This chapter addresses the three MDGs and their targets that are most directly related to health: to reduce child mortality by two-thirds (MDG 4); to reduce maternal deaths by three-quarters and achieve universal access to reproductive health (MDG 5); and to halt and reverse the spread of HIV/AIDS, achieve universal access to treatment for HIV/AIDS by 2010, and halt and reverse the incidence of malaria and other major diseases, such as tuberculosis (MDG 6).

**GOAL 4**
Reduce child mortality

**Target 4**
Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate

MDG 4 comprises one target and three indicators, with Indicators 4.1 and 4.2 addressing reductions in under-five and infant mortality rates, respectively. Indicator 4.3 focuses on immunization against measles, which provides a measure of the coverage of immunization services in the country. ²

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Under-five mortality rate</td>
</tr>
<tr>
<td>4.2</td>
<td>Infant mortality rate</td>
</tr>
</tbody>
</table>

Child mortality has been reduced significantly in the Western Pacific Region, with the overall estimated under five and infant mortality rates reduced by half and the estimated total number of deaths among children under the age of five years decreased by two thirds between 1990 and 2009. Despite this, however, around 527 000 children under five died in 2009 from preventable and treatable causes, and more than 95% of those deaths occurred in six countries in the Region (Cambodia, China, the Lao People’s Democratic Republic, Papua New Guinea, the Philippines and Viet Nam), with huge disparities in mortality across and within countries. The current status as of 2008, the challenges, and strategies to achieve results by 2015 for

Indicators 4.1 and 4.2 are presented below. New country child mortality estimates were released by UNICEF in September 2010 and are currently undergoing an official country consultation process before they are constituted as official WHO estimates.

### Figure 1
Indicator 4.1: Under-five mortality rate 1990 baseline, 2015 target and progress to date, LMICs with ≥ 250 000 (per 100 000 live births)

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td></td>
<td>117</td>
</tr>
<tr>
<td>China</td>
<td></td>
<td>89*</td>
</tr>
<tr>
<td>Fiji</td>
<td></td>
<td>157</td>
</tr>
<tr>
<td>Lao PDR</td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>Malaysia</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Mongolia</td>
<td></td>
<td>98</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td></td>
<td>91</td>
</tr>
<tr>
<td>Philippines</td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td></td>
<td>36</td>
</tr>
<tr>
<td>Vanuatu</td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>


* Figures are from the WHO Global Health Observatory database [http://apps.who.int/ghodata/]

### Figure 2
Indicator 4.1: Under-five mortality rate 1990 baseline, 2015 target and progress to date, LMICs with < 250 000 (per 100 000 live births)

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook Islands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiribati</td>
<td></td>
<td>89</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Micronesia, Fed. States of</td>
<td></td>
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<tr>
<td>Palau</td>
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<tr>
<td>Samoa</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Tonga</td>
<td></td>
<td></td>
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<tr>
<td>Tuvalu</td>
<td></td>
<td>53</td>
</tr>
<tr>
<td>Vanuatu</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


* Figures are from the WHO Global Health Observatory database [http://apps.who.int/ghodata/]

* Figures are from the World Health Statistics 2010 [http://www.who.int/whosis/whostat/EN_WHS10_Full.pdf]
Current status

Figures 1 and 2 illustrate progress in reducing under-five and infant mortality rates as of 2008 by LMICs within the Region, and depicts the gaps and how close these countries are to achieving their targets. Annex 1, Tables 1 and 2 include trend data over time since 1990 for total, male, and female child mortality rates for the LMICs presented. In general there is a greater proportion of male versus female child deaths among LMICs in the Region with China, Solomon Islands, Nauru and Vanuatu as exceptions.

Overall progress for LMICs has been mixed but substantial, considering the total populations and the absolute number of child deaths averted within LMICs in the Region since 1990. Notably, at least 65% of all child deaths in the Western Pacific Region are caused by neonatal conditions, pneumonia and diarrhoea, with an increasing proportion occurring in the neonatal period (Table 3). As a substantial proportion of under-five mortality (Indicator 4.1) occurs before a child’s first birthday, it is not surprising that the infant mortality rates (Indicator 4.2) show a similar pattern.

Table 3 Causes of death among children aged <5 years (%)

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Neonatal causes</td>
<td>47.1 %</td>
<td>45.5 %</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>13.4 %</td>
<td>16.0 %</td>
</tr>
<tr>
<td>Injuries</td>
<td>7.2 %</td>
<td>6.8 %</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>17.5 %</td>
<td>4.0 %</td>
</tr>
<tr>
<td>Malaria</td>
<td>0.1 %</td>
<td>0.6 %</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0.3 %</td>
<td>0.4 %</td>
</tr>
<tr>
<td>Measles</td>
<td>1.1 %</td>
<td>0.4 %</td>
</tr>
<tr>
<td>Other</td>
<td>13.4 %</td>
<td>26.2 %</td>
</tr>
</tbody>
</table>


Of the larger LMICs in the Region (shown in Figures 1 and 3 as countries with populations greater than or equal to 250 000), Malaysia and Viet Nam have, in essence, already achieved both the under-five and infant mortality targets (Indicators 4.1 and 4.2). Three other larger countries, namely China, the Lao People’s Democratic Republic and Mongolia, have already achieved at least 75% of their targets (in green) and the Philippines has met at least 50% of its target (in yellow). Of the larger LMICs in the Region, Cambodia, Fiji, Papua New Guinea and Solomon Islands appear to be at the greatest risk of not achieving their child mortality targets (in red).

Notably, the Lao People’s Democratic Republic and Mongolia have generally made substantial progress in meeting the primary targets of reducing their under-five and infant mortality rates, given their relatively high child mortality rates in 1990. Even so, it is not certain that they will achieve the two-thirds reduction by 2015, given the increased efforts needed and the relatively high marginal costs of achieving the remaining 10% to 15% of the target. The three countries of most concern due to still high mortality rates, namely, Cambodia, the Lao People’s Democratic Republic and Papua New Guinea, will require major efforts in reducing child mortality before 2015 if they are to achieve MDG 4.

Among the smaller LMICs in the Western Pacific Region (shown in Figures 2 and 4 as countries with populations of less than 250 000), 2008 data for Indicators 4.1 and 4.2 show that the Federated States of Micronesia, Samoa, Tuvalu and especially Kiribati have made substantial progress in reducing their child mortality rates since 1990. The Marshall Islands have also made progress, although slightly less proportionally. Three of the relatively smaller Pacific island countries (PICs), namely Cook Islands, Palau and Tonga, had comparatively low baseline under-five and infant mortality rates in 1990 and
appear to have made further advances since then, although at a relatively slower pace (Figures 2 and 4). The child mortality situation in Vanuatu has worsened since 1990.

