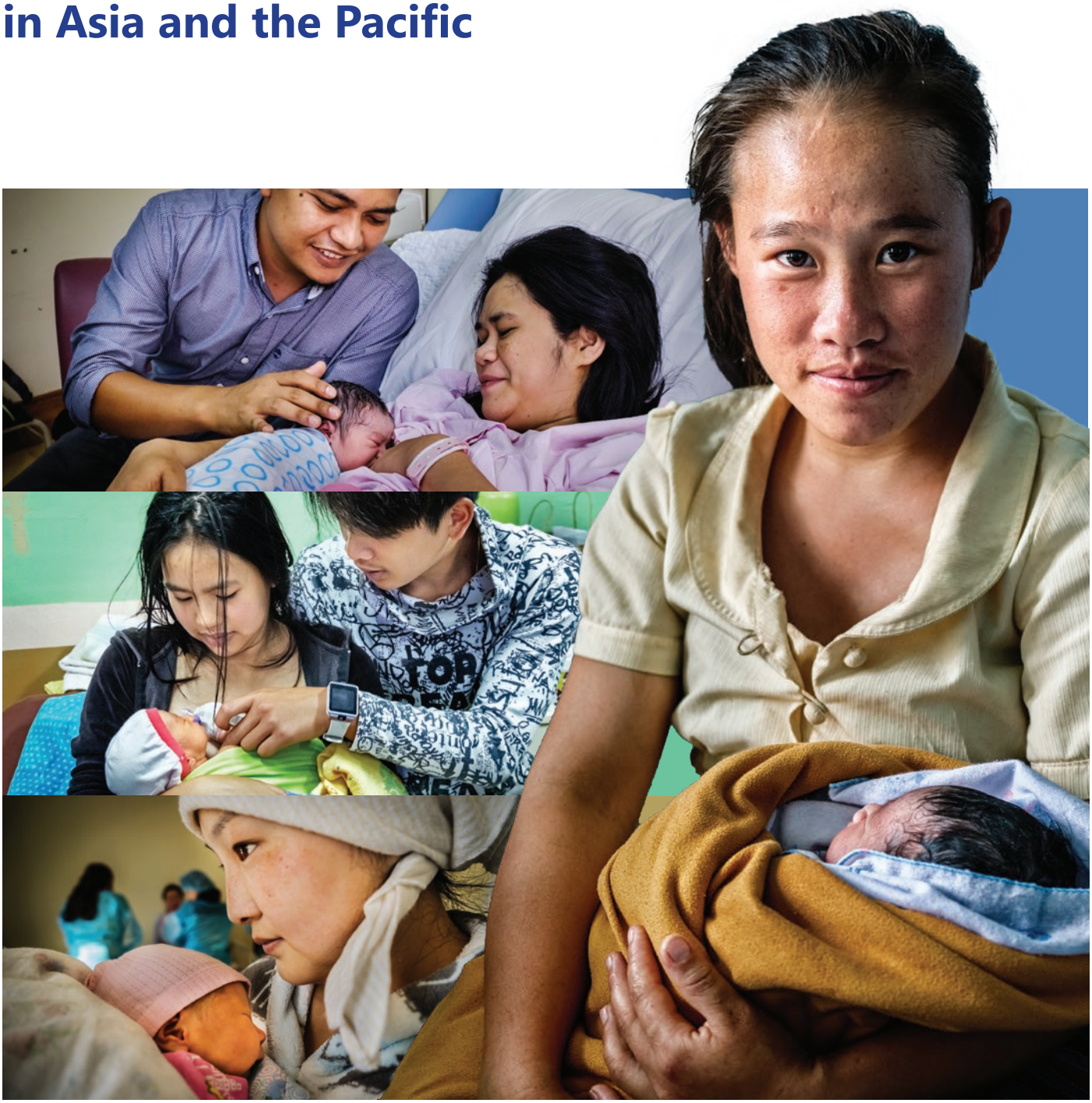
BASELINE REPORT 2018

Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific



World Health Organization

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ABBREVIATIONS

3TC	lamivudine
ANC	antenatal care
ANC1	antenatal care, at least one visit
ANC4	antenatal care, at least four visits
ART	antiretroviral therapy
ARV	antiretroviral (drug)
AZT	azidothymidine (also known as Zidovudine)
CI	confidence interval
EFV	efavirenz
EID	early infant diagnosis
EMTCT	elimination of mother-to-child transmission
EPI	Expanded Programme on Immunization
FTC	emtricitabine
GDP	gross domestic product
HBeAg	hepatitis B e antigen
HBIG	hepatitis B immunoglobulin
HBsAg	hepatitis B surface antigen
HBV	hepatitis B virus
HepB3	hepatitis B vaccine third dose
HepB-BD	hepatitis B vaccine birth dose
iPMTCT	integrated prevention of mother-to-child transmission
LPV/r	lopinavir/ritonavir
MCH	Maternal and child health
MDG	Millennium Development Goal
MMR	maternal mortality ratio
MTCT	mother-to-child transmission
NVP	nevirapine
PITC	provider-initiated testing and counselling
PMTCT	prevention of mother-to-child transmission
RMNCH	reproductive, maternal, newborn and child health
RPR	rapid plasma reagin
SBA	skilled birth attendant/attendance
SDG	Sustainable Development Goal
TDF	tenofovir
U5MR	under-5 mortality rate
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
UHC	universal health coverage
VDRL	Venereal Diseases Research Laboratory
WHO	World Health Organization

EXECUTIVE SUMMARY

Substantial gains in maternal and child health were made globally between 1990 and 2015 as a result of policies, system-wide reforms and programme-specific initiatives put in place to achieve the Millennium Developments Goals (MDGs). Fresh momentum has followed from the adoption of the Sustainable Development Goals (SDGs) in 2015. SDG3 includes ambitious targets set to end preventable maternal and child deaths and achieve universal access to reproductive, maternal, newborn and child health (RMNCH) services within the framework of universal health coverage (UHC). Elimination of mother-to-child transmission (EMTCT) of HIV, hepatitis B and syphilis (triple elimination/triple EMTCT) forms part of this vision, with the aim of giving every child the best chance to start a healthy life, free from preventable communicable diseases.

The *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030* upholds the vision that every infant should be free of HIV, hepatitis B and syphilis. The framework presents an integrated and coordinated approach towards the goal of achieving and sustaining triple EMTCT, emphasizing the principle of people-centred care and a human-rights-based approach for all women, children and their families, by promoting collaboration among programmes addressing RMNCH, HIV, hepatitis, sexually transmitted infections and immunization. It also presents potential new interventions for EMTCT of hepatitis B by building upon successful and sustained childhood vaccination programmes. Priority actions required to achieve EMTCT through universal access to high-quality RMNCH services are supported by three pillars: 1) policy; 2) service delivery; and 3) monitoring and evaluation. Each pillar has an associated 2020 milestone and a 2030 target. The RMNCH platform needs to provide a solid foundation for interventions that improve the health of all women of reproductive age. These include interventions that reduce the impact of HIV, hepatitis B and syphilis as well as other more common pregnancy-related conditions such as anaemia and hypertensive disorders. Triple EMTCT interventions accessed through RMNCH services include: preventing unintended pregnancy; early antenatal care (a minimum of eight visits are recommended), to allow effective case detection during pregnancy; rapid diagnosis; timely and appropriate treatment in pregnancy as well as during and after childbirth; and partner testing and treatment. Closing gaps, avoiding duplication and identifying missed opportunities will improve the quality and efficiency of service delivery and result in better outcomes.

This baseline report looks at data from 40 countries in the Asia Pacific region, including: Afghanistan and Pakistan, 11 countries in the World Health Organization (WHO) South-East Asia Region, and 27 countries in the WHO Western Pacific Region (areas in the Western Pacific Region under the responsibility of other Member States are not covered).[1] The data presented on RMNCH and triple EMTCT indicators provide both a situational analysis and a baseline for measuring further progress towards the 2030 SDG and EMTCT targets and an opportunity for challenges and gaps to be identified and addressed.

Summary of progress towards triple EMTCT in the Asia Pacific region in 2017

Policies and guidelines

- Policies with respect to EMTCT of HIV and syphilis are in place in the majority of countries.
- One third of countries have a policy on hepatitis B screening during pregnancy.
- Universal administration of the timely hepatitis B vaccine birth dose is policy in all but five countries.
- There is limited information on the extent of harmonization of RMNCH and disease-specific guidelines with respect to triple EMTCT activities and interventions.
- Health workforce is below recommended thresholds in many countries.

[1] Areas in the Western Pacific Region that are under the responsibility of other Member States are American Samoa, French Polynesia, Guam, Hong Kong SAR (China), Macao SAR (China), New Caledonia, the Commonwealth of the Northern Mariana Islands, the Pitcairn Islands, Tokelau, and Wallis and Futuna.

Service provision

- Coverage of family planning with modern methods is variable: <60% of women have their family planning needs met in half of the 35 reporting countries, while coverage is ≥90% in only two countries.
- Most countries have reached or made substantial progress towards targets for antenatal care at least once (ANC1) and skilled birth attendance coverage, but only 13 of 33 reporting countries have reached antenatal care at least four times (ANC4) coverage of ≥80%; the limited quality of some antenatal care service provision is also an issue.
- Reported coverage of postnatal care is generally higher for mothers than for their infants but only in five countries did ≥90% mothers receive a postnatal health check within 48 hours of giving birth; ≥90% coverage was reached for infants in only three countries.
- Ten of 17 reporting countries have reached >80% coverage of known HIV status among pregnant women and only three of 13 reporting countries have ≥95% coverage of pregnant women living with HIV who received antiretroviral therapy (ART) to reduce the risk of mother-to-child transmission (MTCT) of HIV.
- In eight of 24 reporting countries, ≥50% of HIV-exposed infants received virological testing before 2 months of age; in another seven countries, the estimated coverage was <20%.
- Syphilis testing coverage of pregnant women is low or unreported in many countries, but high rates of treatment of ANC attendees with a positive syphilis serology are being achieved in those countries reporting data.
- Among the 35 countries that have a universal hepatitis B birth-dose policy, about one third have reached ≥95% coverage of timely immunization. Coverage of hepatitis B vaccine third dose is higher, with half of the countries achieving coverage of ≥95%.

Data

- Data on postnatal care of mothers and newborns are limited compared to data on antenatal and intrapartum care.
- Data on testing and treatment of HIV and syphilis among pregnant women are available from approximately one third (HIV) and two thirds (syphilis) of the countries.
- Data on testing of pregnant women for hepatitis B are only available from four countries.
- Data on early infant diagnosis are available from just over half of the countries.
- Data on the MTCT rate of HIV and congenital syphilis rate are limited.
- Availability of data on hepatitis B surface antigen (HBsAg) prevalence in children from nationally representative serosurveys is increasing.

Impact of triple EMTCT and related interventions: Seven of 23 reporting countries, including Bhutan, Malaysia and Thailand, achieved MTCT of HIV rates below the global target of 5% in 2014–2017, while MTCT of HIV rates are ≥20% in another nine countries. Data on congenital syphilis are either not widely available or incomplete and of variable quality. India (62 cases per 100 000 live births), the Federated States of Micronesia (130 cases per 100 000 live births), Mongolia (319 cases per 100 000 live births) and Papua New Guinea (3359 cases per 100 000 live births) have case rates above the global target of ≤50 cases per 100 000 live births, while 13 other reporting countries have case rates below the global target. Six countries[2] and five areas[3] in the Asia Pacific region have evidence of already having achieved the 2030 target of <0.1% HBsAg prevalence among children ranging in age from 6 months to 12 years; a further 20 countries have reported evidence of <1% HBsAg prevalence among children[4], five countries have evidence of HBsAg prevalence among children ≥1% but <2%[5] and nine countries have reported evidence of HBsAg prevalence among children >2%.[6] The Western Pacific Region reached its 2017 regional goal, outlined in the *Regional Action Plan for Viral Hepatitis in the Western Pacific 2016–2020*, of reducing the prevalence of chronic hepatitis B infection among children

[2] Bangladesh, Bhutan, Cook Islands, Fiji, Niue and Palau

[3] Macao SAR (China), the Commonwealth of the Northern Mariana Islands, French Polynesia, Tokelau and Guam have all reported evidence of <0.1% HBsAg prevalence among children aged 6–12 years from nationally representative school-based samples

[4] Afghanistan, Australia, Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Japan, Malaysia, Maldives, Federated States of Micronesia, Mongolia, Nepal, New Zealand, Republic of Korea, Samoa, Singapore, Sri Lanka, Thailand and Tonga

[5] India, Indonesia, the Lao People's Democratic Republic, the Marshall Islands and Tuvalu

[6] Kiribati, Myanmar, Nauru, Pakistan, Papua New Guinea, the Philippines, Solomon Islands, Timor-Leste, Vanuatu and Viet Nam

to <1%. Modelled regional prevalence of HBsAg among 5-year-old children in the South-East Asia Region in 2015 was 1.1%.

Conclusion: Ambitious goals and targets have been set for triple EMTCT: some have already been met, but many have not. This baseline report presents the most recent available data on triple EMTCT impact and process indicators, highlighting both achievements and challenges due to either a lack of quality data or underachievement of targets. By bringing together data from the whole of the Asia Pacific region, this report will provide a baseline against which progress can be measured and evaluated and help focus attention on areas that are working well and those in which improvements are needed.

BACKGROUND

1. Introduction

Substantial gains in maternal and child health were made globally between 1990 and 2015 as a result of policies, system-wide reforms and programme-specific initiatives put in place to achieve the Millennium Developments Goals (MDGs). Fresh momentum has followed from the adoption of the Sustainable Development Goals (SDGs) in 2015. SDG3: "Ensure healthy lives and promote well-being for all at all ages" encompasses the framework of universal health coverage (UHC) and embodies the continued push towards equity and the empowerment of women *(1)*. SDG3 includes ambitious targets set to end preventable maternal and child deaths and achieve universal access to reproductive, maternal, newborn and child health (RMNCH) services (Box 1). Elimination of mother-to-child transmission (EMTCT) of HIV, hepatitis B and syphilis (triple elimination/triple EMTCT) forms part of this vision, with the aim of giving every child the best chance to start a healthy life, free from preventable communicable diseases.

The United Nations endorsed a resolution to accelerate progress towards UHC in December 2012 *(2)*. UHC underpins SDG3 in the drive towards improving health for all, reducing poverty and accelerating development, and it is explicitly expressed in SDG target 3.8 (Box 1). The goal is to ensure everyone, everywhere, can access quality essential health-care services without incurring significant financial risk. SDG indicator 3.8.1 measures coverage of essential health services, including RMNCH interventions and control of communicable diseases as critical components of this target. While the concept is universal, the details of how UHC can be achieved in individual countries vary according to factors including the design of health-care systems and structures of health-care financing. Far-reaching disparities in population size, geographical characteristics, wealth and culture contribute to significant challenges in achieving the SDG targets by 2030 in the Asia Pacific region. Challenges resulting from vertical and disparate programmes leading to fragmentation of care and missed opportunities must be overcome by focusing on an integrated approach to providing human-rights-based, people-centred care and addressing not only the coverage of essential health services but also their quality and the means of financing them.

With the shift in emphasis from control of infectious diseases to elimination of and specific reference to HIV and hepatitis in SDG target 3.3, the ambitious vision of eliminating mother-to-child transmission (MTCT) of HIV, hepatitis B and syphilis as public health threats by 2030, enshrined in the *Global Health Sector Strategy on HIV 2016–2021 (3)*, the *Global Health Sector Strategy on Viral Hepatitis 2016–2021 (4)* and the *Global Health Sector Strategy on Sexually Transmitted Infections 2016–2021 (5)*, is already becoming a reality in some parts of the world. The Asia Pacific region is well placed to contribute substantially to this vision. In 2016, Thailand became the first country in the Asia Pacific region to receive validation of EMTCT of HIV and syphilis *(6)*. Triple EMTCT unites the goal of improving access to and quality of RMNCH interventions with that of ending the public health impact attributable to three globally important communicable diseases. This collaborative and coordinated approach to triple EMTCT is presented in the *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030 (7)*.

This baseline report looks at data from 40 countries in the Asia Pacific region: Afghanistan and Pakistan, 11 countries in the World Health Organization (WHO) South-East Asia Region and 27 countries in the WHO Western Pacific Region (areas in the Western Pacific Region under the responsibility of other Member States are not covered).[7] The data presented on RMNCH and triple EMTCT indicators for countries in the Asia Pacific region provide both a situational analysis and a baseline for measuring further progress towards the 2030 SDG and EMTCT targets and an opportunity for challenges and gaps to be identified and addressed.

[7] Areas in the Western Pacific Region that are under the responsibility of other Member States are American Samoa, French Polynesia, Guam, Hong Kong SAR (China), Macao SAR (China), New Caledonia, the Commonwealth of the Northern Mariana Islands, the Pitcairn Islands, Tokelau and Wallis and Futuna.

It should be noted that there are significant variations in the availability, coverage and quality of the data. Every attempt has been made to include the most recent, validated data available at the time of writing, with countries having been provided the opportunity to review and confirm the accuracy of the data pertaining to them.

Box 1. SDG3 targets and indicators most relevant for triple EMTCT

SDG3	**Ensure healthy lives and promote well-being for all at all ages**	
Targets*	**By 2030**	**Indicators** (most relevant to triple EMTCT)
3.1	Reduce the global maternal mortality ratio to <70 per 100 000 live births	3.1.1 Maternal mortality ratio 3.1.2 Proportion of births attended by skilled health personnel
3.2	End preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to ≤12 per 1000 live births and under-5 mortality to ≤25 per 1000 live births	3.2.1 Under-5 mortality rate 3.2.2 Neonatal mortality rate
3.3	End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	3.3.1 Number of new HIV infections per 1000 uninfected population, by sex, age and key populations 3.3.4 Hepatitis B incidence per 100 000 population
3.7	Ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	3.7.1 Proportion of women of reproductive age who have their need for family planning satisfied with modern methods 3.7.2 Adolescent birth rate
3.8	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	3.8.1 Coverage of essential health services (reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases and service capacity and access, among the general and the most disadvantaged populations)
3.C	Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries	3.C.1 Health worker density and distribution

* Targets most directly relevant for triple EMTCT (SDG3 includes a total of 13 targets: 3.1–3.9 and 3A–3D).
Source: United Nations Department of Economic and Social Affairs. Sustainable development knowledge platform: Sustainable Development Goal 3. Available from: https://sustainabledevelopment.un.org/sdg3

2. Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030

The *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030* upholds the vision that every infant should be free of HIV, hepatitis B and syphilis *(7)*. The framework presents an integrated and coordinated approach towards the goal of achieving and sustaining triple EMTCT, emphasizing the principle of people-centred care and a human-rights-based approach for every child, mother, partner and family, by promoting collaboration among programmes addressing RMNCH, HIV, hepatitis, sexually transmitted infections and immunization. It also presents potential new interventions for EMTCT of hepatitis B, building upon successful and sustained childhood vaccination programmes.

Priority actions required for the achievement of EMTCT are supported by three pillars: 1) policy; 2) service delivery; and 3) monitoring and evaluation, each of which has an associated 2020 milestone and a 2030 target, summarized in Box 2. Triple EMTCT will only be achieved through universal access to high-quality RMNCH services for all women, children and their families. The RMNCH platform needs to be strengthened to

provide a solid foundation for interventions that improve the health of all women of reproductive age. These include interventions that reduce the impact of HIV, hepatitis B, syphilis and other more common pregnancy-related conditions such as anaemia and hypertensive disorders on pregnant women and their infants. Closing gaps, avoiding duplication and identifying missed opportunities will increase the quality and efficiency of service delivery and result in better outcomes.

Box 2. Structure of the Regional Framework for Triple EMTCT

Vision Every infant free of HIV, hepatitis B and syphilis			**2020 Milestones**	**2030 Targets**
Goal Achieve and sustain EMTCT of HIV, hepatitis B and syphilis and achieve better health for women, children and their families through a coordinated approach and efforts by 2030			Pillar 1. Coordination mechanism for EMTCT of HIV, hepatitis B and syphilis established Pillar 2. Coordinated EMTCT plan developed Pillar 3. EMTCT indicators included in national health information system	Pillar 1. National RMNCH policy includes EMTCT of HIV, hepatitis B and syphilis as a standard component Pillar 2. Universal access to core EMTCT services Pillar 3. Coordinated monitoring through interlinked system
Pillar 1: Policy Coordinated national policy and strategy	**Pillar 2: Service delivery** Seamless quality care for women, newborns, children and their families	**Pillar 3: M&E** Coordinated monitoring and evaluation of elimination		

A coordination mechanism for EMTCT has already been established in China and is under development in Cambodia and Mongolia. Cambodia and Viet Nam are developing coordinated EMTCT plans.

2.1 Interventions for triple EMTCT

Triple EMTCT interventions accessed through RMNCH services are the cornerstones of strategies to combat MTCT of HIV, hepatitis B and syphilis. They include: preventing unintended pregnancy; early antenatal care (a minimum of eight visits are recommended by WHO) *(8)* to allow effective case detection during pregnancy; rapid diagnosis; timely and appropriate treatment in pregnancy as well as during and after childbirth; and partner testing and treatment.

EMTCT of HIV requires pregnant women to be tested for HIV infection if their status is unknown and, if found to be HIV-infected, to be linked to HIV care and treatment as quickly as possible to start lifelong (Option B+) antiretroviral therapy (ART). Safe delivery and safe infant feeding must be ensured, and the newborn must receive antiretroviral (ARV) prophylaxis. HIV-exposed infants should receive virological testing early to allow a diagnosis of HIV infection to be made and the child to be linked to HIV care and treatment services with a minimum of delay. Early ART gives the infant the best chance of viral suppression and is critical as disease progression is particularly rapid in infants.

EMTCT of syphilis involves identifying syphilis-infected women as early as possible in their pregnancy (ideally before 16 weeks gestation when the risk of transmission increases) *(9)* and treating them immediately with penicillin *(10)*. Partners should be identified and offered testing and treatment to reduce the risk of re-infection. Infants born to syphilis-infected women treated late in pregnancy are at increased risk of congenital infection and must be treated and monitored after delivery.

