IMCI and Health Systems Strengthening
What components of the health system are important for delivering IMCI?

Strengthening health systems is one of the three key elements of the IMCI strategy to ensure universal access to services of high quality. IMCI packages essential interventions and strengthens service delivery in primary care settings with a focus on conditions of significant public health importance.

Common barriers to improving coverage, access, quality and demand for child health interventions include:

- Gaps in capacity to coordinate and manage child health at national and subnational levels
- Inadequate financial resources to support IMCI implementation and financial barriers to accessing good quality services
- Inadequate human resources and high staff turnover, including capacity-building for clinical skills
- Difficulties in sustaining supportive supervision of first-level health workers
- Poor referral system and quality of care
- Lack of data for planning and decision-making, particularly in the quality of facility-based care
- Knowledge and practices of caretakers

The health system elements needed to address these barriers can be analysed according to six building blocks that constitute the WHO health systems framework.¹

- Leadership and governance, including policies, planning and coordination to improve access to care
- Health financing
- Health workforce at all levels of care
- Medical products, vaccines and technologies
- Health service delivery
- Health information for planning, monitoring and evaluation

Implementation of activities to strengthen health systems involves a number of different departments both within and outside the ministry of health. In addition, a range of other partners, including local and international NGOs and donors, contribute to health systems strengthening in different ways. For this reason, systems strengthening is a collaborative process that requires close coordination. Health sector reform, under way in many countries

of the Western Pacific Region, has important implications for how health systems are organized and managed. It is important that child health policy-makers and managers are engaged in reform efforts to ensure that system changes adequately support the delivery of child health interventions.

**Key points: Components of the IMCI strategy**

IMCI is a strategy for delivering key interventions that prevent and treat the most common causes of mortality in children under five years old, including neonatal infections, pneumonia, diarrhoea, measles, malaria and undernutrition. IMCI includes the following components:

**1. Improvements in the case management skills of health workers**

IMCI standard case management guidelines provide a systematic approach to assessing, classifying and treating sick children from birth up to five years old including giving appropriate counselling.

**2. Improvements in the health system required to deliver child health interventions effectively**

System improvements that are needed in order to provide appropriate case management to newborns and children include adequate numbers of trained staff; an adequate supply of medicines and other supplies; regular supervision of first-level health workers; high-quality referral care and mechanisms for ensuring that those children who need referral are referred properly.

**3. Improvements in family and community practices**

A number of key family and community practices are important to prevent and treat the causes of child deaths. These include exclusive breastfeeding and complementary feeding, use of insecticide-treated bednets, seeking vaccines and vitamin A at the right times, recognition of when to seek care for a sick neonate or child and the appropriate management of sick children in the home.

What progress has been made in improving health systems for child health?

IMCI has been implemented in 14 countries in the Region. Detailed data on a number of key inputs and outputs that are important for improving health systems are available from seven countries (Cambodia, China, the Lao People’s Democratic Republic, Mongolia, the Philippines, Papua New Guinea and Viet Nam). Progress with each of the main system areas that are important for implementing IMCI is summarized below:

1. **Leadership and governance**

   **Key policy support**

   All countries have made progress in improving policies to increase geographical and financial access to essential child health interventions and services. Strong leadership for child survival
is needed among governments and collaborating partners to scale up essential child health interventions towards universal coverage.\textsuperscript{3} Child health policy-makers and managers need to continue to advocate for child health to keep it on the political, economic and health development agenda of countries. Key policies to support IMCI implementation include\textsuperscript{4}:

(a) \textit{An integrated costed newborn and child health plan that is part of the national health plan.} Without a single cohesive plan for newborn and child health that is part of the overall national plan for health and which is harmonized with the medium expenditure framework and other planning frameworks, it is unlikely that activities for newborn and child health will be funded and conducted systematically. Five countries in the Region: Cambodia, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea and the Philippines have established a child health plan embedded in its national plan.

