sexually transmitted diseases, new contraceptive technologies, integration and delivery of reproductive health services in a comprehensive way, etc.
The Regional Office has produced numerous manuals and guidelines for service providers. These technical publications have been translated into several local languages and are widely used to establish local norms, revise existing policies and update treatment protocols.

**Introduction of safe contraceptive methods in several countries**

The expansion of FP programmes has increased access to contraceptives overall in the Region. Use of contraceptives has increased in China; Hong Kong, China; and the Republic of Korea to more than 50% of women in the reproductive age group. Access to contraceptives is considered to be very good in China Hong Kong, China; Malaysia; the Republic of Korea; and Singapore. Access is considered fair for Mongolia, the Philippines and Viet Nam.

**Advancement of women’s status (education, nutrition, equal opportunities)**

Women’s status can be influenced and improved through advocacy. The Regional Office has published and widely distributed documents and monographs that point out how low status affects women’s health and that of their children. Activities on advocacy on women and gender issues are directed inside, as well as outside, the Organization. Within WHO, concerns on gender issues are being considered or increasingly taken up in every programme of work, as highlighted in the publication *Women in Development - a position paper*. In addition, efforts are being exerted to develop gender-specific, gender-disaggregated and gender-sensitive health and social indicators, to collect better information on women’s status and to improve analysis of the situation of women with more objective and appropriate instruments and more reliable data. Seminars on gender issues are being planned for the staff at the Regional Office. As well as using education as a means to improve women’s status throughout the Region, WHO has also made commitments to expand the involvement of women in the work of WHO itself. A leading advocacy role has been played by the Global Commission on Women’s Health and by the Women, Health and Development Programme. The World Health Assembly has revised its target for employment of women to professional categories to 50% of new appointments to professional categories by 2002.

The Regional Office is collecting all available information on the issue of violence within the countries of the Region. Special surveys and studies are being undertaken in the Philippines and are being planned in the Pacific island countries. Once data become available, additional advocacy instruments will be developed.

**UNDERACHIEVEMENTS**

**High maternal mortality ratios and infant mortality rates in some countries**

Not all countries and areas in the Region have benefited equally from reproductive health programmes, as shown in the continuing high disparity between some of the developing countries in the Region and the developed countries. The highest reported MMRs are in Cambodia at 473 per 100 000 live births, the Lao People’s Democratic Republic (656), Papua New Guinea (930) and Solomon Islands (549). The regional target for maternal mortality is 300 deaths per 100 000 live births. The data for parts of the Region are still not considered accurate because maternal mortality suffers from considerable underreporting, as maternal deaths are often ascribed to other causes, such as sepsicaemia or heart disease, particularly so if the death is not close to the delivery period or is the result of a termination. Thus the overall picture for maternal mortality may be much worse than these figures indicate. IMRs show a similar disparity although the range is not as wide. The highest rates reported are in Cambodia and the Lao People’s Democratic Republic. Regionwide, however, mortality is higher for male than for female infants.

Domestic violence perpetrated against women is a major contributor to the global burden of disease and an important element of the status issue. It has been estimated that: “At least one in five of the world’s female population has been physically or sexually abused by a man or men at some time in their life.” The Regional Office is currently conducting a study of domestic violence in the Region.

**Barriers to wider contraceptive use**

There are many cultural and social barriers that still prevent women from being able to exercise their freedom of reproductive choices. Religious beliefs, price constraints and other issues affecting access to contraceptives continue to hinder the use of modern contraceptive methods in some countries and areas in the Region. Limited choice or poor availability of contraceptives often makes adoption of fertility-regulating methods difficult. Access to contraceptives is considered poor in Cambodia, the Lao People’s Democratic Republic and Papua New Guinea. Unwanted pregnancies are still prevalent and no doubt lead to many unsafe terminations. Regional data on terminations are woefully inadequate due to lack of
reporting or national policies that make termination illegal.

**Low women’s status in several countries**

Improved data collection and analysis demonstrates the low status of women in parts of the Region. Information on schooling, for instance, shows that in some countries and areas boys are more likely to be educated than girls and that girls have a higher drop-out rate after primary schooling. Women’s status affects their health in many ways and education forms one of the links between status and health.

**FUTURE**

**Further improvement of obstetric practices**

Work will continue on improving obstetric practices and stopping the occurrence of harmful traditional practices, while acknowledging that other traditional practices may have their place in a society. Promoting the adoption of safe practices such as clean hands, a clean delivery area and clean instruments for cutting the cord, will be one way of eliminating harmful traditional techniques.

**Promotion of use and wider choice of fertility regulation methods**

Making a wider range of safe contraceptives available, accessible and affordable will have an important effect on maternal mortality and morbidity not only by reducing the number of births and facilitating birth spacing, but by reducing the number of high-risk pregnancies and unsafe terminations.

**Development of information, education, and communication and advocacy/awareness material**

The status of women is linked to access to and use of health facilities. Advocacy will be directed towards political, religious and community leaders who can make a difference to women’s status in their communities. Improved public knowledge through schools, mass media and training of local health personnel, will also increase the use of health facilities. WHO is not the only agency within the United Nations system to take part in this campaign; for example, many UNFPA and UNICEF projects have a media component.

**Integration of population/environment concerns into health sector**

Population issues will receive more focus as rapid population growth, particularly in the smaller Pacific island countries, will put pressure on dwindling natural resources and threaten sustainable development. The population doubling time for at least 10 countries or areas in the Region is 30 years or less, barely time to develop the extra health and other resources needed to cope with twice as many people. Already, several countries are unable to provide for universal primary or secondary education. The known links between girls’ education and female reproductive health make this doubly alarming.

Population issues in the Western Pacific Region will not only be concerned with freedom of reproductive choice and availability of contraceptives, but also with cultural issues that may have a more important influence on the size of families than contraceptive availability.
Chapter 37. Ageing and health

The health of older persons is not a new issue. Some people have reached old age in all societies and the association between ageing, health and functional status has always attracted attention. However, ageing and health-related issues have become a public health priority only in recent times.

THEN AND NOW

Since 1948, the world has aged dramatically. In 1950, the share of the world’s population under 15 years of age was nearly 35%. This proportion is now around 30% and is expected to decline to just over 20% by 2050. In contrast, the percentage of the population of the world aged 60 or above has increased from around 7% in 1950 to 9% in 1995 and is expected to increase to just over 20% by 2050.

In the past 50 years, the Western Pacific Region has experienced significant population ageing. Life expectancy at older ages has increased dramatically throughout the Region. For instance, in the period from 1960 to 1990, average life expectancy at age 60 years in Japan increased from 15.0 to 20.3 years for males, an increase of 35.3%, and for females, from 18.0 to 25.0 years, an increase of 38.9%. In Singapore, over the same period, male life expectancy at 60 years rose from 14.0 to 16.6 years (an increase of 18.6%) and for females from 18.4 to 20.2 years (an increase of 9.8%).

Demographic shifts are occurring in almost all of the countries of the Region. This is the outcome of large birth cohorts in the past, and improved chances of survival, even into the older ages. In East Asian countries, average life expectancy is 65 years at birth for males and 68 years for females. For South-East Asian countries, life expectancy is 64 years for males and 68 years for females. For Pacific island countries, life expectancy is 71 years for males and 76 for females. Japan has the highest life expectancy (77 years for males and 82 years for females) while the Lao People’s Democratic Republic has the lowest (51 years for males and 53 years for females). Most people in the Region now expect to survive into old age.

At present, the Region is home to one third of the world’s population of persons aged 65 years and over. More than half are women. Japan (14.1%), Australia (11.9%) and New Zealand (11.5%) have the highest percentages of people over 65 years of age. Next, with 7% or more of the population aged 65 years and over, are Cook Islands; Hong Kong, China; Macao; Palau; and Tokelau. Singapore has over 5% of the population over 65 years of age. Samoa is the youngest country, with only 1.8% of its population composed of older persons aged 65 years and over.

WHO ACTIVITIES

Global developments

The First World Health Assembly resolution covering health care of the elderly was in 1979. This led to the creation of a Global Health of the Elderly Programme (HEE) based in Copenhagen at the Regional Office for Europe. In 1987, the Global Health of the Elderly Programme was transferred to WHO Headquarters in Geneva. In 1982, in recognition of the increasing global significance of ageing as a critical health, economic, social and developmental issue, the United Nations held a World Assembly on Ageing in Vienna, Austria. Subsequently the UN General Assembly endorsed and promulgated the Vienna International Plan of Action on Ageing. WHO made a significant contribution to formulation of the Vienna International Plan of Action, which gave due emphasis to the importance of health issues and the need to promote appropriate research, education, policy and programme activities at global, regional and national levels in response to the challenges posed by rapid population ageing.

The second review of the International Plan of Action conducted during 1989 revealed only limited progress in realizing its objectives. In May 1987 the Fortyieth World Health Assembly called for the establishment of an international research programme on ageing as an integral part of the Organization’s programme on Health of the elderly. This Special Programme for Research on Ageing (SPRA), later called the Programme for Research on Ageing (PRA), worked in collaboration with the United States National Institute on Ageing until 1995. It coordinated a series of international research activities in four...
priority areas: determinants of healthy ageing, age-related dementias, age-related changes in immune function, and nutritional changes associated with ageing, with special emphasis on osteoporosis.

The Executive Board of WHO reviewed the Health of the elderly programme in January 1995. The programme was subsequently re-named the Ageing and health programme (AHE) and reoriented in order to emphasize a number of key perspectives, including life course, health promotion, cohort, cultural, gender, inter-generational and ethical concerns. The strategy adopted by the programme is a collaborative approach emphasizing interregional, inter-divisional and interagency linkages as well as close involvement of collaborating centres and nongovernmental organizations (NGOs).

Regional developments

In the Western Pacific Region, the health of older persons has always received attention, initially within the context of the Region’s general programmes, such as those on health system development, primary health care, general health protection and promotion, protection and promotion of mental health, diagnostic and rehabilitative technology and disease prevention and control.

Targeted activities relating to health of the elderly first emerged in the Region in relation to preparatory work for the 1982 World Assembly on Ageing convened by the United Nations in Vienna. A Health of the elderly (HEE) programme was subsequently established at the Regional Office, the primary objective of which was: "...to improve the well-being and quality of life of the aged through the provision of community-based services." A working group on health care of the elderly met at the Regional Office in 1981 with the overall aim of advising on WHO’s collaborative role in developing the regional programme on health care of the elderly. Specifically, the working group was tasked to: (1) review the current status of well-being and health care of the elderly in countries of the Region; (2) determine priority needs in the area of health care as a basis for programme development; and (3) develop guidelines for WHO and country collaboration in the development of a community-based programme on health care of the elderly with emphasis on the promotion of health and prevention of disease. This meeting, attended by 14 members from nine countries of the Region together with consultants, laid the foundations for the future direction of the WHO’s regional programme on ageing.

WHO’s regional activities on ageing focused initially on the gathering of data on health and social conditions of older people through four country studies in Fiji, Malaysia, the Philippines and the Republic of Korea. The findings of these studies were reported in a publication entitled Aging in the Western Pacific: A four country study. This initiative was one of the earliest cross-national studies of ageing in developing and recently industrialized countries. Similar studies based on the Western Pacific Region exercise were subsequently undertaken in other regions of WHO.

WHO has supported national initiatives that would later contribute to policy development and directions for future action for health care of older persons. Curriculum development for training on care of the elderly has also been supported. In addition to these activities, WHO has collaborated in research projects in China, Fiji and the Republic of Korea. These activities have contributed significantly to the provision of basic data on ageing and to a raising of awareness of the issues associated with population ageing in the Region.

As part of the overall goal of supporting member countries to lay the foundation for a comprehensive programme to improve the health of older persons, WHO organized several regional workshops which reviewed human resource development and identified training needs in health care of older persons (1990); provided an overview of national policy development and a broad framework for further development of policies and strategies for implementation (1993); and promoted and developed an action plan to strengthen home-based and community-based approaches to care of older persons (1995).

Several activities in the Region relating to ageing have been carried out in collaboration with the International Association of Gerontology, a key NGO. In addition to the joint efforts in Fukuoka and Singapore referred to above, a regional workshop on Guidelines for Community-Based Services to Promote Health of the Elderly and a WHO-sponsored Symposium on Community-Based Approaches to Promote Health of the Elderly - Experiences in the Western Pacific Region were organized during the Asia/Oceania Regional Congress of Gerontology in Hong Kong in 1995. In association with the 1997 World Congress of Gerontology, a workshop was held in Adelaide, Australia, in August 1997 to review the implementation of national policies for health care of older persons. During this workshop, the draft Guidelines for National Policies and Programme Development for Health of Older Persons in the Western Pacific that had been produced by the WHO collaborating centre, the Centre for Ageing Studies, Flinders University of South Australia, were reviewed and finalized.

The regional programme on health of the elderly has evolved from a narrow focus on the care of the agec
in the early 1980s to a broader approach encompassing not only prolongation of life but improving the quality of life, productivity and the process of healthy ageing. The change of name to Ageing and health in 1995 acknowledged that action to ensure quality of life in old age can begin well before old age is reached and that a healthy childhood and adulthood may indeed be the most important determinant of healthy old age.

Member States in the Region have been supported by WHO to develop national policies and programmes on older persons. In particular, WHO has collaborated with countries in epidemiological studies to determine the nature, extent and magnitude of health and health-related problems of older persons; supported the formulation of policies, programme development and implementation; promoted community-based care of older persons; trained personnel on the care of older persons; and conducted studies and research on priority problems of the older persons. Twenty-eight countries of the Region have now designated “focal points” to coordinate activities and to work with WHO.

Three issues are emerging as major concerns in the Region. These are the increasing percentage of nuclear as opposed to extended families; increasing urbanization; and the predominance of women among the older segment of the population. These trends have encouraged WHO to look at policy initiatives that would increase community-based care services to deal with the loss of caregiving by family members; employment and income support for older persons, to limit further marginalization through urbanization; and gender-sensitive programmes and services to meet the needs of the increasing number of females who live longer.

ACHIEVEMENTS

Since the programme was initiated in the Regional Office, there has been a significant upsurge in awareness and attention given to the health needs of older persons in the Region. In a number of countries, such as Australia, Japan, and New Zealand, policies and programmes for the health of the elderly are well-established. Other countries are at various stages in formulating their programmes and developing health services for older persons, while for some countries, ageing issues remain a relatively low priority.

Growing awareness of need for policy and programmes on healthy ageing

The Ageing and health programme has been guided by resolutions of the World Health Assembly and the Regional Committee. Inter alia, these resolutions recognize the leadership role of WHO in the health care of the elderly; acknowledge health of the elderly as an integral component of strategies for health for all by the year 2000; promote increased awareness, the development of national policies and establishment of comprehensive programmes for the elderly; advocate the development of health-promoting behaviours and encourage multisectoral collaboration. The programme has successfully raised the profile of population ageing as an issue that must be addressed by governments everywhere. There is now a widespread appreciation of the concepts contained in the regional framework document New horizons in health that what happens in earlier life has an important influence on health status in old age. The need for multisectoral and multidisciplinary action and the integration of the Ageing and health programme with other programme areas is also now widely acknowledged.

Increasing life expectancies throughout the Region have led to a much greater emphasis on enhancing the quality of life of the older person. Publication of New horizons in health represented a significant milestone in the history of WHO’s support for health for older persons in the Region. Its emphasis on the stages of life approach has helped to ensure that health for the elderly is now seen in a wider context. As the document points out: “A healthy childhood and adulthood is probably the most important determinant of healthy ageing”.

Ageing and health issues as a priority in national agendas

For many countries, it is evident that greater priority is increasingly being accorded to the health of older citizens. A national policy on the care and health of older persons is an important first step in achieving a framework for the future development of services for older persons. At present, 19 countries and areas of the Region have adopted policies promoting and protecting the welfare of the older persons in society. Legislation specific to older persons has been enacted in 11 countries. Two examples of such legislation are the Elderly Welfare Law, enacted in the Republic of Korea in 1981, and the Health Service Law for the Aged, enacted by the Japanese Parliament in 1983. A Senior Citizens Act was passed by the Philippine Congress in 1995. Most recently, the Aged Care Act was enacted by the Australian Parliament in 1997.