EMTCT of hepatitis B depends on the following synergistic preventive and treatment interventions *(11)*:

- universal immunization of neonates and infants against hepatitis B, including a timely birth dose of hepatitis B vaccine given within 24 hours of birth (HepB-BD), followed by at least two additional doses of hepatitis B-containing vaccines given at intervals of no less than 4 weeks *(12)*; and
- if available, hepatitis B immunoglobulin (HBIG) given within 12 hours of birth to infants whose mothers are known to be hepatitis B surface antigen (HBsAg)-positive or whose HBsAg status is unknown.

The timely birth dose of hepatitis B vaccine is particularly important as infants infected very early in life are at greatly increased risk of chronic infection and have a 15–25% increased risk of developing later complications and death from cirrhosis and hepatocellular carcinoma. Additional interventions, including antenatal HBsAg screening, use of antivirals for pregnant women with high hepatitis B virus (HBV) viral load and follow-up of HBV-exposed infants, may be introduced in an incremental manner *(7)*.

2.2 Triple EMTCT targets and indicators

The global disease-specific impact targets for triple EMTCT are summarized in the *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030 (7)*. The impact indicators and targets are shown in Box 3; they are applicable across countries with both high and low disease prevalence and allow for comparisons to be made between countries with different population sizes *(13)*. The process indicators and targets are shown in Box 4.

Box 3. Triple EMTCT impact indicators and targets

	Impact indicator	Target
HIV	Case rate of new paediatric HIV infections due to MTCT of HIV AND MTCT rate of HIV	≤50 new paediatric infections per 100 000 live births <5% in breastfeeding populations OR <2% in non-breastfeeding populations
Syphilis	Case rate of congenital syphilis infections	≤50 cases of congenital syphilis per 100 000 live births
Hepatitis B	HBsAg prevalence among children	≤0.1% HBsAg prevalence among children

Box 4. Triple EMTCT process indicators and targets

Process indicator	Target
Percentage of pregnant women attending antenatal care at least once (ANC1)	≥95%
Percentage of pregnant women attending antenatal care at least four times (ANC4) [a]	≥95%
Percentage of pregnant women with known HIV status (includes both newly tested and those with known status)	≥95%
Percentage of antenatal care (ANC) attendees tested for HBsAg	≥95% [b]
Percentage of women accessing ANC who were tested for syphilis	≥95%
Percentage of pregnant women living with HIV who received antiretroviral therapy (ART)	≥95% [c]
Percentage of pregnant women with positive syphilis serology who were treated adequately	≥95%
Proportion of births attended by skilled health personnel	≥95%
Stillbirth rate (per 1000 total births) [a]	<12
Percentage of infants receiving a birth dose of hepatitis B vaccine (HepB-BD)	≥95%
Coverage of hepatitis B vaccine third dose (HepB3) among infants	≥95%

[a] Additional indicator for validation of EMTCT

[b] WHO recommends that HBsAg testing be routinely offered to all pregnant women in antenatal clinics with linkages to hepatitis B prevention, care and treatment services in settings with a ≥2% or ≥5% HBsAg seroprevalence in the general population. As the *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030* calls for coordinated screening for HIV, syphilis and hepatitis B, the proposed process target of HBsAg testing coverage of pregnant women of ≥95% aligns with established validation criteria for HIV and syphilis screening.

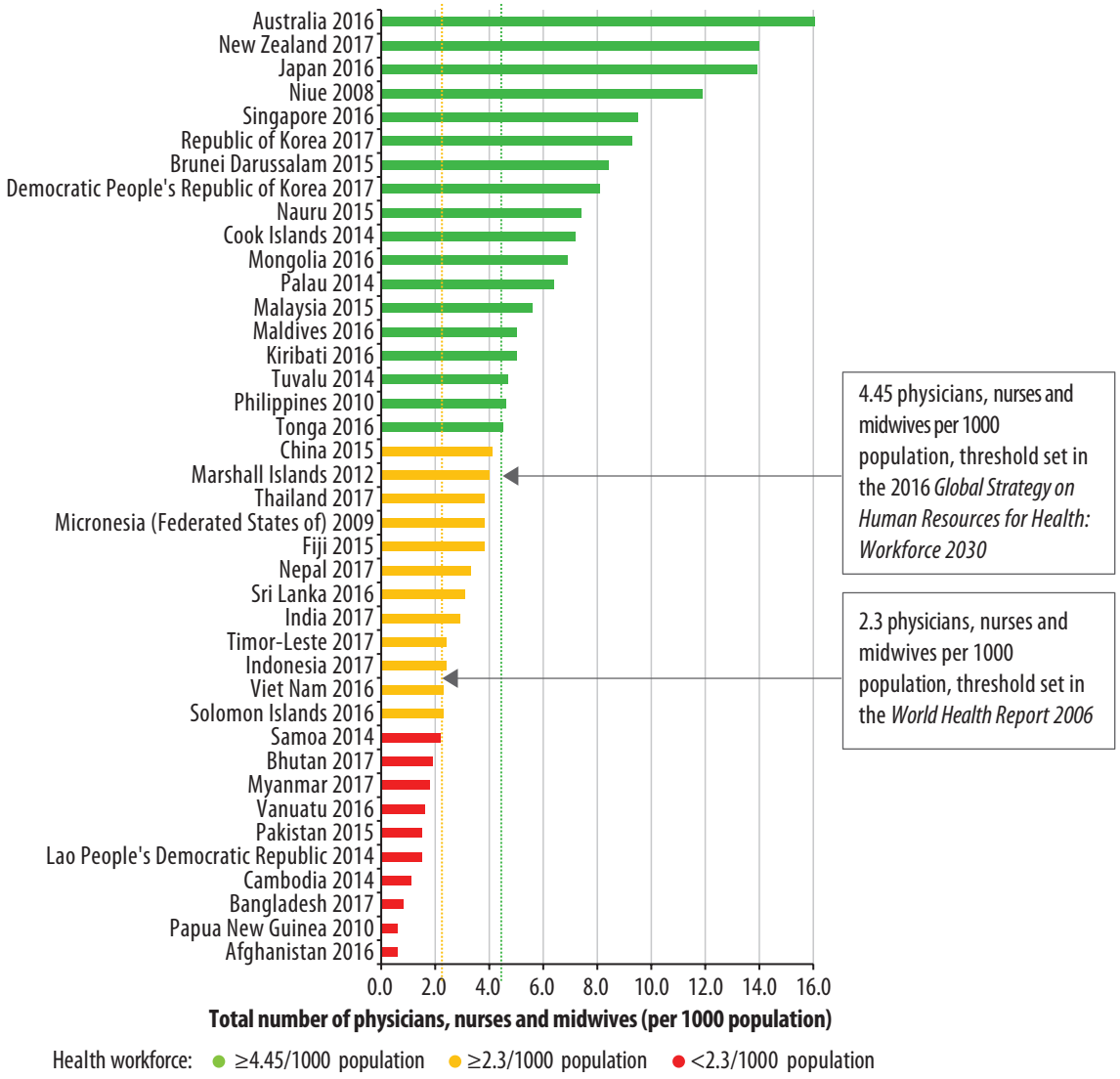
[c] Increased from ≥90% in 2017

3. Country profiles and health systems

The 40 countries covered by this report have widely differing demographic, economic and health systems profiles (see Table A1 in Annex). Total country population estimates for 2019 range from 2000 in the smallest country, Niue, to over 1.4 billion in China; 16 countries have populations <1 million and 15 countries populations >25 million *(14)*. In 2018, 18 countries in the Asia Pacific region were classified as lower-middle income and 12 countries as upper-middle income; there were seven high-income and three low-income countries *(15)*. Gross domestic product (GDP) per capita ranged from US$ 619 (Afghanistan) to US$ 57 613 (Australia) at current prices in 2017, with most countries having a per capita GDP between US$ 1000 and US$ 5000 in 2017 *(16)*.

Health workforce recruitment, development, training and retention are critical to the provision of high-quality and resilient health services that are able to meet the needs of local populations. SDG target 3.C calls for substantial increases in the health workforce in developing countries *(17)*. SDG indicator 3.C.1 measures health worker density and distribution; a minimum threshold of 4.45 physicians, nurses and midwives per 1000 population was defined in the 2016 *Global Strategy on Human Resources for Health: Workforce 2030 (18)*. Fig. 1 shows that many countries in the Asia

Fig. 1. Health workforce, Asia Pacific region, 2010–2017

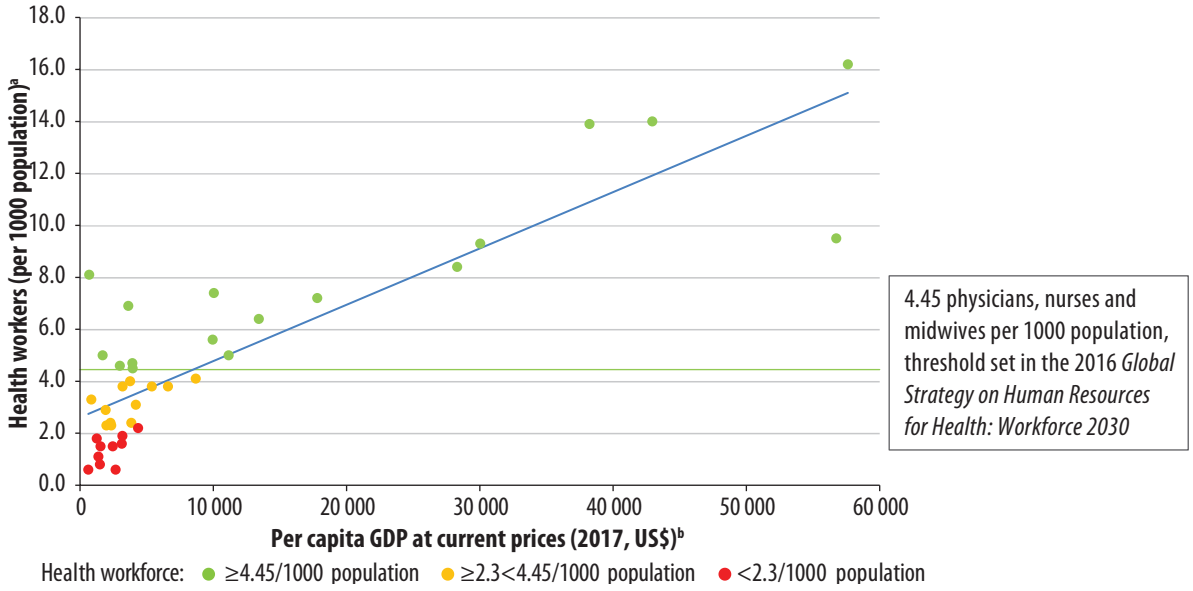


Source: World Health Organization. Global Health Observatory: health workforce density per 1000 - data by country. Available from: http://www.who.int/hrh/statistics/hwfstats/en/ (March 2019 update)

Pacific region do not have enough health providers: 22 countries do not meet the minimum threshold of 4.45 physicians, nurses and midwives per 1000 population *(19)*. The aggregated, population-based figures also mask differences in health workforce skill mix, composition and capacity, both within countries and in individual health facilities, which impact on the ability to provide high-quality health care to all women and their families.

Health workforce is strongly correlated to country GDP per capita (Fig. 2); all countries with a per capita GDP of at least US$ 10 000 (at current prices, 2017 estimates) have a health workforce above the minimum threshold of 4.45 per 1000 population. Six countries have a health workforce above (Democratic People's Republic of Korea, Kiribati, Mongolia, the Philippines, Tonga and Tuvalu) or very close to (the Marshall Islands) the recommended threshold despite having a GDP per capita below US$ 5000. One country (Singapore) has relatively low numbers of health workers compared to its GDP per capita in 2017.

Fig. 2. Health worker density and GDP per capita, Asia Pacific region, 2004–2016



$y = 0.0002x + 2.6$; $R^2 = 0.7$

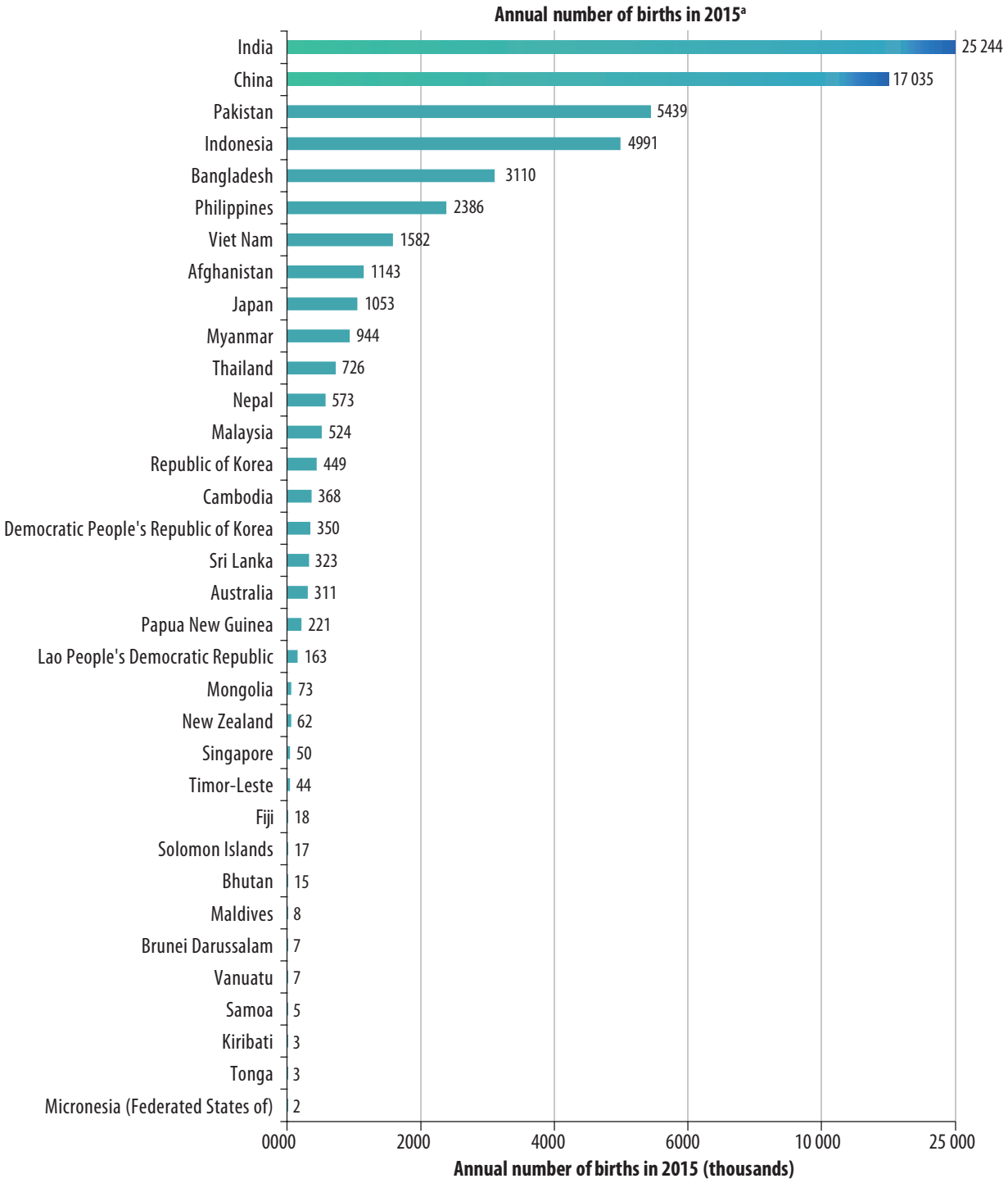
Sources: [a] World Health Organization. Global Health Observatory: health workforce density per 1000 - data by country. Available from: http://www.who.int/hrh/statistics/hwfstats/en/ (March 2019 update)
[b] UN Data. Per capita GDP at current prices - US dollars. 2017 estimates.
Available from: http://data.un.org/Data.aspx?q=GDP+per+capita&d=SNAAMA&f=grID%3a101%3bcurrID%3aUSD%3bpcFlag%3a1

4. Reproductive, maternal, newborn and child health as a platform for triple EMTCT

In the context of UHC, the platform of RMNCH services acts as an entry point for holistic care for pregnant women, their partners, infants and other family members. Comprehensive primary health care provided through accessible and affordable RMNCH services before, during and after delivery supports triple EMTCT interventions. In turn, strong and integrated EMTCT approaches will enhance the quality and efficiency of RMNCH services.

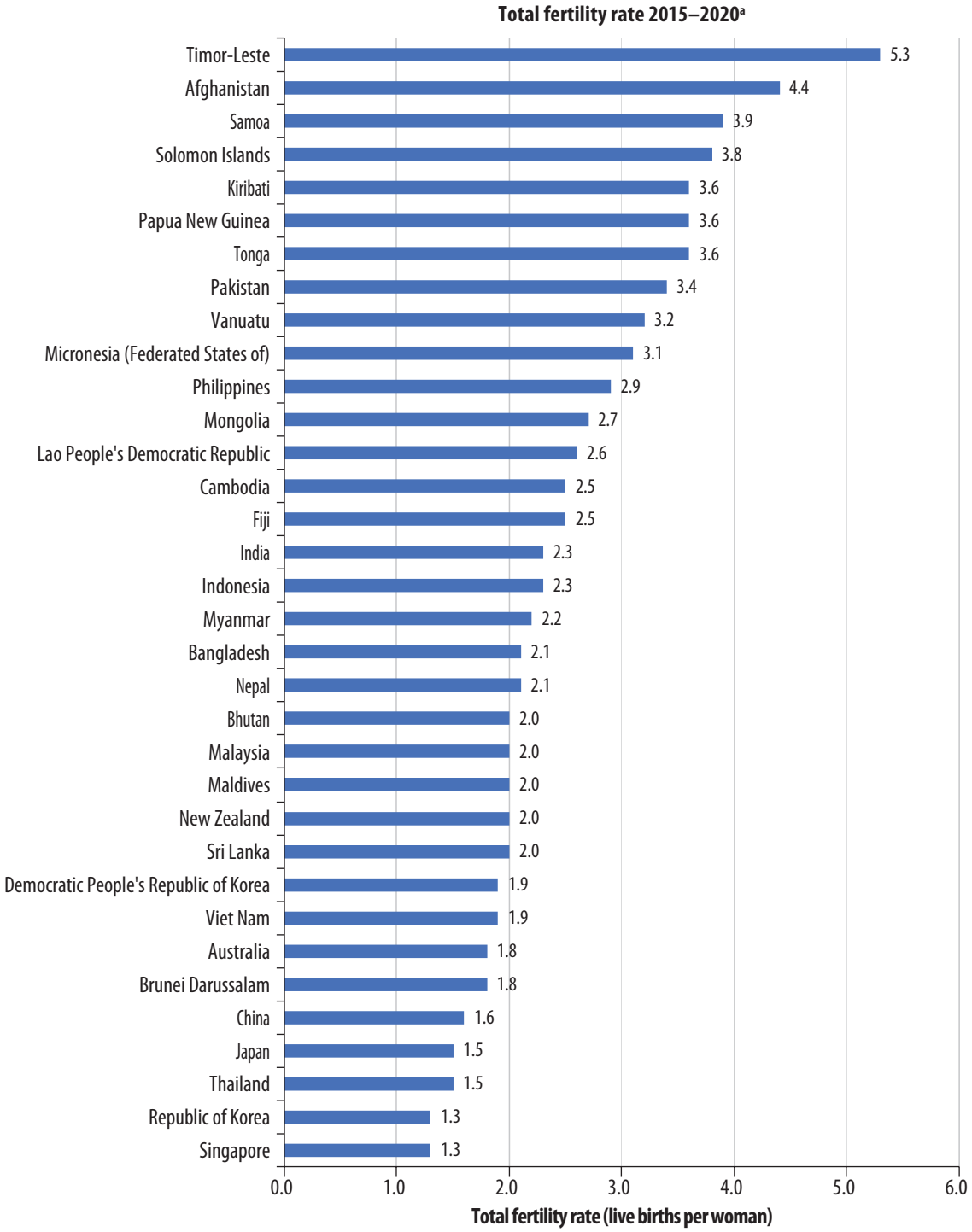
Selected maternal and child health indicators are shown in Fig. 3a–d (also see Table A2 in the Annex). In 2015, there were an estimated 140 million births globally, of which 66 million were in Asia and the Pacific *(20)*, including 25 million in India and 17 million in China.

Fig. 3a. Selected maternal and child health indicators by country, Asia Pacific region



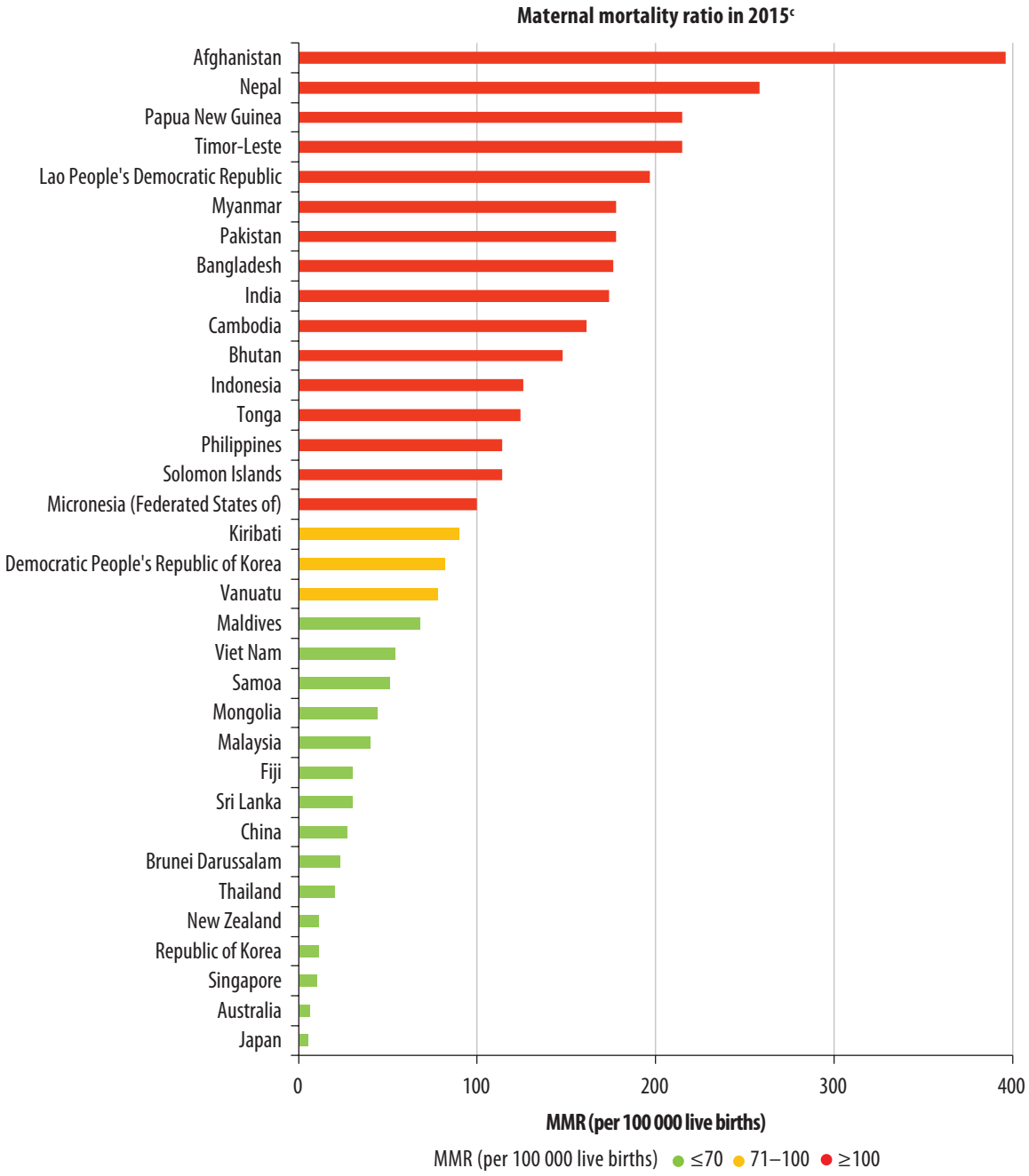
Total fertility rates (2015–2020 projections) across countries in the Asia Pacific region ranged from 1.3 live births per woman in the Republic of Korea and Singapore to 5.3 live births per woman in Timor-Leste *(21)*.