(b) \textit{Treatment policies that support effective case management.} A high proportion of countries have made key policy updates, including requiring the use of low osmolarity ORS and zinc for the management of diarrhoea; adding sick newborn care to the IMCI guidelines; updating guidelines on newborn resuscitation and essential newborn care; adding IMCI drugs to the essential drug list; and endorsing policies on community-based management of pneumonia. Mongolia and the Philippines have all treatment policies in place. These child-specific guidelines need to be linked with other treatment guidelines that impact on child’s health, for example, updated malaria guidelines on parasite-based treatment rather than the usual syndromic approach; and emphasis on strategies to support Prevention of Mother-to-Child Transmission (PMTCT) of HIV in the newborn care policies. Key policies and guidelines adopted in seven countries are shown in Figure 1.

\begin{figure}[h]
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\includegraphics[width=\textwidth]{figure1.png}
\caption{Key polices and guidelines adopted, seven Western Pacific Region countries, October 2009}
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\textsuperscript{4} WHO/UNICEF Workshop to Review Progress and Actions to Improve Child Survival, Xi’an China, October 2009
(c) **Policies to support the financial protection of infants and children.** Countries are embarking on establishing viable financing schemes to make essential services accessible and affordable. Infants and children likewise should have access to care regardless of the ability of the caretaker to pay. Infants and children should be exempt from fees for services and medications, or these should be provided at a subsidized rate. Policies for the financial protection of infants and children have been adopted in five countries (China, Cambodia, Mongolia, the Philippines and Viet Nam).

(d) **Convention on the Rights of the Child (CRC) mechanism established and working.** All countries have ratified the CRC and report that the mechanism is working. The convention contains social, political, economic and cultural rights, including the right to health. Ratifying governments are obliged to respect, protect and fulfil these rights.

(e) **Hospitals that are accredited as baby-friendly.** These hospitals promote breastfeeding and ensure that mechanisms are in place for continued community support. The proportion of hospitals that are accredited as baby-friendly range from 11% in Cambodia to 75% in Mongolia.

**Planning and coordination**

In the context of the national health priorities as elucidated in the national health plan and other planning frameworks, several countries have adapted the WHO/UNICEF Regional Child Survival Strategy and formulated integrated national plans for child survival in which IMCI is the core. Cambodia has finalized and budgeted its national child survival implementation plan for scaling up 12 scorecard interventions in priority provinces. The Philippines has launched its national strategic plan for child survival and identified areas for priority action. The Lao People’s Democratic Republic formulated an integrated maternal and child health (MCH) strategy. Papua New Guinea drafted a national policy on IMCI as the key strategy to attain child mortality reduction. Viet Nam finalized its National Plan of Action for Child Survival.

Both national and subnational planning, especially at the district level, is important. Countries report that district-level planning often is more difficult to coordinate than national planning. Lower-level managers often do not have training in the use of data for decision-making, which is an area that needs future attention.

Coordination among the ministry of health, donors and other stakeholders is particularly important. Most of the 14 countries implementing IMCI in the Region report that they have an IMCI focal person to coordinate and manage IMCI activities. Eleven of the 14 implementing countries have an IMCI working group and a mechanism for managing activities.

Cambodia, China, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea and the Philippines report that there is a mechanism for coordinating maternal, newborn and child health. In many countries, it is still difficult to get coordination working below the national level since regional and subregional coordination often does not work well. Donors,
country partners and other sectors that are important for health also need to work harder to coordinate their activities.

2. **Health financing system**

Eight of 14 implementing countries have included IMCI in their national health budget (Cambodia, China, Fiji, Kiribati, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, and the Philippines). However, despite the proven cost-effectiveness of IMCI, both global\(^5\) and regional reviews of IMCI implementation\(^6\) have found that nearly all countries struggle to allocate sufficient resources for the implementation of IMCI. Inadequate resources exist for implementing all components of IMCI in a balanced way at all levels of the health system. In China, MCH services tend to be underfunded below the county level and in western areas of the country. In Mongolia, a change in drug financing policy required that caretakers of children purchase drugs at first-level facilities. The result was increased careseeking from hospitals, where drugs were provided for free.