To monitor and coordinate the various efforts to improve the welfare of older persons, there is a need for a coordinating body which ideally should be intersectoral and must have adequate budgetary support. Tc
The countries in the Region with significant populations of older persons – Australia; Hong Kong, China; Japan; and New Zealand – have all developed comprehensive services for the elderly. Australia has a package of services and benefits for the elderly, addressing the needs of the healthy, the frail, the sick and disabled. These include community care services which help the family carry out its primary role of caring for older persons; housing programmes that encourage multi-generational living arrangements; tax breaks for family caregivers; educational opportunities and institutional care when it is needed. Japan has adopted a 10-year strategy to promote health care and welfare for the elderly and has a number of services targeted specifically at the elderly, including home help services, short-stay services, in-home care support centres and day care centres. Countries in the Pacific providing age care services include American Samoa, Guam and Palau, although these are in varying stages of implementation.

A lack of policies for the health and care of older persons does not necessarily mean that there are no services for them. Such services are often part of general health and welfare services. The majority of the countries and areas of the Region provide services which the elderly can access, especially in health care. In most countries, social security schemes are in place, albeit in varying degrees of coverage and stages of implementation.

Production of guidelines and information material

WHO has provided advice to countries in the development of policies and programmes and in training for health care of older people. The workshops referred to above have provided frameworks for future directions in aged care. Guidelines for implementation of community-based care have been produced and a comprehensive guide to policy and programme development has now been finalized for distribution throughout the Region.

The manual Quality health care for the elderly is intended as a curriculum and training resource in the education of nurses and others in health care of older persons. It has been widely used throughout the Western Pacific Region and has now been adapted for local use in a number of countries.

In 1998, a regional profile on policies and programmes for the health of older persons was developed. It is a comprehensive descriptive package which includes, for each country and area in the Western Pacific Region, demographic and health profiles, national policies and programmes, resources for the elderly, information on research and training, the government focal point on ageing and an outline of WHO collaborative activities on health and ageing.

UNDERACHIEVEMENTS

There remains a pressing need for more timely, accurate and relevant data on ageing for many countries and for the Region as a whole. In particular, there is a need for more gender-disaggregated data related to ageing.

While considerable advances have been made in awareness raising generally, many countries still accord ageing and health issues a relatively low priority in national policy terms.

FUTURE

The older societies that are coming to characterize the Western Pacific Region are in many ways a sign of success. WHO will continue to advocate, regionally and nationally, for improved health opportunities for the growing ageing population of the Region. WHO will also provide further support for national efforts in policy and programme development on ageing and health throughout the Region.
Building on the foundations laid down in *New horizons for health* and the ageing and health programme itself, the Regional Office will continue to promote the concept of healthy ageing as a universal goal.

To achieve these objectives, efforts will be made to strengthen the capabilities of countries to develop effective policies and programmes that promote healthy ageing through an integrated stages of life perspective. In addition, the special considerations of specific ageing and health needs of particular groups will be pursued and technical support provided to help governments, NGOs and health authorities to respond effectively to the benefits and challenges of increasingly ageing populations throughout the Western Pacific.
Chapter 38. Nutrition

Malnutrition is estimated to contribute to between half and two thirds of deaths in children less than five years of age in developing countries. In the Pacific islands countries and more developed countries of the Region, overnutrition is a major cause of obesity and diet-related noncommunicable diseases, including cardiovascular diseases, cancer, diabetes, arthritis and osteoporosis. Contaminated food and water are still the main causes of many diarrhoeal diseases in the Region.

WHO addresses nutrition and food safety problems through national plans of action for nutrition, based on a multisectoral approach. While improved quality and availability of food are the main targets, the main strategies include public education on nutritious and safe diets and healthy lifestyles, fortification of staples with key micronutrients and supplementation for high-risk groups.

THEN AND NOW

At the end of the Second World War, the nutritional status of the countries and areas of the Western Pacific Region was very varied. Destruction of agriculture during the war, the slow return to normal distribution patterns, poverty, vast intercountry and intracountry population migrations, colonial governance and the presence of every form of disease due to nutritional deficiencies was the picture in almost all the countries of the Region in 1948, except for Australia and New Zealand. Marasmus, kwashiorkor, xeropthalmia, beriberi, scurvy, rickets, goitre, fluorosis, anaemia and pellagra were seen in almost all countries in the Region until the mid or late 1960s.

Principally because of increased availability of a variety of foods and heightened awareness of the importance of nutrition, the nutritional status of the Western Pacific has changed radically from the nutritionally impoverished Region that existed five decades ago. There is no beriberi, pellagra, scurvy, and arboflavinosis to be seen anywhere. Protein calorie deficiency has disappeared in most countries, and now exists only in a few areas of some developing countries. However, low birth weight, which is a sensitive index of overall maternal and infant nutritional status, still ranges from 0.4% to 20%. With regard to standard weight-for-age in children under five years of age, it has been estimated that in French Polynesia 8% of children fall below this figure, while in Cambodia, the Lao People’s Democratic Republic and Viet Nam, the figure is about 40%. Unfortunately, data on height-for-age, which is more relevant for measuring prolonged undernutrition, is very scarce. Florid skin disorders caused by vitamin A deficiency have disappeared from most countries, but xerophthalmia caused by vitamin A deficiency still exists in some developing countries. Anaemia, especially iron deficiency anaemia, is still prevalent in many developing countries and is perpetuated by low iron intake, malaria and intestinal parasites. Anaemia still poses a public health problem because of its direct correlation with post partum haemorrhage and maternal mortality. Iodine deficiency disorders (IDD), which include goitre, deaf-mutism, cretinism and a wide range of mental and neuromotor impairment have received considerable recent attention, in part because China has the greatest number of IDD cases in the world.

WHO ACTIVITIES

The first major Asia-Pacific meeting on nutrition was the First Far East Symposium on Nutrition organized by the United States Interdepartmental Committee on Nutrition for National Defense (ICNND) in 1962 in Saigon, Viet Nam.

The ICNND was set up in 1955 and in addition to organizing the Far East Symposium on Nutrition it sent many nutrition survey teams to countries in the Region. There were also considerable national initiatives in many countries, particularly in South Asia. As early as 1944, the Nutrition Advisory Committee of the Indian Council of Medical Research had recommended a schedule of diet which it considered to be adequate. This formed the basis of dietary allowances not only for the subcontinent, but for Burma, Indonesia, Malaya, Thailand and Viet Nam. With fresh data there was a downward revision of the allowances for calories and protein in 1958. The allowances were further reviewed in the light of food production figures in 1966. The schedule of diet prepared by the Nutrition Advisory Committee contributed significantly to the first attempt by the Food and Agriculture Organization of the United Nations (FAO) to determine “Dietary Allowances” and later to the FAO/WHO expert committee’s technical reports on
nutritional requirements which began in 1968. Over the years, there has been a steady downward trend in assessing nutritional requirements, as initial figures tended to depend on figures from the United Kingdom and the United States of America.

The earliest national institute for nutrition to be established in the Region was in Japan in 1946 under the Japanese Ministry of Health and Social Action. Nutrition institutions were developed in the 1950s in China (Taiwan), the Philippines and Viet Nam. The focus of all these institutions was on sample surveys and laboratory research to determine the causes and best treatment for different types of malnutrition.

Contrasting views on nutrition prevailed into the 1960s on such issues as the extent to which too little salt to eat with rice caused diseases such as tuberculosis, anaemia and beriberi. It was recommended that mothers’ diets should contain fruit, milk, and iron-rich food. It was also recommended that they should be high in protein and low in salt, so as to reduce the number of cases of anaemia or toxaeemia.

Considerable research into nutrition was carried out in the 1960s. WHO and UNICEF were the main partners in these efforts. Simultaneously, FAO and other multilateral agencies concentrated their efforts on food production, preservation and storage. These parallel and sometimes joint efforts meant that many countries in the Region had achieved food sufficiency, food security and adequate nutritional intakes by the mid- or late 1970s. These efforts took place against a backdrop of concern over population growth and migration.

The greatest contribution that Asia made to the understanding of nutrition was to move nutritionists from a narrow focus on protein and nutrient deficiency towards the basic concept of food adequacy. This had considerable commercial implications for the many industries producing high protein and nutrient supplements. It is not too long ago that fish protein concentrate, soya protein and even algae protein were considered essential to solve the problem of undernutrition.

Nutrition surveys

No national nutrition surveys were undertaken in the Region until the late 1970s. There were, however, many sample surveys on selected population groups, from which the general nutrition problems of vulnerable populations were extrapolated and preventive or curative services developed. In the mid-1950s, Japan started annual nationwide anthropometric surveys of schoolchildren which continue to this day. These surveys show trends in growth and weight over the decades. Selective surveys were conducted in other countries of the Region in the 1950s and 1960s, but unfortunately they are not comparable between countries as they were heavily influenced by the standards and methods advocated by the sponsoring agencies or countries and were not based on FAO/WHO “international standards”.

Dietary intake studies presented the classic picture of rice as the staple; low intake of fats or animal protein; and seasonal intake of fruits and vegetables (which were sometimes avoided altogether due to cultural or religious beliefs). The main source of animal protein was often fish. Milk was neither produced nor consumed in most of the Region outside Australia and New Zealand.

No country was spared from beriberi, angular stomatitis, pellagra, xerophthalmia and scurvy. Some form of nutritional deficiency affected between 30% and 50% of the surveyed populations until the late 1960s in many countries. Many of these surveys were supported by FAO, ICNND, UNICEF and WHO. The intake of critical nutrients in the Region was summarized at the First Far East Symposium in 1962 as follows: “The critical nutrient intakes noted in selected countries at the time of the surveys (early 1960s) were as follows: (1) calcium (less than 400 mg per person per day) particularly in Malaya; (2) vitamin A (less than 3500 I.U.) in every country; (3) riboflavin (less than 1.1 mg) particularly in Malaya and the Philippines; (4) vitamin C (less than 30 mg) particularly in Malaya; (5) thiamine (less than 0.3 mg per 1000 calories) particularly in Malaya and Viet Nam.

The conclusion was that the chief nutritional problems which impeded health and economic development encountered in the surveys were: (1) protein-calorie undernutrition of infants; (2) iodine deficiency; (3) nutritional anaemia; (4) arboflavinosis; (5) vitamin A deficiency; and (6) sub-optimal thiamine nutriture.

Nationwide nutrition surveys had to wait until 1978 in the Philippines and 1982 in Malaysia. The early 1980s also saw national surveys in China, Fiji, Papua New Guinea, the Republic of Korea, Vanuatu and Viet Nam. National surveys were supported by WHO in Kiribati, the Lao People’s Democratic Republic and other Pacific island countries. Smaller countries such as Singapore have undertaken regular nutrition status surveys for specific purposes. Today we have a much clearer picture of the nutrition status of the Western Pacific.

Nutrition status improvement
The change from the dismal picture of hunger and malnutrition of the 1950s to food adequacy and improved nutritional status in the 1990s was due to a number of factors. Some of the more significant were as follows.

The “Green Revolution”

The so-called “Green Revolution” was largely due to increased production of cereals, especially rice, as a result of genetic experiments which led to new varieties of seeds. These developments have been supported by both national policies and international agencies. The Region as a whole produces enough basic foods today to feed itself, although within the Region production is uneven.

Applied Nutrition Programme

The Applied Nutrition Programme (ANP) was conceived by FAO, UNICEF and WHO in the 1960s. It attempted to create awareness of sound nutrition practices (nutrition education), to support local production of appropriate foods with local help, to introduce supplementary food and to stimulate community development so as to attract support for its policies. When it was evaluated in the late 1970s, it was judged to have reduced malnutrition and increased nutrition awareness in most of the countries in which it had operated.

Considerable work in this sector is still required. Global extension of dietary patterns has had more harmful than beneficial effects. In many cases sound traditional habits have been discarded in favour of inappropriate diets. For example, increasing demands for animal protein may be misplaced when we know that the land area required is more than eight times that needed to produce an equivalent quality amount of vegetable protein. Policies on sustainable agriculture lie at the heart of sound national nutritional policies.

Infant and young child nutrition

By the 1970s, the most harmful development to affect infant and young child nutrition was the decline in breast-feeding. This was partly due to increased participation by women in the workforce and partly due to the vigorous promotion of breast-milk substitutes from milk-producing countries. The International Code of Breast Milk Substitutes was adopted in 1981 and national legislation reflecting its aims had been enacted in 11 countries and areas by 1997.

The WHO/UNICEF baby-friendly hospital initiative has been a very successful way of promoting breast-feeding for child growth and development. By 1998, more than 7000 hospitals in the Region had been designated baby-friendly.

Nutrition at different age groups

With regard to nutritional deficiencies, the most vulnerable groups are mothers and children. Childhood malnutrition chiefly consists of protein calorie malnutrition and anaemia. In at least eight countries Vitamin A deficiency still constitutes a public health problem. Iodine deficiency is a problem in nine countries. Low birth weight and premature births have a direct effect on the infant mortality rate. Even if they survive, malnourished children may well have stunted growth. With respect to the mother, malnutrition and severe anaemia lead to high maternal mortality ratios.

Over the last 50 years there has been a considerable decline in under-five mortality and morbidity in the Region. This is due not only to improvements in nutrition, but also to improved immunization, the introduction of oral rehydration and better case management of acute respiratory infections. However, despite this decline in under-five mortality, neonatal mortality remains virtually unchanged.

An age group which has recently attracted the attention of nutritionists is older persons. With an increasing percentage of older persons in most societies and increasing
awareness of the possibility of delaying the ageing process through sound nutrition and healthy lifestyles, this seems certain to be an area of increasing importance.

**Nutrition and noncommunicable diseases**

Giving up healthy traditional dietary patterns, increased consumption of animal fats, too much salt, excessive intake of alcohol and sugar, declining use of fruit and vegetables, low-fibre diets, convenience foods and physical inactivity have all contributed to a dramatic increase in noncommunicable diseases in the Region. Obesity, hypertension, cardio-cerebrovascular problems, diabetes, arthritis, osteoporosis and cancer are among the leading causes of morbidity and mortality in the Region, in both developed and developing countries. However, through extensive health education and healthy lifestyle campaigns, Australia, Japan, New Zealand and Singapore have managed to reduce the mortality of cardiovascular diseases in recent years.

**Nutrition during illness**

Nutrition services in many countries began with hospital nutrition. Remarkable progress has been achieved towards improving our understanding of the role of appropriate nutrition during illness and convalescence. Dieticians are now trained in many countries of the Region.

**Food safety**

Food safety has always been a priority for WHO because of its potential adverse impacts on public health. Contaminated food and water are the major causes of many diarrhoeal diseases. During the last 50 years, there have been a number of significant disease outbreaks in the Region due to unsafe food, including paralytic shellfish poisoning resulting from red tide caused by periodic algae blooms in the western part of the Region and Minamata disease caused by mercury contamination of fish in Japan.

One of the main normative functions of WHO is also related to food safety. One of the first guidelines produced by WHO was a monograph on the pasteurization of milk in 1953. Food additives, preservatives and contaminants, particularly residues resulting from extensive use of chemicals in food production, led to the establishment of the Joint Expert Committee on Food Additives (and Contaminants) in 1955. The work of this Committee led to the formation of the Codex Alimentarius Commission (CAC) by WHO and FAO. CAC formulates standards for international trade in foodstuffs. Seventeen Member States of the Region had become members of CAC by 1997.

Food safety activities in the Region intensified with the establishment in 1977 of the Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS, later the Environmental Health Centre). The Centre played a very important role in collaborating with the Member States to establish and strengthen their national food safety legislation, institutions and programmes (see also Chapter 5). The food safety programme was part of the Environmental Health Programme until 1996, at which time it was combined with the Nutrition programme.

Food safety continues to be a priority programme. It will continue to focus on developing national capacity, control of chemical and bacteriological contaminants, promoting new technologies in production and preservation of foodstuffs, and facilitation of international food trade.