Fig. 3b. Selected maternal and child health indicators by country, Asia Pacific region



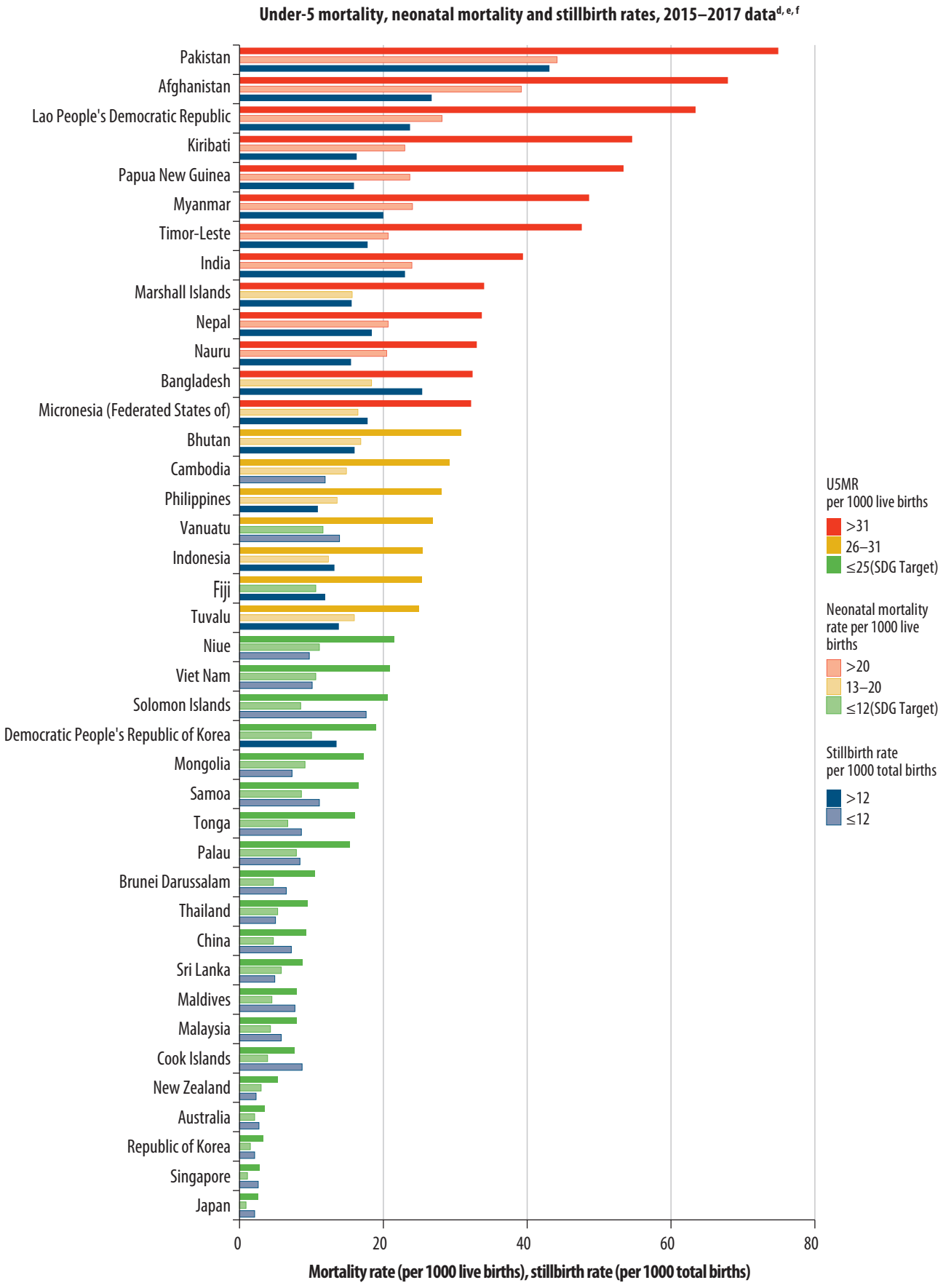
Between 1990 and 2015, the global maternal mortality ratio (MMR) fell by 44% from 385 to 216 per 100 000 live births. The global target, a reduction by 75% equivalent to achieving an MMR of 96 per 100 000 live births by 2015, was achieved by 10 countries, seven of which are in the Asia Pacific region: Bhutan, Cambodia, China, the Lao People's Democratic Republic, Maldives, Mongolia and Timor-Leste. In 2015, the MMR ranged from 5 per 100 000 live births in Japan to 396 per 100 000 live births in Afghanistan; 15 countries in the Asia Pacific region had an MMR of <70 per 100 000 live births *(22,23)*.

Fig. 3c. Selected maternal and child health indicators by country, Asia Pacific region



The global under-5 mortality rate (U5MR) fell by 55% between 1990 and 2015 from 93 to 42 per 1000 live births *(24)*, falling short of the global target of a 67% reduction (equivalent to an U5MR of 31 per 1000 live births). The U5MR in the Asia Pacific region ranged from 3 per 1000 live births (Japan, the Republic of Korea and Singapore) to 75 per 1000 live births (Pakistan) in 2016; 21 countries had an U5MR of ≤25 per 1000 live births *(25)*.

Fig. 3d. Selected maternal and child health indicators by country, Asia Pacific region



Sources:

[a] United Nations DESA Population Division. World Population Prospects 2017: annually interpolated demographic indicators. Available from: https://esa.un.org/unpd/wpp/Download/Standard/Interpolated/ (2015 estimates)

[b] UN Data. Total fertility rate (live births per woman). Available from: http://data.un.org/Data.aspx?q=total+fertility+rate&d=PopDiv&f=variableID%3a54 (2017 revision)

[c] UNICEF Data. Monitoring the situation of children and women: maternal mortality. Available from: http://data.unicef.org/topic/maternal-health/maternal-mortality/ (February 2017 update)

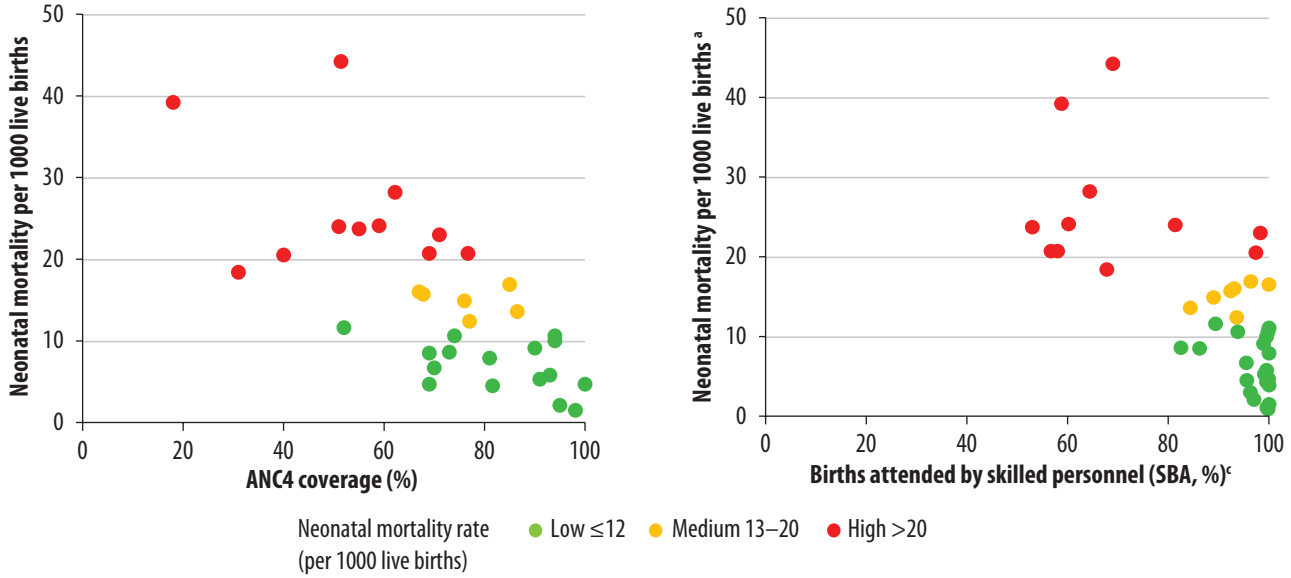
[d] UNICEF Data. Monitoring the situation of children and women: under-five mortality. Available from: http://data.unicef.org/topic/child-survival/under-five-mortality/ (October 2018 update)

[e] UNICEF Data. Monitoring the situation of children and women: neonatal mortality. Available from: http://data.unicef.org/topic/child-survival/neonatal-mortality/ (October 2018 update)

[f] Lawn JE, Blencowe H, Waiswa P, Amouzou A, Mathers C, Hogan D, et al. Stillbirths: rates, risk factors, and acceleration towards 2030. Lancet. 2016 Feb 6;387(10018):587–603. Available from: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)00837–5/fulltext

Progress in reducing neonatal mortality (deaths occurring within the first 28 days after birth) has been more limited. Two thirds of neonatal deaths occur during the first three days of life, predominantly from preterm birth, asphyxia and infection, and neonatal deaths are concentrated among infants delivered by poor and disadvantaged women. Interventions that protect the lives and well-being of pregnant women are closely linked to those addressing the major causes of neonatal mortality. Women must have access to high-quality care by skilled health personnel during pregnancy and around the time of birth; there is an urgent need to achieve universal coverage of quality ANC and SBA *(26)*, including triple EMTCT interventions. Neonatal mortality in the Asia Pacific region ranged from 1 to 44 per 1000 live births in 2017; 22 countries had a neonatal mortality rate of ≤12 per 1000 live births *(27)*. Fig. 4 shows the relationship between ANC4 coverage or SBA coverage and neonatal mortality for countries in the Asia Pacific region. Countries with lower ANC4 and SBA coverage tend to have higher neonatal mortality rates.

Fig. 4. ANC4 coverage, SBA coverage and neonatal mortality, Asia Pacific region, 2006–2018



Sources:

[a] UNICEF Data. Monitoring the situation of children and women: neonatal mortality. Available from: http://data.unicef.org/topic/child-survival/neonatal-mortality/ (October 2018 update)

[b] UNICEF Data. Monitoring the situation of children and women: antenatal care. Available from: http://data.unicef.org/topic/maternal-health/antenatal-care/ (June 2018 update)

[c] WHO Global Health Observatory data repository. Births attended by skilled health personnel Available from: http://apps.who.int/gho/data/node.main.SKILLEDBIRTHATTENDANTS?lang=en (March 2019 update)

Maternal syphilis is an important contributing factor to stillbirths, accounting for an estimated population attributable fraction globally of 7.7% *(28)*. Data on the number of stillbirths are still not widely collected or reported *(28)*. In 2015, there were an estimated 2.6 million (range: 2.4–3.0 million) third-trimester stillbirths globally, a 25% reduction from

24.7 stillbirths per 1000 total births in 2000. The global stillbirth rate had dropped to 18.4 (16.7–21.0) stillbirths per 1000 total births, but it still fell far short of the global target set in 2014 of ≤12 stillbirths per 1000 total births *(29)*. Estimates of stillbirth rates in the Asia Pacific region in 2015 ranged from 1 to 43 stillbirths per 1000 total births, with 21 countries having a stillbirth rate ≤12 per 1000 total births *(28)*.

5. Burden of HIV, syphilis and hepatitis B infections

5.1 HIV

In 2017, 5.2 million—95% confidence interval (CI): 4.1–6.7—of the world's total 36.9 million (95% CI: 31.1–43.9) people living with HIV *(30)* were in the Asia Pacific region; regional prevalence of HIV among adults was 0.2% (95% CI: 0.1–0.3), compared to the global prevalence of 0.8% (95% CI: 0.7–0.9) *(30)*. Estimated HIV prevalence in the general population (see Table 1) ranged from <0.1% to 1.1% in the Asia Pacific region *(30)*. Due to large differences in population size, total numbers of adults infected with HIV in individual countries ranged from <100 to >2 million (India) *(30)*. Within-country variations in prevalence were also substantial: for example, in Myanmar in 2017, national HIV prevalence in adults was 0.7%, while prevalence among people who inject drugs was 34.9%; equivalent figures for Pakistan were 0.1% and 21%, respectively *(31)*. New HIV infections in adults and children in the Asia Pacific region decreased by 13% from 310 000 (95% CI: 220 000–430 000) in 2010 to 280 000 (95% CI: 210 000–390 000) *(30)* in 2017. Due to their large populations, just four countries – China, India, Indonesia and Pakistan – accounted for an estimated 79% of new HIV infections in 2017. New infections decreased by >50% between 2010 and 2017 in Cambodia, Nepal and Thailand; and by 27% between 2010 and 2017 in India and Myanmar, while they increased by 43% in Pakistan, 60% in Afghanistan (2010 to 2016) and 173% in the Philippines *(31,32)*.

In 2017, 1.9 million (95% CI: 1.5–2.4) people living with HIV in the Asia Pacific region were women, and an estimated 86 000 (95% CI: 62 000–130 000) new HIV infections occurred among women. An estimated 61 000 pregnant women were living with HIV (numbers ranging from 0 to 23 000 in individual countries); only 33 971 (56%) received ART *(30)* (the global coverage of pregnant women accessing ARVs to prevent MTCT of HIV in 2017 was 80%). HIV prevalence among pregnant women varied across the region, with Bangladesh, the Lao People's Democratic Republic, Viet Nam, Cambodia, Thailand, Myanmar, Papua New Guinea and Indonesia, in ascending order, having the highest levels of HIV prevalence among pregnant women (0.2–0.7%) in 2015 *(33)*. Total numbers of HIV-infected pregnant women were highest in India, Indonesia and Myanmar *(30)*.

An estimated 7400 new HIV infections among infants in the Asia Pacific region were averted *(30)* because of interventions aimed at reducing MTCT of HIV, representing a 33% decline in new infections among children since 2010. However, the MTCT rate in the Asia Pacific region in 2017 was an estimated 17% *(31)*, ranging from 0% to 35% among the 23 countries with data (2014–2017), and an estimated 10 000 (95% CI: 7400–14 000) new infections still occurred among children aged 0–14 years in the Asia Pacific region in 2017 *(30)*.

5.2 Syphilis

There were an estimated 1.8 million (95% CI: 1.6–2.0) and 1.1 million (95% CI: 1.0–1.2) women infected with syphilis in the South-East Asia and Western Pacific regions, respectively, in 2012 *(34)*. The estimated number of new infections among women in 2012 was 435 000 (95% CI: 290 000–596 000) in the South-East Asia Region and 482 000 (95% CI: 332 000–650 000) in the Western Pacific Region *(35)*. Country-level data on syphilis prevalence in the general population are limited, but estimated case rates in 2014 ranged from 4.8 (Indonesia) to 9.3 (Sri Lanka) per 100 000 adults in the South-East Asia Region and from 7.4 (Malaysia) to 609.5 (Solomon Islands) in the Western Pacific Region (Table 1); the case rate in Afghanistan was estimated as 135.6 per 100 000 adults.

From 2008 to 2012, maternal syphilis infections fell by 38% from 1.4 million to 930 000 globally *(35)*, and by 81%, from 635 700 to 121 552 in the South-East Asia Region, driven by a reduction in syphilis seropositivity from 2.3% to 0.4% in India and from 5.8% to 1.2% in Indonesia. Over the same period, maternal syphilis infections fell from 67 014 to 45 296 in the Western Pacific Region, a decrease of 32%. Prevalence of positive syphilis serology among women attending ANC ranged from <0.1% in nine reporting countries (Bangladesh, Cambodia, Cook Islands, Democratic People's Republic of Korea (2012 data), India, Malaysia, Maldives, Samoa, Sri Lanka and Tonga) to 3.2% in Indonesia, 6.8% in Papua New Guinea, 7.9% in Vanuatu (2016), 10.4% in Tuvalu (2016) and 13.2% in Solomon Islands (2015) *(33)*.

The global number of adverse pregnancy events attributable to maternal syphilis infection (which include fetal death, stillbirth, prematurity and low-birthweight, neonatal death and congenital syphilis infection) was estimated to have fallen by 38%, from 520 000 in 2008 to 350 000 in 2012 *(35)*. The estimated number of adverse pregnancy outcomes fell by 78% from 242 243 to 52 307 in the South-East Asia Region and by 29% from 18 906 to 13 472 in the Western Pacific Region *(35)*. WHO is currently updating information on global and regional syphilis infection based on data from 2016; this information is expected to be available by the end of 2018.

5.3 Hepatitis B

In 2015, an estimated 257 million people worldwide (3.5% of the global population) were living with chronic HBV infection and 1.34 million people died as a result of their infection, principally from chronic liver disease (cirrhosis) and primary liver carcinoma, later in life *(11)*.

Prevalence of chronic HBV infection is particularly high in the Western Pacific Region, where 115 million (95% CI: 93–140) people are estimated to be living with HBV (HBsAg prevalence: 6.2% [95% CI: 5.1–7.6]); in the South-East Asia Region, the estimates indicate 39 million (95% CI: 29–77) people to be living with HBV (HBsAg prevalence: 2.0% [95% CI: 1.5–4.0]) *(11)*. The burden of HBV infection varies widely among countries in the Asia Pacific region (Table 1); prevalence of HBsAg ranges from <1% to >15% in the general population *(37–39)*, and absolute numbers of people living with chronic HBV infection ranged from approximately 10 000 (Samoa) to >86 million (China) in 2017 *(38)*. Only a small minority (9%) of people infected with HBV globally had been tested and knew their HBV status in 2015; 8% of these people received treatment with WHO-recommended antivirals for their infection *(11)*.

An estimated 1.3 million pregnant women in the Asia Pacific region are at risk of transmitting, mostly unknowingly, HBV to their newborns each year. Data on the prevalence of HBsAg among women attending ANC are currently very limited, but rates have been reported in some countries: 0.1–1.0% in Japan, 3% in the Republic of Korea, 4% in Mongolia to 6% in China *(40)*.

Table 1. Estimated burden of HIV, hepatitis B and syphilis, Asia Pacific region, 2012–2017

Country	HIV prevalence in the general population[a]	HIV prevalence among pregnant women[b]	Number of pregnant women living with HIV needing ARV to prevent MTCT[a]	Adult case rate of syphilis[c]	ANC attendees positive for syphilis[b]	Hepatitis B prevalence in the general population[d]	Hepatitis B prevalence among pregnant women[e]
	% (adults aged 15–49 years)	%		Number of cases per 100 000 adults	%	% (all ages)	%
Data year*	2017	2015	2017	2014	2017	Reported in 2018	Reported in 2017
Afghanistan	na	<0.1	na	135.6	0.3[f]	1.6[g]	na
Australia	0.1	na	na	15.7 (2012)	na	0.9	na
Bangladesh	<0.1	0.2	<200	na	0.0	3.1[g]	na
Bhutan	na	na	na	na	na	5.8[g]	na
Brunei Darussalam	na	na	na	na	0.2 (2013)	4.1[g]	na
Cambodia	0.5	0.3	<1000	na	0.0	3.0	na
China	na	na	na	39.4	0.2 (2014)	6.3	6.0
Cook Islands	na	0	na	30.4	0	1.5[h]	na
Democratic People's Republic of Korea	na	na	na	na	0 (2012)	4.4[h]	na
Fiji	na	0.1	na	na	0.9 (2012)	1.8	na
India	0.2	0.1	23 000	na	0.1	1.5[g]	na
Indonesia	0.4	0.7	12 000	4.8	3.2	1.9[g]	na
Japan	<0.1	0.0	na	na	na	1.0	0.1–1.0
Kiribati	na	0	na	97.8	1.1	10.1	na
Lao People's Democratic Republic	0.3	0.2	<500	na	na	8.7	na
Malaysia	0.4	0.0	<500	7.4	0.0	0.7	na
Maldives	na	na	na	na	0.1 (2014)	1.4[h]	na
Marshall Islands	na	0	na	na	0.2 (2016)	7.8	na
Micronesia (Federated States of)	na	0.1	na	273.9	0.5	3.5	na
Mongolia	<0.1	na	na	323.6	2.4	10.6	5.0
Myanmar	0.7	0.6	5600	6.0	0.2	3.4[g]	na
Nauru	na	0	na	438.5	na	17.6	na
Nepal	0.2	0.1	<500	na	na	0.8[g]	na
New Zealand	0.1	na	na	na	na	4.1	na
Niue	na	na	na	na	na	11.9	na
Pakistan	0.1	na	3100	na	na	2.8[g]	na
Palau	na	na	na	na	2.2 (2015)	2.9	na
Papua New Guinea	0.9	0.6	1700	88.2	6.8	14.6	na
Philippines	0.1	na	<500	na	0.9	10.4	na
Republic of Korea	na	na	na	na	na	4.4	3.0
Samoa	na	0	na	na	0.1	5.5	na
Singapore	0.2	na	na	35.7	na	4.1	na
Solomon Islands	na	0	na	609.5	13.2 (2015)	18.8	na
Sri Lanka	<0.1	0.0	na	9.3	0.0	2.5[g]	na
Thailand	1.1	0.5	4000	5.7	0.2	6.4[g]	na
Timor-Leste	na	na	na	na	0.5 (2014)	2.0[h]	na
Tonga	na	0	na	na	0 (2016)	14.8	na
Tuvalu	na	0	na	120.5 (2013)	10.4 (2016)	7.1	na
Vanuatu	na	0	na	238.1 (2013)	7.9 (2016)	17.5	na
Viet Nam	0.3	0.2	2700	na	0.3 (2013)	9.1	na
Asia and the Pacific	0.2	na	61 000	na	na	na	na
South-East Asia Region	na	na	45 000[i]	5.9 (4)[c]	0.5 (7)[c]	2.0 (2015)[j]	na
Western Pacific Region[8]	na	na	13 000[i]	93.0 (10)[c]	1.8 (13)[c]	6.2 (2015)[j]	na
Global[8]	0.8	na	1 400 000	25.7 (55)[c]	0.7 (85)[c]	3.5 (2015)[j]	na

na, not available. *Data year shown in the heading for each column unless otherwise indicated in ( ) for a specific data point.
The regional syphilis data are from 2014 and the number of reporting countries contributing to the regional estimate is shown in ( ).