The Multi-Country Evaluation of IMCI in Bangladesh demonstrated how household spending for child health care in areas with IMCI was cut in half compared with those areas without IMCI. Clearly, IMCI reduced the financial burden of seeking and obtaining care. But it was not clear from the study whether the poorest households benefited the most.\(^7\)

In many countries, IMCI is funded partly by NGOs and other partners and is not sustainably funded by government. In the longer term, national insurance schemes show promise. Schemes to ensure financial protection of women and children are being implemented in China, Cambodia, Mongolia, the Philippines and Viet Nam.

3. **Improving the capacity of the health workforce**

It is recognized that health workers at the frontline are the implementers of most if not all public health programmes and have to attend separate training courses to update knowledge and skills. Achieving optimal training coverage for all programmes is a challenge. In the area of child health, the IMCI training package had integrated formerly vertical training courses for CDD and ARI and included essential components of IYCF training like breastfeeding assessment to allow a more holistic assessment of the sick child. Further integration may be needed, for example, on updating malaria assessment using RDT and application of new treatment guidelines as part of IMCI in collaboration with the Malaria programme.

Good progress has been made with improving coverage with IMCI-trained health workers in the Region. Frequent staff turnover remains a problem in some areas and staffing

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6 WHO/WPRO IMCI Implementation Survey 2008 (unpublished)

at facilities in remote and rural facilities has been a challenge. A number of strategies have been proposed for better retaining staff in remote areas, including making remote placements a part of staff service agreements and providing incentives for working in remote locations. Areas for integration in building capacity of frontline health workers need to be explored more seriously especially when financial and human resources are on the decline.

Case example: Filling a training gap in China

A short programme review of IMCI in China was conducted in 2008. Although training has been conducted widely in the 11 IMCI focus provinces, the IMCI training coverage for village and township doctors was found to be lower than doctors in higher-level facilities. This created a gap in service delivery since village and township doctors are the first-line providers in rural areas where access to higher-level facilities is limited.

At the conclusion of the review, it was agreed that available training resources would be better spent on training low-level staff that see children in high-risk areas. Formulation of a comprehensive training strategy was recommended to ensure that lower-level health workers in areas with the greatest need receive training.

In-service IMCI training

District training coverage has shown improvements in most countries for which data are available. District coverage ranges from 11% in Papua New Guinea to 100% in Mongolia. District coverage is greater than 70% in Cambodia, the Lao People’s Democratic Republic, Mongolia and the Philippines. In China, Papua New Guinea and Viet Nam, district coverage is still less than 50%. A relatively high proportion of health facilities in focus countries have trained at least 60% of health workers seeing sick children in IMCI. Coverage ranges from 15% to 76%, with at least four countries having coverage over 60%.

Several countries have begun training in IMCI hospital guidelines for referral care. The *WHO Pocket Book of Hospital Care for Children* has been introduced in Cambodia, China, Fiji, Kiribati, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, Samoa, Solomon Islands, Tonga, Vanuatu and Viet Nam. The emergency triage assessment and treatment guidelines (ETAT) have been introduced in Cambodia, the Lao People’s Democratic Republic and Mongolia. The quality assurance framework for improving hospital care for children has been used in Cambodia, China, the Lao People’s Democratic Republic, Mongolia, Solomon Islands and Viet Nam.

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9 WHO/UNICEF Workshop to Review Progress and Actions to Improve Child Survival, Xi’an, China, October 2009.
**IMCI pre-service education**

Ten of the 14 implementing countries have begun pre-service IMCI education (Cambodia, China, Fiji, Kiribati, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, the Philippines, Solomon Islands and Viet Nam). Countries are at varying stages of incorporating IMCI into existing undergraduate curricula. The quality of pre-service training is highly variable, with the number of total hours allocated, the amount of clinical practice and types of materials used differing substantially both within and between countries. Inclusion of IMCI in pre-service education ensures that all graduates of health professional schools have been exposed to IMCI and are familiar with the principles of standard case management.

**Community health worker training**

Community health workers are an important extension of the health care workforce in many countries in the Region. Community-based workers have a number of benefits, including accessibility and wide acceptance by the communities where they work. Community health workers often are responsible for conducting door-to-door visits and giving one-on-one or small-group counselling. They can conduct vaccination screening, growth monitoring and promotion and can distribute bednets and micronutrients.