**Research and training institutes**

The last five decades have seen the development of a number of national and regional institutes in the field of nutrition. At the forefront is the National Institute of Nutrition in Tokyo, Japan, which has completed its first 50 years and has made significant contributions to the
study of beriberi, scurvy, blood lipids and protein-energy malnutrition. The Nutrition Division of the Institute of Medical Research in Kuala Lumpur, Malaysia, which will soon observe its centenary, is a pioneering institute in lipid studies and community nutrition. The Nutrition Institute in the Academy of Medical Sciences of China has conducted many studies in such areas as micronutrients, rickets, selenium deficiency and fluorosis. Other important nutrition centres in the Region include the National Institute of Nutrition in Hanoi and the Institute of Nutrition in Ho Chi Minh City, Viet Nam, the Food and Nutrition Research Institute (FNRI) and the Nutrition Centre of the Philippines and the Institute of Medical Research in Papua New Guinea. Important regional centres for training of nutritionists include the Nutrition Centre of the Philippines (supported by the United Nations University in Tokyo, Japan); the University of the Philippines at Los Baños, the Philippines; the University of Queensland and Monash University in Australia; and the University of Otago in New Zealand. Nevertheless, there is still a lack of public health nutritionists in the Region.

ACHIEVEMENTS

The Western Pacific Region has made great strides from extensive malnutrition in the postwar period to self-sufficiency at the regional level, in spite of enormous increases in population. As far as major food items are concerned, food sufficiency was achieved by the middle of the 1980s. Diseases caused by severe nutritional deficiency are now almost non-existent, except for IDD, anaemia and protein-energy malnutrition in some areas.

The majority of countries in the Region have national food and nutrition policies, although implementation varies from country to country. WHO is taking action to improve poor feeding habits, arrest declines in breast-feeding and eliminate micronutrient malnutrition.

UNDERACHIEVEMENTS

Obesity is widespread in several Pacific island countries and increasingly in urban populations elsewhere in the Region. The principal reasons for this are the adoption of non-traditional food habits (in particular the demand for foods of animal origin), convenience foods, increased consumption of fats, sugar and salt, and sedentary lifestyles.

The Green Revolution ensured food adequacy as far as cereals are concerned, but this has been at the expense of other food crops. The demand for animal food is now a crucial factor in the division of land that can be cultivated. The Region does not have much unused land that can be used for cultivation. Increasing industrialization and urban migration are already affecting agriculture and agricultural land.

Today most people in the Region are reasonably healthy and well nourished. However, the achievements of nutrition policies appear to have peaked. The future does not seem very promising in view of the Region’s increasing population.

FUTURE

WHO cannot function in isolation in the field of nutrition. As agreed at the International Conference on Nutrition in Rome in December 1992, a coordinated effort is essential. Within the United Nations system, FAO, UNICEF and WHO will take the lead in efforts to improve global nutrition. Their principal responsibilities will be as follows:

- food production, storage and distribution or food security (primarily FAO);
- nutrition surveillance (all agencies);
- nutrition education, including infant feeding and supplementary feeding (all agencies);
- food fortification and micronutrients deficiency prevention (FAO and WHO); and
- food quality control, including production, marketing and consumer education (FAO and WHO).

Areas of particular concern will include population growth; ageing populations; urban migration; nutritional...
support during emergencies; and international trade in food commodities.

The role of the health sector will remain crucial in ensuring that health needs are guaranteed. WHO’s role in the future will involve supporting national surveillance systems and the development of sound policies, nutrition education and supplementation, infant feeding and micronutrient deficiencies. WHO will also continue its support for nutrition research and information exchange.
Chapter 39. Environmental health

The close linkages between health and the environment are easily recognizable in the Western Pacific Region. The age-old public health problems of contaminated water, poor sanitation and unsafe food continue to plague parts of the Region. With increases in population, the rapid expansion of industry, unplanned and uncontrolled development, the intensification of agricultural development and growth in natural resources extraction activities, environmental pollution and related health hazards have grown proportionately. The control and management of these hazards is a major problem in both developed and developing societies. However, a growing awareness of the close relationship among health, environment and development decision-making is leading to more integrated, intersectoral approaches to environmental health.

THEN AND NOW

In the 1940s and 1950s, about three-quarters of the population of the Western Pacific Region lived in rural areas. Then, as now, the countries of the Region had diverse climates and exhibited wide variations in terms of their technical and industrial development. There was a corresponding variety of health problems.

Innumerable diseases caused by parasites, bacteria and other organisms were spread in the 1950s through unclean, unsafe drinking water and the unsanitary disposal of human waste. The problem of sanitation was especially burdensome, made all the more so because human waste was a taboo subject almost everywhere. One of WHO's major tasks was to drive home the message that, for the sake of health, sanitation should occupy as high a rung on the national priority ladder as clean, safe drinking water.

During the 1960s, the improvement of community water supplies and waste disposal remained priority issues in the greater part of the Region. In six of the less developed countries, with a total population of about 90 million, 20% or less of the urban population had access to safe water. Construction programmes for individual and community water supplies and sewage disposal systems were initiated in a number of countries, particularly in the South Pacific. Pre-investment engineering studies with a view to obtaining long-term loans for the construction of waterworks and sewerage systems were undertaken. Other environmental health issues began to receive attention: air and water pollution, sewage and solid waste disposal, health aspects of housing and physical planning, and radiation health protection. Applied research began to be recognized as an important element of environmental health policy development.

In the 1960s and 1970s, factors underlying water supply and other environmental problems included substantial increases in population, and rapid urbanization and industrialization, resulting in many more people living in congested conditions and being exposed to increasing pollutants in air, water, food and soil.

During the 1980s, over 530 million additional people were provided with access to safer drinking water. More than 250 million additional people had access to adequate sanitation facilities. However, ensuring the operation and maintenance of existing systems continued to be a problem, as adequate resources were often not allocated to support repairs and purchase spare parts. Poor operation and maintenance resulted in contamination of drinking water, increased wastage of water, and deterioration in service coverage.

Digging pipeline trenches in Gilbert Islands (now Kiribati)

Digging pipeline trenches in Gilbert Islands (now Kiribati)
With regard to air and water pollution control, efforts in the 1990s focused mainly on infrastructure development through institution-building activities and human resources development. Competent pollution control agencies were set up in some countries, along with viable legislative and regulatory mechanisms. However, in many countries, the political will and resources needed to fully implement the regulatory programmes that were created were lacking. Environmental health considerations were not yet fully accepted or integrated in economic planning and development decision-making.

Also during this period, environmental health problems associated with the safety and control of toxic chemicals and hazardous wastes became more evident. The increased use of agricultural chemicals, rapid industrialization and ill-conceived schemes to import hazardous wastes for disposal in the Region were matters of growing concern.

**WHO ACTIVITIES**

Over the first few decades of its existence, WHO organized environmental health activities into five basic programme areas, beginning with community water supply and sanitation and gradually adding programmes that focused on rural and urban development and housing, the control of environmental health hazards, food safety, and chemical safety. Operating in a more or less vertical fashion, these programmes supported Member States through the provision of technical advisory services, human resources development in the form of fellowships and group training activities, and small amounts of supplies and equipment to enhance the development of institutions and infrastructures. This was done with varying degrees of effectiveness, but on balance these early environmental health programmes made a significant contribution to the efforts of Member States in the Region to cope with increasingly severe environmental health problems.

In more recent times, however, the growing challenges of resolving complex issues relating to health, the environment and socioeconomic development, and the increasing demand for limited organizational resources, have necessitated a fresh look at environmental health programme strategy. At the global level, this review process was guided by the work of the WHO Commission on Health and Environment (1990–1992). At the regional level, it was initiated by a Consultative Group on Health and Environment which met in 1991. In addition, the 1992 United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro, Brazil, further confirmed the critical need to take more integrated, intersectoral approaches to environmental health problem-solving. UNCED raised awareness of global environment and development issues and focused attention on the need for sustainable development.

A new Regional Strategy on Health and Environment was developed to guide WHO activities over the period 1994–2000. It was subsequently endorsed by the Regional Committee at its forty-fourth session in September 1993. The strategy is made up of two interrelated components: (1) a new focus for traditional activities, and (2) the selection of priority activities on the basis of significance, timeliness, and practicability.

To be more effective, and to better reflect the spirit of initiatives such as the WHO Response to Global Change and *New horizons in health*, the new strategy focused environmental health activities on: responding to the most urgent needs and declining less urgent requests; proposing simple measures that positively affect the solution of complex environmental health problems; establishing a more effective network of organizations involved in environmental health problem-solving; advocating the timely involvement of government officials in critical decision-making in other sectors; and promoting educational activities to bring about behavioural change.

In recent years, widespread socioeconomic development in the Region has led governments and the public to become more concerned about environmental health issues. The relationship among environment, health and development is better recognized and more routinely acknowledged. Consequently, holistic approaches to resolving health and environment issues are being seen in a more favourable light. This is reflected in, among other things, the rapidly emerging interest in Healthy Cities-Healthy Islands initiatives; the development of analytical and decision-making approaches such as environmental health impact assessment; and the sharing of experiences and collaboration among developing countries.

**Integrated activities**

*Regional Environmental Health Centre*

In 1977, the Regional Committee authorized the establishment of a technical environmental health centre for the Region. The overall objectives of the centre were: (1) to promote and facilitate effective
collaboration between institutions and scientific and technical personnel of Member States in the Region; and (2) to support the development by Member States of self-reliant institutions and capabilities in the field of environmental health. The WHO Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS) began operations on a university campus near Kuala Lumpur, Malaysia, in January 1979. It was renamed the WHO Western Pacific Regional Environmental Health Centre (EHC) in 1992 and continued to provide effective collaboration with Member States until its closure in December 1997.

The technical staff of the Centre included professionals in the fields of water and sanitation; waste management; air and water pollution control; environmental health impact assessment; chemical safety; and food safety. Consultancy services were provided to Member States in policy and programme development, formulation and implementation of national and local plans, and human resources development. The Centre organized regional workshops and training courses on specific environmental health subjects and funded applied studies in environmental health. The provision of technical information was another important function of the Centre. It produced 14 technical guidelines and case-study documents and responded to about 200 information requests from Member States per year.

**Environmental Health Research Centre (Malaysia)**

Soon after the 1992 UNCED, the Malaysian Government launched a campaign to direct and better coordinate the efforts of the various groups engaged in environmental health research in Malaysia. This issue was addressed at a national conference on environmental health research in April 1994. The conference resulted in a recommendation to establish an environmental health research centre. An inter-agency task force developed a detailed proposal for establishing the centre. The Environmental Health Research Centre (EHRC) was formally established in September 1996 in the Institute for Medical Research, Ministry of Health.

WHO has collaborated with the Government in the establishment of the EHRC, beginning with the preparation for the national conference in early 1994. WHO staff and consultants provided inputs to the national conference, and subsequent seminars and forums organized by the EHRC. WHO support has been extended to the training of the staff of the Centre and the strengthening of its information management capability.

When it is fully developed, it is intended that the EHRC will be able to provide similar support to other countries in the Region which are planning to develop their environmental health research capabilities.

**Human resources development**

A long-term vision for sustainable human resources development in environmental health underpins the regional environmental health programme. This vision recognizes the importance of local ownership of environmental health problems and the development of commensurate problem-solving capabilities. From WHO’s perspective, this long-term view began to be articulated in the early 1980s in Fiji in collaboration with the Fiji School of Medicine (and other Fiji-based educational institutions) and the University of Western Sydney-Hawkesbury, Australia (through the School of Applied and Environmental Sciences, which became a WHO Collaborating Centre for Environmental Health in 1995).

The problem-based learning approach, developed and finely honed over a 13-year period, has worked well in Fiji and other Pacific contexts. It has been coupled with strategic thinking tools to link environmental health to shared community goals. This is producing an environmental health profession that is ready to occupy a new position in managing the environment for health, as past strategies to regulate and educate are being replaced by more culturally appropriate problem-based learning in communities.

Efforts are now underway to transfer this approach to other countries in the Western Pacific Region. For example, environmental health human resources development initiatives in Cambodia and Viet Nam are benefiting from the Fiji experience. As the Region as a whole begins to take more integrated approaches to health, environment and sustainable development issues, this long-term view of environmental health human resources development will be one of the keys to success.

**Healthy Cities-Healthy Islands and settings approaches**

In the late 1980s and early 1990s, when Healthy Cities projects were being developed in industrialized countries in Europe, North America and Asia and the Pacific (e.g. Australia, Japan and New Zealand), the Regional Office began a series of regional consultative meetings on urban health issues. The intention was to address not just the urban health issues of industrialized countries, but also those of developing
countries in the Region. The results of the regional meetings involving experts in different health fields were summarized in a document entitled "Healthy Urban Environment", which was the subject of a technical discussion conducted in conjunction with the forty-third session of the Regional Committee, in Hong Kong in September 1992.

Following the Regional Committee’s endorsement of the WHO initiative to promote urban health development activities in the Region, city-specific urban health development activities were begun in selected countries. In early 1994, WHO held discussions with the Governments of China, Malaysia and Viet Nam, and, by mid-1994, five Healthy Cities projects had begun in these countries. By the end of 1997, WHO had supported the development of 15 projects in Cambodia, China, the Lao People’s Democratic Republic, Malaysia, Mongolia, Republic of Korea, and Viet Nam.

The broad-based participatory approach to Healthy Cities projects was subsequently transferred to island countries of the Pacific. The Ministerial Conference on Health for the Pacific Islands, held on Yanuca Island, Fiji in March 1995, discussed the need for broad-based participation in health protection and promotion and the development and sharing of resources and information among the Pacific Member States. The Conference produced the Yanuca Island Declaration on Health in the Pacific in the 21st Century, which adopted Healthy Islands as the unifying theme for health promotion and health protection in the island nations of the Pacific for the 21st century.

In August 1997, the Ministers of Health of the Pacific reviewed the progress made since the Yanuca Island Declaration at a meeting in Rarotonga, Cook Islands. The meeting adopted the Rarotonga Agreement, which further defined the Healthy Islands concept and specified future directions for action by Member States and WHO. By the end of 1997, Healthy Islands projects had begun in ten countries.

Relating environment, health and sustainable development

The 1992 United Nations Conference on Environment and Development emphasized the importance of health considerations in national planning for sustainable development. The United Nations Development Programme (UNDP) subsequently developed its Capacity 21 programme aimed at supporting the preparation and implementation of these plans. This programme recognized the importance of the health sector in the development of the environment and health sections of these plans. Accordingly, the WHO Director-General’s Council on the Earth Summit Action Programme for Health and Environment in 1993 concluded that the preparation of such plans should be a matter of the highest priority. The Council recommended that WHO should facilitate the process by organizing projects to demonstrate how such plans could be developed and implemented. In the Western Pacific Region, such projects have been implemented, in collaboration with UNDP and national governments, in the Philippines (1994–1995), Viet Nam (1996–1997), and Fiji (1997–1998). A similar project was started in Papua New Guinea in 1997. The overall goal of these projects was to enhance the countries’ capacity for integrating health and environment issues in the formulation of plans for sustainable development, and to harmonize the various activities related to health, environment and sustainable development.

Work in the Philippines focused on national strategy development, with an emphasis on implementation at the local level. Outputs have included the development of a national directional plan for environmental health services, and a national framework and guidelines for environmental health impact assessment (see below). As in other countries, the devolution of implementation responsibilities to the local government level presents significant challenges in the area of capacity building and human resources development.

In 1996–1997, the initial emphasis in Viet Nam was placed on the development of a national environmental health plan framework in conjunction with Healthy Cities projects in Haiphong and Hué. The Healthy Cities project in Haiphong has benefited from enthusiastic support at the local level. This has been reflected in the establishment of an Environmental Health Office, jointly staffed by the Department of Health and the Department of Science, Technology and Environment; and the implementation of integrated healthy marketplace and ambient air quality monitoring activities. Staff from Haiphong and Hué benefited from participation in a human resources development initiative on "Managing the Environment for Health" at the WHO Collaborating Centre for Environmental Health, University of Western Sydney-Hawkesbury, Australia.

In Fiji, activities focused on the development and implementation of community-based environmental health action plans as a complement to Government’s sustainable development work with other external partner agencies. Health and environment priorities were identified at the local level and the process emphasized community training in strategic management; partnership between the community and government; and community ownership of the development process. A community-based environmental health management model has emerged from these local experiences, and a National Environmental
Health Action Plan has been developed.

It is increasingly evident that the process of integrating health and environment considerations in sustainable development decision-making is truly a multi-sectoral, interdisciplinary task. Success depends on cooperation and coordination among numerous organizations, departments and groups at the international, national and local levels. The most successful efforts in the Region have been those that have incorporated concrete, community-based initiatives that demonstrate what can be achieved in cooperation with others.