Note: The reporting countries in the South-East Asia Region for adult case rate of syphilis are: Indonesia, Myanmar, Sri Lanka, Thailand; and in the Western Pacific Region: Australia, China, Cook Islands, Kiribati, Malaysia, Federated States of Micronesia, Mongolia, Nauru, Papua New Guinea, Singapore, Solomon Islands, Tuvalu, Vanuatu.
The reporting countries in the South-East Asia Region for % ANC attendees positive for syphilis are: Bangladesh, India, Indonesia, Maldives, Myanmar, Thailand, Timor-Leste; and in the Western Pacific Region: Cambodia, Cook Islands, Kiribati, Malaysia, Marshall Islands, Federated States of Micronesia, Mongolia, Nauru, Palau, Samoa, Solomon Islands, Tonga, Tuvalu.

Sources:

[a] UNAIDS. AIDSinfo. Available from: http://aidsinfo.unaids.org/
[b] UNAIDS. Global AIDS Monitoring (GAM) online reporting tool. Available from: https://aidsreportingtool.unaids.org
[c] World Health Organization. Report on global sexually transmitted infection surveillance 2015. Available from: http://www.who.int/reproductivehealth/publications/rtis/stis-surveillance-2015/en/
[d] WHO Regional Office for the Western Pacific. Hepatitis data and statistics. Available from: http://www.wpro.who.int/hepatitis/data/hepatitis_data_statistics/en/
[e] WHO Regional Office for the Western Pacific. Expert Consultation on Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in the Western Pacific, Manila, Philippines, 20–21 February 2017 Available from: http://www.wpro.who.int/hiv/documents/types/reports/triple_elimination_mother_to_child_report/en/
[f] World Health Organization. Global Health Observatory: data on syphilis. (36) Available from: http://apps.who.int/gho/data/node.main.A1357STI?lang=en
[g] Schweitzer A, Horn J, Mikolajczyk RT, Krause G, Ott JJ. Estimations of worldwide prevalence of chronic hepatitis B virus infection: a systematic review of data published between 1965 and 2013. Lancet. 2015 Oct 17;386(10003):1546–55.
[h] WHO Hepatitis B dashboard: HBV country profiles 2015. Available from: http://whohbsagdashboard.com/#
[i] World Health Organization. Global Health Observatory: prevention of mother-to-child transmission - estimates by WHO region Available from: http://apps.who.int/gho/data/view.main.23500REG?lang=en
[j] World Health Organization. Global hepatitis report, 2017. Available from: http://www.who.int/hepatitis/publications/global-hepatitis-report2017/en/

As a result of widespread immunization of infants with hepatitis B vaccine, far fewer children globally are becoming chronically infected with the HBV now (1.3%) than in the pre-vaccine era (4.7%, 1980s to early 2000s depending on the year of introduction of routine hepatitis B immunization) *(4)*. Pre-vaccine era prevalence in the Western Pacific Region was estimated at 8.3% *(41)*. Global coverage of hepatitis B vaccine third dose (HepB3) is estimated to have reached 84% in 2017 and was as high as 88% and 93% in the WHO regions of South-East Asia and the Western Pacific, respectively. Global coverage of timely HepB-BD was 43% in 2017; coverage in the South-East Asia Region was only 44%, while coverage in the Western Pacific Region was 85% *(42–44)*.

REGIONAL PROGRESS

1. Summary of the current status of RMNCH services and key interventions related to triple EMTCT

Steady improvements in coverage of ANC, health facility-based deliveries and deliveries attended by a skilled birth attendant contributed significantly to the MDG4 and MDG5 achievements in the Asia Pacific region. Regional coverage of at least one visit for antenatal care (ANC1), based on country data reported between 2007 and 2014, was estimated as 77% in the South-East Asia Region and 95% in the Western Pacific Region *(45)*; in 2013, coverage of at least four visits for antenatal care (ANC4) over the same period was 70% in the South-East Asia Region (data not available for the Western Pacific Region) *(45)*. The proportion of births attended by skilled health personnel reached 78% in the South-East Asia Region and 96% in the Western Pacific Region in 2016 *(46)*.

Table 2 provides coverage data for key RMNCH services as well as triple EMTCT process indicators for countries in the Asia Pacific region. More detail can be found in *Section 4: Service delivery towards EMTCT of HIV, hepatitis B and syphilis in the Asia Pacific region*. Data in the table are colour-coded as follows: green for high levels of coverage, orange for intermediate levels and red for low levels (for specific definitions of coverage levels, see the accompanying key). While the majority of available data for indicators related to HIV, syphilis and hepatitis B are from 2015 or 2016, RMNCH data for many countries are much older. Regular updates are important to monitor the situation in countries lacking significant progress, those being countries with data in the red or orange range.

Coverage of family planning with modern methods is variable: in half of the 35 reporting countries, <60% of married (or in union) women have their demand for family planning satisfied with a modern method of contraception, while coverage is ≥90% only in China *(47,48)*. Most countries in the Asia Pacific region have already reached or made substantial progress towards coverage targets for ANC1 *(49)* and SBA *(50)*, but only 13 of 33 reporting countries have reached ANC4 coverage of ≥80% *(49)*. In about one half of the reporting countries, high proportions of women attending ANC did not have blood examined for anaemia (or urine samples examined for bacteriuria – data not shown), an indication of the limited quality of some ANC service provision.

The availability of data related to testing and treatment of pregnant women for HIV, syphilis and hepatitis B is limited. Ten of 17 reporting countries in the Asia Pacific region have reached >80% coverage of known HIV status among pregnant women (three of these countries have reached ≥95% coverage) and only three of 13 reporting countries have reached ≥95% coverage of pregnant women living with HIV who received ART to reduce the risk of MTCT of HIV *(30)*. Syphilis testing coverage of pregnant women is low or unreported in many countries, but high rates of treatment of ANC attendees with positive syphilis serology are being achieved in those countries reporting data *(33)*. Only 13 countries are currently known to have a hepatitis B screening policy during pregnancy,[8] and data on coverage is very limited. Five countries do not have a universal HepB-BD immunization policy. Among those countries that do have a birth-dose policy, about one third has reached ≥95% coverage of HepB-BD *(51)*. Coverage of HepB3 is higher, with half of the countries achieving HepB3 coverage levels of ≥95%, and only six countries having HepB3 coverage <80% (Table 2).[9]

There remains a need for further scale-up of effective approaches and for continued improvements in both data collection and reporting and coverage and quality of existing RMNCH services, including EMTCT interventions, if SDG and EMTCT targets are to be met across the Asia Pacific region by 2030.

[8] Australia, China, Cook Islands, Fiji, Japan, Mongolia, Niue, the Philippines, the Republic of Korea, Samoa, Thailand, Tonga and Viet Nam are currently known to recommend routine testing of pregnant women for HBsAg.

[9] The 2030 EMTCT targets for both HepB-BD and HepB3 are ≥95%. Interim targets for 2020 set out in the *Global Health Sector Strategy on Viral Hepatitis 2016–2021* are 50% timely HepB-BD coverage and 90% HepB3 coverage. The WHO Western Pacific Region specifies ≥95% coverage for both HepB-BD and HepB3 by 2017 (WPR/RC64.R5).

Table 2. Summary of RMNCH services and triple EMTCT interventions by country, Asia Pacific region, 2007–2017

Country	Women whose demand for family planning is satisfied with a modern method of contraception[a]		ANC coverage: at least one visit[b]		ANC coverage: at least four visits[b]		Blood sample taken at ANC		Births attended by skilled health personnel[c]	
Data year range	2007–2017		2007–2017		2007–2017		2007–2017		2006–2018	
	(%)	Data year	(%)	Data year	(%)	Data year	(%)	Data source and year	(%)	Data year
EMTCT target for 2030			≥95%		≥95%				≥95%	
Afghanistan	42.1	2016	59	2015	18	2015	29.9	DHS 2015	50.5	2018
Australia	83.1[g]	2017	98	2008	92	2008	na	na	99.7	2016
Bangladesh	72.5	2014	64	2014	31	2014	54.6	DHS 2014	49.8	2017
Bhutan	84.6	2010	98	2012	85[j]	2015	93.0	MICS 2010	89.0	2018
Brunei Darussalam	na	na	99	2009	100	2016	96.6	HIB 2016	100.0	2017
Cambodia	56.4	2014	95	2014	76	2014	77.1	DHS 2014	89.0	2014
China	96.6	2001	97	2015	69	2013	na	na	99.9	2016
Cook Islands	na	na	100	2008	na	na	na	na	100.0	2009
Democratic People's Republic of Korea	89.8	2014	100	2009	94	2009	80.0	MICS 2009	100.0	2017
Fiji	65.8[g]	2017	100	2008	94	2013	na	na	99.9	2016
India	72.0	2016	84[h]	2016	51	2016	87.3	NFHS 2015–16	85.7	2016
Indonesia	77.9	2017	98[h]	2017	77[h]	2017	48.0	DHS 2017	92.6	2018
Japan	60.1[g]	2017	na	na	na	na	na	na	99.9	2017
Kiribati	35.8	2009	88	2009	71	2009	84.1	DHS 2009	98.3	2010
Lao People's Democratic Republic	71.1[h]	2017	78[h]	2017	62[h]	2017	40.2	LSIS II 2017	64.4	2017
Malaysia	54.5[g]	2017	97	2014	na	na	99.4	NHMS 2016	99.4	2016
Maldives	29.8[h]	2017	99[h]	2017	82[h]	2017	99.2	DHS 2016–17	95.6	2017
Marshall Islands	80.5	2007	93[h]	2017	68[h]	2017	85.0	DHS 2017	92.4	2017
Micronesia (Federated States of)	na	na	80	2008	na	na	na	na	100.0	2009
Mongolia	68.3	2013	99	2013	90	2013	97.7	MICS 2013–14	98.9	2013
Myanmar	75.0	2016	81	2016	59	2016	61.0	DHS 2015–16	60.2	2016
Nauru	42.5	2007	95	2007	40	2007	95.6	DHS 2007	97.4	2007
Nepal	56.1	2017	84	2016	69	2016	66.3	DHS 2016	58.0	2016
New Zealand	84.7[g]	2017	na	na	na	na	na	na	96.3	2015
Niue	na	na	100	2008	na	na	na	na	100.0	2011
Pakistan	48.6[h]	2017	86[h]	2017	51[h]	2017	70.4	DHS 2017–18	69.0	2018
Palau	na	na	90	2010	81	2010	na	na	100.0	2017
Papua New Guinea	40.6	2007	65[i]	2011	55	2006	na	na	53.0	2006
Philippines	56.9[h]	2017	94[h]	2017	87[h]	2017	71.9	DHS 2017	84.4	2017
Republic of Korea	83.4[g]	2017	na	na	97	2012	na	na	100.0	2015
Samoa	39.4	2014	93	2014	73	2014	96.7	DHS 2014	82.5	2014
Singapore	76.9[g]	2017	na	na	na	na	na	na	99.6	2017
Solomon Islands	38.0	2015	89	2015	69	2015	85.4	DHS 2015	86.2	2015
Sri Lanka	74.1	2016	99[h]	2016	93	2007	91.1	DHS 2016	99.5	2017
Thailand	89.2	2012	98	2016	91	2016	97.8	MICS 2015–16	99.1	2016
Timor Leste	46.1	2016	86[h]	2016	77[h]	2016	56.2[h]	DHS 2016	56.7	2016
Tonga	47.9	2012	99	2012	70	2012	97.5	DHS 2012	95.5	2012
Tuvalu	41.0	2007	97	2007	67	2007	97.4	DHS 2007	93.1	2007
Vanuatu	50.7	2013	76	2013	52	2013	89.3	DHS 2013	89.4	2013
Viet Nam	69.7	2014	96	2014	74	2014	61.8	MICS 2013–14	93.8	2014
South-East Asia Region	75.1[n]	2007–2017	77[p]	2007–2014	70[p]	2007–2014	na	na	78[q]	2005–2016
Western Pacific Region	89.7[n]	2007–2017	95[p]	2007–2014	na	na	na	na	96[q]	2005–2016
South Asia	71[o]	2011–2016	69[o]	2011–2016	46[o]	2011–2016	na	na	73[o]	2013–2016
East Asia and the Pacific	89[o]	2011–2016	96[o]	2011–2016	74[o]	2011–2016	na	na	95[o]	2013–2016
Global	77.4[n]	2007–2017	83[p]	2007–2014	64[p]	2007–2014	na	na	78[q]	2005–2016

Green Coverage ≥95% (≥80% for family planning data)

Yellow Coverage ≥80% and <95% (≥60% and <80% for family planning data)

Red Coverage <80% (<60% for family planning data)

ANC, antenatal care; BD, birth dose; DHS, Demographic and Health Survey; HIB, Health Information Booklet; LSIS, Lao Social Indicator Survey; MICS, Multiple Indicator Cluster Survey; na, not available; NDHS, National Demographic and Health Survey; NFHS, National Family Health Survey; NHMS, National Health and Morbidity Survey.

Pregnant women with known HIV status[d]		Pregnant women living with HIV who received ART to reduce the risk of MTCT of HIV[d]		Syphilis testing coverage in women attending ANC[e]		Antenatal care attendees positive for syphilis who received adequate[10] treatment[e]		Hepatitis B testing coverage in ANC attendees	Hepatitis B birth-dose coverage[f]	Hepatitis B third-dose coverage[f]	Country
2011–2017		2017		2010–2017		2010–2017		2013–2017	2017	2017	Data year range
(%)	Data year	(%)	Data year	(%)	Data year	(%)	Data year		(%)	(%)	
≥95%		≥95%		≥95%		≥95%		≥95%	≥95%	≥95%	EMTCT target for 2030
na	na	na	na	14.3[l]	2017	100.0[l]	2017	na	18	65	Afghanistan
na	na	na	na	na	na	na	na	na	na	95	Australia
1	2017	17	2017	72.3	2017	100.0	2017	na	no universal BD policy	97	Bangladesh
73.2[k]	2015	na	na	97.3	2010	na	na	na	82	98	Bhutan
na	na	na	na	100.0	2013	na	na	na	99	99	Brunei Darussalam
82	2017	>95	2017	62.9	2017	83.9	2017	na	79	93	Cambodia
na	na	na	na	na	na	na	na	97.4 (2013)	96	99	China
na	na	na	na	100.0	2017	no cases	2017	na	99	99	Cook Islands
na	na	na	na	0.3	2012	na	na	na	98	97	Democratic People's Republic of Korea
na	na	na	na	100.0[m]	2017	98.3[m]	2017	na	90	99	Fiji
43.2[k]	2015	60	2017	19.8	2017	47.6	2017	na	53	88	India
28	2017	13	2017	1.7	2017	30.1	2016	na	32	79	Indonesia
na	na	na	na	na	na	na	na	na	no universal BD policy	na	Japan
na	na	na	na	85.5	2017	100.0	2017	na	89	90	Kiribati
1	2015	24	2017	0	2017	na	na	na	55	85	Lao People's Democratic Republic
93	2017	>95	2017	99.3	2017	100.0	2017	na	90	98	Malaysia
64.9[k]	2015	na	na	66.0	2014	100.0	2014	na	99	99	Maldives
na	na	na	na	96.6	2016	100.0	2016	na	97	82	Marshall Islands
na	na	na	na	94.5	2017	70.0	2017	na	75	80	Micronesia (Federated States of)
>95	2017	na	na	97.4	2017	89.3[m]	2017	73 (2016)	98	99	Mongolia
91	2017	78	2017	31.2	2017	71.4	2017	na	1	89	Myanmar
na	na	na	na	61.8	2016	na	na	na	99	87	Nauru
69	2017	63	2017	0.0	2017	16.7	2017	na	no universal BD policy	90	Nepal
na	na	na	na	na	na	na	na	na	no universal BD policy	94	New Zealand
na	na	na	na	na	na	na	na	na	84	99	Niue
na	na	6	2017	na	na	na	na	na	49 (2016)	75	Pakistan
na	na	na	na	100.0	2015	100.0	2015	na	99	98	Palau
34	2015	41	2017	45.6	2017	76.9	2017	na	33	56	Papua New Guinea
na	na	11	2017	na	na	na	na	na	67	88	Philippines
na	na	na	na	na	na	na	na	99.5 (2013)	92	98	Republic of Korea
na	na	na	na	90.9	2017	100.0	2017	na	81	73	Samoa
28	2017	na	na	na	na	na	na	na	91	96	Singapore
na	na	na	na	3.3	2017	na	na	na	67	99	Solomon Islands
>95	2017	na	na	95.8	2017	93.2	2017	na	no universal BD policy	99	Sri Lanka
>95	2015	>95	2017	99.1	2017	97.5	2017	>98 (2016)	96	99	Thailand
28.2[k]	2015	na	na	55.6	2014	na	na	na	47	76	Timor-Leste
na	na	na	na	95.7	2016	no cases	2016	na	88	81	Tonga
na	na	na	na	100.0	2016	100.0	2016	na	99	96	Tuvalu
na	na	na	na	42.9	2017	100.0	2016	na	71 (2016)	85	Vanuatu
88	2017	73	2017	na	na	na	na	na	77	94	Viet Nam
na	na	53[r]	2017	58 (7)[s]	2014	90 (6)[s]	2014	na	44[t]	88[t]	**South-East Asia Region[11]**
na	na	77[r]	2017	100 (14)[s]	2014	100 (10)[s]	2014	na	85[u]	93[u]	**Western Pacific Region**
na	na	38[o]	2016	na	na	na	na	na	na	86 (2016)[o]	**South Asia**
na	na	54[o]	2016	na	na	na	na	na	na	90 (2016)[o]	**East Asia and the Pacific**
na	na	80[r]	2017	86 (89)[r]	014	96 (66)[r]	2014	na	43[v]	84 v	**Global**

[10] Adequate treatment is defined as at least one dose of benzathine penicillin 2.4 mU IM.

[11] The reporting countries in the South-East Asia Region are Bangladesh, India, Indonesia, Maldives, Myanmar, Thailand, Timor-Leste (% ANC attendees tested for syphilis only); and in the Western Pacific Region: Cambodia, China, Kiribati, Malaysia, Marshall Islands, Federated States of Micronesia, Palau, Samoa, Solomon Islands, Tonga; Cook Islands, Mongolia, Nauru and Vanuatu (% ANC attendees tested for syphilis only).

Sources:

[a] United Nations DESA Population Division (2018). World contraceptive use 2018.
Available from: http://www.un.org/en/development/desa/population/publications/dataset/contraception/wcu2018.shtml (February 2018 update)

[b] UNICEF Data. Monitoring the situation of children and women: antenatal care.
Available from: http://data.unicef.org/topic/maternal-health/antenatal-care/ (June 2018 update)

[c] WHO Global Health Observatory data repository. Births attended by skilled health personnel
Available from: http://apps.who.int/gho/data/node.main.SKILLEDBIRTHATTENDANTS?lang=en (March 2019 update)

[d] UNAIDS. AIDSinfo. Available from: http://aidsinfo.unaids.org/

[e] UNAIDS. Global AIDS Monitoring (GAM) online reporting tool. Available from: https://aidsreportingtool.unaids.org

[f] World Health Organization. Data, statistics and graphics: official country reported coverage estimates time series.
Available from: http://www.who.int/immunization/monitoring_surveillance/data/en/ (July 2018 update)

[g] United Nations DESA Population Division (2018). Estimates and projections of family planning indicators 2018.
Available from: http://www.un.org/en/development/desa/population/theme/family-planning/cp_model.shtml (February 2018 estimates)

[h] India NFHS 2015-16; Indonesia DHS 2017; Lao People's Democratic Republic LSIS II 2017; Maldives DHS 2016-17; Marshall Islands DHS 2017; Pakistan DHS 2017-18; Philippines DHS 2017; Sri Lanka DHS 2016; Timor-Leste DHS 2016

[i] Papua New Guinea: UN Data website: Antenatal care coverage - at least one visit (%)
Available at http://data.un.org/Data.aspx?q=antenatal+care+datamart%5bWHO%5d&d=WHO&f=MEASURE_CODE%3aWHS4_111 *(52)*

[j] Bhutan WHO Global Health Data. Available at: http://apps.who.int/gho/data/node.main.ANTENATALCARECOVERAGE4?lang=en *(53)*

[k] WHO Regional Office for South-East Asia. Cascade of HIV testing, care and treatment services, 2014 and 2015: country profiles.
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[l] Afghanistan: World Health Organization. Global Health Observatory: data on syphilis.
Available from: http://apps.who.int/gho/data/node.main.A1357STI?lang=en

[m] WHO 2017 Congenital syphilis estimation tool

[n] World Health Organization. World health statistics 2018. Available from: http://www.who.int/gho/publications/world_health_statistics/2018/en/ *(54)*

[o] UNICEF Data. The state of the world's children 2017: statistical tables. *(56)*
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[p] World Health Organization. World health statistics 2015. Available from: http://www.who.int/gho/publications/world_health_statistics/2015/en/

[q] World Health Organization. World health statistics 2017. Available from: http://www.who.int/gho/publications/world_health_statistics/2017/en/

[r] World Health Organization. Global Health Observatory: Prevention of mother-to-child transmission - estimates by WHO region
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[s] World Health Organization. Report on global sexually transmitted infection surveillance 2015.
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[t] World Health Organization. Global and regional immunization profile: South-East Asia Region.
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[u] World Health Organization. Global and regional immunization profile: Western Pacific Region.
Available from: http://www.who.int/immunization/monitoring_surveillance/data/WPR/en/

[v] World Health Organization. Data, statistics and graphics - global summary.
Available from: http://www.who.int/immunization/monitoring_surveillance/data/en/

2. Impact of triple EMTCT and related interventions

Table 3 presents data on the MTCT of HIV rate, the case rate of congenital syphilis and the HBsAg prevalence among children for countries in the Asia Pacific region. Data on MTCT of HIV were available from 23 countries in 2017; many of the Pacific island countries have very low HIV prevalence rates and no HIV-infected pregnant women or HIV-exposed infants. Seven reporting countries, including Bhutan, Malaysia and Thailand, achieved MTCT of HIV rates below the global target of 5% in 2014–2017, while MTCT of HIV rates were ≥20% in nine other countries *(30)*.