Three training packages are available to support community health workers in delivering IMCI interventions to mothers and children in the home settings. These include sick child case management guidelines for community health workers and counselling guidelines on home-based newborn care and well-child care. Each of these packages is summarized below:

(a) **Caring for the sick child in the community.** These guidelines train community health workers to assess, classify and treat simple cough, diarrhoea, pneumonia and malaria and to refer children with danger signs, severe malnutrition or any other serious problem. Training community health workers to provide simple case management can help ensure that treatment is received early. Community management of the sick child, adapted from the generic training package, has been worked out in the Philippines, the Lao People’s Democratic Republic and Viet Nam. In Cambodia, a different adaptation of these modules has been updated and implemented in UNICEF-supported areas. Earlier versions of the training package have been used with bagh feldshers in Mongolia. Only Mongolia currently permits community health workers to administer antibiotics for the treatment of pneumonia.

(b) **Caring for the newborn at home.** These guidelines train community health workers to make home visits during pregnancy and the first week after birth and to counsel mothers on antenatal and newborn care. Home visits made during pregnancy are aimed at promoting antenatal care, home care for the pregnant woman and immediate newborn care. In addition, mothers are prepared for birth in a health facility or at home if a facility birth is not possible. Home visits in the first week after birth emphasize thermal care, appropriate cord care, how to initiate and sustain breastfeeding, recognition of danger signs and prompt careseeking for illness. These guidelines have been field-tested...
in Cambodia and the Philippines and introduced in the Lao People’s Democratic Republic and Viet Nam.

(c) **Caring for the healthy child at home.** These guidelines are intended for use by community health providers and other personnel working at the community level. The guidelines teach caretakers home practices that prevent illness and support healthy growth and development. Key home practices include appropriate infant and young child feeding, including breastfeeding and complementary feeding, age-appropriate play activities for healthy growth and development, seeking vaccines, appropriate hygiene and sanitation including hand washing, use of bednets, and early care-seeking for illness.

**Improved facility-based outreach**

Outreach has been used to provide essential services such as vaccinations, vitamin A distribution, growth monitoring and promotion, IMCI and antenatal care. Outreach is effective in many areas, although often limited by the availability of transportation and fuel. No data were yet available on the proportion of communities covered by outreach services.

**Supervision after training**

Effective supervision of first-level health workers is important to sustain and improve practices after IMCI training. Supportive supervision involves observation of health worker practices using a standard checklist and immediate feedback to health workers. In addition, health system supports are reviewed, problems are identified and actions for solving problems discussed. All countries in the Region report problems sustaining supervision of first-level health workers. The most common problems are a lack of vehicles, fuel and per diems for supervisors to make site visits. Remote and rural health facilities are most often missed.

Alternative methods of supervision, including on-the-job supervision by more experienced health workers, or supervision of staff during district meetings, rarely are used. Joint supervision seldom is conducted with other programme areas that have resources for regular supervision such as the Expanded Programme on Immunization (EPI) or malaria programmes. Future efforts will focus on implementation of alternative methods of supervision that allow human and financial resources to be used more effectively.

Community health workers are not formally employed by the health facility but are part of the health team. In many countries, mechanisms are needed to ensure that they are supervised by the midwife or the nurse with direct responsibility for the communities where the community health workers serve.

4. **Equitable access to essential medical products, vaccines, technologies and supplies**

By 2009, seven high-burden countries – Cambodia, China, the Lao People’s Democratic Republic, Mongolia, Papua New Guinea, the Philippines and Viet Nam – had adapted their essential drug list to include IMCI drugs. Five of them – Cambodia, the Lao People’s Democratic Republic, Mongolia, the Philippines and Viet Nam – had adopted policies to treat diarrhoea with
low osmolarity ORS and zinc. Data on availability of essential IMCI medicines are not always available. The proportion of first-level health facilities with all medicines ranges from <20% in the Lao People’s Democratic Republic to 100% in Viet Nam. The proportion of facilities with all medications available was 62% or greater in most high-burden countries.