*Environmental health programme in the Republic of Korea*

The Republic of Korea is a remarkable example of how a rapidly industrializing country can overcome the problems related to a development-related period of environmental neglect, and create and implement a comprehensive strategy for coming to grips with significant environmental health problems.

Following the Second World War, the Republic of Korea, like other newly emerging nations, placed primary emphasis on economic development and modernization. During the period from the 1960s to the mid-1980s, the Republic of Korea's economy achieved rapid and sustained growth. However, as a result of this rapid economic growth, industrialization, urbanization and population growth, serious environmental pollution problems also developed. As these problems became worse, it also became evident that they posed a significant threat to human health and well-being.

In the late 1960s and early 1970s, the Government’s initial approaches to pollution control were characterized by a cycle of monitoring, prosecution, fines and uncorrected polluting activities. While most of this early effort was directed at industry, it also became evident that individual actions were extremely important to overall pollution control efforts (e.g. in the early 1980s it was estimated that about 70% of all solid waste and wastewater originated in households).

From the early 1970s to the late 1980s, WHO cooperated intensively with the Korean Government and others in the development of a comprehensive pollution control programme with a special emphasis on health. The collaboration included the provision of technical advisory services covering all aspects of pollution control; extensive work in the area of human resources development; cooperation and coordination with other external support organizations, e.g. UNDP and the Asian Development Bank (ADB), in institution-building initiatives; and the provision of supplies and equipment. What began as a small operation within the Ministry of Health and Social Affairs ended with the creation of a fully-fledged Ministry of the Environment.

The health and environment programme in the Republic of Korea has progressed from being a large recipient of WHO resources to, at present, being a significant contributor, both in terms of funds and in terms of sharing experience with other developing countries. The WHO–Republic of Korea experience in the field of environmental health remains one of the Organization’s watershed relationships in programme development and implementation.

*Solomon Islands Intensified Malaria Control Programme*

Honiara, the capital of Solomon Islands, has a long-standing malaria problem. In 1992, the incidence rate of malaria was 1072 per 1000 inhabitants. In 1995, an innovative intensified malaria control programme was launched. The goal of this programme was to reduce malaria to a point where it was no longer considered a health burden. The programme was also seen as the initial response of the Solomon Islands to the Yanuca Island Declaration, with the understanding that no broad-based Healthy Islands initiative was likely to succeed unless the incidence of malaria, the overwhelming health priority, could be effectively reduced.

The programme has benefited from inputs from international partners, including Rotary International and the governments of Australia, Canada, Japan, New Zealand and the United Kingdom. Under WHO’s leadership, a package of malaria control measures to protect the 65 000 inhabitants of the capital Honiara and Guadalcanal province have been put in place. The number of malaria cases in Honiara has been reduced from 604 cases per 1000 inhabitants in 1995 to 264 in 1997.

Facilities for diagnosis and treatment of malaria were upgraded and insecticide-treated mosquito nets were distributed to every household. The programme particularly targeted pregnant women and infants. Effective measures to control malarial mosquitoes also including spraying of houses and the use of chemical and environmental controls to eliminate breeding sites. Accompanying these measures was an intensive community awareness programme.
A practical example of an environmental management strategy was the construction of a special pipeline at the mouth of the Mataniko river that flows through the centre of Honiara. At times, the river mouth is blocked by a sandbar, causing stagnant water pools, and creating an ideal environment for mosquito breeding. The pipeline allows for a constant exchange of water between the river and the sea. This, combined with regular cleaning of the river banks, has resulted in the virtual elimination of mosquito breeding in the river.

The success of the river project led to increased community interest in cleaning up waterways. Solid waste and sanitation disposal methods along the river have changed from latrines overhanging the river to pour flush toilets. Through its involvement, the community experienced how a concentrated effort could improve the health status. This positive experience is being used to deepen understanding of what a Healthy Island can be. By 1997 malaria incidence in Honiara was 264 per 1000, a decline of 74% from 1992 levels.

Programme-specific activities

*Environmental sanitation*

The First World Health Assembly classified environmental sanitation as a “top priority” along with malaria, maternal and child health, tuberculosis, venereal diseases and nutrition.

During the 1950s, the programme of environmental sanitation adapted to meet new demands and to resolve current difficulties by way of specific projects, such as field demonstrations. A trend was observed toward greater emphasis on training, in particular higher levels of training.

During the 1960s improvements to community water supplies and wastes disposal remained core activities in the Region. WHO supported construction programmes for individual and community water supplies and sewage disposal systems, particularly in the South Pacific area. A number of epidemics of communicable diseases in the mid-1960s emphasized the need for more comprehensive environmental health programmes.

In the 1970s, attention focused on the fact that a large portion of the Region’s population did not have reasonable access to safe and ample water supplies, and that an even larger part was without adequate sanitation facilities. In 1976, the United Nations Conference on Human Settlements called for all governments to adopt programmes to provide safe drinking water for all by 1990. The 1977 United Nations Water Conference concluded that national development policies and plans should give priority to supplying drinking water for the entire population. The stage was set for the 1981–1990 International Drinking Water Supply and Sanitation Decade.

The International Drinking Water Supply and Sanitation Decade was a period of concentrated effort by developing countries to expand water supply and sanitation services to underserved populations. During this period, WHO intensified the water supply and sanitation sector monitoring efforts it had initiated in the early 1960s. Overall, the Decade was successful in advancing water supply towards the ultimate goal of

*On the fringes of the big cities of the developing world, slums and shantytowns pose grave threats to environmental health*
universal coverage. However, in the case of sanitation, all that was achieved was that sanitation coverage kept pace with population expansion.

In the Western Pacific Region, considerable progress was made during the course of the Decade in expanding water supply and sanitation services: urban water supply coverage was raised from 81% to 91% (serving 88 million people); rural water supply coverage was raised from 41% to 66% (serving 301 million people); urban sanitation service coverage was maintained at around 92% (serving 60 million people); and rural sanitation service coverage increased from 63% to 76% (serving 204 million people).

The 1992 "End of decade review," conducted by WHO and UNDP concluded that the most serious constraints cited by governments throughout the 1980s were: funding limitations; inadequate operation and maintenance; inadequate cost recovery; and insufficient trained personnel. The report went on to indicate that during the Decade, "several approaches were developed which contributed to the stimulation of the sector. These were, in particular, the promotion of community participation and the greater involvement of women in the decision-making process, the improvement and application of appropriate technologies…and the integration of water supply and sanitation as full partners into primary health care."

It also became clear during the course of the Decade that "a major obstacle to better planning and management of water supply and sanitation was the lack, in most cases, of effective sector data collection, analyses, and monitoring systems." Based on this experience, a major effort is being made in the 1990s to support countries in developing such systems.

**Environmental health in urban development: solid waste management**

The Western Pacific Region has undergone rapid urbanization in the past 50 years and this trend is expected to continue in the future. Urbanization has brought about an increase in the generation of solid waste and problems related to collection and disposal. WHO's collaboration with Member States in this area has intensified since the early 1980s (most notably through the Regional Environmental Health Centre until its closure in 1997). From 1981 to 1997, five regional workshops and 19 national workshops were held. These workshops increased the awareness and technical expertise of personnel involved in municipal solid waste and hospital waste management. During the same period, WHO collaborated with 18 countries and areas in the technical assessment of solid waste problems and preparation of improvement plans at national and local levels. These collaborative activities were targeted at medium and small-sized cities where technical expertise was most limited.

Experience gained from these activities and additional applied studies led to the development of technical guidelines on information management for solid waste services; municipal solid waste management in Pacific island countries; and health care waste management in developing countries. The Regional Environmental Health Centre was active in providing information on solid waste management to Member States. It also cooperated with other international agencies (e.g. the ADB; the South Pacific Regional Environment Programme; the United Nations Environment Programme; the United Nations Centre for Regional Development; and the World Bank) in holding international seminars and developing technical guides.

**Environmental health impact assessment in the Philippines**

The development of the Philippine National Framework and Guidelines for Environmental Health Impact Assessment grew out of a five-year effort, involving a number of agencies, focusing on the integration of health and environment issues in the development and implementation of national plans for sustainable development. The guidelines provide an essential technical tool for the active involvement of the health sector in the country's environmental impact assessment (EIA) system. Health personnel have been trained to ensure their effective involvement in the EIA system. The framework and guidelines cover not only the health impact assessment of proposed development projects, but also the assessment of existing environments and their potential health impacts and the assessment of development and environmental policies and programmes. The implementation is being carried out by an Environmental Health Impact Assessment Division within the Department of Health's Environmental Health Service through a memorandum of understanding between the Department of Health and the Department of Environment and Natural Resources.

In reflecting health, environment and sustainable development considerations, the framework and guidelines also accommodate the interests of a number of external support agencies, including WHO, UNDP, the World Bank, the ADB, and bilateral organizations such as the Canadian International Development Research Centre (IDRC). For example, in a recent loan agreement between the Government and the ADB focusing on transportation-related air pollution control, a public health monitoring component has been included to assess the impact of strategy implementation on health. The
The Department of Health’s Environmental Health Impact Assessment Division will be the focal point group for implementing this component. The inclusion of this public health monitoring component in the loan agreement, as well as the Department of Health’s intimate involvement in its development and implementation, represents a case of truly integrating health and environmental considerations in the development decision-making process.

**WHO/UNDP intercountry project on chemical safety and hazardous waste management**

The overall aim of this 1989–1992 intercountry project was to enhance national capabilities to control toxic chemicals and hazardous wastes and provide protection against associated environmental health hazards. The project involved five countries: China, Malaysia, the Philippines, the Republic of Korea and Singapore. It was initiated in response to increasing concern in the region over environmental health problems associated with the manufacture, use, storage, transport and disposal of toxic chemicals and hazardous wastes.

The main objectives of the project were: (1) to delineate national priorities for chemical safety; (2) to enable participating governments to optimize their existing legislative and regulatory frameworks; (3) through training, to improve the technical, planning and managerial skills of national staff; and (4) to promote public awareness and enhance the involvement of health and environmental protection workers in activities related to chemical safety.

Project efforts were directed towards strengthening the legal and technical capabilities of the responsible institutions, developing measures to mitigate specific problems, and training and developing human resources. Specific activities included providing consultancy support to assess existing legislative frameworks; preparing model regulations and guidelines; undertaking technical studies of particular problems; conducting training; and preparing educational material. Fellowship training opportunities were provided to national staff, and regional and national workshops were held to delineate problems and train staff.

**ACHIEVEMENTS**

**Institutional strengthening**

In the early history of the environmental health programme, emphasis was often placed on solving problems by bringing in expertise from the outside. Over the years, as the programme grew and environmental health problems became more complex, it was recognized that this approach, while leading to short-term gains (i.e. efficiently solving the problems), did little to fundamentally change the national and local situation in the long run (i.e. the problems often reappeared). As understanding grew with experience, it became clear that significantly more emphasis had to be placed on strengthening national and local institutions to enable them to take ownership of problems and solve them.

For example, in the 1970s and 1980s, WHO worked closely with the Republic of Korea to develop the Ministry of Environment. WHO and UNDP also collaborated extensively with the Government to strengthen the National Institute for Environmental Research.

Building on the Korean experience, WHO and UNDP collaborated in the 1980s with the Government of Viet Nam to strengthen the Vietnamese Institute of Tropical Technology and Environmental Protection (VITTEP).

A prominent example of institutional strengthening and capacity-building within a government department can be seen in the Philippines. Particularly during the period 1995–1998, WHO has worked with the Department of Health in strengthening its Environmental Health Service (EHS). With historical roots in sanitation, the EHS has grown to become the Department’s focal unit for ensuring that health considerations are appropriately accommodated in the country’s environmental impact assessment process.

In 1997, WHO began working closely with the Government of Malaysia to strengthen its environmental health research capacity through the development of the Environmental Health Research Centre (EHRC) at the Institute for Medical Research. Even at this early stage, the EHRC has taken on the significant role of coordinating all environmental health research activities among the various Government organizations involved.

**Human resources development**

A substantial environmental health training programme has been developed at the Fiji School of Medicine...
in collaboration among the Fiji Government, WHO and the University of Western Sydney-Hawkesbury, Australia over the last 15 years. This problem-based learning programme is helping to develop a cadre of environmental health professionals.

This very successful Pacific-island-based experience is also being transferred to other countries in the Region (e.g. Cambodia and Viet Nam). Another outgrowth of this experience has been the development of an environmental health curriculum, short courses and training approaches that are responsive to a variety of educational backgrounds, learning capabilities and needs.

**Integrated approaches to health, environment and sustainable development**

Among the different approaches that are being taken to implement concepts contained in *New horizons in health*, one of the most successful has been the Healthy Cities-Healthy Islands programme. Healthy Cities and Healthy Islands initiatives are serving to pull together different sectors, interest groups, and power structures to resolve complex environmental health issues.

At the senior government official level, this is reflected in policy instruments such as the 1995 Yanuca Island Declaration and the 1997 Rarotonga Agreement which mandate a level of cooperation among Pacific island countries. A commitment to the integrated approach is also reflected at the national level in Malaysia, where successful Healthy Cities initiatives in Kuching and Johor Bahru have been translated into a national commitment to replicate these experiences throughout the country.

At the operational level, one of the most successful technical mechanisms for achieving integration is environmental health impact assessment (EHIA). EHIA, supported by traditional disciplines such as environmental epidemiology, gives the health sector legitimacy in the process of environmental impact assessment. It enables the health dimension of this process to be addressed in a systematic way. This can be seen in the case of the Environmental Health Impact Assessment Division within the Philippine Department of Health.

**UNDERACHIEVEMENTS**

**Delays in promoting the integrated approach**

Over the last 15 years, the Region has had some of the fastest developing economies in the world. Urban populations have also grown rapidly, from about 33.5% of the total regional population in 1990 to a projected 40.7% in the year 2000. While it has provided job opportunities and material wealth, this economic and urban expansion has also had negative impacts on the health and welfare of the population, including the overloading of environmental management infrastructures and health care services, and has brought about adverse changes in people's behaviour and lifestyles. The quality of both the physical and social environments, particularly in the biggest cities, is seriously deteriorating.

In the early part of this growth, not enough emphasis was placed on the need to integrate consideration of health and environment issues into development decision-making. The traditional vertical programme approach to dealing with environmental health issues continued for far too long. In the early 1990s, this attitude began to change as people became more aware of the complexity of environmental health issues. However, by that point, environmental health degradation was also proceeding at a rapid rate.

**Water supply and sanitation coverage**

Community water supply and sanitation programmes have always had to compete for national and international support with other sectors. Similar competition for limited resources has also occurred between urban and rural areas. Initially, there were no funds available for rural water supply and sanitation work from partner agencies, especially the lending agencies. Urban areas always enjoyed more favourable consideration. Furthermore, funds were more readily available for water supply activities than sanitation. It was not until the 1990s that resources began to slowly become available for community participation and hygiene education.

**FUTURE**

**Emphasizing integrated approaches**

It is increasingly evident that the process of integrating health and environment considerations into sustainable development decision-making is truly a multi-sectoral, interdisciplinary task. Success depends, in most instances, on unprecedented cooperation and coordination among numerous organizations, departments and groups at the international, national and local levels. Talking about this is relatively easy
achieving it in practice is exceedingly difficult. WHO will continue to support environmental health initiatives that incorporate community-based initiatives and to encourage the active involvement of all sectors.

**Improved surveillance and monitoring**

In developing country contexts, surveillance and monitoring activities often do not produce information that is relevant, timely or particularly useful to development decision-makers. WHO will support improvements to public health monitoring that establish clearer linkages between health, environment and sustainable development issues.

**Human resources development**

Based on the extensive experience with environmental health human resources development in the Pacific, work will continue in Cambodia and Viet Nam to transfer appropriate lessons into these national settings. Similar efforts will be initiated in other countries, such as Mongolia. Attention will also be focused on integrating this approach with more traditional forms of human resources development (e.g. fellowships, study tours and training courses) within a comprehensive human resources development plan.