Table 3. Triple EMTCT impact indicators, Asia Pacific region, 2002–2017

Country	HIV MTCT rate[a]		Congenital syphilis case rate[b]		HBsAg prevalence among children[c,d,e,f,g]		
Data year range	2014–2017		2013–2017		2002–2017		
	(%)	Data year	per 100 000 live births	Data year	(%)	Age of children	Data year
Afghanistan	32	2015	na	na	0.5[c]	<5 years	2015
Australia	0 (0/19 infants)	2016	1.3	2016	0.4[d]	1–9 years	2002
Bangladesh	35	2017	na	na	0.05[e]	5–6 years	2011
Bhutan	0 (0/6 infants)	2015	na	na	0[f]	1–4 years	2017
Brunei Darussalam	na	na	na	na	0.1[d]	8–9 years	2011
Cambodia	10	2017	3	2017	0.6[d]	4–5 years	2017
China	6	2016	40.7	2015	0.3[g]	1–4 years	2014
Cook Islands	0 HIV-exposed infants born	2016	na	na	0.0[d]	6 years	2012
Democratic People's Republic of Korea	na	na	na	na	0.8[e]	5–6 years	2015
Fiji	15	2015	22	2017	0.0[d]	6–59 months	2008
India	17	2015	62	2017	1.0[e]	5–6 years	2015
Indonesia	26	2017	1.2	2016	1.8[e]	5–6 years	2015
Japan	0 (0/27 infants)	2015	na	na	0.17[d]	4–15 years	2005–2010
Kiribati	0 HIV-exposed infants born	2017	na	na	3.3[d]	5–9 years	2014
Lao People's Democratic Republic	33	2016	na	na	1.7[d]	5–9 years	2012
Malaysia	2	2017	1	2017	0.4[d]	10 years	2009
Maldives	0 (0/1 infant)	2014	na	na	0.2[e]	5–6 years	2015
Marshall Islands	0 HIV-exposed infants born	2016	na	na	1.2[d]	5–6 years	2016
Micronesia (Federated States of)	0 HIV-exposed infants born	2016	130	2017	0.3[d]	5–6 years	2016
Mongolia	11 (1/9 infants)	2017	319	2017	0.3[d]	4 years	2009
Myanmar	13	2017	na	na	3.8[e]	5–6 years	2015
Nauru	0 HIV-exposed infants born	2016	0	2016	3.1[g]	<5 years	2017
Nepal	22	2017	0.3	2016	0.13[e]	5–6 years	2012
New Zealand	na	na	na	na	0.2[d]	6 years	2009
Niue	na	na	na	na	0.0[d]	5–12 years	2015
Pakistan	31	2017	na	na	2.8[c]	<5 years	2015
Palau	0 HIV-exposed infants born	2015	na	na	0.0[d]	5–7 years	2008
Papua New Guinea	25	2017	3359	2017	2.3[d]	4–6 years	2013
Philippines	28	2017	na	na	0.87[f]	<5 years	2017
Republic of Korea	na	na	na	na	0.1[d]	10–18 years	2014
Samoa	0 HIV-exposed infants born	2017	10	2017	0.1[d]	5–6 years	2014
Singapore	0 (0/19 infants)	2016	na	na	0.3[d]	1–17 years	2010
Solomon Islands	na	na	na	na	3.1[d]	0–9 years	2016
Sri Lanka	25.4 (0/9 infants)	2015	2.7	2016	0.8[e]	5–6 years	2015
Thailand	1.8	2016	47	2017	0.3[e]	5–10 years	2014
Timor-Leste	na	na	na	na	2.7[e]	5–6 years	2015
Tonga	0 HIV-exposed infants born	2016	0	2016	0.8[d]	6–59 months	2005
Tuvalu	0 HIV-exposed infants born	2016	0	2013	1.5[g]	<5 years	2017
Vanuatu	0 HIV-exposed infants born	2014	na	na	7.0[g]	<5 years	2017
Viet Nam	13	2014	na	na	2.2[d]	5–7 years	2011
Asia Pacific region	17[h]	2017	na	na	na	na	na
South-East Asia Region	na	na	2.3 (1)[i]	2014	0.7[j]	<5 years	2015
Western Pacific Region	na	na	6.6 (9)[i]	2014	0.9[j]	<5 years	2015
Global	na	na	4.9 (49)[i]	2014	1.3[j]	<5 years	2015

MTCT, mother-to-child transmission; na, not available.

The regional syphilis data are from 2014 and the number of reporting countries contributing to the regional estimate is shown in ( ).

Sources:

[a] UNAIDS. AIDSinfo. Available from: http://aidsinfo.unaids.org/

[b] UNAIDS. Global AIDS Monitoring (GAM) online reporting tool. Available from: https://aidsreportingtool.unaids.org

[c] WHO Hepatitis B dashboard: HBV Country Profiles. Available from: http://whohbsagdashboard.com/#

[d] WHO Regional Office for the Western Pacific. Hepatitis B control: country profiles 2017. Available from: http://iris.wpro.who.int/handle/10665.1/14180

[e] Childs L, Roesel S, Tohme RA. Status and progress of hepatitis B control through vaccination in the South-East Asia Region, 1992–2015. Vaccine. 2018 Jan 2;36(1):6–14.

[f] Bhutan: National serosurvey 2017 - unpublished; Philippines: Anna Lena Lopez, Michelle Ylade, Jedas Veronica Daag, Amado O. Tandoc III, Joseph Bonifacio, Patrick G. Sylim et al., Hepatitis B seroprevalence among 5 to 6 years old children in the Philippines born prior to routine hepatitis B vaccination at birth, Human Vaccines & Immunotherapeutics, DOI: 10.1080/21645515.2018.1480278

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[h] UNAIDS data 2018. Joint United Nations Programme on HIV/AIDS; 2018.
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[i] World Health Organization. Report on global sexually transmitted infection surveillance 2015.
Available from: http://www.who.int/reproductivehealth/publications/rtis/stis-surveillance-2015/en/

[j] WHO. World health statistics 2018. Available from: http://www.who.int/gho/publications/world_health_statistics/2018/en/

Data on congenital syphilis are not widely available or are incomplete and of variable quality and reported case rates vary widely across the Asia Pacific region. India (62 cases per 100 000 live births), the Federated States of Micronesia (130 cases per 100 000 live births), Mongolia (319 cases per 100 000 live births) and Papua New Guinea (3359 cases per 100 000 live births) had case rates above the global target of ≤50 cases per 100 000 live births, while 13 other reporting countries had case rates below the global target *(33)*.

Prevalence of HBsAg among children measures the impact of preventive interventions on both vertical (mother-to-child) and horizontal transmission. Ideally, nationally representative serosurveys should be conducted among 5-year-old children once every five years. Results from such surveys were available from 20 countries in the Asia Pacific region (data from 2009 to 2017); data for other countries came from convenience samples, censuses and modelling *(39,41,57,58)*.[12]

Six countries in the Asia Pacific region have evidence of having already achieved <0.1% HBsAg prevalence among children: Bangladesh, 0.05% HBsAg prevalence among children aged 5–6 years in a nationally representative serosurvey conducted in 2011; Bhutan, 0% HBsAg prevalence among children aged 1–4 years in a nationally representative serosurvey conducted in 2017; Cook Islands, 0% HBsAg prevalence among children aged 6 years in a school-based sample of seven of 11 islands conducted in 2012; Fiji, 0% HBsAg prevalence among children aged 6 months to 5 years in a subnational community-based survey conducted in 2008; Niue, 0.0% HBsAg prevalence among children aged 5–12 years in a nationally representative school-based survey conducted in 2015; and Palau, 0% HBsAg prevalence among children aged 5–7 years in a school-based survey on the main island conducted in 2008. An additional five areas in the Western Pacific Region have also reported evidence of <0.1% HBsAg prevalence among children, all from nationally representative school-based surveys: Macao SAR (China), 0% HBsAg prevalence among children aged 6–9 years conducted in 2003; the Commonwealth of the Northern Mariana Islands, 0.0% HBsAg prevalence among children aged 6 years conducted in 2014; French Polynesia, 0.0% HBsAg prevalence among children aged 6–7 years conducted in 2013–2014; Guam, 0.0% HBsAg prevalence among children aged 6 years conducted in 2015; and Tokelau, 0.0% HBsAg prevalence among children aged 6–12 years conducted in 2014.

India, Indonesia, the Lao People's Democratic Republic, the Marshall Islands and Tuvalu reported evidence of ≥1% but <2% HBsAg prevalence among children aged from 5–9 years and nine countries have evidence of HBsAg prevalence among children >2%. The Western Pacific Region reached its 2017 regional goal, outlined in the *Regional Action Plan for Viral Hepatitis in the Western Pacific 2016–2020 (59)*, of reducing the prevalence of chronic hepatitis B infection among children to <1%. Modelled regional prevalence of HBsAg among 5-year-old children in the South-East Asia Region in 2015 was 1.1% *(58)*.

[12] **Nationally representative serosurvey among 5-year-olds:** Bangladesh, Bhutan, Cambodia, China, Japan, Kiribati, Lao People's Democratic Republic, Malaysia, Marshall Islands, Federated States of Micronesia, Mongolia, Nepal, Niue, Papua New Guinea, Philippines, Republic of Korea, Samoa, Solomon Islands, Thailand, Viet Nam; **Estimates from Goldstein-based mathematical modelling among 5-year-olds:** Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Sri Lanka, Timor-Leste; **Convenience samples in hospitals or clinics with catchment areas covering most of the country:** Australia, Fiji, New Zealand, Singapore, Tonga; **Censuses that covered most eligible population:** Brunei Darussalam, Cook Islands, Palau; **Estimates from mathematical modelling among children born in 2012 when they reach the age of 5:** Afghanistan, Nauru, Pakistan, Tuvalu, Vanuatu.

3. Policies to support EMTCT of HIV, hepatitis B and syphilis

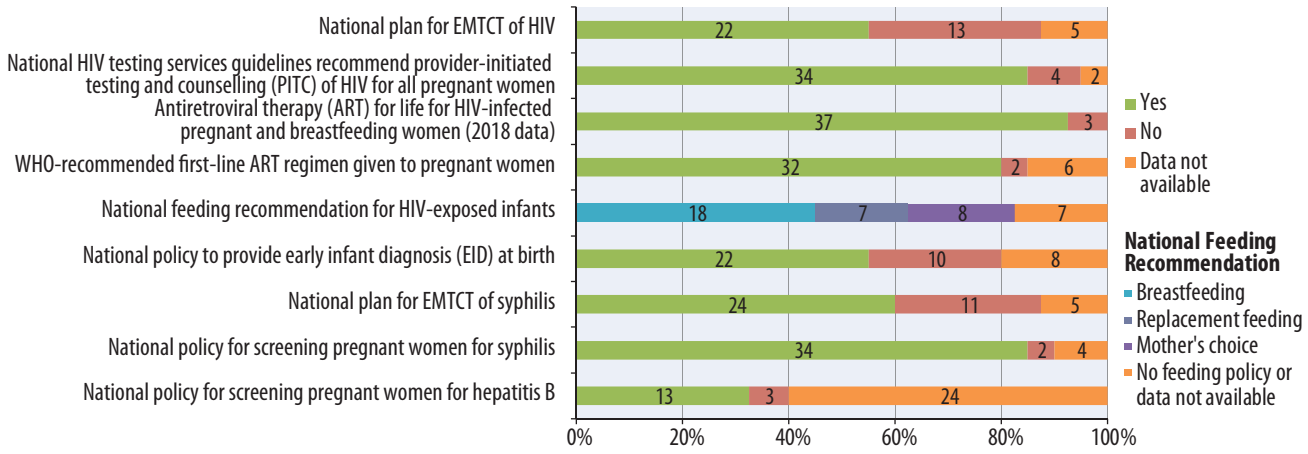
3.1 Health systems policies

Central to the achievement of EMTCT of HIV, hepatitis B and syphilis are health policies to ensure that RMNCH services are available and properly funded, that the health workforce is sufficient in number, training and deployment, and that systems are in place to assure financial risk protection for women and their families. Community engagement and participation must be included in drives towards improving access to and quality of health services. Integrating community-based health workers into the health system can increase service capacity and effectiveness of primary health-care teams. Robust systems for data collection, analysis and reporting are critical for monitoring and evaluation of programmes.

3.2 RMNCH policies

The RMNCH platform provides the foundation for achieving EMTCT of HIV, hepatitis B and syphilis. WHO regularly issues and updates evidence-based guidelines on RMNCH interventions, including recommendations for ANC, institutional delivery and routine immunization of infants, which contribute to improved health outcomes for mothers and their infants. Examples include the 2016 *WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience (8)*, which details 32 elements of routine ANC including HIV and syphilis testing, and *Pregnancy, Childbirth, Postpartum and Newborn Care: A Guide for Essential Practice* (3rd edition, 2015) *(60),* which contains guidelines for the management of childbirth and for providing essential postpartum care to mothers and their infants, including those mothers infected with or infants exposed to HIV, hepatitis B and syphilis. Adoption of the guidelines and recommendations differs considerably between countries in the Asia Pacific region; regular updating to include new interventions and to remove outdated practices is also variable. Policies and recommendations may be laid out in disease-specific guidelines but not included in RMNCH guidelines: a recent review of maternal health-care policies in eight countries in the Western Pacific Region *(61)* showed that WHO recommendations on HIV testing during ANC did not appear in the ANC guidelines of two countries and HIV testing in labour was missing from national guidelines in five countries. Adoption of recommendations on family planning was also inconsistent.

Fig. 5. Policies to support EMTCT of HIV, hepatitis B and syphilis, Asia Pacific region, 2015–2018



Note: Figures inside the bars indicate the number of countries in each category

Sources: UNAIDS. Global AIDS Monitoring (GAM) online reporting tool. Available from: https://aidsreportingtool.unaids.org
Expert Consultation on Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in the Western Pacific, Manila, Philippines, 20–21 February 2017.
Available from: http://www.wpro.who.int/hiv/documents/types/reports/triple_elimination_mother_to_child_report/en/

3.3 HIV-related policies

Data from the Global AIDS Monitoring system (2018) *(33)* indicate that 37 countries in the Asia Pacific region (data not available for Brunei Darussalam, the Democratic People's Republic of Korea and Singapore) promote ART for life ("Treat All" policy) for all pregnant and breastfeeding women living with HIV, as recommended by WHO since 2015 (Option B+); this policy is being implemented at the national level in 28 countries (Fig. 5), in >50% of maternal and child health (MCH) sites in one country and in <50% of all MCH sites in six countries. Data from 2015–2016 indicate that all countries except Afghanistan, Bangladesh, India and Pakistan (data not available for Brunei Darussalam and the Democratic People's Republic of Korea) include provider-initiated testing and counselling for pregnant women in their HIV testing services guidelines. The WHO-recommended combination of tenofovir (TDF) + lamivudine (3TC) or emtricitabine (FTC) + efavirenz (EFV) is recommended as the first-line treatment for pregnant women living with HIV in the national guidelines of all countries in the Asia Pacific region with some variations in China (which recommends either TDF + 3TC (or FTC) + EFV or azidothymidine (AZT) + 3TC + lopinavir/ritonavir (LPV/r)) and the Philippines (AZT or TDF + 3TC + nevirapine (NVP) or EFV). Eighteen countries have a policy to encourage HIV-infected women to breastfeed, seven countries recommend replacement feeding, eight countries leave the choice of feeding method to the mother, and one country has no explicit policy on feeding of infants of HIV-infected mothers; data are not available from six countries. Early infant diagnosis (EID) of HIV-exposed infants is recommended before 2 months of age by 30 countries including 22 countries that have a policy for EID at birth. Ten countries do not have a policy on EID, and data are not available for the remaining eight countries.

3.4 Syphilis-related policies

In 2015, 24 countries in the Asia Pacific region had a national plan for EMTCT of syphilis, with the majority integrated with a similar plan for EMTCT of HIV; 11 countries do not have a plan for EMTCT of syphilis (Fig. 5) *(33)*. National policy promotes routine antenatal testing of pregnant women for syphilis in 34 countries; the majority of countries use laboratory-based non-treponemal tests such as RPR or VDRL, while 12 countries use rapid treponemal tests.

3.5 Hepatitis B-related policies

Universal HBsAg screening of pregnant women attending ANC in settings with ≥2% or ≥5% HBsAg seroprevalence in the general population is recommended by WHO *(62)*, but routine HBsAg screening for pregnant women is known to be recommended by only 13 countries in the Asia Pacific region (Fig. 5): Australia, China, Cook Islands, Fiji, Japan, Mongolia, Niue, the Philippines, the Republic of Korea, Samoa, Thailand, Tonga and Viet Nam. The majority of countries in the Asia Pacific region have a universal HepB-BD policy; only Bangladesh, Nepal and Sri Lanka do not have a universal birth-dose policy, while Japan and New Zealand give a birth dose only when the mother is known to be HBsAg-seropositive or when serostatus is unknown.

3.6 Laboratory tests for screening for HIV, syphilis and hepatitis B

Most countries in the Asia Pacific region perform routine testing for HIV and syphilis during ANC; a number of countries also screen for hepatitis B. Point-of-care rapid tests are simple and quick to use and results can be returned to the woman almost immediately, avoiding the need for her to return at another time. Treatment for syphilis can be given the same day, and referral to care for ART for HIV (or antivirals for hepatitis B, if indicated) can be initiated as soon as possible. Dual rapid test kits for HIV and syphilis are being introduced in several countries in the Asia Pacific region. They have been piloted in Nepal and are being used in some areas of Cambodia, the Lao People's Democratic Republic, the Federated States of Micronesia and Vanuatu (2016 data). Most countries in the region are interested in using the

dual test kits (Table 4); lack of funding is the main reason cited for why their use is not more widespread *(40)*. Twelve countries in Asia and the Pacific reported using syphilis rapid tests in 2015–2016.

3.7 Cost of services and access to interventions

In the context of UHC, avoidance of financial risk associated with accessing essential health services is critical. Table 4 shows information on financing of basic RMNCH services related to EMTCT for selected countries in the region *(40)*. Data on the cost of routine antenatal, delivery and postnatal care including EMTCT interventions were collected from China, the Lao People's Democratic Republic, Mongolia and Viet Nam, and on the cost of ANC from Malaysia and Sri Lanka. ANC check-ups are free of charge in five of the six countries and covered by health insurance in Viet Nam. Delivery and postnatal services are free of charge in the Lao People's Democratic Republic and Mongolia; in China, normal delivery is an out-of-pocket expense with a subsidy from the national budget for rural women. In Viet Nam, normal delivery is covered by national health insurance, postnatal care is an out-of-pocket expense in urban areas and free of charge in rural areas, and hepatitis B vaccination at birth and subsequent doses are all free of charge.

Data on the cost of HIV, syphilis and hepatitis B screening of pregnant women were available for 17 countries. Antenatal screening of pregnant women for HIV is free of charge in 16 countries and covered by national health insurance in one country (Viet Nam). Syphilis testing is free of charge in 13 countries, is an outof-pocket expense in three countries (the Lao People's Democratic Republic, Bangladesh and Nepal) and is covered by health insurance in one country (Viet Nam). Hepatitis B screening is free of charge in seven countries (China, Bhutan, Fiji, Indonesia, the Maldives, Pakistan and Thailand) and covered by health insurance in one country (Viet Nam). Data on partner testing were available for four countries (China, the Lao People's Democratic Republic, Mongolia and Viet Nam). Partner-testing for HIV, hepatitis B and syphilis is an out-of-pocket expense in China unless conducted at a free voluntary counselling and testing centre (for HIV only); partner-testing for HIV is free of charge in the Lao People's Democratic Republic; partner-testing for HIV and syphilis is free of charge in Mongolia; and partner testing for HIV, hepatitis B and syphilis is covered by national health insurance in Viet Nam if the tests are requested by a physician.

Table 6 shows data on financing of EMTCT interventions for China, the Lao People's Democratic Republic, Mongolia and Viet Nam. In China, interventions for women who are infected with HIV, syphilis or hepatitis B are free of charge. In the Lao People's Democratic Republic, interventions are free of charge for HIV-infected women and their infants, but if a pregnant woman is found to be infected with syphilis, then the cost of treatment for both the woman and her infant is an out-of-pocket expense. In Mongolia, interventions related to HIV and syphilis are free of charge for women, and clinical assessment of hepatitis B is covered by health insurance. In Viet Nam, intervention costs are covered either by the HIV programme or by health insurance.

Ease of access is also crucial to utilization of services. Transport may be difficult to find and costly, and journey times may be long, particularly during the rainy season. The health service level at which routine RMNCH services and triple EMTCT services and interventions are provided are shown in Tables 5 and 6, respectively, for China, the Lao People's Democratic Republic, Mongolia and Viet Nam. Most routine RMNCH services are available at health-centre level, but the majority of EMTCT interventions for infected pregnant women are available only at district or provincial level.