**Challenges**

### Figure 3
Indicator 4.2: Infant mortality rate 1990 baseline, 2015 target and progress to date, LMICs with ≥ 250 000 (per 100 000 live births)


*Figures are from the WHO Global Health Observatory database [http://apps.who.int/ghodata/].

### Figure 4
Indicator 4.2: Infant mortality rate 1990 baseline, 2015 target and progress to date, LMICs with < 250 000 (per 100 000 live births)


*Figures are from the World Health Statistics 2010 [http://www.who.int/whosis/whostat/EN_WHS10_Full.pdf].
Achieving further reductions in under-five and infant mortality rates by 2015 will require addressing those challenges inhibiting progress at the margins. Typically, the proportion of newborn deaths increases when the overall under-five mortality rate decreases. It is worth noting that the majority of under-five deaths in those countries with the highest mortality rates, including Cambodia, the Lao People’s Democratic Republic and Papua New Guinea, occur in the post-neonatal period.

The main challenges in achieving further reductions in under-five mortality include the following:

- The essential evidence-based interventions for child survival have been identified in the *WHO/UNICEF regional child survival strategy*[^1]. The main challenge identified in the strategy is to achieve universal coverage for all key interventions and improve access to and quality of child health care delivery along the continuum of care across the life stages and at all levels of the health system.
- While intervention coverage has shown improvement in several areas, progress has been uneven. Overall, immunization and vitamin A coverage have tended to show improvements. However, treatment of pneumonia and diarrhoea (two major causes of post-neonatal deaths) has been slow to improve. Skilled attendance during pregnancy and delivery, as well as infant and young child feeding, have likewise been slow to improve, and contribute to the increasing proportion of newborn deaths in many countries in the Region.
- Access to interventions is variable among population groups and is determined to a large extent by the ability of the family to pay for services out of pocket. Life-saving child health care should be provided free at the point of service delivery. There is also a constant need for adaptation to changing local circumstances working within mixed systems of public and private health provision.
- Where essential health care is accessible, the quality of care often determines whether services are fully utilized. The challenge is to ensure the availability and use of standard guidelines, and provision of services by skilled health workers at all levels of care (community, first level and tertiary level), together with access to appropriate drugs, supplies and equipment to deliver preventive and/or curative interventions in a child-centred holistic and integrated manner.
- Systematic collection and use of data for decision-making, planning and implementation of activities for improved action at national and subnational (district) levels is also a challenge. Child mortality data should be used to prioritize interventions and service improvements according to need, and plans used to ensure adequate resources and better allocation of available resources.

### Strategies to achieve results

Cost-effective interventions for the prevention and treatment of the most common causes of maternal and child mortality are well established. Although actions to be taken will differ both between and within countries, general child-mortality-reduction strategies include the following:

- Continued advocacy for continuum of care across the health system (home/community, first-level care, referral level of care) and throughout key life stages (pre-pregnancy, pregnancy, delivery, immediate postnatal, neonatal, infancy and childhood) towards universal coverage in maternal and child health.

• Integration of maternal and child health at the core of national health policies, strategies and plans for increased government budget, and investment in maternal, newborn and child health to reduce direct out-of-pocket payments. Gaps should be identified and integrated operational plans at national and subnational levels (district) should be developed based on national strategic health plans.

• Capacity-building for integrated service management and delivery of good quality at home/community, health centres, and at the referral level. This would entail endorsement of standard guidelines, building the capacities of health workers to update their knowledge and skills, financial incentives and provision of supportive supervision, human resource management and logistical support to ensure the availability of essential services including drugs, supplies and equipment.

• Development of innovative scaling-up models with a particular focus on the community and district levels in resource-poor settings.

• Monitoring and evaluation to track progress, including the use of standard indicators, and analysis and use of results to improve planning and implementation.

• Coordination, networking and partnerships among all stakeholders to maximize outcomes.

Indicator 4.3 Proportion of one-year-old children immunized against measles

Immunization is recognized as a key intervention to reduce child mortality. The proportion of one-year-old children immunized against measles is indicative of the coverage of immunization services in a country. In 2009, first-dose measles coverage for LMICs in the Western Pacific Region was 97%, although with significant variation between countries. The current status for Indicator 4.3 for LMICs in the Region, plus a discussion of challenges and strategies, follow.

Current status

In 2009, first-dose measles coverage exceeded 90% in all LMICs with populations greater than 250,000, except in the Lao People’s Democratic Republic, Papua New Guinea, the Philippines, Fiji, and Solomon Islands (Figure 5). Cambodia’s coverage reached 92% (up from 52% in 2002), in part due to a 9% decrease in the denominator, which was adjusted following the 2008 Census, but also due to increased interest and investment in the Expanded Programme for Immunization (EPI). In recent years, Cambodia has also introduced new vaccines and has been applying the lessons learnt from polio eradication to eliminate measles and maternal and neonatal tetanus, particularly in reaching the previously unreached in rural and remote areas. Measles immunization coverage in the Lao People’s Democratic Republic declined from around 70% in the mid-1990s to just under 60% in 2009. Measles coverage in Papua New Guinea, which was 58% in 2009, and has fluctuated between 50% and 60% since 2000. The Philippines reported 88% coverage in 2009, down from 92% in 2006 and in 2007.

Of the 21 LMICs, 13 (62%) achieved at least 90% first-dose measles vaccination coverage in 2007 and 10 (48%) in 2008. In 2009, only 9 (43%) of the 21 LMICs achieved the target. Chronically low-performing LMICs since at least 2005 include the Lao People’s Democratic Republic (59% coverage in 2009), Papua New Guinea (58%), Samoa (49%), and Solomon Islands (60%).
Challenges

Coverage with two doses of measles vaccine should be at least 95% within a country to stop transmission of the virus. Achieving and/or maintaining high immunization coverage against other vaccine preventable diseases such as diphtheria, pertussis, tetanus, *Haemophilus influenza*, type b, hepatitis B, polio and others is also important to further reduce and sustain reductions in under-five mortality. Although basic health packages that include immunization are usually financed by governments or subsidized with donor resources, fees for consultation and medical supplies such as syringes reduces access to these services. Accordingly, year-to-year variations in immunization coverage can often be a function of available public financing for the given year. Currently, ensuring adequate government budgets not only for vaccines but also for other immunization related expenses continue to be a challenge in LMICs with growing populations.

Failure to achieve and/or sustain high immunization coverage with measles-containing vaccines (MCVs) may lead to measles outbreaks and increased susceptibility to pneumonia and diarrhoea. Other programmatic challenges towards preventing measles and other
vaccine-preventable diseases of childhood include lack of political commitment, shifting health priorities, and an increasingly depleted and underpaid health workforce.