**Cultivate collaborating centre involvement**

A concerted effort will be made to improve relationships with collaborating centres. In the search for more effective ways of using limited resources, these relationships are becoming crucial to the success of the environmental health programme.
Chapter 40. Health promotion

Health promotion touches all of WHO's programmes in the Western Pacific Region. Especially since the publication of the regional framework document *New horizons in health* in 1994, the Regional Office has made a concerted effort to transcend the traditional programme approach which is based on responding to problems as they arise. In its place, WHO has encouraged the development of sustainable improvements to the environments in which people live. In the words of *New horizons in health*: "Health interventions must be people-centred and wellness-centred, not disease focused and must focus on positive health as part of human development." The best way for this to be achieved is through extensive health promotion that cuts across all sectors and disciplines.

THEN AND NOW

The Western Pacific Region has long recognized the important relationship between the multitude of factors that impact on health and the critical role played by health promotion and public health in a country's overall development.

The classic categories of public health have always included promotional activities in preventive, curative, palliative, and rehabilitative services. However, in 1950 few countries and territories in the Region had an extensive knowledge or understanding of modern concepts of health education. Academic systems for training and qualification in management and leadership had not yet been developed. Health education services had not been established in most health ministries or departments. There was no postgraduate training programme for health education specialists and the health education aspects of training for medical personnel and public health workers were also not well developed. There had, however, been some pioneering work done in the field of school health education in a few countries of the Region.

By WHO's 50th anniversary in 1998, health promotion had a far higher profile both in the Region and globally. During the half century that WHO has been operating in the Region, the emphasis has shifted from health education to health promotion. Instead of simply explaining how to prevent or cure disease, health promotion has a broader objective: the attainment of positive health. Health promotion has been one of seven regional priorities for planning and decision-making since 1989. In 1994, the forty-fifth session of the Regional Committee adopted the regional policy framework, *New horizons in health*. The strategic direction provided by *New horizons in health* is grounded in the interdisciplinary framework of health promotion which enables health issues to be examined holistically and to be responsive to the needs of the individual and the community to achieve gains in population health. At the global level, the 101st session of Executive Board adopted a resolution endorsing the conclusions of the Jakarta Declaration, a far-reaching document that arose out of the Fourth International Conference on Health Promotion held in Jakarta in 1997.

WHO ACTIVITIES

Health education had gone through two major phases of development in the Region by the mid-1960s. Initially, the emphasis was on promoting knowledge and understanding of the concepts and methods of health education in modern public health practice, as outlined in the First Report of the WHO Expert Committee on Health Education of the Public published in 1954. Later, attention was given to encouraging and supporting government efforts to develop health education services at the national, provincial or state, and territorial levels; health education specialist training; health education in the training of all medical personnel and health workers, and the development of school health education.

The first WHO demonstration and training project in the Region was initiated by the Government of Singapore in 1952 to demonstrate the usefulness of health education as a field of specialization. Another early initiative was in the Republic of Korea, where the WHO health education adviser served as a member of the WHO/Government local health services demonstration project, implementing health education services at the local level. The need to improve training of all health workers in health education resulted in the WHO/South Pacific Commission-sponsored inter-country course on health education in New Caledonia in 1957.
The integration of health education into major health programmes was also being encouraged in the Region. WHO collaborated with China (Taiwan) to integrate health education into the venereal diseases and treponematoses project in 1953. In 1957, health education was incorporated in the WHO-assisted bilharziasis pilot project on the island of Leyte in the Philippines. The main emphasis was to achieve the active participation of the community in solving the bilharziasis problem through the involvement of local leaders, women’s groups and schools. In 1960, China (Taiwan) integrated health education into its maternal and child health programme by assigning a health educator/nutritionist to the programme to carry out basic surveys, participate in planning and carry on health education training for maternal and child health workers.

Health education was also integrated into malaria eradication projects and was included in the training of malariologists at the malaria eradication training centre in Manila, resulting in noteworthy progress in the early 1960s in the malaria programmes in the British Solomon Islands Protectorate, China (Taiwan), Malaysia, the Philippines and Viet Nam. In his 1965 Report to the Regional Committee, the Regional Director announced that the first regional conference on health education would be convened in Manila in 1966.

The Regional Office moved naturally from this strong tradition of health education as a service/activity to the broader and much more strategic framework and method of approach of health promotion, as contained in the Declaration of Alma-Ata in 1978.

The Global Strategy of Health for All by the Year 2000, adopted by the World Health Assembly in 1977, marked a critical turning point for international health promotion. By adopting the primary health care (PHC) approach, medical and political leaders acknowledged the important role of multiple factors in achieving health for all. Furthermore, by recognizing the prominent role of health promotion in primary health care, the historic Declaration of Alma-Ata contributed to a significant conceptual shift. Public health began to shift from a biomedical approach based primarily on institutional care, towards a view that health promotion should seek to create and reinforce conditions at all levels of society, in order to enable people and communities to make choices that promote health.

Measurement of health depends on the definition of health. Only recently have attempts been made to measure the ‘positive’ aspects of health as being more than the ‘absence of disease’. Measurement of health has tended to focus on the ‘conventional’ measures of morbidity and mortality. However, recently, ways of identifying and measuring impairment, disability and handicap have emerged, as have a wide range of instruments for measuring quality of life, disability and the burden of disease.

**Diversity within the Region**

Health promotion is a priority area for WHO in the Western Pacific Region because living conditions and lifestyles in this Region are undergoing tremendous changes due to advancing industrialization, urbanization and modernization. Improvements in living conditions have often not kept pace with the explosive population growth that is occurring in most urban settings. While development is occurring at a rapid pace in some parts of the Region, underdevelopment and poverty, particularly in rural settings, persist in many others. This is invariably accompanied by substantial health problems.

There have been dramatic increases in the prevalence of non-communicable diseases in the Western Pacific Region; in 26 of its 37 countries and areas, three or more of the five leading causes of mortality are noncommunicable diseases. This increase in noncommunicable diseases is related to changes in the sociocultural, family, economic, commercial and policy environments and to evolving lifestyles that have been shaped by and which reflect these changing environments. Cardiovascular diseases, in particular,
are now a major cause of mortality in the Region and it is expected that they will double during the course of the next 20 years. It is also expected that motor vehicle accidents and injuries will increase as the number of vehicles on the roads continues to escalate. These are all areas where health promotion can play an important role.

Two particularly significant regional initiatives have been based on a more comprehensive, integrated approach, with health promotion as the central unifying factor. They are the Tobacco or Health initiative and the health-promoting settings approach.

Each of these programmes has a strategic and operational plan that integrates all five areas of action for health promotion (building healthy public policy, creating supportive environments, strengthening community action, developing personal skills, and re-orienting health services) that were identified by the Ottawa Charter and endorsed by the Jakarta Declaration. Evidence gathered to date suggests that efforts based on the combined strategies of the Ottawa Charter are likely to be more effective than any single approach (for example, one that provides health education to members of the community without other supportive social strategies).

**Tobacco or health**

Tobacco use and its relation to premature death and disability have been a top priority for WHO during the last three decades. No fewer than 16 resolutions on tobacco control were adopted by the World Health Assembly between 1970 and 1996. However, tobacco use and its related health problems have continued to increase in the Region. Of all WHO regions, the Western Pacific has experienced the highest increase in tobacco consumption. While in 1994 it was estimated that 50% of men and 5%–7% of women smoked, the corresponding figures for 1997 were 60% of men and 8% of women. In all but a small handful of countries in the Western Pacific Region, deaths caused by cardiovascular disease and cancer now exceed morbidity and mortality resulting from infectious diseases. This is in part due to increased cigarette smoking.


Many countries in the Region have taken commendable steps to reduce the tobacco epidemic. Research has been undertaken, health education projects such as the celebration of World No-Tobacco Day have attracted wide participation, and tobacco control legislation and pricing policies have been introduced in many countries and areas. There is now a comprehensive tobacco database at the Regional Office to allow more accurate monitoring of progress towards achieving consumption reductions and reducing disease impact.

At least four countries and areas in the Region have banned all advertising of cigarettes in print and electronic media – China; Hong Kong, China; Singapore, and Viet Nam. Five others – Australia, Guam, Malaysia, New Zealand and the Republic of Korea – have banned advertising on television and radio. Cigarette tax increases in Hong Kong are claimed to have contributed to the 35% decline in cigarette consumption over a period of four years. In New Zealand a 54% increase in the price of cigarettes in 1986 contributed to an 18% fall in cigarette consumption over 12 months alone.

Nevertheless, cigarette smoking continues to increase in the majority of the developing countries of the Region, while it is on the decline in the developed countries. This difference in trends between developed and developing countries is undoubtedly the impetus for, as well as the result of, direct targeting of developing country markets by the multinational tobacco companies. Even though the Western Pacific Region is nearing the end of the first decade of its region-wide initiative, Tobacco or Health, evidence of decreasing consumption and of disease incidence related to tobacco is not expected for up to 30 years.

**Health-promoting settings**

There are now 27 countries and areas in the Region developing health-promoting schools which actively promote the health of students and teachers and contribute to the health of the wider community. Healthy workplaces, healthy hospitals and healthy marketplaces are also burgeoning. These settings form the focal point for intersectoral initiatives for health advancement, research, training and practice.

In recognition of the key role of education in enhancing the health status of the entire population, the Western Pacific Region has identified schools as a priority setting (within the Healthy Cities and Healthy Islands initiatives) in the regional health promotion programme. Regional guidelines have been developed which elaborate on the principles of health promotion for preparation for life, as outlined in New horizons
Health. The guidelines suggest concrete actions for developing healthy lifestyles and healthy physical and social structures in the school setting. Creating the conditions for making healthy choices easy in the school setting involves combining six key elements: school health policy, the school physical environment, the school social environment, community relationships, personal health skills and health services. A comprehensive system for evaluating progress in each of these six areas is provided in a series of booklets on health-promoting schools which can serve as a template for countries to adapt to their own specific needs. Many of these booklets have been translated into a variety of languages and adapted significantly for local use (for example in Cambodia, China, Kiribati, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, Vanuatu and Viet Nam).

ACHIEVEMENTS

Health education was being informally integrated into other health areas as early as the 1950s. However, the adoption by the Regional Committee in 1991 of the regional health promotion programme enabled the formal integration of health promotion into many other Regional programmes. For example:

- nutrition (e.g. importance of breast-feeding, changes in food-handling);
- safe motherhood (e.g. the role of fathers in family life in Western Samoa);
- mental health (e.g. community involvement in the prevention of mental disorders in China and the Philippines);
- AIDS prevention (the absence of a vaccine to prevent AIDS and the lack of drugs to cure AIDS mean that health education is the only tool for AIDS prevention);
- environmental health (e.g. healthy settings, water and air quality management); and
- human resources development (numerous training activities with a stress on health promotion have been carried out).

Some countries in the Region have supported health promotion through public policy initiatives. For example, a health promotion law has been in place since September 1995 in the Republic of Korea. Papua New Guinea declared 1995 the year of health promotion and education and is developing a national policy. Singapore has an active national healthy lifestyle programme. In New Zealand, the document Strategic directions to improve and protect the public health highlights the critical role of health promotion. Australia also has a strategic document on health promotion in the framework of national health advancement programme.

Today, 27 countries and areas within the Region have taken steps to introduce health-promoting schools. These steps include appointing national coordinators and/or national planning committees, running training programmes for health and education administrators and for school personnel, and nominating responsible officers within government to supervise further developments.

At the regional level, a five-year development plan for health-promoting schools for the period 1996–1999 has been drawn up and regional guidelines were finalized with the extensive involvement of Member States.

UNDERACHIEVEMENTS

Although the preamble of the WHO constitution is guided by the same principles that underlie what is now called “positive health”, these principles have not been applied throughout the Region in the last 50 years. It has only been in the last decade that health promotion initiatives such as Tobacco or Health or health-promoting settings have been accorded a high priority.

Increases in noncommunicable diseases have not been matched by health promotion aimed at reducing risk factors and encouraging healthy lifestyles. Recent reductions in mortality of cardiovascular diseases in Australia, Japan, New Zealand and Singapore have shown what can be achieved if health promotion is consistently applied over a long time period.

The increase in smoking that has taken place in the Region in recent years must also be regarded as an underachievement of health promotion campaigns.

FUTURE

One of the main challenges facing the Western Pacific Region is the projected population increase in many countries. As early as 1965, members of the Regional Committee expressed grave concern regarding the rapid rate of population growth. In that year, the representative from the Republic of Korea
argued that: "...public health has a moral obligation to aid in achieving an ecological balance between man and his environment. It has the facilities for an active part in research, services and education directed towards lowering birth rates...". Three decades later, rapid population growth in developing countries remains one of the main threats to the health of the Region. Health promotion has a critical role to play, both in encouraging fertility rates which are at or below replacement levels and in supporting the people of the Western Pacific Region to achieve healthy lifestyles despite rapid population increases.

WHO will support the less developed countries of the Region to strengthen the strategic and operational planning components to be able more effectively to address the dual burden of communicable and noncommunicable diseases.

WHO will aim to ensure that all programme planning, implementation, and evaluation in the Region adopts the integrated approach and is based on sound social-behavioural theory for individual and community change.

WHO will also encourage the strengthening of links between health development and sustainable development.

The settings approach will be expanded and will ensure a visible, empowered role for women in all healthy settings approaches through community participation and involvement in health.

WHO will encourage multidisciplinary and contextual research that includes regional, national and local health impact assessments to provide empirically validated support for policy and decision-making. A qualitative set of indicators to monitor progress in the development of healthy lifestyles and health-supportive environments will be developed.
Chapter 41. Mental health

Since 1948, there have been great advances in our understanding of and responses to mental health problems. There has also been a greater recognition of the need to promote positive mental health. There has been a move away from institutional to community-based treatment and care and a shift from a sole focus on the perspective of mental health specialists to an approach that accommodates the perspectives, rights and wishes of the patients, their families and communities. This has been accompanied by a move from a preoccupation with clinical services for people with serious mental illness to mental health promotion, early intervention and community education to reduce stigma.

WHO’s position has always been that you cannot have health without mental health. This idea is inherent in the definition of health laid down in the WHO constitution, which states that health is "a state of complete physical, mental and social well being".

THEN AND NOW

It is not possible to make a meaningful comparison between data from 1948 and that available today. In 1948 there were no standardized diagnostic instruments and epidemiology, ethnography and anthropology were in their infancy. Nor were there computers to facilitate input and analysis of data. Even today, the data are incomplete and of very uncertain reliability and validity. Many countries lack adequate epidemiological data on mental health morbidity and mortality.

The mental health programme was first established in the Regional Office in 1979. At that time, it was estimated that 40 million people globally were suffering from severe mental illness and at least twice as many again were seriously disabled by drug dependence, alcohol-related problems, mental retardation and organic disorders of the nervous system leading to psychiatric and neurological conditions.

In 1979, it was predicted that the already high prevalence of mental disorders in the Region would grow over the coming decades. This was borne out by data that show that in Micronesia, for example, there has been a 700% increase in the number of suicides between 1960 and 1990. The Regional Office is now playing an important role in supporting Pacific island nations to develop suicide prevention strategies.

With regard to the current status of mental health in the Region, even diagnosable severe mental illness is relatively common. For example, many recent studies have revealed an average global lifetime prevalence of schizophrenia of about 1%. In developed countries, including Australia, Japan and New Zealand from the Region, even point prevalence (the number of cases present at any one time) has been estimated at 11.6/1000 for adult males and 11.0/1000 for adult females. In China these estimates are 5.6/1000 for males and 5.0/1000 for females. In other countries of the Region the estimates are 9.5/1000 for males and 8.4/1000 for females.

In 1990, the annual cumulative incidence of major depression was estimated at 20.5/1000 adult males and 36.6/1000 adult females in developed countries. In China, the estimates were 21.9/1000 and 40.6/1000 respectively. Among the other countries of the Region, they were 22.2/1000 and 41.2/1000. These are remarkably similar across countries and cultures.

Recent studies have focused not just upon numbers of cases of neuro-psychiatric disease (morbidity) and numbers of deaths (mortality), but also upon the total impact of disease and disorder. For example, globally, about 30% of Years Lived with Disability (YLDs) are attributable to neuro-psychiatric conditions. In the Western Pacific Region, Australia, Japan, and New Zealand are grouped with other economically developed nations for whom the estimate is 47.2%. China, at 30.7%, and all other countries in the Region at 28.5%, are close to the average in this regard.

Developed countries including Australia, Japan and New Zealand have an estimate of 25.1% of diseases attributable to neuro-psychiatric conditions - one quarter of the total disease burden. The estimate for China is 14.3% and for other countries of the Region, 10.8%.