Table 4. Financing of routine RMNCH services related to triple EMTCT in select Asia Pacific countries

Country	Antenatal care services							Delivery care services		Postnatal and immunization services		
	Pregnant woman				Partner			Mother	Infant	Mother & infant		Infant
	General ANC check-up	HIV testing	Syphilis testing	Hepatitis B testing	Partner testing for HIV	Partner testing for syphilis	Partner testing for hepatitis B	Normal delivery	Timely HepB-BD	Postnatal care at 1–2 weeks	Postnatal care at 6 weeks	HepB 1, 2, 3, vaccination
China	Free of charge National budget	Free of charge National budget	Free of charge National budget	Free of charge National budget	Out of pocket Free at VCT centres	Out of pocket	Out of pocket	Out of pocket Subsidy for rural women from national budget	Free of charge National budget	Free of charge National budget	Free of charge National budget	Free of charge National budget
Lao People's Democratic Republic	Free of charge National budget	Free of charge Global Fund	Out of pocket	Out of pocket	Free of charge National budget	Out of pocket	Out of pocket	Free of charge National budget	Free of charge National budget	Free of charge National budget	na	Free of charge National budget or Gavi
Mongolia	Free of charge National budget	Free of charge Local/National budget or Global Fund	Free of charge Local/National budget or Global Fund	Out of pocket or health insurance	Free of charge Local/National budget or Global Fund	Free of charge Local/National budget or Global Fund	Health insurance or out of pocket	Free of charge National budget	Free of charge National budget	Free of charge National budget	Free of charge National budget	Free of charge National budget
Viet Nam	Health insurance or out of pocket if uninsured	Health insurance or out of pocket if uninsured	Health insurance or out of pocket if uninsured	Health insurance or out of pocket if uninsured	Health insurance if indicated by physician out of pocket if no health insurance	Health insurance if indicated by physician out of pocket if no health insurance	Health insurance if indicated by physician out of pocket if no health insurance	Health insurance or out of pocket if uninsured	Free of charge National budget	Free in rural areas Out of pocket in urban areas	Free in rural areas Out of pocket in urban areas	Free of charge National budget
Bangladesh	na	Free of charge	Out of pocket	Out of pocket	No data							
Bhutan	na	Free of charge	Free of charge	Free of charge								
Cambodia	na	Free of charge	Free of charge	No plan								
Fiji	na	Free of charge National budget	Free of charge National budget	Free of charge National budget								
India	na	Free of charge National budget	Free of charge National budget	No plan								
Indonesia	na	Free of charge Local/National budget	Free of charge Local/National budget	Free of charge Local/National budget								
Malaysia	Free of charge for citizens	Free of charge for citizens	Free of charge for citizens	No plan								
Maldives	na	Free of charge National health insurance	Free of charge National health insurance	Free of charge National health insurance								
Myanmar	na	Free of charge Local/National budget or Global Fund	Free of charge Local/National budget or Global Fund	No plan								
Nepal	na	Free of charge	Out of pocket for outpatients	Out of pocket for outpatients								
Pakistan	na	na	na	Free of charge								
Papua New Guinea	na	Free of charge National budget	Free of charge National budget	n/a								
Philippines	na	na	na	No plan								
Sri Lanka	Free of charge	Free of charge	Free of charge	No plan								
Thailand	na	Free of charge National budget	Free of charge National budget	Free of charge National budget								

ANC, antenatal care; HepB-BD, hepatitis B vaccine birth dose; na, not available; VCT, Voluntary Counselling and Testing.

Source: Data presented at the Expert Consultation on Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in the Western Pacific, Manila, Philippines, 20–21 February 2017. Available from: http://www.wpro.who.int/hiv/documents/types/reports/triple_elimination_mother_to_child_report/en/

Table 5. Location of routine RMNCH services related to triple EMTCT in China, the Lao People's Democratic Republic, Mongolia and Viet Nam

Country	Antenatal care services							Delivery care services		Postnatal and immunization services		
	Pregnant woman				Partner			Mother	Infant	Mother & infant		Infant
	General ANC check-up	HIV testing	Syphilis testing	Hepatitis B testing	Partner testing for HIV	Partner testing for syphilis	Partner testing for hepatitis B	Normal delivery	Timely HepB-BD	Postnatal care at 1–2 weeks	Postnatal care at 6 weeks	HepB 1, 2, 3 vaccination
China	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Secondary hospital	Secondary hospital	Health centre	Health centre	Health centre
Lao People's Democratic Republic	Health centre	Some district hospitals	Some provincial hospitals	na	na	na	na	Health centre	Health centre	Health centre	Health centre	Health centre
Mongolia	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre
Viet Nam	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre	Health centre

HepB-BD, hepatitis B vaccine birth dose; na, not available.

Source: Data presented at the Expert Consultation on Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in the Western Pacific, Manila, Philippines, 20–21 February 2017. Available from: http://www.wpro.who.int/hiv/documents/types/reports/triple_elimination_mother_to_child_report/en/

Table 6. Financing and location of triple EMTCT interventions in China, the Lao People's Democratic Republic, Mongolia and Viet Nam

Country		HIV-related services					Syphilis-related services			Hepatitis B-related services			
		Pregnant woman			Infant		Pregnant woman	Infant		Pregnant woman		Infant	
		Confirmatory HIV test	ART	Delivery	ARV prophylaxis	Diagnosis	Syphilis treatment	Clinical examination	Treatment	Assessment of treatment eligibility	Hepatitis B treatment (if indicated)	HBIG	Hepatitis B testing
China	Financing of services	National PMTCT programme	National PMTCT programme	Subsidy for rural women / National PMTCT programme	National PMTCT programme	National PMTCT programme	National PMTCT programme	National PMTCT programme	National PMTCT programme	na	na	National PMTCT programme	na
Lao People's Democratic Republic	Financing of services	HIV programme = Global Fund	HIV programme = Global Fund	HIV programme = Global Fund	Global Fund	Global Fund	Out of pocket	Out of pocket	Out of pocket	No protocol	No protocol	No protocol	No protocol
Mongolia	Financing of services	HIV programme	Government	Government	HIV programme	HIV programme	Global Fund	Government	Government	Health insurance	Health insurance	na	na
Viet Nam	Financing of services	Health insurance and HIV programme	Health insurance and HIV programme	Health insurance (out of pocket if uninsured)	Health insurance and HIV programme	Health insurance and HIV programme	Health insurance (out of pocket if uninsured)	Health insurance	Health insurance	Health insurance (out of pocket if uninsured)	Health insurance (out of pocket if uninsured)	Health insurance (out of pocket if uninsured)	Health insurance (out of pocket if uninsured)
China	Location of services	County CDC	HIV treatment centre MCH hospital	MCH hospital	MCH hospital	District EID lab MCH hospital	Secondary hospital	County hospital	County hospital	na	na	Delivery hospital	na
Lao People's Democratic Republic	Location of services	District hospital	Provincial hospital	Hospitals and health centre	Provincial hospital	Central lab	District hospital	District hospital	District hospital	na	na	na	na
Mongolia	Location of services	NCCD	PHC	NCCD or provincial hospital	NCCD	NCCD	PHC	PHC	PHC	Provincial hospital	Provincial hospital	na	na
Viet Nam	Location of services	Provincial lab	District hospital	District hospital	District hospital	Provincial lab	District hospital	District hospital	District hospital	Provincial hospital	District hospital	District hospital	District hospital

ART, antiretroviral therapy; ARV, antiretroviral; CDC, Center for Disease Control and Prevention; EID, early infant diagnosis; HBIG, hepatitis B immunoglobulin; MCH, maternal and child health; na, not available; NCCD, National Center for Communicable Diseases, Mongolia; PHC, provincial health centre; PMTCT, prevention of mother-to-child transmission.

Source: Data presented at the Expert Consultation on Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in the Western Pacific, Manila, Philippines, 20–21 February 2017. Available from: http://www.wpro.who.int/hiv/documents/types/reports/triple_elimination_mother_to_child_report/en/

4. Service delivery towards EMTCT of HIV, hepatitis B and syphilis in Asia and the Pacific

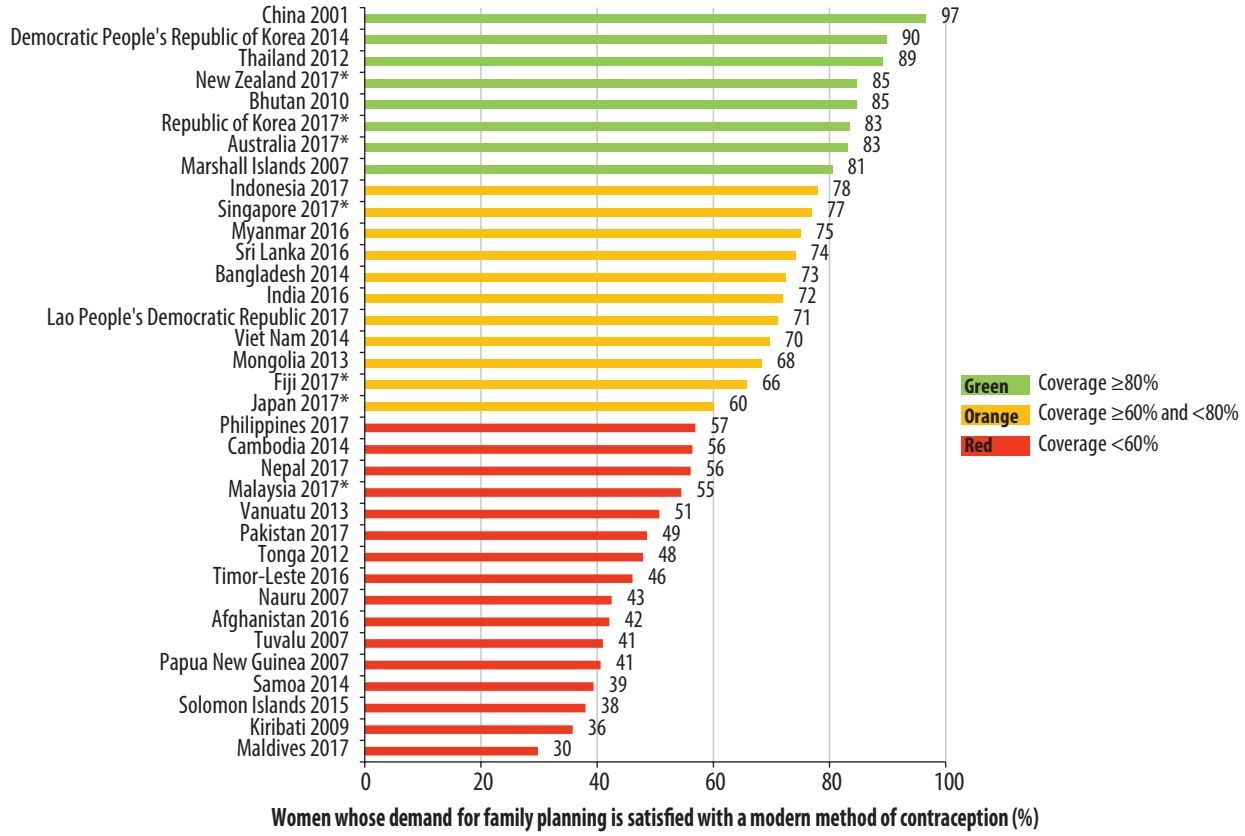
4.1 Pre-pregnancy period

4.1.1 Access to family planning

Unintended pregnancies contribute to maternal and neonatal mortality through unsafe abortions and reduced likelihood of pregnant women accessing quality antenatal and delivery care. An analysis of data from Demographic and Health Surveys suggests that approximately 25% of pregnancies may not be desired, with the majority attributable to lack of access to or availability of modern contraceptive methods *(63)*. Data from 35 countries in the Asia Pacific region indicate that 30–97% of adult women married or in a union have their demand for family planning satisfied with a modern method of contraception (Fig. 6), ranging from ≥80% in only eight countries to <50% in 11 countries *(47,48)*.

Family planning provision can be increased by reducing missed opportunities. For example, family planning options should be routinely discussed at all antenatal and postnatal care visits. Also, services for HIV and sexually transmitted infections routinely promote use of condoms to prevent infection, but protection against pregnancy should always be addressed. Finally, Expanded Programme on Immunization (EPI) health workers should provide family planning to mothers and other caregivers when they bring children to EPI clinics and as part of community outreach activities.

Fig. 6. Percentage of women married or in a union whose demand for family planning is satisfied with modern methods, Asia Pacific region, 2001–2017



No data available for Brunei Darussalam, Cook Islands, the Federated States of Micronesia, Niue and Palau

Sources:

UN DESA, Population Division (2018). World contraceptive use 2018.
Available from: http://www.un.org/en/development/desa/population/publications/dataset/contraception/wcu2018.shtml (February 2018 update)

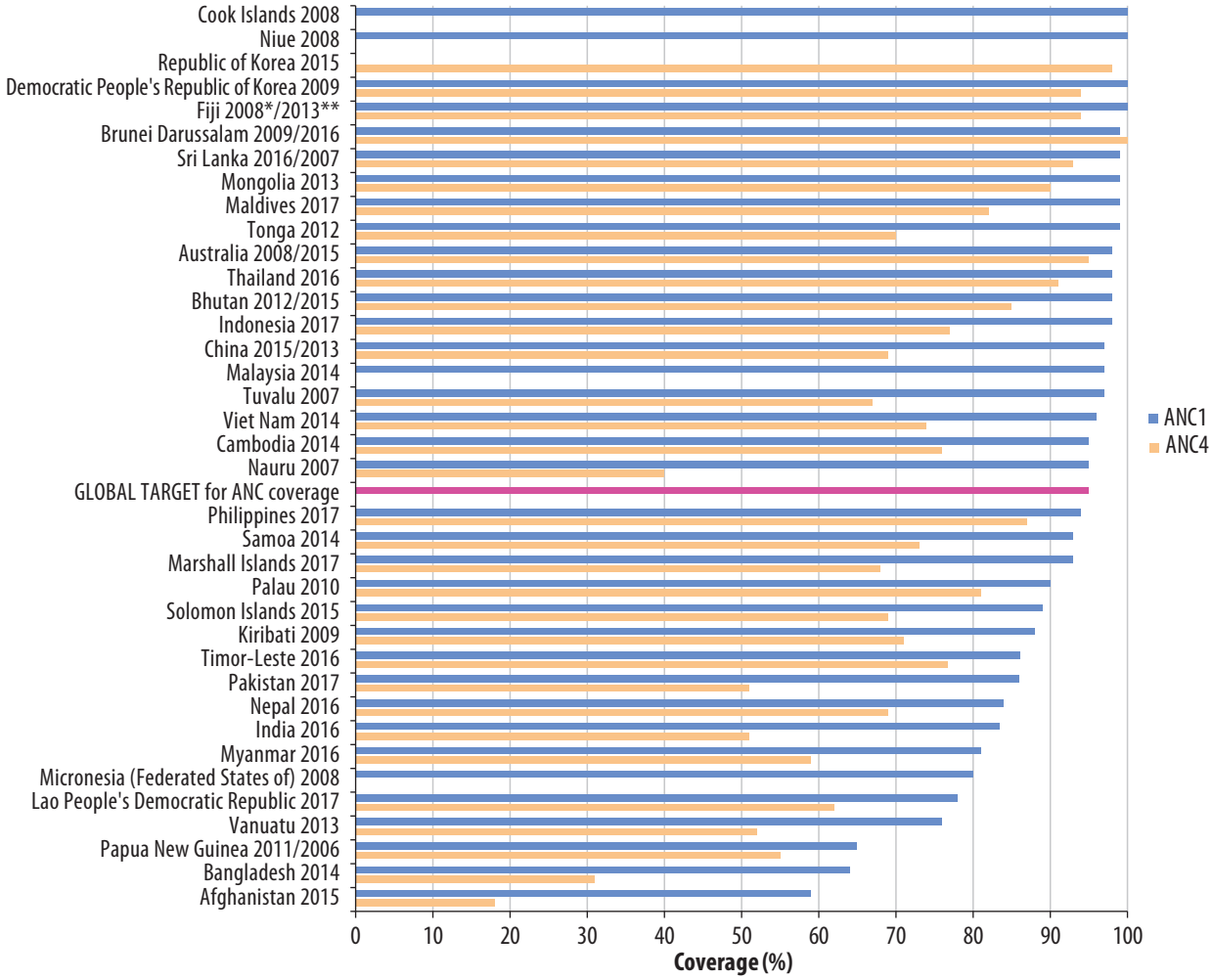
* UN DESA, Population Division (2018). Estimates and projections of family planning indicators 2018.
Available from: http://www.un.org/en/development/desa/population/theme/family-planning/cp_model.shtml (February 2018 estimates)

4.2 Antenatal period

4.2.1 Antenatal care

Access to free ANC for all pregnant women is the entry point to a wide range of pregnancy-related services and interventions, including those necessary for triple EMTCT. Data updated in June 2018 *(49)* and presented in Fig. 7 show that 19 countries had met the global target of ≥95% coverage for at least one visit (ANC1), but only three countries achieved the same level of coverage for at least four visits (ANC4). Another five countries had ANC4 attendance coverage of ≥90%. Of the 32 countries with data for both ANC1 and ANC4 attendance, nine reported a ≤10% drop-off in ANC4 attendance compared to ANC1, 16 countries reported a drop-off of 11–30%, and seven countries reported a 30–70% drop-off (note that the data year may differ for ANC1 and ANC4).

Fig. 7. ANC coverage: at least one visit (ANC1) and at least four visits (ANC4), Asia Pacific region, 2006–2017



Data sorted by ANC1 coverage; * Data year for ANC1; ** Data year for ANC4

ANC1: No data available for Japan, New Zealand, the Republic of Korea and Singapore.

ANC4: No data available for Cook Islands, Japan, Malaysia, the Federated States of Micronesia, New Zealand, Niue and Singapore.

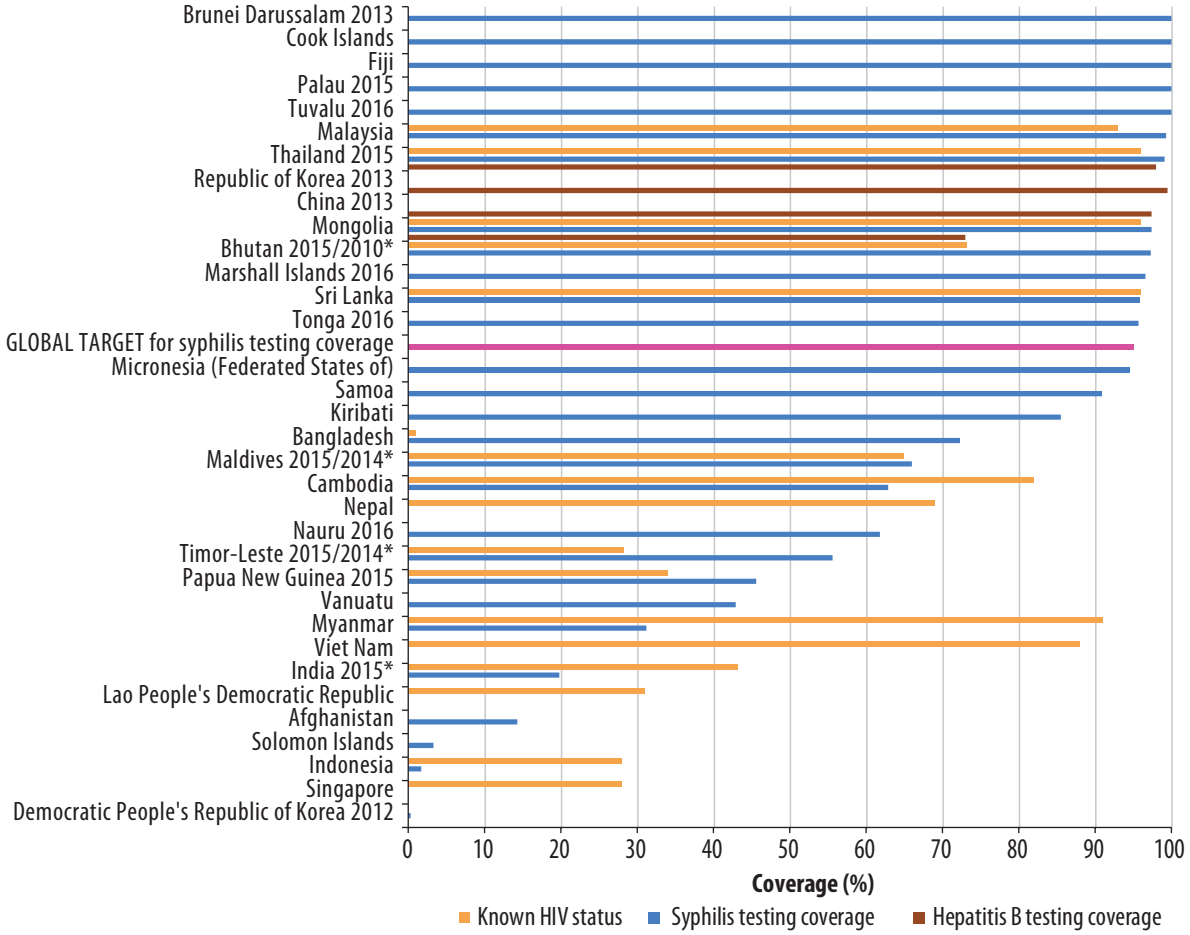
Sources: UNICEF Data. Monitoring the situation of children and women: antenatal care.
Available from: http://data.unicef.org/topic/maternal-health/antenatal-care/ (June 2018 update)
Bhutan WHO Global Health Data. Available at: http://apps.who.int/gho/data/node.main.ANTENATALCARECOVERAGE4?lang=en *(53)*
India NFHS 2015-16; Indonesia DHS 2017; Lao People's Democratic Republic LSIS II 2017; Maldives DHS 2016-17; Marshall Islands DHS 2017; Pakistan DHS 2017-18; Philippines DHS 2017; Sri Lanka DHS 2016; Timor-Leste DHS 2016
Papua New Guinea: UN Data website: Antenatal care coverage - at least one visit (%)
Available at http://data.un.org/Data.aspx?q=antenatal+care+datamart%5bWHO%5d&d=WHO&f=MEASURE_CODE%3aWHS4_111 *(52)*

4.2.2 Screening of pregnant women for HIV, syphilis and hepatitis B

Antenatal screening identifies pregnant women who require specific interventions to minimize the risk of MTCT of HIV, hepatitis B and syphilis; however, some HIV-infected women will already know their status and be receiving ART before they become pregnant. Although routine testing of pregnant women for HIV and syphilis is national policy in most countries in the Asia Pacific region, data are not available from some countries – particularly for syphilis testing. Despite the 2015 WHO recommendation for routine antenatal testing for HBsAg in settings with HBsAg seroprevalence of ≥2% in the general population *(62)*, very few data on testing coverage are currently available.