**Strategies to achieve results**

Estimating the number of children in a country, specifically the number of children under one year of age per definition of Indicator 4.3, is often problematic due to unreliable or missing information. The case of Cambodia and the impact of the 2008 Census on the estimated total number of one-year-old children for the indicator exemplifies the challenge of accessing and utilizing accurate and timely information for estimation of progress towards achieving this target and, indeed, all the MDGs.

To increase or maintain immunization coverage of 95% for two doses of measles vaccines and at least 90% for other vaccines, the focus needs to be on reaching more remote, underserved, rural and generally hard-to-reach populations. Specifically, LMIC Member States should be implementing ‘Reaching-every-district (RED)’ as part of health systems strengthening strategies, which include:

- ensuring needed strategies are included in national health plans and reflected in medium-term expenditure frameworks and district operational plans for better planning and management of human and financial resources;
- using combinations of approaches, including outreach services and building partnerships with the education sector to immunize at schools, to reach more children;
- providing supportive supervision, with hands-on refresher training for health workers;
- building community linkages for and participation in service delivery which use the ‘every opportunity’ approach; and
- monitoring and using data for action, including identifying and specifically targeting drop-outs and left-outs and ensuring adequate vaccines and immunization supplies are available when and where needed.

Additionally, striving to meet the twin goals of measles elimination under MDG 4 combined with hepatitis B control are intended to be two pillars for strengthening routine immunization and child health care systems. Advocacy for achieving these goals can help focus attention and mobilize the resources necessary to maximize benefits for the greatest number of children.
GOAL 5  Improve maternal health

MDG 5 comprises two component targets, 5A and 5B. Target 5A calls for a reduction of three-quarters in the maternal mortality ratio (MMR) by 2015 from the estimated levels prevailing in 1990 in countries. Target 5B is to achieve universal access to reproductive health. Target 5B is linked directly to Target 5A as reproductive health interventions contribute to the reduction of maternal mortality. The current situation (based on 2005 estimates), challenges and strategies to achieve results by 2015 for Targets 5A and 5B, Indicators 5.1 to 5.2 and 5.3 to 5.6, respectively, and are presented below.

Target 5A  Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio

Indicator 5.1 measures MMR directly and is used to characterize the general trends in maternal health. Accurately measuring maternal mortality is difficult without adequate and comprehensive registration and cause-of-death information, which is elusive in LMICs in the Region. MMR has been researched intensively, including enhancements and alternative methods being put forward in recent years to estimate it more accurately based on empirical evidence and sophisticated statistical techniques. The 2010 global interagency MMR update represents levels and trends for 1990 to 2008 and uses all available national data on maternal mortality as well as improved methods as compared to the those used in previous interagency estimates published for 2005, 2000 and 1995. Differences and comparability among MMR estimates published recently are discussed further in Chapter 6 on data and monitoring system issues. Indicator 5.2 accompanies MMR as a process indicator related to the proportion of births attended by a health personnel or skilled birth attendant and serves as a measure of a health system’s ability to provide adequate care to pregnant women.

Current status

Of the health-related MDG targets, MMR is where the Western Pacific Region has made the least progress. An estimated 13,000 maternal deaths occurred in the Region in 2008, with huge disparities across and within countries (such as urban/rural and rich/poor disparities). Despite the improved situation in some countries, almost 96% of these deaths are estimated to take place in the six LMICs with the highest burden of maternal and child deaths in the Region, namely Cambodia, China, the Lao People’s Democratic Republic, Papua New Guinea, the Philippines and Viet Nam. Maternal deaths are clustered around labour, delivery and the immediate postpartum period, with postpartum haemorrhage being the main cause of death. Hypertensive diseases, sepsis/infection and obstructed labour are other important direct causes. Available data on maternal deaths in developing countries of the Region are likely to be underestimates for many reasons, including systematic under-reporting and under-recording of deaths due to various prevailing constraints.

Indicator 5.1  Maternal mortality ratio

Figure 7 depicts the progress of the LMICs in the Western Pacific Region in reaching their MMR 2015 targets. The figure also highlights the gaps in achieving the goal, as well as the dearth in maternal mortality data in some LMICs in the Region. It should be noted that the new 2010 method of estimation was utilized to develop not only the 2008 but

also the 1990 baseline MMR estimates for countries. Caution is therefore warranted in drawing conclusions from comparisons made using these figures and any discrepancies with alternative global estimates or national estimates. These data issues are discussed further in Chapter 6. Trend data from the international estimates on MMR from 1990 for these LMICs are available in Annex 1, Table 7.

Maternal mortality remains unacceptably high in Cambodia, Lao People’s Democratic Republic, and Papua New Guinea and among marginalized and underserved groups within these countries (Figure 7). In terms of progress made reducing MMR between 1990 and 2008, Cambodia, China, and Viet Nam have all achieved greater than 75% of their targets (in green). The maternal mortality rates in Malaysia and Mongolia were estimated below 150 per 100,000 in 1990, and have each made progress reducing these rates further (in yellow). Lao People’s Democratic Republic and the Philippines have made reasonable progress, having reached 60%–65% of their targets (in yellow). The populous LMICs that are of greatest risk of not achieving their targets are Fiji, Papua New Guinea and Solomon Islands (in red).

International MMR estimates for the Pacific island countries are largely lacking. Reliable data on maternal mortality are difficult to obtain, and different sources and estimation methods may reflect different ratios. Notably, MMRs are not very useful in LMICs with small populations where maternal deaths are relatively infrequent and the total number of deaths relatively low; one or two deaths a year can substantially destabilize the MMR for such a country.
Indicator 5.2 Proportion of births attended by skilled health personnel

Figures 8 and 9 present the best available international data for indicator 5.2 for LMICs in the Region. For the ten more populous LMICs, with populations of more than 250,000, the indicator has generally shown small improvements since the 1990s, except in the case of Papua New Guinea and Solomon Islands, where the most recent data, for 2006, shows a decline in the percentage of births attended by skilled health personnel. China, Malaysia and Mongolia reflect the highest values, having made further progress from the relatively high 1990s baseline period (over 90%). Cambodia

|--------------------------|----------|----------|----------|----------|----------|


Figure 8
Indicator 5.2: Proportion of births attended by skilled health personnel (%), LMICs with ≥ 250,000 population

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<tr>
<td>CAMBODIA</td>
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<td>CHINA</td>
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<td>PAPUA NEW GUINEA</td>
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<td>PHILIPPINES</td>
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<td>SOLOMON ISLANDS</td>
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<tr>
<td>VIET NAM</td>
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</tbody>
</table>

Figure 9
Indicator 5.2: Proportion of births attended by skilled health personnel (%), LMICs with < 250,000 population

<table>
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<tbody>
<tr>
<td>COOK ISLANDS</td>
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<td>KIRIBATI</td>
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<td>MARSHALL ISLANDS</td>
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<td>MICRONESIA, Fed. States of</td>
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<td>NAURU</td>
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<td>VANUATU</td>
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</tbody>
</table>

* Includes deliveries by auxiliary midwife (1.4%)
* Includes institutional births
* Includes deliveries by auxiliary midwife (3.9%)
and China have also invested heavily to encourage institutional or facility-based births over recent years, which seem to be reflected in these country’s substantial progress in Indicator 5.2.