In both developed and developing countries, the highest-ranking contributor to disability for the
15–44 age group is major depression of the ‘unipolar’ type. The top ten contributors also include alcohol use, schizophrenia, bipolar disorder (manic-depressive psychosis) self-inflicted injuries, and violence. For developed regions the top ten also includes drug use.

Intellectual impairment is another disorder that is of concern. In areas where iodine deficiency is widespread more than 10% of children in some countries (for example in parts of China) may be affected by frank cretinism. Many other countries have prevalence rates of 1% among children. Globally, iodine deficiency disease (IDD) is overwhelmingly the most important cause of severe intellectual impairment and identified mental retardation.

Socioeconomic changes brought about by rapid industrialization, modernization and urbanization have led to the appearance of a broad set of behavioural and mental health problems in the Region. In developed countries, there has been an increase in the incidence and prevalence of schizophrenia, dementia, depression and other neurological disorders. The disruption of traditional family ties and roles including a move away from the tradition of the extended family has resulted in an apparent increase in alcohol dependence, unsanctioned, hazardous and harmful drug use and suicide. In both developed and developing countries of the Region, the impacts of family disintegration have emerged as highly visible public health problems.

The term psycho-social rehabilitation has come into use in recent years. This approach acknowledges that a combination of psychological and social measures is always required to address the issues of handicap related to mental health problems and disorders, and to reduce the specific handicaps experienced by individuals. Many activities to promote resilience and restitution and help people back into normal life after break-down are called psycho-social programmes. A comprehensive approach to all aspects of treatment, rehabilitation and care is sometimes called a bio-psycho-social approach. This will be a continued emphasis of WHO in its work in supporting Member States in the development of mental health plans.

**Health services for mental health**

Health service data are not good indicators of need. Different traditions of medical care, and differences in availability and accessibility of various forms of treatment (including their affordability), health care funding arrangements, organizational policies and staff skills, attitudes and practices all contribute to major differences in health care utilization and health service statistics. For example, in 1990, Japan reported that it had 3.57 hospital psychiatric beds for every 1000 total population whereas Australia reported that it had 0.74 beds/1000. The Republic of Korea reported a figure of 0.29 beds/1000 and China reported 0.11 beds/1000. In the National Centre for Mental Health in Manila, the Philippines, 88% of all psychiatric admissions in 1982 were for schizophrenia, a pattern also seen in China and Viet Nam. However, in Western Australia in the same year, schizophrenia was diagnosed in only 7% of admissions.

In Australia and New Zealand, psychiatric bed rates have dropped significantly, while in the remaining member countries the rates are relatively stable. The decrease in the rates in Australia and New Zealand is attributed to a deliberate policy of reducing institutional psychiatric care. It is notable that in Japan, the rate remains extremely high compared with other countries. However, it should also be noted that the number of psychiatric beds in the Republic of Korea increased by 230% between 1981 and 1991.

Lack of community support systems, financial systems that reward inpatient care and stigma in the community targeting those with mental illness have all been blamed for the high rates of hospital-based care for mental patients in Japan. In 1997, more than half of the inpatient stays at psychiatric hospitals in Japan were more five years and in one third, more than 10 years. Moves are now afoot to reform the hospital and community sector payments system so that it encourages community-based treatment wherever possible.

Differences in health services for mental health may reflect some variation in population frequency, especially of culturally determined conditions such as alcohol-related disorders, but are most likely to reflect different patterns of recognition, diagnosis, treatment and care, and very different health care resource levels and characteristics. Most importantly, the diagnostic instruments that are used will have a major influence on reported incidence and prevalence rates, as will the skills, perceptions and judgements of those who administer these instruments.
WHO ACTIVITIES

At the First World Health Assembly on 24 June 1948, a priority programme of action was established. Mental health was the fifth priority of the new organization.

Community attitudes to mental illness and psychiatry, as well as advances in social psychiatry, were considered by a WHO expert committee in 1958. It was noted in this report that new methods of treatment would not only reduce the length of stay in hospital but also prevent mental deterioration and thus reduce the number of patients who remain incapacitated. There was comment on the need to involve the family in treatment and care.

The importance of including psychiatry in all undergraduate medical curricula and the role of public health officers and general practitioners in mental health care were considered in meetings of WHO expert committees in 1960 and 1961.

The acute global shortage of psychiatrists was revealed in a survey carried out by WHO in 1962 and led to a strategy to provide training through fellowships and the assignment of skilled staff for undergraduate and postgraduate training.

The urgent need to standardize psychiatric diagnosis, classification and statistics was noted in 1966, as was the need for research into the etiology, patho-physiology, and psychopathology of mental disturbances. Scientific groups were convened to review research on genetics (1965), psychiatry, psychopharmacology (1966) and neurophysiology (1967).

The first Regional Committee resolution related to mental health was adopted in 1956 with the aim of providing support to Member States in planning and carrying out mental health programmes. Eight resolutions on drug abuse and dependence including alcohol abuse were adopted in the 1970s.

In 1979, the first meeting of the Regional Coordinating Group for Mental Health was held. Subsequent Regional Coordinating Committee meetings were held in 1984, 1987, 1991 and 1995.

Mental health activities in the Region over the past 28 years have focused on manpower development mainly through the mechanism of fellowships. Numerous national workshops and meetings have been held. Many have focused on the provision of training for national staff in community-based psychosocial rehabilitation, counselling skills, and the use of the mental health classification of ICD-10. A good example of a national meeting was a meeting on mental health and substance abuse in Samoa in 1995, with participants from 13 Pacific island countries and areas. The meeting recommended establishing coordinating mechanisms for the training of health workers in community-based mental health services, and disseminated information on mental health and problems related to substance use within the Pacific.

In 1994, a survey was undertaken by questionnaire of all countries and areas in the Western Pacific Region. The survey covered general mental health programme information and sought quantitative data on mental health workforce development, mental health facilities and treatment, morbidity and mortality data.

The Region is now implementing a WHO global programme, Nations for mental health, aimed at underserved populations. The programme is being implemented in China, Marshall Islands, Mongolia and Viet Nam. Emphasis is being placed on training of trainer approaches to develop primary health care capacity for delivering community-based psychosocial services.

ACHIEVEMENTS

WHO has collaborated with Member States in developing an intersectoral approach to three programme areas: psychosocial and behavioural factors; prevention and treatment of mental and neurological disorders; and problems related to substance use. WHO has fostered an approach in which mental health services for both neurological and psychosocial problems are realigned to be more accessible and relevant to the community.

WHO has provided technical support in the areas of legislation and other policy development and in
mental health planning to Cambodia, China, the Lao People’s Democratic Republic, Malaysia, the Philippines, the Republic of Korea and Viet Nam. This has led to psychosocial rehabilitation programmes that are humane and accessible. It has also led to a more coordinated and integrated approach to the prevention of mental disorders. Mental health legislation has been improved in almost all countries of the Region.

Data from a 1994 survey on mental health workforce development, mental health facilities and treatment, morbidity and mortality data revealed a significant overall improvement in the way many countries deliver mental health services, particularly in the following three areas.

First, mental health legislation now exists in nearly all countries in the Region and most countries have been continuously amending legislation for improvements. Only the Lao People’s Democratic Republic, Macao and Marshall Islands did not report specific legislation. Second, the provision of accessible community-based psychosocial treatment is gradually being developed throughout the Region, and in the more developed countries this trend has also seen a parallel reduction in the provision of institutional psychiatric services. Third, the awareness of the advantages of integrating mental health care into primary health care services has grown. Data indicate that, in some larger countries, the number of designated psychiatric beds has decreased, while expenditure on community-based programmes has improved.

UNDERACHIEVEMENTS

Most countries in the Region report a shortage of mental health staff and underdeveloped mental health facilities, and educational and research organizations. Stigmatization and marginalization of the mentally ill continues. In most countries, mental health care is given very low priority in general health care, and in some instances there is no budgetary provision for mental health service delivery. In some countries there is no mental health legislation, or the legislation is insufficient to facilitate safe and effective clinical management in the least restrictive environment that is possible.

In some countries, people may still be kept as involuntary patients in locked wards for many years without adequate reassessment, diagnosis and treatment. They may sometimes be diagnosed as mentally ill when it is thought necessary to isolate them involuntarily because they are seen as disruptive to the life of the community. Mental health patients may be heavily and continuously over-sedated. They may be physically and mentally abused or neglected. They may not always be placed in a position where they can maintain a sense of personal dignity and self-esteem.

Many countries still do not have legal processes that are reliably and effectively enforced to review a patient’s involuntary admission status and whether their ongoing regulation or involuntary custodial care is socially just or clinically appropriate.

Few countries have sufficient expertise or experience in establishing and implementing psychosocial interventions from within the primary health care sector. In most countries, services are inadequate both for people with serious mental illness or disorder and for those with other mental health problems. Specialist services are often sparse, and primary health and social care staff often fail to recognize their essential role and responsibility in providing or facilitating the provision of mental health treatment, support and care.

The move towards de-institutionalization has been slow and where it has occurred, it has often been without sufficient planning and preparation in the community-based sector.

Training of mental health workers often remains locked into old ways of understanding and addressing mental health problems. The same observation appears true in relation to alcohol and other drug use. Where training placements occur in the community setting, they are often inadequate to ensure that competencies for managing mental disorders and mental illness are gained.

FUTURE

There are many reasons to believe that the number of people in the Western Pacific Region with mental disorders, mental illnesses or mental health problems will continue to increase. All countries in the Region are experiencing rapid demographic, social, economic and ecological changes. We can predict greater population pressures, migration to urban centres, loss of social networks, break-up of families, unemployment and ageing of the population. We can also predict increasing use of alcohol and other drugs.

These factors either directly increase the incidence of specific mental disorders or increase stresses likely to provoke or exacerbate mental health problems in general. Demographic changes alone will, by means
of increased survival, increase the prevalence of schizophrenia, Alzheimer’s dementia and severe mental retardation. In developed countries, estimates predict no substantial change by the year 2020 in the contribution of neuro-psychiatric disorders to the total burden of disease. However, in the other countries of the Region, a very substantial increase is predicted, and in China a tripling of these conditions by 2020 is anticipated.

Throughout the world, over the past 30 years there has been a progressive movement away from institutional solutions to long-term care needs. Many alternative community-based facilities and support systems have been developed. WHO has and will continue to play an important role in initiating, supporting and promoting these changes. It is expected that there will be continued expansion of outpatient services, day-care hospitals, domiciliary care and community follow-up services. Demographic, economic, social and cultural changes make it increasingly difficult to continue to rely on traditional family and community support, at a time when expectations of treatment, rehabilitation and care are growing. Resources seldom match needs, and resources that are locked up in institutions need to be released for community-based alternatives.

Demographic, economic and cultural changes in all countries, over the next decade and beyond, are likely to be accompanied by increases in stress-related mental health problems, serious mental illness, and survival of people with disabilities. A new political will is required to make mental health issues a high priority across the Region, and new approaches are needed to address the situation creatively but realistically.

The goal of mental health treatment must be to return the patient to the highest achievable degree of normal life in the community. More emphasis will be placed on promoting positive mental health.

WHO will continue in its support of Member States in the following areas:

- Strengthening national mental health policies, plans and programmes, national coordinating mechanisms and planning groups for mental health service development and professional training.
- Comprehensively reviewing legislation relating to mental health and recommending appropriate changes to legislation.
- Introducing appropriate knowledge and skills relating to psycho-social needs of high-risk groups in the population, and supporting the development of model education and training of health and other relevant groups of workers, managers and planners.
- Strengthening programmes for the prevention, identification and management of mental disorder, and psycho-social and behavioural problems of children, adolescents and adults into primary health care training and practice, according to a national development plan for mental health in primary health care.
- Supporting community-based mental health services that are humane, cost-effective and socio-culturally appropriate in planning for national development and introducing these into community-based services.
- Introducing psycho-social rehabilitation programmes for people with chronic mental illness, including those with dementia in older age in planning for national development and introducing these into community-based services.

Positive Mental Health

Positive mental health includes having a positive self-image and self-esteem, being able to: make and maintain close relationships with a wide range of other people; respect other people no matter how different; achieve self awareness and have empathy for others; have a capacity to cope with a wide range of common emotions and stresses without serious or prolonged dysfunction; engage in constructive activity in society; use personal gifts, talents and abilities for self-improvement and for the benefit of others; resist commercial and societal pressures to engage in high-risk behaviour; critically analyse information and make well-judged decisions; and develop creative solutions to problems when the need arises.

Demographic, economic and cultural changes in all countries, over the next decade and beyond, are likely to be accompanied by increases in stress-related mental health problems, serious mental illness, and survival of people with disabilities. A new political will is required to make mental health issues a high priority across the Region, and new approaches are needed to address the situation creatively but realistically.

The goal of mental health treatment must be to return the patient to the highest achievable degree of normal life in the community. More emphasis will be placed on promoting positive mental health.

WHO will continue in its support of Member States in the following areas:

- Strengthening national mental health policies, plans and programmes, national coordinating mechanisms and planning groups for mental health service development and professional training.
- Comprehensively reviewing legislation relating to mental health and recommending appropriate changes to legislation.
- Introducing appropriate knowledge and skills relating to psycho-social needs of high-risk groups in the population, and supporting the development of model education and training of health and other relevant groups of workers, managers and planners.
- Strengthening programmes for the prevention, identification and management of mental disorder, and psycho-social and behavioural problems of children, adolescents and adults into primary health care training and practice, according to a national development plan for mental health in primary health care.
- Supporting community-based mental health services that are humane, cost-effective and socio-culturally appropriate in planning for national development and introducing these into community-based services.
- Introducing psycho-social rehabilitation programmes for people with chronic mental illness, including those with dementia in older age in planning for national development and introducing these into community-based services.
Chapter 42. Oral health

Although the oral cavity forms only a small part of the human body, its state of health has many implications for the health of the rest of the body. The oral cavity is where food required to nourish the body has first to be masticated and reduced in size to facilitate swallowing and digestion. In mastication, functional teeth are essential. Therefore, the condition of the set of teeth in the oral cavity determines how efficiently food will be prepared for swallowing and digestion. Teeth are also important in speech. When certain teeth are missing, some sounds cannot be produced clearly and thus overall speech clarity is affected. As teeth are a prominent feature of the normal facial appearance, they are also important for mental health. They play an important role in supporting the lips and cheeks to provide face with a normal contour. When several front teeth are missing, the angles of the mouth will droop. When several posterior teeth are missing, sunken cheeks will result. Bacterial infections from chronic abscesses and gum diseases in the oral cavity can also spread to the other organs and parts of the body.

THEN AND NOW

Dental caries and periodontal diseases are the two major oral diseases in the Region and account for nearly all oral health problems and tooth loss. Dental caries is more common in early life and therefore affects children and adolescents more than adults. In many countries in the Region, dental caries is left untreated owing to inadequate oral health care services. Currently, approximately 80% of the population in the Region suffers from dental caries, although the prevalence and levels of dental caries vary widely between countries and over time. In the last three to four decades, preventive measures have led to a steady decline in the prevalence and levels of caries in most of the more developed countries in the Region. In contrast, there is evidence of a gradual increase in dental caries in the urban areas of developing countries, mainly because of changing diets. Figure 42.1 shows levels of dental caries among 12-year-old children in selected countries and areas.

Periodontal diseases on the other hand, develop more slowly and generally manifest themselves during adolescence or later in life. Over three-quarters of all adults in the Region suffer from some form of periodontal disease. These conditions, caused mainly by inadequate oral hygiene, remain a serious public health problem for adults. Due to a general lack of awareness of the presence or consequences of periodontal diseases, few sufferers take remedial action. Although there has been some improvement in a few developed countries, in most countries of the Region the prevalence and severity of periodontal diseases show little change over the last few decades.

Severe mottling and enamel defects resulting from consuming water with high levels of fluorides can be seen in parts of China. High levels of oral cancers have been recorded in Viet Nam and the Melanesian countries.