Three of 17 reporting countries in the Asia Pacific region reached the global target of ≥95% coverage for knowledge of HIV status among ANC attendees in 2017 (data from six reporting countries are for 2015). Eight countries reported 40–95% coverage, and the remaining six countries reported <40% coverage (Fig. 8). Among 28 countries reporting coverage of antenatal screening for syphilis between 2010 and 2017, 12 countries reported ≥95% coverage, eight reported 50–95% coverage, four reported 20–49% coverage and three reported <5% coverage (Fig. 8). Antenatal screening for hepatitis B coverage was reported to be high in China (97.4%)*(64)* and the Republic of Korea (99.5%)[13] in 2013, and in Mongolia (73%) and Thailand (>98%) in 2016.[14]

Fig. 8. Screening for HIV, syphilis and hepatitis B among pregnant women, Asia Pacific region, 2010–2017



Data are from 2017 unless otherwise indicated.

Data are sorted by syphilis testing coverage with 95% global target indicated (note: global target is also >95% for known HIV status).

Known HIV status and syphilis testing: No data available for remaining countries.

HBsAg testing: Data available for only China, Mongolia, the Republic of Korea and Thailand.

[13] Data for the Republic of Korea came from an unpublished Korean study of the liver in 2013.

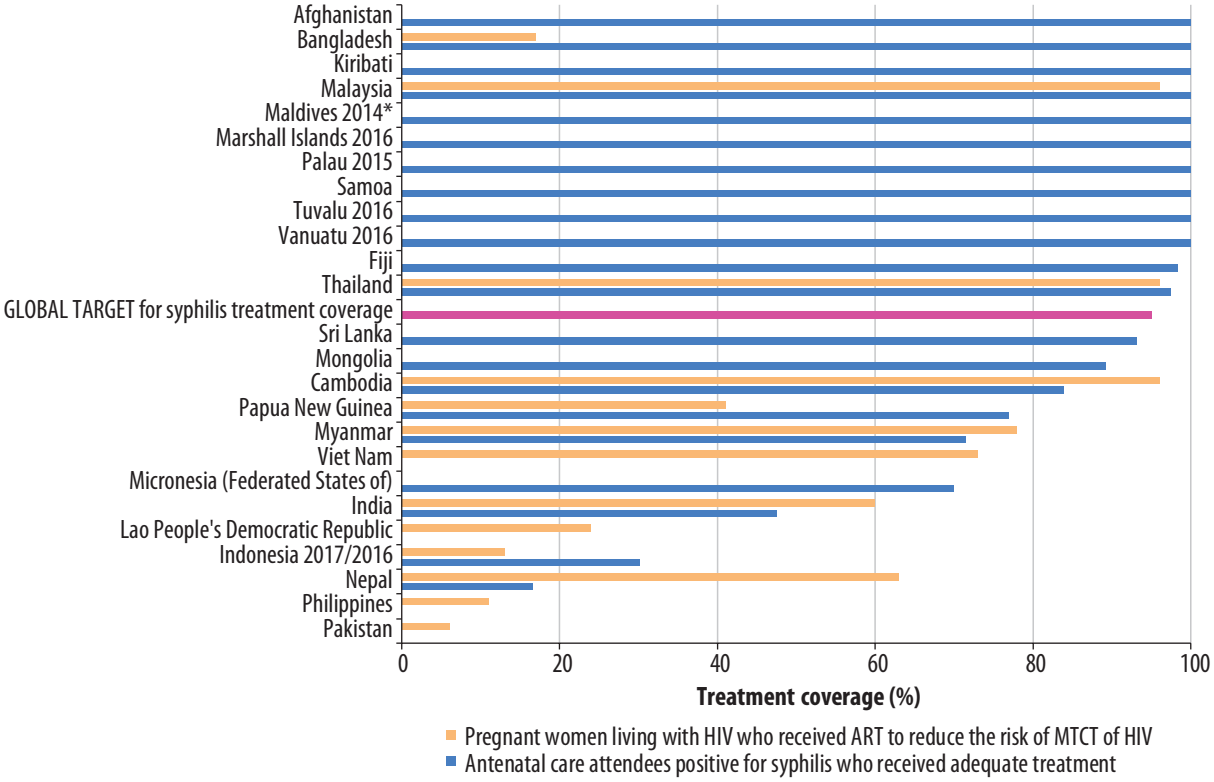
[14] Data for Mongolia and Thailand were reported at the Informal Consultation on Validation of Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis: Developing the Method for Validating Hepatitis B Elimination, 27–28 February 2018.

Sources:
UNAIDS. AIDSinfo | UNAIDS Available from: http://aidsinfo.unaids.org/
WHO Regional Office for South-East Asia. Cascade of HIV testing, care and treatment services, 2014 and 2015: country profiles. Available from: http://www.searo.who.int/entity/hiv/documents/978–92-9022–541-6/en/
UNAIDS. Global AIDS Monitoring (GAM) online reporting tool. Available from: https://aidsreportingtool.unaids.org
China: Wang A-L, Qiao Y-P, Wang L-H, Fang L-W, Wang F, Jin X, et al. Integrated prevention of mother-to-child transmission for human immunodeficiency virus, syphilis and hepatitis B virus in China. Bull World Health Organ. 2015 Jan 1; 93(1):52–6; (64)
Republic of Korea: Korean study of the liver 2013; Mongolia and Thailand: Informal Consultation on Validation of Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis: Developing the Method for Validating Hepatitis B Elimination, 27–28 February 2018.

4.2.3 Treatment of HIV- and syphilis-infected pregnant women

Only three of 13 reporting countries in the Asia Pacific region (Cambodia, Malaysia and Thailand) achieved ≥95% coverage of pregnant women living with HIV who received ART to reduce the risk of MTCT of HIV, in 2017. A further four countries achieved coverage of 60–90%, while six countries reported <60% HIV treatment coverage (Fig. 9). In the remaining countries in the region, there were either no HIV-infected women identified (nine Pacific island countries) or no data available (18 countries). Data on treatment of ANC attendees with positive syphilis serology in 2016–2017 were available from 20 countries: 11 countries achieved ≥95% treatment coverage of ANC attendees with positive syphilis serology; six countries achieved 60–94% coverage; and three countries (India, Indonesia and Nepal) reported treatment coverage of ANC attendees with positive syphilis serology of 48%, 30% and 17%, respectively (Fig. 9). Analysis of HIV and syphilis testing and treatment data shows that testing rates are correlated with treatment rates.[15] Data also confirm a strong negative correlation[16] between ART coverage among HIV-infected pregnant women and the MTCT rate for HIV (see Fig. 10). No data are currently available for treatment coverage of women found to be infected with hepatitis B in pregnancy.

Fig. 9. Treatment coverage for HIV and syphilis among pregnant women, Asia Pacific region, 2014–2017

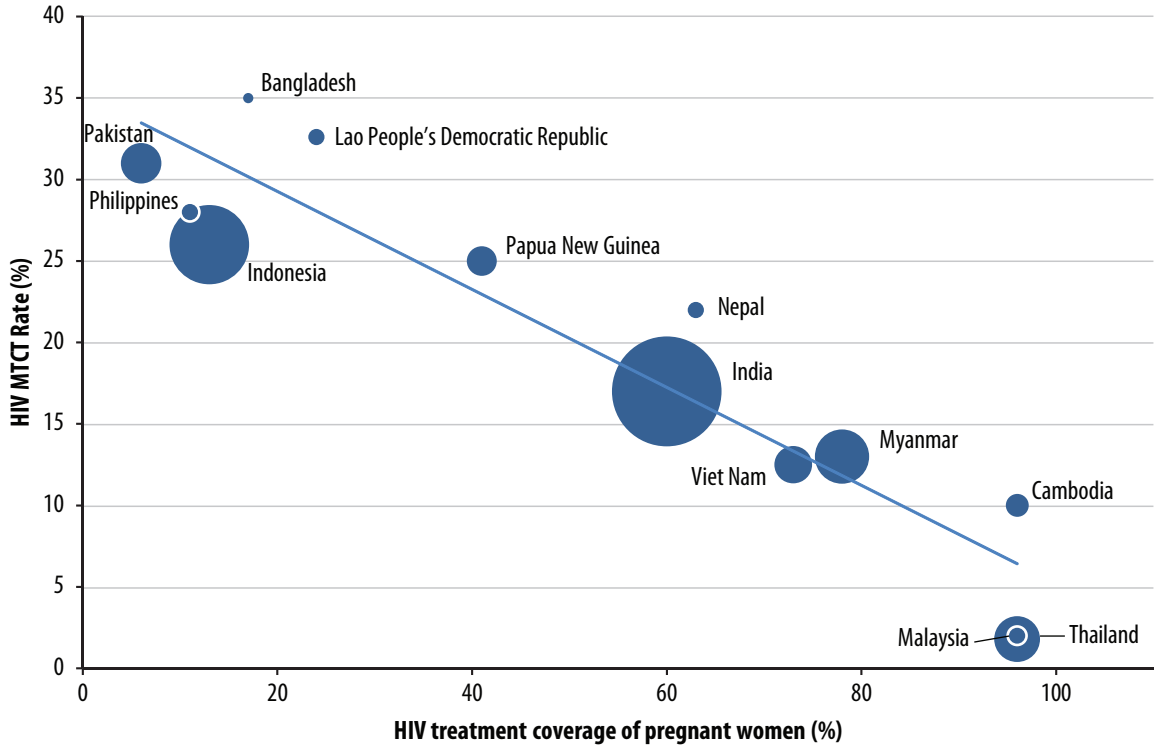


* Data are from 2017 unless otherwise indicated.
Data are sorted by syphilis treatment coverage with the global target indicated (note: the global target is also >95% for HIV treatment coverage).
Cook Islands and Tonga reported no cases of HIV- or syphilis-infected pregnant women; the Federated States of Micronesia, the Marshall Islands, Nauru, Palau, Samoa, Tuvalu and Vanuatu reported no cases of HIV-infected pregnant women; no data available for remaining countries.

Sources: UNAIDS. AIDSinfo. Available from: http://aidsinfo.unaids.org/
UNAIDS. Global AIDS Monitoring (GAM) online reporting tool. Available from: https://aidsreportingtool.unaids.org

[15] HIV testing and treatment of HIV-infected pregnant women: r=0.8, R^2=0.9, *P*=0.0001; syphilis testing and treatment at ANC: r=0.5, R^2=0.5, *P*=0.002
[16] r= -0.3, R^2=0.9, *P*<0.0001

Fig. 10. HIV treatment coverage among pregnant women and HIV MTCT rate, Asia Pacific region, 2017



The bubble size represents the estimated number of pregnant women living with HIV who need ART to prevent MTCT (e.g. Indonesia: 12 000, Afghanistan <200).
No HIV-exposed infants: Cook Islands, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Samoa, Tonga, Tuvalu and Vanuatu.
No data available for the remaining Asia Pacific countries.

$y = -0.3x + 35.3$; $R^2 = 0.9$

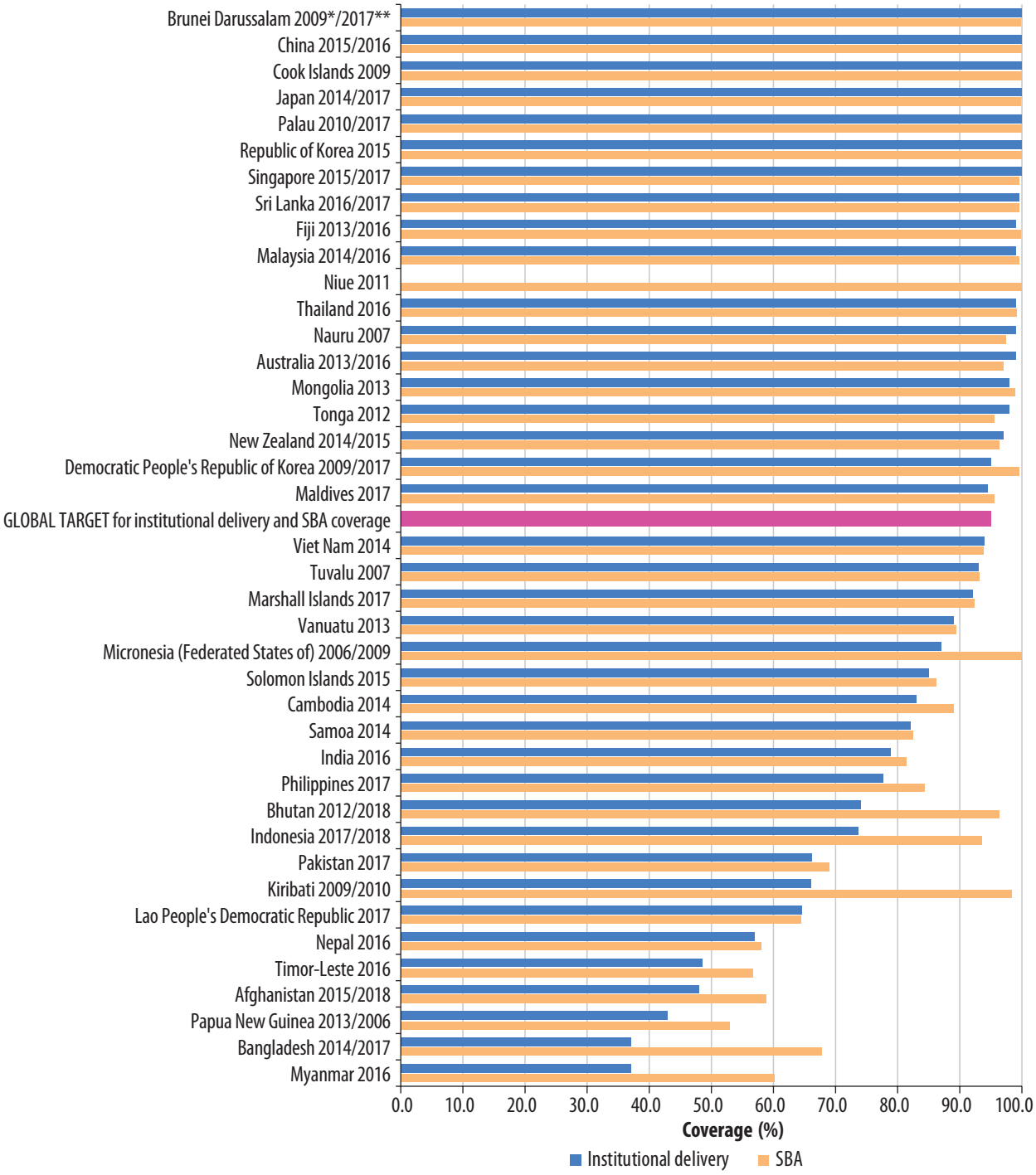
Source: UNAIDS. AIDSinfo. Available from: http://aidsinfo.unaids.org/ (2017 data)

4.3 Delivery care

4.3.1 Institutional delivery and skilled birth attendance

The presence of skilled health personnel at delivery is associated with lower rates of adverse pregnancy outcomes. Data updated in 2018 for the Asia Pacific region (Fig. 11) indicate that 22 countries had achieved the global target of ≥95% SBA coverage and nine countries had SBA coverage levels of 80–94%. In Afghanistan, the Lao People's Democratic Republic, Papua New Guinea and Timor-Leste, SBA coverage was ≤60% *(50)*. In most countries, the proportion of institutional deliveries parallels SBA coverage, but in Kiribati, Indonesia, Myanmar and Timor-Leste, SBA coverage is 14–39% higher than institutional delivery coverage (SBA coverage was also >10% higher than institutional delivery in Afghanistan, Bangladesh, Bhutan, the Federated States of Micronesia and Papua New Guinea but the data years for SBA and institutional delivery differed by over two years). Where SBA coverage is higher than the proportion of institutional deliveries, the additional deliveries are assumed to be home births attended by a skilled birth attendant, possibly reflecting better remuneration for attendants conducting home deliveries or births taking place in rural areas with limited transport.

Fig. 11. Institutional delivery and SBA coverage, Asia Pacific region, 2006–2017



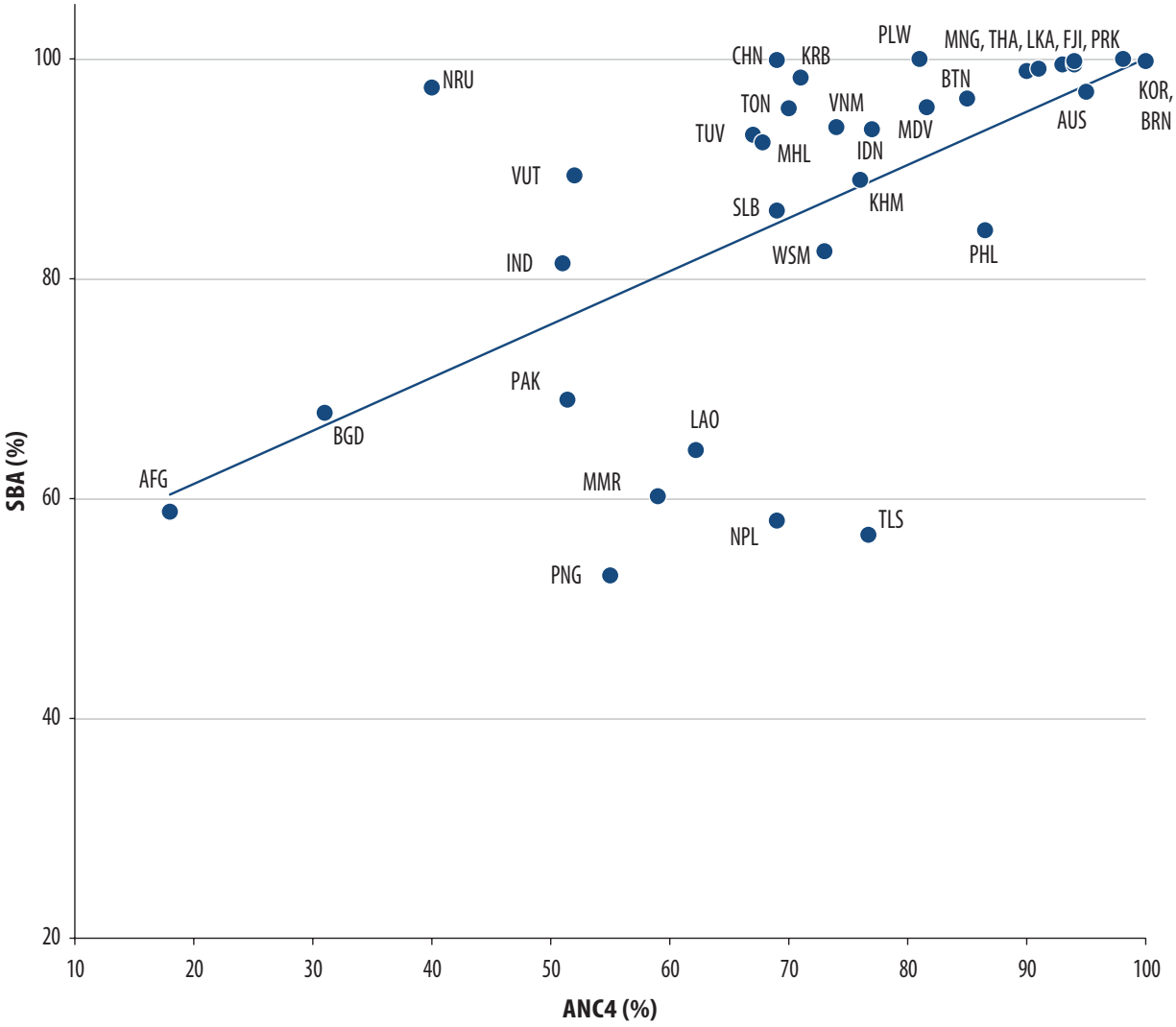
Data sorted by institutional delivery coverage; * Data year for institutional delivery; ** Data year for SBA.

Sources:

UNICEF Data. Monitoring the situation of children and women: delivery care.
Available from: http://data.unicef.org/topic/maternal-health/delivery-care/ (June 2018 update)
WHO Global Health Observatory data repository. Births attended by skilled health personnel
Available from: http://apps.who.int/gho/data/node.main.SKILLEDBIRTHATTENDANTS?lang=en (March 2019 update)
Indonesia DHS 2017; Lao People's Democratic Republic LSIS II 2017; Maldives DHS 2016-17; Marshall Islands DHS 2017; Pakistan DHS 2017-18; Philippines DHS 2017

Coverage of ANC4 is related to both SBA coverage (r=0.7, R^2=0.4, *P*<0.0001, Fig. 12) and institutional delivery (r=0.7, R^2=0.4, *P*<0.0004, data not shown). These relationships hold even when high-income countries are excluded.