While some progress has been made in Cambodia, the Philippines and Viet Nam, their current coverage rates for births attended by skilled birth personnel remain low, at 44%, 60% and 88%, respectively, given that the aim is to reach universal coverage for this indicator. The three more populous countries of greatest concern are the Lao People’s Democratic Republic, where the indicator in 2006 was reported to be as a low 20%, and Papua New Guinea and Solomon Islands, due to its apparent decline in the proportion of births attended by skilled birth personnel.

For countries with populations of less than 250,000, Figure 9 shows almost uniformly high values for Indicator 5.2. Accessibility is a factor that limits interpretation of this measure across Pacific island countries and reduces the number of eligible pregnant women to those in populations that tend to live in relatively isolated communities and only among the inhabited islands in the national territory, with relative ease of travel from one to another.

**Target 5B** Achieve, by 2015, universal access to reproductive health

The reproductive health target and indicators were introduced in 2005. Target 5B aims to ensure universal access to reproductive health, thus making pregnancy safer while also contributing towards achieving Target 5A to reduce MMR. There are four indicators under Target 5B: Indicator 5.3 monitors the contraceptive prevalence rate, Indicator 5.4 measures the adolescent birth rate, Indicator 5.5 addresses antenatal care coverage, and Indicator 5.6 looks at the unmet need for family planning. Data are somewhat limited, especially for years prior to 2005. Overall progress towards meeting Target 5B across LMICs within the Western Pacific Region has been mixed at best, but poor in general.
Current status

Indicator 5.3 Contraceptive prevalence rate

Figure 10 illustrates the average contraceptive prevalence rate (CPR) for LMICs in the Region between 2000 and 2008. Of the larger LMICs, only three show CPRs that exceed 65% (China, Mongolia and Viet Nam). The Philippines, despite the additional challenge of a religious barrier, shows a CPR of 51%, although this figure includes non-effective methods of family planning. Low rates are seen in Cambodia and the Lao People’s Democratic Republic, at 40% and 32%, respectively.

Data are available for only three of the smaller countries in the Pacific (Kiribati, Nauru and Palau). The average CPRs for these countries for the period from 2000 to 2008 are all less than 40%.

Indicator 5.4 Adolescent birth rate

The adolescent birth rate situation varies according to age, marital status, social class, education, urban or rural setting and whether pregnancy is planned or unplanned, wanted or unwanted. Pregnant adolescents run a disproportionate risk of dying in or after childbirth.

![Table of contraceptive prevalence rates](http://apps.who.int/ghodata/)

*The number of women by age were estimated by the United Nations Population Division and published in the World population prospects revision 2006.

![Table of adolescent birth rates](http://apps.who.int/ghodata/)

*The number of women by age were estimated by the United Nations Population Division and published in the World population prospects revision 2006.
Figures 11 and 12 reflect the adolescent fertility rate (per 1000 women aged 15–19 years) for the LMICS in the Region for the period from 2000 to 2007. These rates vary across the nine populous LMICS, with China, Malaysia and Mongolia having by far the lowest levels of adolescent fertility. The highest values are seen in the Lao People’s Democratic Republic and Papua New Guinea at 110 and 70 births per 1000 girls aged 15–19 years (Figure 11). The Philippines contribute nearly 1% globally to births to 15-19 years old and is the only country in the region to figure in the global list of 16 countries with the largest member of births to adolescents.

Adolescent birth rates in the less populous LMICS tend to be somewhat higher, but with less variability across countries, although the Marshall Islands and Nauru have considerably higher than average values (Figure 12). In these countries with relatively small populations, the high rates are derived from relatively small numbers of adolescents.

Figures 13 and 14 illustrate the status of coverage for those who had at least one antenatal visit, with data available for only nine of the populous LMICS in the Region. Of these, only six have data to allow comparison of two points or more within both the 1990–1999 and 2000–2006 periods. It shows that there has been very modest progress for these LMICS.

China, Mongolia, the Philippines and Viet Nam have the highest coverage for data reported in the period 2000–2008, at 90% or higher, followed by Malaysia and Papua New Guinea both with coverage of 79%. Cambodia and the Lao People’s Democratic Republic present the greatest challenge for this group, with antenatal care coverage far below the other countries, although Cambodia has shown significant improvement since 1998.

Figure 14 shows antenatal care coverage among those who had at least one visit among the less populous LMICS, with data for only four countries available from within the period.
from 2000 to 2008. It is important to note that, while the number of antenatal visits is an important, practical and easy measure to quantify, it does not reflect the other equally important aspect of health service provision—quality of care. There is strong evidence that fewer visits with quality care are more effective than several repeated visits with poor service.

### Indicator 5.6 Unmet need for family planning

Figure 15 shows the level of unmet need for family planning for six LMICs in the Western Pacific Region. It highlights the fact that data are very limited and are widely variable across the countries in the Region.

The data for this indicator depict a reverse pattern to that shown for Indicator 5.3 on contraceptive prevalence rate. Cambodia and the Lao People’s Democratic Republic, with the lowest CPRs among the populous LMICs, also have the highest levels of unmet need for family planning, at 25% and 40%, respectively. The value is also quite high in the Philippines, at 17%. Conversely, China, Mongolia and Viet Nam, having relatively high CPRs, have much lower levels of unmet need for family planning.

### Challenges

Several challenges need to be overcome to accelerate progress in reducing maternal deaths and to increase access to reproductive health within LMICs in the Region. The scope of reproductive health in itself is broad, with multiple and complex factors affecting it, some of which are not within the mandate or influence of the health sector. Effective and evidence-based technologies and maternal and reproductive health interventions do exist, but many of these are not being implemented optimally in some LMICs due to a number of health system issues, such as:

- low levels of political commitment, as well as policy gaps related to maternity protection and financing;
- poor human resource capacities to translate national strategic plans into implementation plans;
- shortages of resources, which may or may not be linked to low political commitment, as well as the low availability of funding in the Region for maternal, neonatal and reproductive health;
- geographical, social, cultural and financial barriers that impede access to and use of services; and
- an inability to address inequities and disparities within countries.