WHO ACTIVITIES

The first twenty years

In 1951, the Fourth World Health Assembly requested WHO to include oral health in its list of programmes. Thus, in 1954 a joint seminar on oral health was organized by the Regional Offices of

**Figure 42.1 Dental caries in 12-year-old children in the Western Pacific Region (average number of decayed, missing and filled teeth)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Earliest data</th>
<th>Most recent data</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Samoa</td>
<td>3.7 (1978)</td>
<td>6.3 (1996)</td>
</tr>
<tr>
<td>Australia</td>
<td>2.6–6.0 (1973–1978)</td>
<td>1.1 (1993)</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>4.9 (1987)</td>
<td>-</td>
</tr>
<tr>
<td>Cambodia</td>
<td>1.6 (1990)</td>
<td>-</td>
</tr>
<tr>
<td>China</td>
<td>0.6 (1951)</td>
<td>1.5 (1993)</td>
</tr>
</tbody>
</table>
Europe, South-East Asia and the Western Pacific in New Zealand.

The regional expert committee on oral health met in 1958 and reviewed existing oral health care services in the Region. It endorsed the wider use of auxiliary personnel and stressed the importance of establishing mobile oral health teams to improve services to underserved and hitherto unserved areas in several countries in the Region.

In 1959, WHO organized an interregional seminar in Australia on the development of oral health care services in the South-East Asia and Western Pacific Regions. In collaboration with the International Dental Foundation, WHO also reviewed the value of water fluoridation as a preventive measure against dental caries and supported a survey of dental research personnel and projects in the Region.

Regarding the epidemiology of oral diseases, a WHO global expert committee in 1961 considered the need for international standardization in the conduct and reporting of oral diseases and conditions. It made recommendations on the planning, implementation and reporting of surveys with special reference to epidemiological studies on dental caries and periodontal diseases.

The WHO oral health programme is now a well-defined programme with clear objectives. Programme activities are focused on: supporting epidemiological studies of common oral diseases; training of human resources for oral health; and developing efficient and effective oral health care services.

Development of oral health care services

Oral health was the subject of a technical discussion at the twelfth session of the WHO Regional Committee held in 1961 in New Zealand. The meeting concluded that oral health was an important public health issue and proposed that urgent action be taken to develop a regional programme. In 1972, a full time dental officer was appointed in the Regional Office and the first regional workshop on oral health care services organized by the Regional Office was...
held in Singapore. Following that meeting, oral health care services, in particular school services, in the Region were strengthened. Malaysia, the Philippines and Singapore received significant deliveries of dental equipment from a joint UNICEF/WHO collaboration.

From 1975 to 1981, four short courses on dental public health in the form of workshops were organized and supported by WHO to strengthen the managerial skills of responsible officers for oral health in the Region.

In 1982, a regional seminar on oral health was held in two venues. Participants from the South Pacific countries met in Fiji and those from East Asian countries met in the Philippines. This seminar advocated three important strategies in planning services in their own countries. The first was the use of the newly introduced and simple community periodontal index of treatment needs. The second was to identify and implement appropriate oral health projects/activities oriented towards primary health. Third, the seminar recommended regular oral health surveys to gather data on treatment needs for rational planning and development of services.

**Development of a preventive oral health programme**

At its thirty-fourth session in 1983, the Regional Committee, identified an urgent need to strengthen oral health services in general and their preventive aspects in particular. It therefore urged Member States to introduce and/or intensify preventive programmes such as water fluoridation and other measures to reduce the levels of common dental diseases. Greater use of dental auxiliaries was also recommended.

In response to the Regional Committee’s recommendations and the oral health goal set in the context of Health For All by the Year 2000, from 1984 the regional oral health programme began to focus increasingly on promoting and supporting preventive activities. It also advocated a move away from curative services based in hospitals and health centres towards more cost-effective preventive services, with priority to be given to children. Oral health education of children in primary school and the general public through mass media, the application of pit and fissure sealants on molar teeth in children and the appropriate use of fluorides were promoted. The use of appropriately trained human resources in preventive activities and the deployment of mobile teams to bring both curative and preventive services to hitherto underserved or unserved populations have also been actively promoted.

**Water fluoridation and other methods of using fluorides**

In 1969, the Twenty-second World Health Assembly adopted a resolution which urged Member States to introduce fluoridation of community water supplies or to adopt other methods of using fluorides for the protection of oral health. In 1972, following a review of alternative methods of using fluorides as a caries prevention measure, the Regional Office concluded that weekly mouth rinsing was the simplest approach to fluoride application. Weekly mouth rinsing with sodium fluoride solution was advocated in areas where natural water fluoride content was low and where water fluoridation was not feasible. In the Region, significant reductions in the levels of dental caries have been achieved through water fluoridation in Australia; Hong Kong, China; Malaysia; New Zealand; and Singapore. In more recent years, water fluoridation has also significantly reduced dental caries in Guam and in limited areas in Brunei Darussalam, Fiji, the Republic of Korea and Viet Nam.

French Polynesia has implemented comprehensive coverage of its child population through a sustained programme of fluoride tablet distribution. This has led to significant reductions in dental caries among children. In those areas where water fluoridation is neither cost-effective nor feasible, weekly fluoride mouth rinsing or the regular use of fluoride toothpaste are now actively promoted. Experiments with milk fluoridation are taking place in China.

**Pit and fissure sealants in caries prevention**

The use of pit and fissure sealants as a cost-effective caries preventive measure and treatment measure for early caries in molar teeth has been promoted since the late 1980s. To increase the use of sealants, in 1992 the Regional Office organized a regional workshop on restoration of carious teeth. The use of
sealants in combination with composite filling materials was advocated for small cavities. To date, more than 15 countries and areas have started to use sealants routinely as a preventive measure. Guam was the first to promote pit and fissure sealants on a large scale and managed to reduce the prevalence of caries significantly within a few years.

**Oral health education**

Oral health education has always been strongly promoted as an important strategy to create greater public awareness of the importance of oral health. Home care and the need to visit the dentist for check-ups have been stressed. Schoolchildren form the most important target group. Through their teachers, children are taught to make wise choices with regard to their diet and habits.

**Strengthening managerial skills**

At country level, WHO has provided training in conducting oral health surveys. Such surveys are an important element of rational planning of national oral health programmes. Training has also been provided in manual processing and tabulation of surveys. To increase the efficiency and effectiveness of programme management, monitoring tools and more informative treatment charts have been promoted. The Regional Office has over the years provided numerous fellowships to enable holders to learn management skills.

**Training of human resources for oral health**

Training of oral health workers has always been a priority. Programmes to enhance managerial skills included short regional courses in public health dentistry held in Singapore, Kuala Lumpur, Penang and Manila between 1975, 1977, 1979 and 1981. The courses attempted to cover the principles of public health administration and to provide opportunities for participants to observe how oral health activities were organized and managed in the host countries.

In the context of Health for All, a meeting of Deans and Heads of Dental Schools in the Region was held in Manila in 1983. This meeting reviewed changing trends in dental diseases and undergraduate curricula. Guidelines on the role of dental schools, dental deans and WHO to achieve the targets for the year 2000 were also formulated.

In 1986, a regional workshop on training and utilization of dental auxiliaries was held in Singapore. Participants learned how dental auxiliaries could provide almost all of the care needed by children, with very little clinical support from dental officers.

Over the last 50 years, WHO’s contribution to solving shortages in human resources for oral health and upgrading the managerial skills of those responsible for oral health has been very significant. In particular, through WHO support, the total lack of oral health personnel in the northern group of islands in Cook Islands was resolved in the mid-1980s. The dental auxiliary training schools in Samoa and Viet Nam have been upgraded and expanded through the provision of tutors, fellowships, dental equipment and teaching aids. The creation of a centre for dental studies in the Fiji School of Medicine, Suva, Fiji, will help to resolve the chronic shortage of well trained dentists in most Pacific island countries. The centre accepted its first intake in January 1993.

**Epidemiological assessment of oral diseases**

Support for improved epidemiological assessment has always been an important area of WHO’s collaboration with Member States. Improved epidemiological assessment has enabled WHO to assess the oral health situation in the Region with some degree of accuracy since the early 1960s.

**ACHIEVEMENTS**

The number of countries and areas which have made significant progress in oral health care services through sound public health programmes backed up by adequate curative services has increased. Australia, Cook Islands, French Polynesia, Guam, New Zealand, Niue, Northern Mariana Islands and Singapore have achieved the target of 80% coverage with appropriate forms of preventive programme.

Most countries and areas in the Region now administer a comprehensive package of preventive activities comprising dietary counselling, toothbrushing skills, mouth rinsing with fluoride solution and the application of pit and fissure sealants to preserve the oral health of children. However, population
coverage varies.

Australia; Hong Kong, China; Cook Islands; French Polynesia; Guam; Malaysia; New Zealand and Singapore have achieved very significant reductions in levels of dental caries through preventive measures.

The quantity and quality of available human resources for oral health have been greatly improved in most countries and areas of the Region through WHO collaboration. Major breakthroughs include solving the chronic lack of trained human resources in Cook Islands and the establishment of a centre for dental studies at the Fiji School of Medicine.

UNDERACHIEVEMENTS

The oral health care delivery system in some developing countries is still very weak and poorly developed. Major constraints include the lack of resources, particularly trained personnel, equipment and funding. In these countries, even emergency treatment is not easily accessible to large numbers of people. This is usually because of the low priority of the oral health programme in national health planning.

In many developing countries, cost-effective preventive measures against dental caries and periodontal diseases have not been implemented to any extent. In some countries, available resources continue to be mainly directed towards the development of curative services.

FUTURE

The oral health programme should increasingly be integrated into New horizons in health initiatives. As common oral diseases begin in childhood and to a very large extent can be controlled and even prevented, oral health care services in schools will continue to be supported.

Preventive measures such as toothbrushing, use of fluorides and the application of sealants will be intensified. WHO support will be directed mainly at enabling countries to increase their population coverage with appropriate preventive activities.
Chapter 43. The next twenty-five years

On 7 April 1998, the World Health Organization celebrated its fiftieth anniversary. The following month, the Fifty-first World Health Assembly appointed Dr Gro Harlem Brundtland as the Organization's fifth Director-General. The World Health Organization enters its second half century facing a set of issues that are in some ways very different from those that prevailed in 1948. Yet, the basic principle enshrined in the preamble to the WHO Constitution – the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being – remains fundamental to WHO's mission. This chapter outlines some of the major issues that will confront WHO in the Region in the next twenty-five years.

The early decades of the 21st century will demand swift responses from health systems and from the people who run them. In contrast to the stimulus-analysis-response approach dictated by the reasonably well-defined geo-political boundaries that existed in the second half of the 20th century, it seems probable that the 21st century will be marked by the rapid emergence of a global order. Even today, instantaneous communication and data transfers across political and national boundaries are commonplace. Increasingly, the key elements for viable socioeconomic and political success are readily transferable. Scientific and technological processes, management and marketing techniques will no longer be sealed within national boundaries.

Paradoxically, in the midst of this period of change, WHO must remain constant, while at the same time reforming components of its internal systems and approaches. WHO's main role, now and in the future, will be to act as the catalyst for a coalition of resources mobilized in response to health issues, and not as a provider of financial resources. Its most valuable resources are not monetary but technical. The Organization will continue to some extent to play its conventional role in the areas of curative and preventive medicine, but will have to continue adjusting its programmes to reflect the fact that individuals will take increasing charge of their own health.

Modifications to behaviour and lifestyles will be increasingly emphasized. Individual actions will have to be supported by both communities and governments. In parallel with these approaches, specific population groups will need to be targeted.

Global change

One of the most spectacular changes to have taken place in the last half of the 20th century has been the growth in many of the economies of Asia.

Many states in eastern Asia have progressed from the developing country stage to the status of newly industrialized or industrializing countries. This has been accompanied by the sudden entry of some 2.5 billion people (or close to half of the world's total population) into the global marketplace. In addition, the general spread of economic liberalism has brought previously isolated countries (e.g. China and Viet Nam) into the world economy. While there has been a substantial shift of world resources to Asia, there is fierce competition among countries for these resources, including foreign investments, even among those countries that were previously hostile to foreign loans or investment. Health and education, two sectors whose share of national allocations have tended to diminish, will have to redouble their efforts in order to obtain a larger portion of GNP. The first decades of the 21st century will therefore be marked by intensified efforts by these sectors, in competition with more entrenched interests, to generate more resources.

It is significant, however, that a number of Asian countries are in the process of sharply reducing the involvement of their governments in their economies as they make the transition from centrally-planned to more market-oriented systems. Some activities and enterprises are being privatized, while others are having their finances, structures, and public and private roles redefined. Some of the transition issues are common among countries and across social sectors, particularly those related to public financing of health and education and the effects of changing employment patterns on the demand for and supply of public and private services. In the next 20 to 25 years, therefore, health services can be expected to feel the pressures for higher efficiencies and wider coverage on the one hand, and a tendency for proportionately
Future health policy

The Regional document *New horizons in health* provides a framework for addressing the issues that are expected to confront the health sector in the Western Pacific Region in the next 25 years. *New horizons in health* is based on a belief that the Western Pacific Region will continue to develop economically and socially and that the health infrastructure and educational levels are now more or less in place. It argues that it is time to emphasize individual responsibility in the context of supportive environments. Such an approach also reflects the recognition that lives are led in complex and ever-evolving circumstances, and that there must be a growing role for the individual, the family, the community and the nation. Although the approach proposed in *New horizons in health* is more people-centred than the previous disease-centred strategy, the role of public policy is also emphasized, especially with regard to the responsibility of the government to protect people from harmful elements in the environment. *New horizons in health* is structured around three central themes: preparation for life, protection of life, and quality of life in later years.

*New horizons in health* argues that to respond effectively to the complex set of developments affecting the human condition, multisectoral and multidisciplinary approaches will be necessary. It will not be enough to simply realign, or even to develop new programmes. It seems probable that, in future, combined activities will be conducted, not only by health professionals, but also by groups which cluster relevant skills in fields such as education, architecture, economic planning and development. The identification by each country of lead issues that are of immediate concern will help the health sector to interact more closely with other sectors.

Many of the expectations for the immediate future rest on the continuation of relative political stability and support from the international community.

In the more developed countries of the Region, support for hospitals will continue, accompanied by increased awareness that these institutions absorb a significant amount of available resources. While the hospitals will largely remain as managerial centres for planning and supervision of services for the community and for specific geographical areas, increased vigilance will be needed to ensure that these resources are used more efficiently. In less developed countries with strong decentralization and privatization policies, the challenge will be to achieve full potential from opportunities created by more responsive health policies.

Promotion of health is being adopted as a major theme for national health development. This trend will continue. It is recognized that the patterns of diseases will continue to change, and that the disease profile cannot be managed through the curative model of services. There are no cures for many of the noncommunicable diseases which are increasingly occupying health services in the Region. It will therefore be necessary to address these conditions to prevent them from developing into end-stage life-threatening conditions. It is expected therefore that health promotion will have a larger operational role in health systems, and it will be targeted at each stage of life. A major aspect of health promotion that will receive increased emphasis in the next two decades is the promotion of healthy lifestyles, in particular safe sexual behaviour, reduced alcohol and cigarette consumption, and accident prevention.

Future public health policy will be oriented towards individual and community responsibility, rather than the traditional reliance on government for health leadership. Governments in turn, will still have an important role, including participation in the development of advisory mechanisms, health financing schemes and management of technical information. In many cases communities may act almost as an administrative arm of government. In the area of management practice, the issue of quality seems likely to dominate systems in the future, as indicated by the increasing acceptance of risk-group targeting as one of the more significant aspects of managerial efficiency.

The future brings with it a vision of health that is filled with challenges. The dilemma is that the environment for matching the technology to the need will be quite different from that in the past. Here lies the major challenge of the future.

Renewal of the health-for-all policy

The countries of the Region have taken a critical look at the potential health problems of the 21st century in the light of the Global Strategy for Health for All and *New horizons in health*. The Regional Committee, at its forty-eighth session, asked the Regional Director to submit the document Renewing the Policy for Health for All to the Director General as part of the global renewal of health for all. Meanwhile, at the...
global level, the Fifty-first World Health Assembly adopted the World Health Declaration as a reaffirmation of its commitment to the principles contained in the WHO constitution and in health for all.6

It seems probable that a number of issues will dominate health agendas in the next century. They include the following:

1. Important demographic trends are taking place in the Region, including the rate of population growth and the increasing number of persons into over-65 age group. Even when rates of growth slow, the Region’s population will continue to rise putting increased pressure on natural resources.