Five countries had data on the availability of oxygen and oxygen delivery equipment at in-patient facilities. The proportion of facilities with oxygen and paediatric delivery systems ranged from 15% in Cambodia to over 90% in China, Mongolia, Papua New Guinea and Viet Nam.

**Case example: Improving the quality of hospital care in Papua New Guinea**

Acute lower respiratory infection (ALRI) is the most common cause of serious illness and death in children in Papua New Guinea, accounting for 30%–40% of all hospitalizations. A strategy to improve the quality of management of ALRI was established and implemented. The strategy included the introduction of oxygen concentrators and pulse oximeters and training of nurses and doctors in the management of ALRI. Evaluation of this strategy used a sample of 11 000 children with pneumonia and found a reduction in case fatalities (from a median of 5% to 3.2%). This strategy has been extended to involve 17 provincial hospitals.

Papua New Guinea adopted the *WHO guidelines Pocket Book of Hospital Care for Children* in 2008. These guidelines are now being used in all hospitals. In addition to improvements in supplies of essential drugs and equipment, Papua New Guinea continues to invest in building up the skills of the local child health workforce. This includes training for paediatricians, child health nurses and community health workers. An emphasis has been placed on building a family-friendly hospital environment that links with the community.

### 5. Service delivery along the health system continuum

IMCI constitutes the internationally-accepted standard for managing common conditions among children in primary health care settings. It is important that the health service delivery system is linked at all levels so that health services are provided corresponding to the capacities and expectations from each level: the home, the community health centre and the referral hospital.

Most countries in the Region report problems with referring sick children, particularly from remote areas. Common problems include lack of transportation, lack of funds to pay for transportation, lack of funds to pay for hospital admission, an unwillingness to go for referral and perceived poor quality of referral care. Some countries are responding to these barriers...
by introducing a community level of care that links to the higher tiers of the health care delivery system and which ensures that counselling emphasizes where and how to seek care. In addition, efforts are made in improving the quality of care at the primary and referral levels and improving the triage process, especially in hospitals. Ensuring financial protection for women, newborns and children has helped remove financial barriers to health care access. In some communities, community funds have been established to provide funds for transportation to hospitals. Other methods will need to be explored so that vital links across the continuum of care are established and strengthened.

6. Health information for monitoring and evaluating progress

The quality of data from routine health information systems is highly variable. Routine data are recorded by health facilities monthly, using standard reporting forms, compiled and collated at higher levels where they are analysed. The quality of routine data is limited by incomplete and incorrectly completed forms, delayed returns, slow analysis and feedback of data and inaccurate population data for the calculation of rates. Vital registration data in most settings are believed to be incomplete since a high proportion of births and deaths still occur outside of health facilities.

In most countries the routine recording forms have not yet been modified to incorporate the IMCI case definitions. Obsolete case definitions are used, making it difficult to track the progress of IMCI cases. In addition, available data often are not used by local planners for making programme decisions. In China, a child health sentinel surveillance system, using 300 reporting sites, has been instituted to help improve the quality of facility-based data.

Where routine data is available, it may be used for annual planning and feedback on activity inputs and outputs. However, routine data do not allow for a reliable comparison of trends over time in relation to intervention coverage and health outcomes and, therefore, there is a need to conduct periodic large-sample population-based surveys including Demographic and Health Surveys (DHS), UNICEF Multiple Cluster Indicator Surveys (MICS) and reproductive health and nutrition surveys.

Population-based data currently provide the best quality information about morbidity, mortality, nutritional status and intervention coverage. Many countries in the Region have conducted these kinds of surveys, but because they cannot be carried out frequently, the information is not useful for annual planning. In the future, small-sample coverage surveys conducted at the district level will be encouraged in order to provide district managers with population-based data they can use for planning. The Maternal, Newborn and Child Health Household Survey (MNCH HHS), developed by WHO, is a tool designed for this purpose.
Cambodia, China, Papua New Guinea and Viet Nam have conducted MNCH HHS. For maximum efficiency, IMCI should be part of a unified health information plan to gather both sub-national and national data.