The complexity of managing specific maternal and reproductive health issues, such as the management of STI/HIV, provision of cervical cancer screening and human papillomavirus
vaccination, as well as evolving reproductive health issues, such as adolescent pregnancy dynamics in rural versus urban settings, further challenge the appropriateness of current programmes and existing country resources. Additionally, the lack of accurate and reliable data due to (a) weak country health information systems, particularly vital registration systems, and (b) the cost and technical complexity of conducting statistically valid surveys to estimate maternal deaths, has not only complicated reliable monitoring of progress, but has also made it difficult to make the case for demonstrating tangible results and impacts on MDG5 that might attract even greater attention for better resource mobilization and prioritization in the race to achieve results by 2015.

Strategies to achieve results

Countries already have national plans to improve maternal and neonatal health, either through plans and programmes for reproductive health, safe motherhood or specifically to achieve MDG 5. What remains key is for countries to develop technical, managerial and health-system-related capacities to translate these national strategic plans into implementation plans with adequate milestones and accountability. Specifically, countries should accelerate their national implementation of the global Reproductive health strategy5 and its accompanying framework, which links MDG 5B to MDG 5A for MMR reduction.

Specific interventions have also been implemented to suit specific country contexts, such as outreach services, maternity waiting homes, integrated packages of services, and midwifery strengthening. These interventions generally address the pillars of making pregnancy safer, including family planning, to ensure that every pregnancy is wanted and planned, and that there is adequate, quality antenatal care, skilled attendance at every birth, access to emergency obstetric care, and integrated postnatal and neonatal care. Countries need to enhance their strategic approaches to scale up these interventions. To do so, great attention will have to be given to health system strengthening. Given the importance of fully functioning health systems for sustainable gains in reducing maternal, newborn and child mortalities, major efforts are needed to address strengthening of health systems by:

- addressing policy gaps related to maternal protection, vital registration procedures and financing;
- enhancing political commitment for greater investments in maternal and neonatal health;
- strengthening human resources for and delivery of maternal and neonatal health services;
- prioritization and scaling-up of key interventions at community, health-centre and referral levels;
- reducing financing and other barriers to access, empowering individuals, families and communities to ensure access to and utilization of reproductive health services;
- improving monitoring and evaluation; and
- facilitating improvements in data-driven planning processes.

GOAL 6  Combat HIV/AIDS, malaria and other diseases

MDG 6 includes three targets, with Targets 6A and 6B aiming to halt and reverse the spread of HIV/AIDS by 2015 and achieve universal access to treatment for HIV/AIDS by 2010, respectively. Target 6C addresses reducing the incidence of malaria and other major diseases, such as tuberculosis. There are four indicators associated with Target 6A (Indicators 6.1 – 6.4), one for Target 6B (Indicator 6.5), and five to support Target 6C (Indicators 6.6 – 6.10). In this chapter, the status, challenges, and strategies associated with reaching each of these three targets by 2015 are presented and discussed.

Target 6A  Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Prevalence of HIV/AIDS across the Western Pacific Region is nominal compared with sub-Saharan Africa, although it remains a major concern for all Member States in the Region as regards tracking, containing and sustaining prevention, treatment and care initiatives to minimize the threat. Indicator 6.1 focuses on HIV prevalence within what is widely considered the most vulnerable or at-risk cohort population: those individuals aged 15–24 years.

Current status

In general, the HIV epidemic is stabilizing across the Western Pacific Region. The understanding of the HIV epidemic in countries in the Region has improved due to improved standard monitoring methods, greater availability of data and more reliable estimates.

Indicator 6.1  HIV prevalence among the population aged 15–24 years

According to Figure 16, the total estimated number of people living with HIV or AIDS (PLWH) in the Region in 2008 had increased since 2001 from 870,000 to 1,400,000 individuals, although the total number of new infections appears to have at least levelled off and is perhaps even showing signs of easing, from 144 per 1000 in 2001 to 136 in 2008. In Asia, the epidemic has been driven by men who have sex with men (MSM), injecting drug users (IDUs), and commercial sex workers. The life expectancy of PLWH should continues to increase due to increased access to and the number of people on antiretroviral therapy (ART), and offsets the reduction in new infections.

![Figure 16 Trends of HIV estimates in the Western Pacific Region (per 100,000 population)](source: HIV/AIDS and STI Unit, WHO Regional Office for the Western Pacific. Adapted from UNAIDS-WHO data, 2008)
Figure 17: HIV Prevalence rate among population aged 15–49 years in selected LMICs in the Western Pacific Region


The annual HIV prevalence rates among populations aged 15–49 years for nine LMICs in the Western Pacific Region is shown in Figure 17 for the period from 1990 to 2007. The estimated prevalence rates in Fiji, the Lao People’s Democratic Republic, Mongolia and the Philippines are low and stable. Five of the LMICs, namely Cambodia, China, Malaysia, Papua New Guinea, and Viet Nam, contribute 90% of HIV cases in the Region. Although the HIV prevalence rate in China remains relatively low overall (around 0.1%), the country remains a concern within the Region given the total estimated population of 1.3 billion and the approximately 700,000 PLWH as of 2007, and the fact that the epidemic is seen among its most-at-risk populations (MARPs). Cambodia, Malaysia and Viet Nam also have concentrated epidemics among MARPs, namely MSM, IDUs and sex workers. The increasing trend has been similar in Malaysia and Viet Nam, although the epidemic appears to have stabilized, with estimated prevalence rates in adults reaching 0.5% and 0.4%, respectively, in recent years. Cambodia is one of the countries that was identified in South-East Asia as potentially being at high risk from HIV/AIDS, having a generalized epidemic, and apparently peaked at nearly 2% prevalence in 1998 and declined to 0.9% in 2006 (shifting to a concentrated epidemic), partly due to scaled-up interventions among MARPs. Papua New Guinea shows signs of an area-specific, generalized epidemic, with an increasing HIV prevalence rate reaching approximately 0.9% as of 2007, representing the highest prevalence in the Region.

In most Member States in the Western Pacific Region, there is an increasingly high rate of condom use at last high-risk sex among sex workers, ranging from 80% to 95%. The coverage of preventive interventions for MARPs in LMICs in the Region is also increasing. As illustrated in Table 4, out of the six LMICs in the Region for which data are reported among MSM, condom use at the last anal sex encounter with a male partner was relatively high in Cambodia, China, and Mongolia, moderate in Viet Nam, and relatively low in the Lao People’s Democratic Republic and the Philippines. Figure 18 shows the percentage of sex workers reporting condom use at last high-risk sexual encounter for eight LMICs in the Region, suggesting that the rates reported most recently for Malaysia (61% in 2008) and the Philippines (66% in 2009) are considerably lower than the 85%–99% reported from the other six LMICs with data available.
Table 4  Condom use in the last anal intercourse with a male partner (%) among men having sex with men, 2006–2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Condom use in the last anal intercourse with a male partner (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>79%–94%</td>
</tr>
<tr>
<td>China</td>
<td>75%</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>24%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>87%</td>
</tr>
<tr>
<td>Philippines</td>
<td>34%</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>61%</td>
</tr>
</tbody>
</table>

Source: Country reports on universal access progress, 2009.