2. The epidemiological transition is probably moving more quickly than most policy-makers anticipate. In many instances health services may not be responding with sufficient urgency. Countries will be in different phases of transition and therefore will have different priorities. However, it is important that countries in one phase learn as much as possible from other countries which have moved onto the next phase.

3. The issue of the environment, not only with respect to water and sanitation but also to urban and industrial growth, will become increasingly important. Familiarity with the issues linking health, the environment and sustainable development will enable health professionals to implement health programmes more effectively. This issue highlights the need for interagency and intersectoral collaboration. Environmental health will not only be concerned with pollution and environmental hazards, but will include the promotion of positive environmental settings, such as schools or factories.

4. Health economics and financing will have an enormous impact on future health care, from the individual level to national planning. When an individual does not have enough money to pay for care, the impact could be quite immediate. On the other hand, an allocation of money to promote healthy lifestyles could take many years before it has an impact on the health system. There are many challenges ahead for the mobilization and utilization of financial resources, in part because of changing needs owing to the epidemiological transition.

5. Culture and gender influence health on several levels. First, culture may determine the attitudes and responses of individuals, families and communities to specific types of therapy and to the organization of health services, such as in childbirth practices. Similarly, within health organizations culture plays a significant role in defining appropriate and effective methods for managing communications and information among health workers. Culture also plays a role in how organizations are structured and in how planning, managing and supervision are carried out. Gender has at least three levels of impact on disease profile. First, gender has its most direct impact within the context of reproductive health. Second, women play an important role as the intergenerational link in the family. Third, women are crucially important to economic development.

6. One of the principles of the primary health care approach has been the use of appropriate technology. Although this issue is still very much on the agenda of health policy-makers, new issues related to technology have emerged. The most significant of these is the relationship between people and technology. Providing the most appropriate technology will not be an objective in itself. Policy towards technology now emphasizes its availability and accessibility to those in need and stresses that it must be a rational choice on the part of the public.

7. Globalization in its many aspects will continue to impinge on health systems, on supply and demand for services, and even on the epidemiological transition. Trade and travel, for instance can facilitate the transmission of diseases. Greater international cooperation will be needed, particularly in the areas of surveillance and international information and technical exchanges.

8. Reform processes seem likely to continue. One of the most significant features of effective reform is the emphasis given to clarity of roles and accountability. New structures and procedures will also need to be addressed. Health services will be further streamlined, together with redesigns of staffing plans and methods.

Actions for the future

The regional document Renewing the Policy for Health for All provides both a value system for the health sector and a set of specific goals. The two essential aspects of policy formulation in this respect are: a greater emphasis on provision of sound evidence as the basis for decision-making; and an expansion of the boundary of health concerns to include a wider spectrum of health issues. The document proposes a number of 'Actions for the future':

1. Each country should develop a health promotion organization, which should have the capacity to organize social marketing campaigns and to interest and influence governmental and nongovernmental organizations about health-related issues. Such a health promotion organization should also have a research and development capacity, together with professional health promotion staff at the district service level.
2. All but the smallest countries should develop a health services research capacity. Raw data has little meaning unless it is analysed and presented as information which can be used as the basis for future planning.

3. Soundly-based strategies for the provision and organization of health services should be adopted to meet the needs of emerging populations. As chronic diseases become the dominant priority, health services need to be reorganized so that patients may be cared for over prolonged periods in a range of settings and facilities. These include medical and nursing services in domestic settings, rehabilitative services, hospital inpatient services and specialized hostel and nursing home services for chronically ill older persons.

4. Reforms should be adopted to increase the quality of hospital and health service provision. As populations in the Region proceed through the epidemiological transition, expectations of an ever-increasing quality of care will rise. Better-educated populations will demand high-quality care. As the epidemiological transition progresses, there will be benefits for communities in having a high-quality general practitioner service. Reforms of hospital services will be another way in which much higher-quality service can be delivered at a lower cost.

5. Population management should be a priority. Continued population growth is a direct threat to the quality of life of whole communities. In some nations and communities, overpopulation is the leading public health issue. Improved education of women, plus the availability of affordable and effective contraception are the most influential factors on fertility. However, the culture of a particular community and the attitude of governments to population management are also highly influential.

6. Health promotion strategies addressing chronic degenerative conditions associated with ageing should also be high on the list of priorities. The morbidity and extreme dependency of very elderly people is largely due to: cerebrovascular disease and hypertension leading to stroke; chronic bronchitis and emphysema; Alzheimer’s disease and atherosclerotic arterial disease leading to senility; osteoporosis leading to fractures; arthritis; loss of visual and hearing acuity; and dental problems.

**Regional targets**

For specific health problems, Renewing the Policy for Health for All contains a proposal for targets for 2020:

1. **Traffic accidents and industrial injuries.** Progressively reduce the rate of increase of these types of injuries. By 2020, show a decline of 1%–2% per year.

2. **Maternal and infant mortality.** By 2020, reduce incidence of maternal mortality to almost zero. Reduce infant mortality to a range of 5–10 per 1000 livebirths.

3. **Mental illness.** Make access to community-based health services available to all mentally ill patients to enable them to achieve the highest standard of living possible within the constraints of their illness.

4. **Circulatory diseases.** Reduce the rate of increase of circulatory diseases and eventually show a decline in incidence.

5. **Diabetes mellitus.** By 2020, reduce incidence and prevalence by 50% and prevent complications with proper treatment.

6. **Cancers.** Reduce incidence of certain cancers through early detection. Improve treatment of cancer through more widespread treatment facilities. Make pain relief available to all cancer patients.

7. **STDs, including HIV/AIDS.** By 2020, for STDs, reduce incidence in the general population by 50% from present rates through the use of technology and health promotion. Eliminate HIV/AIDS as a public health problem.

8. **Tuberculosis.** By 2020, reduce incidence rate by 75% from present rates.

9. **Hepatitis.** Reduce all kinds of hepatitis significantly. Eliminate all forms of hepatitis which can be prevented by immunization.

10. **Malaria.** By 2020, reduce the number of microscopically diagnosed cases to 15% of 1995 levels and reduce deaths due to malaria to 10% of 1995 levels.

11. **Tobacco, alcohol and drug abuse.** End tobacco advertising in the Region. Reduce smoking by men and eliminate increases in smoking rates by women. By 2020, reduce rates of alcoholism and drug dependence to 50% of present levels.

12. **Minority ethnic groups.** Ensure that appropriate medical services are available for all minority ethnic groups.

**Global health-for-all targets**

The Regional Office will also be working with the Member States of the Western Pacific Region to achieve the targets contained in the global document *Health for all in the 21st century.* This document was
A. Health outcomes

1. By 2005, health equity indices will be used within and between countries as a basis for promoting and monitoring equity in health. Initially, equity will be assessed on the basis of a measure of child growth.
2. By 2020, the targets agreed at world conferences for maternal mortality rates (MMR), under-five or child mortality rates (CMR), and life expectancy will be met.
3. By 2020, the worldwide burden of disease will be substantially decreased. This will be achieved by implementation of sound disease-control programmes aimed at reversing the current trends of increasing incidence and disability caused by tuberculosis, HIV/AIDS, malaria, tobacco-related diseases and violence/trauma.
4. Measles will be eradicated by 2020; lymphatic filariasis will be eliminated by the year 2020; transmission of Chagas disease will be interrupted by 2010; leprosy will be eliminated by 2010; and trachoma will be eliminated by 2020. In addition, vitamin A and iodine deficiencies will be eliminated before 2020.

B. Intersectoral action on the determinants of health

5. By 2020, all countries, through intersectoral action, will have made major progress in making available safe drinking water, adequate sanitation, food and shelter in sufficient quantity and quality.
6. By 2020, all countries will have introduced, and be actively managing and monitoring, strategies that strengthen health-enhancing lifestyles and weaken health-damaging ones, through a combination of regulatory, economic, educational, organizational and community-based programmes.

C. Health policies and systems

7. By 2005, all Member States will have operational mechanisms for developing, implementing and monitoring policies that are consistent with this HFA policy.
8. By 2010, all people will have access throughout their lives to comprehensive, essential, quality health care, supported by essential public health functions.
9. By 2010, appropriate global and national health information, surveillance and alert systems will be established.
10. By 2010, research policies and institutional mechanisms will be operational at global, regional and country level.

SUMMARY

The health sector in the 21st century faces four major challenges. First, there is a need to ensure that all citizens enjoy equal access to health care. Despite increases in national wealth, in some countries there has been a growing gap between the richest and the poorest population groups. Consequently, in market-oriented economies special attention will need to be paid to ensure that health care is accessible for those unable to pay.

The second major challenge concerns the provision of quality of care. For example, it could be argued that if any preventable health condition is not prevented, the health system has not provided quality of care. The issue of quality of care also applies to the best and most appropriate care given for acute conditions.

The third major challenge is that of costs. Even though as a whole populations are becoming healthier, acute conditions are becoming more expensive to manage. The health industry is very labour-intensive, so its costs will typically increase more rapidly than costs in the economy as a whole. In addition, the conditions that health systems are now faced with, such as noncommunicable diseases and injuries, are becoming very expensive to address.

Fourth and finally, the health sector, particularly in developing countries, faces a massive task of human resources development. In addition, incentives for health workers in these countries may lag behind the general levels of technical and economic gains, creating further "brain drains" and poor performance.
WHO will be working with Member States to meet these new challenges. However, the basic principle outlined in the preamble to the WHO Constitution – that the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being – will be upheld in WHO’s second half century as it was in the first.
Annex 1. Regional Directors

Dr Fang I-Chi was born in Shantung, China, in 1900. After receiving his medical training at Peking Union Medical College, he received his Master of Public Health from the London School of Hygiene and Tropical Medicine in 1931. From 1936 to 1945 he was Commissioner of Kiangsi Provincial Health Administration.

After joining the World Health Organization as an Assistant Director, Field Services in New York in 1948, Dr Fang served in various capacities in WHO, including Deputy Medical Director of the Western Pacific Region from 1 March 1950.

The first session of the Regional Committee in May 1951 voted to nominate Dr Fang to the Executive Board as the First Regional Director of the Western Pacific Region. He was re-nominated by the sixth session of the Regional Committee in 1955 and by the eleventh session in 1960.

Dr Fang retired as Regional Director following the sixteenth session of the Regional Committee in 1965 and died in 1975. Dr Fang was married with three children.

Dr Francisco J. Dy was born in Manila, the Philippines, in September 1912. He obtained his medical degree from the University of the Philippines in 1937, and his Master of Public Health from Johns Hopkins University in 1942. He joined the Army of the United States from 1942 to 1945 and served in the US Public Health Service from 1945 to 1950. In May 1950 Dr Dy joined WHO as Deputy Chief of the Malaria Section in Geneva, and was transferred to the Western Pacific Regional Office in 1951. He served as Malaria Adviser until 1958, when he was appointed Director of Health Services. While at WHO he also held various professorships at the University of the Philippines.

Dr Dy was nominated as Regional Director for the Western Pacific by the Regional Committee in 1965, and was re-nominated in 1970 (for a five-year term) and 1975 (for a three-year term). He retired in June 1979 and became Regional Director Emeritus, a position he still holds. Dr Dy is a widower and has four children.

Dr Hiroshi Nakajima was born in Chiba City, Japan, in 1928. He obtained his medical degree at the Tokyo Medical College in 1955 and he holds a postgraduate degree in medical science. From 1958 to 1967 he worked as a scientist at the National Institute of Health and Medical Research, Paris, carrying out research in basic and clinical neuropsychopharmacology. In 1967 he returned to Japan as Director, Research and Administration, Nippon Roche Research Centre, Tokyo. Dr Nakajima joined the World Health Organization in 1974 as Scientist, Drug Evaluation and Monitoring. He became Chief, Drug Policies and Management unit in 1976. Dr Nakajima was nominated Regional Director by the twenty-ninth session of the Regional Committee in 1978. Following a further nomination by the Regional Committee he was reappointed by the Executive Board for a second five-year term from 1 July 1984. In May 1998, he was appointed Director-General of the World Health Organization by the Forty-first World Health Assembly. He was re-appointed in 1993 and retired in 1998. He was declared Director-General Emeritus by the Executive Board. Dr Nakajima is married with two children.

Dr Sang Tae Han was born in Seoul, Republic of Korea, in November 1928. He received an M.D. and a Ph.D. in Medical Science from Seoul National
University, and a Master of Public Health Degree from the University of Minnesota, United States of America. In 1955, Dr Han joined the Ministry of Health and Social Affairs of the Republic of Korea. His last position before joining the World Health Organization was as Director-General of the Bureau of Public Health. Dr Han joined the World Health Organization in 1967 as Medical Officer of the National Health Services Development Project in Western Samoa. He then moved to the Regional Office as Regional Adviser in Community Health Services. In 1973, Dr Han became Director of Health Manpower Development and Family Health. In 1979, he became Director, Programme Management. In 1988, Dr Han was nominated as Regional Director by the thirty-ninth session of the Regional Committee.

Dr Han was nominated by the forty-fourth session of the Regional Committee in 1993 to serve a further five-year term. Dr Han is married with three children.
### Figure 10.1 Summary of Selected Pharmaceutical Information in the WHO Western Pacific Region by Country

<table>
<thead>
<tr>
<th>National Drug Policy</th>
<th>Drug Legislation</th>
<th>on Drug Registration</th>
<th>related to Manufacturers</th>
<th>on Good Manufacturing Practice</th>
<th>on Licensing of Wholesalers and Retail outlets</th>
<th>on Licensing of Pharmacists and Retail Outlets</th>
<th>on Regulation of Pharmaceutical Professions</th>
<th>on Narcotics and Psychotropics</th>
<th>on Approval of Clinical Trials</th>
<th>on Advertisements and Promotion of Drugs</th>
<th>Number of Drugs Approved</th>
<th>Availability of Essential Drugs Programme</th>
<th>Availability of Essential Drugs List (EDL)</th>
<th>Number of Drugs in EDL</th>
<th>Availability of Standard Treatment Guidelines</th>
<th>Number of Registered Pharmacists</th>
<th>Participating in WHO Certification Scheme</th>
<th>WHO Basic Laboratory Tests</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>America Samoa</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>2,690</td>
<td>No</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>17,000</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>1,208</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>China, People’s Republic of</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Cook Islands</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Fiji</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>French Polynesia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Guam</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Kiribati</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Korea, Republic of</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Lao People’s Democratic Republic</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Macao</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Marshall Islands, Republic of</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Micronesia, Federated States of</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Mongolia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Nauru</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>New Caledonia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Niue</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Northern Mariana Islands, Guam</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Palau, Republic of</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Samoa</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1997/11</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>1996/08</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>309</td>
<td>Yes</td>
<td>6</td>
<td>Yes</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>----</td>
<td>-----</td>
<td>----</td>
<td>----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>----</td>
<td>-----</td>
<td>-----</td>
<td>---</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>---</td>
<td>-----</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>No</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>0</td>
</tr>
<tr>
<td>Tokelau Islands</td>
<td>No</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>0</td>
<td>No</td>
<td>Yes</td>
<td>400</td>
</tr>
<tr>
<td>Tonga</td>
<td>No</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>0</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>No</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>0</td>
<td>No</td>
<td>0</td>
<td>No</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>215</td>
</tr>
<tr>
<td>Viet Nam, Socialist Republic of Vietnam</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>255</td>
<td>Yes</td>
<td>7500</td>
<td>No</td>
</tr>
<tr>
<td>Wallis and Futuna</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>0</td>
<td>No</td>
<td>Yes</td>
<td>600</td>
</tr>
<tr>
<td>Total No. of “Yes” (n=35)</td>
<td>17</td>
<td>26</td>
<td>18</td>
<td>21</td>
<td>19</td>
<td>15</td>
<td>21</td>
<td>29</td>
<td>24</td>
<td>28</td>
<td>32</td>
<td>13</td>
<td>17</td>
<td>20</td>
<td>26</td>
<td>17</td>
<td>14</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Percentage (%) Yes</td>
<td>49%</td>
<td>74%</td>
<td>51%</td>
<td>60%</td>
<td>54%</td>
<td>43%</td>
<td>60%</td>
<td>83%</td>
<td>69%</td>
<td>80%</td>
<td>81%</td>
<td>37%</td>
<td>49%</td>
<td>57%</td>
<td>74%</td>
<td>49%</td>
<td>40%</td>
<td>11%</td>
<td></td>
</tr>
</tbody>
</table>