Health facility surveys of first-level and referral-level care are conducted very infrequently in the Region. These are useful for assessing the quality of child care and identifying areas that need improvement. A structured approach is used to collect data on the quality of care provided by health workers. This includes an observation of case management practices and a validation of clinical performance by trained observers. Findings are used to plan strategies for improving clinical practice. Outpatient health facility surveys have been conducted in six countries (Cambodia, China, Mongolia, Papua New Guinea, the Philippines and Viet Nam). Referral hospital assessments have been conducted in seven countries (Cambodia, China, Kiribati, the Lao People’s Democratic Republic, Mongolia, Solomon Islands and Viet Nam). The draft MNCH Monitoring Guidelines provide a template for tracking progress of IMCI implementation.

**Case example: Access to health services in Mongolia**

In order for IMCI to be as effective as possible, the caretakers of young children must have access to preventive and treatment services from IMCI-trained providers. Available data from Mongolia suggest that access to essential health services is high. However, access remains limited for some subpopulations, including poor, rural and migratory groups.

The main remaining barriers to access are:

- **Geographic.** About 67% of the population of soums are nomadic herders; 35% of the nomadic population live 50-80 km from a health facility and 65% live less than 14 km from a health facility. Bagh feldshers are often long distances from the more remote nomadic populations and it is difficult for them to conduct home visits to all of them regularly.

- **Drug financing policy.** Although services are free for all children under 18 years old, caretakers have to pay for drugs at first-level facilities. This discourages careseeking at the primary care level, particularly for poor households. Since drugs are provided free at referral hospitals, a bypass effect has been noted, with more caretakers going directly to higher levels. This has increased patient numbers at the referral level and has put pressure on the system.

- **Unavailability of human resources.** Staff are not available in some remote and rural areas. In 2006, 15 soums had no doctor and 90 baghs had no feldsher. Inadequate numbers of nurses, midwives and primary health doctors are produced. In addition, trained health workers often move from rural areas to jobs in more urban areas. All of these conditions contribute to the lack of health staff at the primary health care level.

- **Health system administration.** Caretakers and children must be registered with the local government system in order to be eligible for services in that area. However, migratory groups often are not registered with local governments in areas where they live for brief periods and therefore find it more difficult to get services. This discourages careseeking and is a barrier to access to health services.
Conclusions: IMCI and health systems strengthening

- Strategies that seek synergies between programmes get better results and accelerate progress towards MDG4. Strengthening health systems is one of the three key elements of the IMCI strategy.

- Functioning health systems are required to deliver child health interventions to children who need them. Key preventive and curative interventions to reduce child mortality are delivered as an intervention package for sick children through the IMCI strategy.

- Implementation of activities to improve health systems involves a number of different government departments both within and outside ministries of health. In addition, a range of other partners, including local and international NGOs and donors, contribute to health systems strengthening in different ways. Systems strengthening is a collaborative process that requires close coordination.

- Health system elements that are needed in order to improve access to and quality of IMCI services include leadership and governance; improving the health financing system; improving the capacity of the health workforce; equitable access to essential medical products, vaccines and technologies; delivery of integrated good quality health services; and a health information system for monitoring and evaluating progress.

- Progress has been made in a number of areas, including policies to support improved quality and access to care; pre- and in-service training of health workers; training of community health workers; quality of referral care; and the availability of essential medicines, vaccines and supplies.

- System areas that have been slow to change include supportive supervision of first-level health workers, referral practices for sick children and the availability and use of data for planning. Resources generally have been inadequate to address all systems areas that need attention.

- Further progress will require continuing advocacy for IMCI to be an integral part of the national health plan to obtain increased resource allocation for strengthening health systems that support its implementation. More specific activities in a number of areas will help address barriers, including alternative cost-effective IMCI training methods, strategies for addressing staff retention, improved planning capacity of managers and investments in strategies to improve supervision and referral practices. Improved collection and use of data for tracking quality of care and allocation of financial resources also will be required.
IMCI and Health Systems Strengthening