Table 5  Proportion of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS (%), 2008–2009

<table>
<thead>
<tr>
<th>Country</th>
<th>Youth (%)</th>
<th>Sex workers (%)</th>
<th>Injecting drug users (%)</th>
<th>Men having sex with men (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>47.6</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>China</td>
<td>85.1</td>
<td>54.1</td>
<td>57.3</td>
<td>51.1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>82.3</td>
<td>54.1</td>
<td>57.3</td>
<td>51.1</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>22.6</td>
<td>38.5</td>
<td>49.7</td>
<td>NA</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>42.5</td>
<td>54.7</td>
<td>47.6</td>
<td>53.6</td>
</tr>
</tbody>
</table>


In terms of the overall level of correct knowledge of the risks associated with HIV/AIDS in youth (percentage of population aged 15–24 years), Table 5 shows a wide range reported among six LMICs in the Region in 2008–2009, from approximately 22% in Papua New Guinea to 85% in China. These figures suggest education on HIV/AIDS risk is low among five of the six LMICs with data available (Cambodia, China, Malaysia, Papua New Guinea and Viet Nam)—all reporting less than 50%. China is the notable exception.

Figure 18  Indicator 6.2: Percentage of sex workers reporting condom use at last high-risk sexual encounter (%), 2005–2009

HIV/AIDS orphans are a particularly sensitive and priority cohort population of concern. However, due to the relatively low prevalence of HIV in the majority of the Region’s countries, available data on HIV-orphaned children are sparse and are not routinely collected, except in Cambodia, which was initially categorized as having a generalized epidemic, and Papua New Guinea, where the HIV burden is relatively high. Table 6 illustrates that the ratio of school attendance of orphans to non-orphans in both Cambodia and Papua New Guinea was 0.8 in 2009, as school attendance of orphans is considerably lower than that of non-orphans in these two countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Orphans</th>
<th>Non-orphans</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>76.1</td>
<td>91.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>75.5</td>
<td>87.1</td>
<td>0.8*</td>
</tr>
</tbody>
</table>

* Population-based survey 2009
Source: Country progress reports on follow-up to Declaration of Commitment on HIV/AIDS. UNGASS, January 2008-December 2009.

**Target 6B** Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it

Universal access to HIV/AIDS treatment will not be achieved by 2010 in LMICs in the Western Pacific Region. Overall, coverage of access to HIV/AIDS treatment (Indicator 6.5) across LMICs in the Region is estimated to be 31%, far from the target of universal access.

<table>
<thead>
<tr>
<th>Country</th>
<th>2004 a</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>4 527</td>
<td>27 000</td>
<td>31 999</td>
</tr>
<tr>
<td>China</td>
<td>8 219</td>
<td>35 000</td>
<td>48 254</td>
</tr>
<tr>
<td>Fiji</td>
<td>-</td>
<td>&lt; 100</td>
<td>39</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>104</td>
<td>700</td>
<td>1 009</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2 700</td>
<td>6800</td>
<td>8 197</td>
</tr>
<tr>
<td>Mongolia</td>
<td>-</td>
<td>&lt; 100</td>
<td>5</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>60</td>
<td>2 300</td>
<td>5 195</td>
</tr>
<tr>
<td>Philippines</td>
<td>71</td>
<td>&lt; 500</td>
<td>532</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>300</td>
<td>17 000</td>
<td>27 059</td>
</tr>
<tr>
<td>Total</td>
<td>16 170</td>
<td>89 000</td>
<td>122 289</td>
</tr>
</tbody>
</table>

Proportion 28% (20–37%) 31% (21–64%)

* Figures are from the “3 by 5” progress report. Geneva, WHO/UNAIDS Dec 2004; incomplete country data; total is estimated number in the Region.
Challenges

The 80% coverage recommended for HIV/AIDS prevention, care and treatment still remains unattained in the majority of LMICs in the Western Pacific Region, despite the steady expansion of HIV testing and counselling services in several countries, increasing coverage of interventions for most-at-risk populations, especially sex workers and IDUs, and the more than seven-fold increase in the number of people receiving antiretroviral therapy (ART)\(^6\) to 122 000 (31%) in 2008, compared with 2004. Insufficient resources, data and capacity to target and induce adequate behaviour changes among MARPs with increasing precision continues to constrain the scaling-up of priority interventions. In order to reverse the generalized epidemic in Papua New Guinea and the concentrated epidemics in other LMICs, greater support is required for: HIV testing and counselling; HIV prevention among MARPs; education and services for prevention of mother-to-child transmission; access to ART and long-term care; and sustainability of antiretroviral (ARV) supply.

New evidence in the domains of ART and HIV-TB co-infection led to the development of new global WHO HIV/AIDS guidelines in 2009\(^7\). The guidelines recommend early initiation of ART treatment. This will mean that the goal of universal access to ART will become even more elusive. In other words, there will be a larger denominator of eligible patients for ART to initiate and sustain on ARV regimens. With the economic downturn, it appears that in some countries the funding for HIV/AIDS prevention, care, and treatment might decrease, despite greater resources being needed to achieve recommended coverage.

Strategies to achieve results

One way LMICs in the Region can continue to accelerate towards 80% coverage and sustain achievements in HIV/AIDS prevention is by ensuring political commitment and leadership at all levels. In addition, local coordination must continue, with mobilization of resources and funding support aligned with national priorities to effectively scale up interventions. LMICs should focus on a combination of HIV-prevention interventions based specifically on the nature and dynamics of their local HIV epidemics, such as the following:

- implementing targeted interventions for MARPs, including behaviour-change communications to increase the use of safer and better practices, provision of STI services and HIV testing and counselling services, and increasing access to condoms and prevention services;
- changing community norms and the social environment to empower MARPs to decrease their risk and vulnerability; and
- providing comprehensive responses to HIV prevention, treatment, care and support through a human-rights and gender-equity-based approach.

Prevention interventions remain the most cost-effective and appropriate long-term approach for managing and minimizing the HIV epidemic. For example, Cambodia has been successful in containing the spread of HIV through the establishment of a well-focused, evidence-based and scaled-up national response with robust involvement across the health sector, including strong political support and leadership. To halt the spread of the disease, Cambodia identified the major route of HIV transmission as being through commercial sex workers and prioritized implementation of a 100% condom-use programme with intensive outreach and peer education and improved access to affordable

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\(^6\) County reports on ‘3 by 5’ progress, 2004; Country reports on progress of health sector interventions towards universal access.

services. With support from donors, such as the Global Fund, and by demonstrating results, Cambodia expanded its national response to other MARPs, including MSM and IDUs, sustained these efforts, and is now addressing more general cohort populations, including women, and preventing mother-to-child transmission. Cambodia has also committed to a continuum-of-care service-delivery model that includes ART provision to reach and maintain universal access to treatment.

Going forward, preventive measures should target and continue to be focused on MARPs within LMICs in the Region, namely MSM, sex workers and IDUs, as outlined in various regional strategies. Although more costly, increasing ART coverage should be given priority to continue to address the gap in the proportion of existing populations and newly infected populations with access to treatment, as well considering the increasing evidence towards ART contributing to HIV prevention. LMICs will continue to benefit from better coordination with donors and partners to improve efficiencies and synergies within public health programmes (such as sexual and reproductive health, TB and malaria programmes and EPI) and civil society engagement, and to strengthen health-system, technical and programme management, including making better use of health information systems for HIV/AIDS programmes.

Target 6C Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Progress towards addressing incidence of malaria and tuberculosis are monitored under Indicators 6.6 – 6.8 and 6.9 – 6.10, respectively. Each of these diseases and associated indicators are discussed separately below.

Indicator 6.6 Incidence and death rates associated with malaria

Malaria is still endemic in many LMICs in the WPR and often linked with poverty and the reduced economic well-being of the affected communities. In general and with respect to Indicator 6.6, the malaria mortality and morbidity have steeply declined in the Region since 1990.

Current status

Figure 19 shows generally decreasing malaria incidence rates between 1990 and 2009 for four LMICs with populations more than 250 000 (China, Malaysia, the Philippines and Solomon Islands). Almost the same trend persists for malaria mortality rates illustrated in Figure 20 for the same countries. Papua New Guinea is the LMIC in the WPR of greatest concern and risk for not achieving its Indicator 6.6 targets, with rates of malaria incidence (1181) and mortality (9.2) per 100 000, respectively, relatively high compared to other LMICs. Solomon Islands exhibited a significantly high malaria incidence rate of nearly 6500 per 100 000 in 2009, although the mortality rate remains low at 10.2 per 100 000. Notwithstanding overall malaria case load and mortality reduction advances, the rates are still unacceptably high in some countries.

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Figure 19
Indicator 6.6: Malaria incidence rate, confirmed cases (per 100 000 population) in LMICs, 1990–2009


Figure 20
Indicator 6.6: Malaria mortality rate (per 100 000 population) in LMICs, 1990–2009


* All countries have population greater than or equal to 250 000 except for Vanuatu that has a population less than 250 000.
Current status

Malaria prevention and treatment interventions have been shown to reduce child mortality by as much as 20%. The programmes in the malaria endemic countries of the Western Pacific Region have always focused on universal coverage of persons at risk of malaria (all age groups) with malaria interventions. For monitoring progress made since 2000 on children under-5 sleeping under insecticide-treated bednets (Indicator 6.7) and those with malaria who are treated with appropriate anti-malarial medicines (Indicator 6.8), household survey data are necessary. However, periodic surveys have not been carried out in all endemic countries in the Region, or they were carried out in limited areas, or the survey quality varied. Specifically for children under-5 data is sparse. Figure 21 shows increases in the percentage of children under-5 sleeping under insecticide-treated bednets in Cambodia, Papua New Guinea and the Philippines over the years, and considerable progress being made in the the Lao PDR, Solomon Islands and Vanuatu. However, in most countries further efforts need to be made to adequately protect the populations at risk of malaria.

Data is much more limited on Indicator 6.8 (Figure 22) - proportion of children under-5 diagnosed with malaria and are treated with appropriate anti-malarial medicines. Due to the low malaria endemicity and the focal distribution of malaria in most countries of the Region, household or health facility surveys are inadequate tools to generate this indicator – most fevers are not caused by malaria. Based on these data, with the exception
of the Philippines all countries had low percentages of children with fever adequately treated for malaria; progress could be demonstrated in Cambodia. In recent years, huge resources were mobilised and interventions deployed massively in countries to control malaria. More efforts need to be made to improve tools and adequately measure the progress made.

Challenges

A number of issues need to be addressed to enable the halving of malaria mortality and morbidity by 2015 and eliminate the disease in some countries and areas. National malaria prevention and treatment policies and their implementation still remain inadequate in most countries. Malaria programme weaknesses, especially weak supply management, have prevented the scaling-up of interventions (bednets, early parasite-based diagnosis and early treatment) to achieve universal coverage, particularly among children and other vulnerable populations. Some general issues include improving diagnosis, the quality of medicines and the consistency of vector control and surveillance. Overall health-system challenges confronting malaria control include weaknesses in human resources and in monitoring and evaluation. Cooperation between malaria programmes and other health and non-health programmes also remains weak in many countries, including policies and interventions targeting maternal and child health.

Malaria programmes are often unable to adequately reach vulnerable, poor and marginalized populations at high risk of malaria. In addition, the lack of regulation of the private sector in some countries has resulted in an abundance of substandard and fake medicines and artemisinin monotherapy. Another malaria-specific challenge is how to address the radical treatment of vivax malaria in settings with a high prevalence of glucose-6-phosphate dehydrogenase (G6PD) deficiency.

Strategies to achieve results

Some LMICs in the Western Pacific Region have changed their malaria programme goals from malaria control to progressive malaria elimination. However, LMICs are advised to continue focusing malaria control efforts on vulnerable, poor and/or marginalized populations. This approach, plus other key features of the Regional Action Plan for Malaria Control and Elimination (2010–2015), endorsed by Member States in 2009, includes enhancing the malaria indicator framework to more adequately track and utilize all three malaria-related MDG indicators, consolidating achievements in high-burden countries, and moving towards elimination in low-burden countries. To do so, LMICs are encouraged to coordinate donors and partners effectively to improve intersectoral cooperation to prevent the development of malaria drug resistance, prepare for the possible effect of climate change on malaria transmission, and promote a more integrated approach that aims to strengthen health systems.

One very specific malaria challenge currently being addressed is the emergence of artemisinin resistance on the Cambodia-Thailand border, which was discovered due to high quality monitoring of antimalarial drug efficacy, and was confirmed by a WHO-supported clinical trial in 2007. Jointly with partners, WHO led the development of an artemisinin-resistance containment strategy, and is now supporting its implementation, especially on the Cambodia-Thailand border. Intensified antimalarial-drug-efficacy monitoring in the Mekong region has led to the discovery of more suspected foci of artemisinin resistance in Viet Nam and along the China/Myanmar border.

Other specific strategies underway include a focus on ethnic minorities for LMICs in the Region, which has also led to inclusion of interventions targeting ethnic minority groups in country Global Fund proposals. In addition, WHO is currently working on a policy for malaria in pregnant women, based on operational research, collaborating with colleagues working on the integrated management of child illness (IMCI) strategy to improve malaria interventions for children, and has started interventions targeting migrants and mobile populations, especially with a view to containing artemisinin resistance.

### Indicator 6.9 Incidence, prevalence and death rates associated with tuberculosis

The current status of the two tuberculosis (TB) indicators for LMICs in the Western Pacific Region is discussed separately below. Indicator 6.9 addresses progress towards reducing TB incidence, prevalence and mortality rates, and Indicator 6.10 highlights the proportion of TB cases detected and cured under directly observed treatment, short-course (DOTS). The TB-related MDG challenges and strategies to achieve 2015 targets associated with both indicators follow.

#### Current status

According to 2008 WHO estimates, LMICs in the Western Pacific Region are likely to achieve the goal of having halved TB prevalence and mortality by 2015 relative to 1990 levels (or even by 2010), even although these estimates have large uncertainty bounds. Figures 23 and 24 show stable or decreasing TB incidence rates for LMICs in the Region from 1990 to 2008 for ten countries with populations greater than 250 000 and ten countries with populations less than 250 000. Estimated TB incidence rates among nine of the ten larger LMICs were below 300 per 100 000, with Cambodia's rate declining, although reported to be 490 per 100 000 as of 2008. Four of the 22 highest-TB-burden LMICs in the world are located in the Western Pacific Region (Cambodia, China, the Philippines and Viet Nam), and those four countries account for 93% of the estimated TB incidence in the Region.

TB prevalence rates appear to have declined uniformly among LMICs, as presented in Figures 25 and 26. As of 2008, of the ten larger countries, only two (Cambodia and the Philippines) were continuing to report TB prevalence rates above 500 per 100 000 population. Notably, Cambodia started in 1990 with the highest TB prevalence among LMICs in the Region, at 1400 per 100 000, and had more than halved the rate to 680 per 100 000 in 2008, with much of its success attributed to increased support from the Global Fund. All ten of the smaller LMICs reporting TB prevalence fell below 200 per 100 000 in 2008. In general, LMICs with comparatively high TB prevalence rates at the start of the period have seen fairly rapid declines, and those where rates were already fairly low have realized less improvement or apparent stabilization of TB prevalence.

Annual TB mortality rates among LMICs in the Western Pacific Region between 1990 and 2008 are presented in Figures 27 and 28. Mortality rates are still above 20 per 100 000 population in seven LMICs, including six countries with populations...
greater than 250,000 [Cambodia (79), the Philippines (52), Viet Nam (34), the Lao People’s Democratic Republic (32), Mongolia (21) and Papua New Guinea (21)], as well as Kiribati (25).

**Figure 23** Indicator 6.9: Estimated tuberculosis incidence rate, all forms, (per 100,000 population), LMICs with ≥ 250,000 population


**Figure 24** Indicator 6.9: Estimated tuberculosis incidence rate, all forms, (per 100,000 population), LMICs with < 250,000 population


**Figure 25** Indicator 6.9: Estimated Tuberculosis prevalence rate, all forms, (per 100,000 population), LMICs with ≥ 250,000 population

**Figure 26** Indicator 6.9: Estimated tuberculosis prevalence rate, all forms, (per 100 000 population), LMICs with < 250 000 population


**Figure 27** Indicator 6.9: Estimated tuberculosis mortality, all forms, (per 100 000 population), LMICs with > 250 000 population


**Figure 28** Indicator 6.9: Estimated tuberculosis mortality, all forms, (per 100 000 population), LMICs with < 250 000 population

Indicator 6.10 focuses on the proportion of individuals that are accurately diagnosed, put under a consistent treatment regimen, and ultimately cured of TB under DOTS. The DOTS coverage for LMICs in the Western Pacific Region remains at 99%, while the case detection rate has been sustained at 70% and the treatment success rate at above 90%.

**Current status**

The success of DOTS in the Western Pacific Region can probably be linked to substantial improvements in the estimated TB (smear-positive) case-detection rates. Figures 29 and 30, with large uncertainty bounds, reached from 60%–75% in 2008 for all LMICs with populations greater than 250 000, except Cambodia (56%) and Papua New Guinea (29%). TB (smear-positive) case-detection rates in LMICs with populations of less than 250 000 have been much more variable since 1990, reaching very high levels of above 90% in Cook Islands, Nauru, Tonga and Tuvalu in 2008, compared with values of between 70% and 90% for Kiribati and the Federated States of Micronesia, and <60% for Vanuatu, the Marshall Islands and Samoa. However, the following was emphasized in the 2009 global tuberculosis-control update: “This report update, as well as future reports on global TB control, will gradually place less emphasis on the case-detection rate.”

As illustrated in Figure 31, treatment success rates have remained fairly constant at above 85% in the larger LMICs, with three exceptions: they are estimated to have risen from 48%–72% in Malaysia and 66%–81% in Fiji and to have fallen from 73% to 39% in Papua New Guinea (due to 49% of the cohort not having been evaluated). The treatment success rates were also uniformly high in the smaller LMICs for the 2007 cohort (Figure 32), apart from the Federated States of Micronesia (65%) and Tuvalu (75%).

**Challenges**

Multidrug-resistant and extensively drug-resistant TB (MDR/XDR-TB) continue to threaten TB control in several LMICs in the Region. MDR-TB cases from China, the Philippines and Viet Nam account for 97% of the total estimated MDR-TB cases among both new and re-treatment cases in the Region. According to the global estimate of MDR-TB, China carries the largest burden, with approximately 25% of the global total of MDR-TB cases. The vast majority of these persons are not being treated under programme conditions and inadequate treatment leads to further development and transmission of drug-resistant TB. In recent prevalence surveys, many people with infectious smear-positive TB were identified as being without symptoms. In addition, many symptomatic people have not sought treatment. These people will remain undiagnosed in routine settings and thus will continue to transmit TB.

**Strategies to achieve results**

Building upon the achievements of the past decade, there is an urgent need to maintain national TB programmes and scale up interventions among underserved sub-populations in LMICs in the Region, with renewed political commitment and sufficient financing. Critical sets of interventions include intensifying case-finding, strengthening laboratory capacity, scaling-up MDR-TB response, expanding TB-HIV collaborative activities and further building programme-management capacity in LMICs.

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Indicators:

| Indicator 6.10 | Proportion of tuberculosis cases detected and cured under directly observed treatment, short-course |

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Figure 29 Indicator 6.10: Estimated proportion of sputum-smear-positive tuberculosis cases detected under DOTS (%), LMICs ≥ 250,000 population


Figure 30 Indicator 6.10: Estimated proportion of sputum-smear-positive tuberculosis cases detected under DOTS (%), LMICs < 250,000 population


Figure 31 Indicator 6.10: Proportion of tuberculosis cohort cases successfully treated under DOTS (%), LMICs ≥ 250,000 population

Figure 32 Indicator 6.10: Proportion of tuberculosis cohort cases successfully treated under DOTS (%), LMICs < 250,000 population.