Fig. 12. Relationship between ANC4 and SBA coverage, Asia Pacific region, 2007–2018



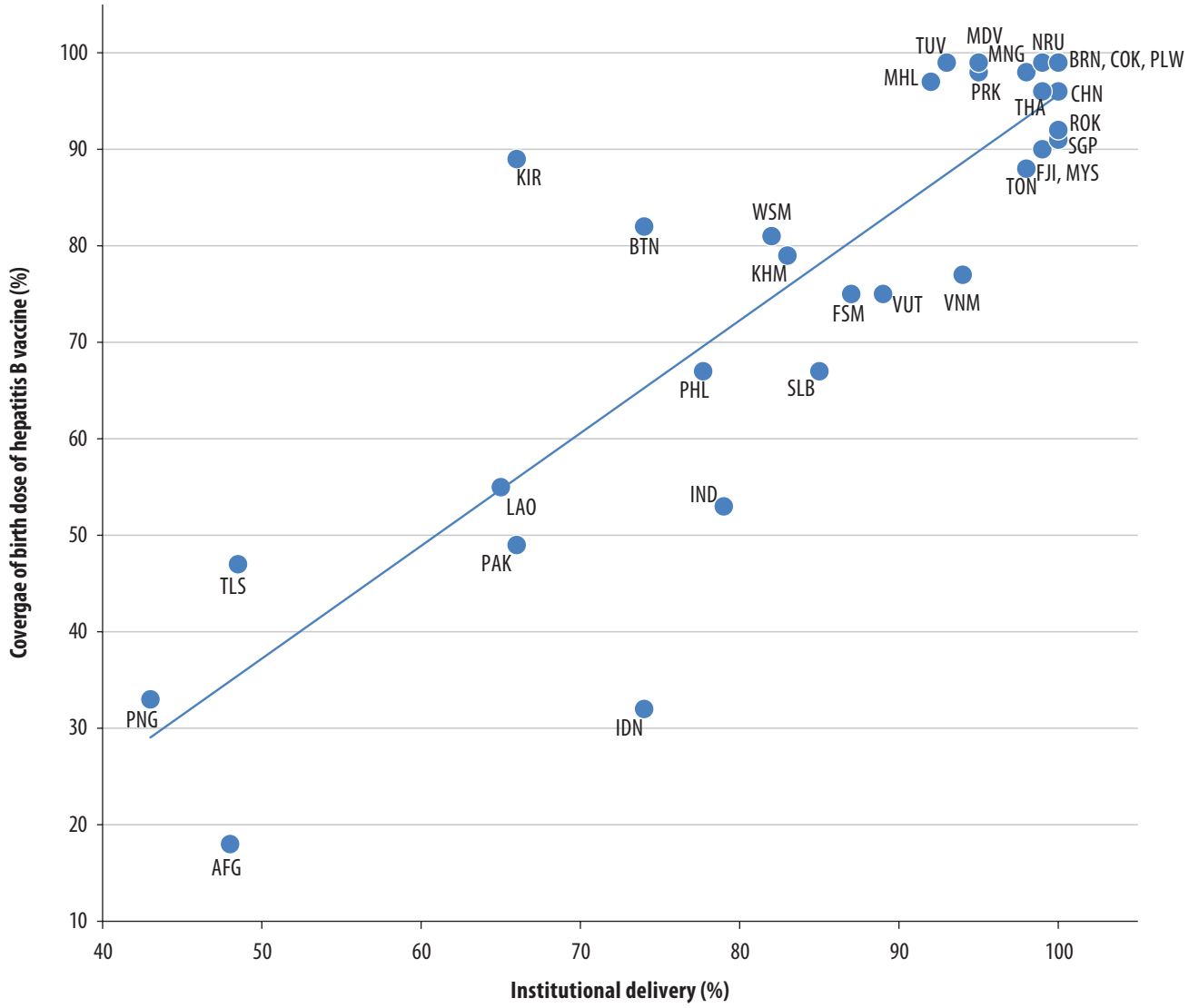
Country codes: AFG, Afghanistan; AUS, Australia; BGD, Bangladesh; BTN, Bhutan; BRN, Brunei Darussalam; KHM, Cambodia; CHN, China; PRK, Democratic People's Republic of Korea; FJI, Fiji; IND, India; IDN, Indonesia; KIR, Kiribati; LAO, Lao People's Democratic Republic; MDV, Maldives; MHL, Marshall Islands; MNG, Mongolia; MMR, Myanmar; NRU, Nauru; NPL, Nepal; PAK, Pakistan; PLW, Palau; PNG, Papua New Guinea; PHL, Philippines; KOR, Republic of Korea; WSM, Samoa; SLB, Solomon Islands; LKA, Sri Lanka; THA, Thailand; TLS, Timor-Leste; TON, Tonga; VUT, Vanuatu; VNM, Viet Nam.

$y = 0.5x + 51.6$; $R^2 = 0.4$

Sources:
UNICEF Data. Monitoring the situation of children and women: antenatal care.
Available from: http://data.unicef.org/topic/maternal-health/antenatal-care/ (June 2018 update)
Bhutan WHO Global Health Data. Available at: http://apps.who.int/gho/data/node.main.ANTENATALCARECOVERAGE4?lang=en *(53)*
India NFHS 2015-16; Lao People's Democratic Republic LSIS II 2017; Maldives DHS 2016-17; Marshall Islands DHS 2017; Pakistan DHS 2017-18; Philippines DHS 2017; Sri Lanka DHS 2016; Timor-Leste DHS 2016
WHO Global Health Observatory data repository. Births attended by skilled health personnel
Available from: http://apps.who.int/gho/data/node.main.SKILLEDBIRTHATTENDANTS?lang=en (March 2019 update)

There is a strong positive correlation (r=1.0, R^2 = 0.7, *P*<0.0001) between the percentage of births taking place in a health facility and the coverage of timely HepB-BD (Fig. 13). Efforts to increase access to HepB-BD by increasing health facility deliveries, particularly in those countries with low levels of institutional delivery, need to be strengthened.

Fig. 13. Relationship between institutional delivery and HepB-BD coverage, Asia Pacific region, 2017



Australia: no birth-dose data available; Japan: no hepatitis B immunization data available; Bangladesh, Nepal and Sri Lanka: no universal birth-dose policy; Japan and New Zealand: birth dose given only to HBsAg-seropositive women or those whose HBsAg status is unknown.

Country codes: AFG, Afghanistan; BTN, Bhutan; BRN, Brunei Darussalam; KHM, Cambodia; CHN, China; COK, Cook Islands; PRK, Democratic People's Republic of Korea; FJI, Fiji; IND, India; IDN, Indonesia; KIR, Kiribati; LAO, Lao People's Democratic Republic; MYS, Malaysia; MDV, Maldives; MHL, Marshall Islands; FSM, Federated States of Micronesia; MNG, Mongolia; NRU, Nauru; PAK, Pakistan; PLW, Palau; PNG, Papua New Guinea; PHL, Philippines; KOR, Republic of Korea; WSM, Samoa; SGP, Singapore; SLB, Solomon Islands; THA, Thailand; TLS, Timor-Leste; TON, Tonga; VUT, Vanuatu; VNM, Viet Nam.

$y = 1.2x - 21$; $R^2 = 0.7$

Sources:
UNICEF Data. Monitoring the situation of children and women: delivery care.
Available from: http://data.unicef.org/topic/maternal-health/delivery-care/ (June 2018 update)
World Health Organization. Data, statistics and graphics: official country reported coverage estimates time series.
Available from: http://www.who.int/immunization/monitoring_surveillance/data/en/ (July 2018 update)

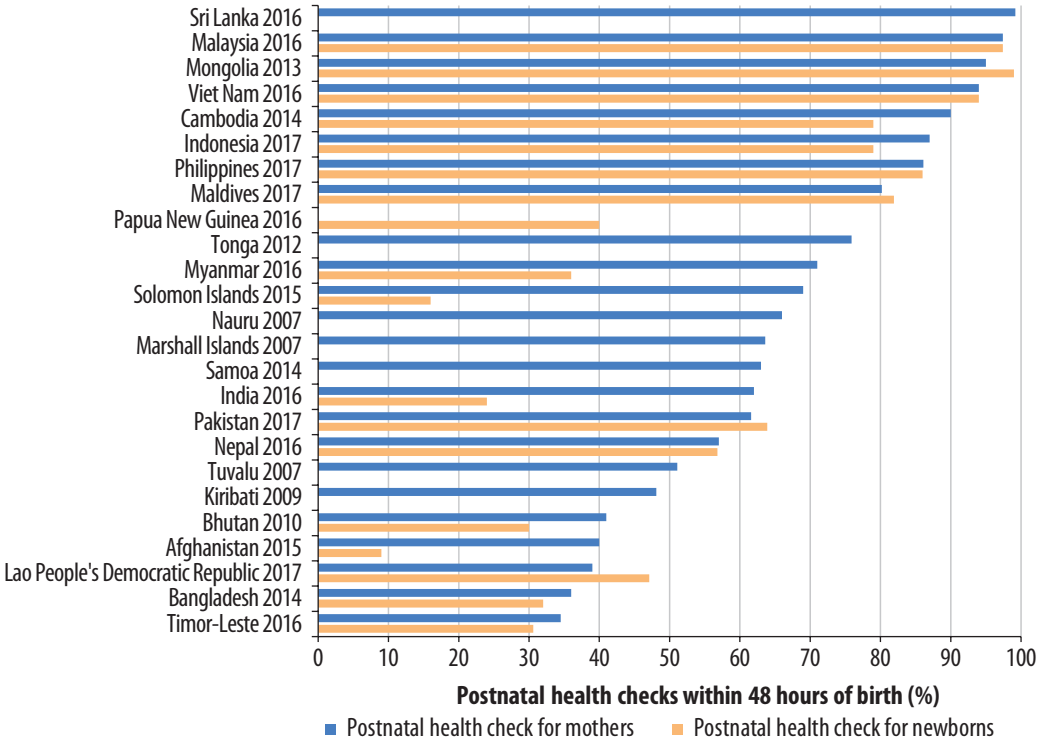
4.4 Postnatal period

4.4.1 Postnatal care

Mothers and their newborn infants are particularly vulnerable in the first few days and weeks after the baby is born; the majority of maternal and infant deaths occur within the first month after delivery. High-quality care for all infants, whether born in health facilities or at home, starting immediately after birth and continuing until 6 weeks of age and beyond, forms an important part of the continuum of care and can improve health outcomes for both mothers and their newborns *(65)*. WHO recommends that for facility births, mothers and newborns should receive postnatal care for at least 24 hours after delivery. For home births, the first postnatal contact should be as early as possible within 24 hours of delivery. At least three additional postnatal contacts are recommended for all mothers and newborns: 48–72 hours after delivery; seven to 14 days after delivery; and six weeks after birth *(65)*.

Data on postnatal health checks within two days of delivery were available for 25 countries in the Asia Pacific region (Fig. 14). Coverage was generally higher for mothers than for their infants (this may reflect better data collection for mothers), but only in Cambodia, Malaysia, Mongolia, Sri Lanka and Viet Nam did ≥90% mothers receive a postnatal health check within 48 hours of giving birth; ≥90% coverage was reached for infants in only three reporting countries (Malaysia, Mongolia and Viet Nam) *(66)*.

Fig. 14. Coverage of postnatal care for mothers and newborns within 48 hours of birth, Asia Pacific region, 2007–2017

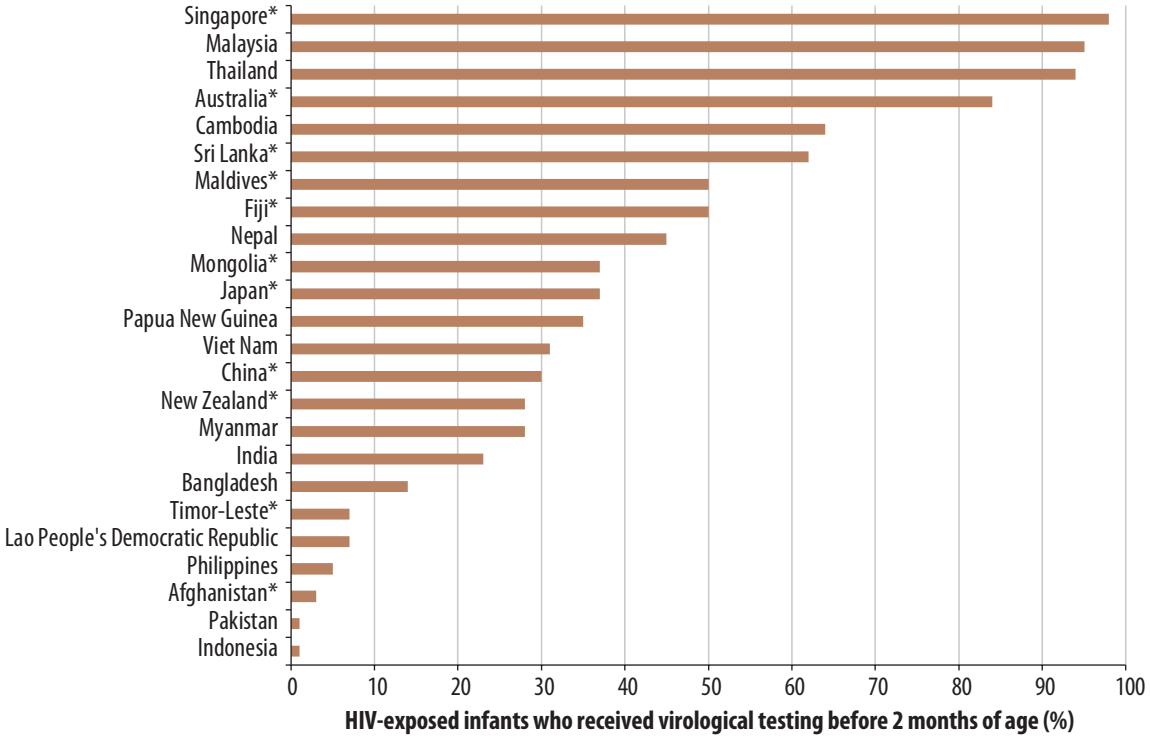


Data are sorted by postnatal care for mothers.
Data are not available for postnatal care for mothers in 16 countries and for postnatal care for newborns in 22 countries, respectively.

Sources:
UNICEF Data. Monitoring the situation of children and women: newborn care
Available from: http://data.unicef.org/topic/maternal-health/newborn-care/ (June 2018 update)
India NFHS 2015-16; Indonesia DHS 2017; Lao People's Democratic Republic LSIS II 2017; Maldives DHS 2016-17; Marshall Islands DHS 2017; Pakistan DHS 2017-18; Philippines DHS 2017; Sri Lanka DHS 2016; Timor-Leste DHS 2016
Malaysia National Health and Morbidity Survey 2016 Vol II MCH (home visits during the first week post-delivery).

The timing of EID for HIV is important: infants infected in utero usually have detectable viral load within 48 hours of birth; infants infected peripartum might not have a positive virological test result until one to two weeks after birth; and breastfeeding infants are at ongoing risk of infection, though this risk is minimized if the mother is taking ART and is virologically suppressed *(67)*. Data on EID for HIV before 2 months of age were available from 24 Asia Pacific countries in 2016–2017 (nine Pacific island countries had no HIV-exposed infants and seven countries had no data on EID) (Fig. 15). Eight of the 24 reporting countries estimated that ≥50% of HIV-exposed infants received virological testing before 2 months of age. Nine more countries estimated EID coverage was 20–49%, and the remaining seven countries estimated coverage was below 20% *(30)*.

Fig. 15. Coverage of early infant diagnosis, Asia Pacific region, 2016–2017



No data available: Bhutan, Brunei Darussalam, Democratic People's Republic of Korea, Kiribati, Niue, Republic of Korea and Solomon Islands.
No HIV-exposed infants: Cook Islands, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Samoa, Tonga, Tuvalu and Vanuatu.

Sources:
UNAIDS. AIDSinfo. Available from: http://aidsinfo.unaids.org/
* UNAIDS 2017 estimates, July 2017. 2016 data.

4.4.2 Hepatitis B: immunization of infants

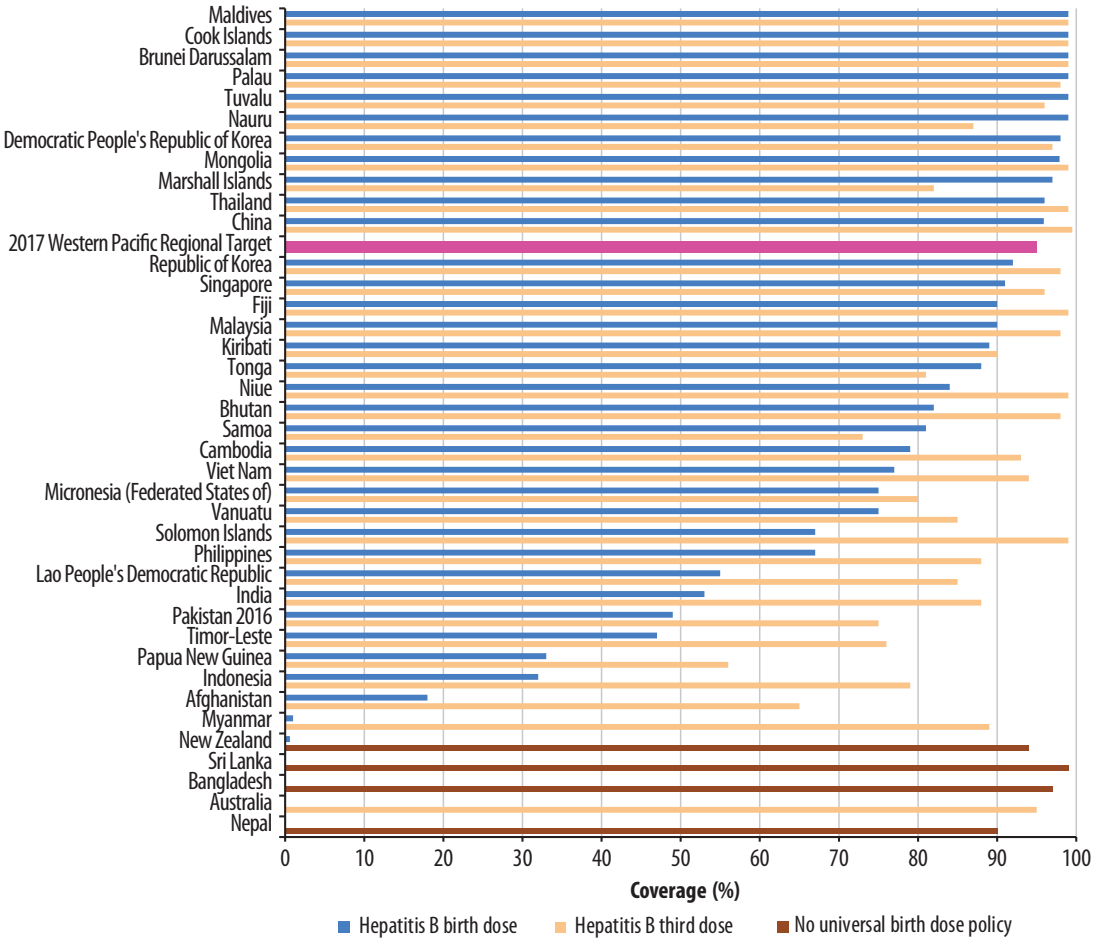
In 2017, HepB3 coverage was ≥80% in 33 of 39 countries with data in the Asia Pacific region, including 19 countries in which HepB3 coverage was ≥95%. In contrast, only 20 of 35 countries with a universal HepB-BD policy achieved HepB-BD coverage of ≥80%, including 11 countries with HepB-BD coverage of ≥95% (data not available from one country). Fig. 16 highlights the significant differences between HepB-BD and HepB3 coverage in about half of the countries with a universal birth-dose policy.

Strategies to increase HepB-BD coverage include universal administration to all infants regardless of maternal HBsAg status, increasing facility birth rates and improving coordination among different programmes. HepB-BD vaccination has been successfully promoted through Early Essential Newborn Care coaching to health workers dealing with intrapartum and postnatal care *(68)*. Coordination between EPI and RMNCH services is needed to ensure adequate supplies and distribution of monovalent hepatitis B vaccine wherever births are taking place. Alternative strategies,

such as skilled birth attendants providing vaccine outside of the cold chain to infants born at home in collaboration with community EPI workers, need to be explored *(12,69,70)*. Community-based health promotion efforts for both parents and health providers may combat local misconceptions about immunization and increase awareness of the importance of delivery at a health facility in order for the timely HepB-BD to be given *(71)*. Subnational disaggregation of immunization data may identify particular areas where efforts to increase immunization rates need to be focused.

Reaching the global target of ≤0.1% HBsAg prevalence among children by 2030 is likely to require additional interventions. Mothers who are positive for the hepatitis B e antigen (HBeAg) and/or have high hepatitis B viral load are at increased risk of transmitting hepatitis B to their infant, and as such, the protection afforded by the timely HepB-BD is reduced. The *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030* proposes a tiered approach to the provision of a comprehensive package of interventions for EMTCT of hepatitis B determined by health system capacity. Additional interventions to decrease the risk of perinatal HBV transmission from mothers with very high hepatitis B viral load include routine antenatal HBsAg testing, administration of HBIG to infants born to HBsAg-positive mothers, the potential use of maternal antiviral treatment and follow-up of exposed infants.

Fig. 16. Coverage of hepatitis B vaccine birth dose and third dose, Asia Pacific region, 2017



Data are from 2017 unless otherwise indicated. Data are sorted by HepB-BD coverage.
Australia: no birth dose data available; Japan: no hepatitis B immunization data available.
Bangladesh, Nepal and Sri Lanka: no universal birth dose policy.
Japan and New Zealand: birth dose given only to HBsAg seropositive women or those whose HBsAg status is unknown.

Source: World Health Organization. Data, statistics and graphics: official country reported coverage estimates time series. Available from: http://www.who.int/immunization/monitoring_surveillance/data/en/ (July 2018 update)

5. Challenges and opportunities

The *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030* presents an integrated and coordinated approach to providing EMTCT interventions through the platform of RMNCH services, emphasizing the principle of people-centred care and UHC. Significant progress has been made in the Asia Pacific region towards achieving triple EMTCT through universal access to high-quality RMNCH services, but numerous challenges remain. Member States, with support from WHO, must address these challenges if universal, equitable and sustainable RMNCH services, including EMTCT interventions, are to become more accessible for all women and their families and EMTCT targets achieved.

5.1 Summary of progress towards triple EMTCT in Asia and the Pacific

Policies and guidelines

- Policies with respect to EMTCT of HIV and syphilis are in place in the majority of countries.
- One third of countries have a policy on hepatitis B screening during pregnancy.
- Universal administration of the timely HepB-BD is policy in all but five countries.
- There is limited information on the extent of harmonization of RMNCH and disease-specific guidelines with respect to triple EMTCT activities and interventions.
- Health workforce is below recommended thresholds in many countries.

Service provision and data

- Coverage of family planning with modern methods is low in many countries.
- Coverage of ANC1, institutional delivery and SBA is generally high. The drop-off in coverage from ANC1 to ANC4 is significant in some countries. Data on the eight ANC contacts recommended by WHO *(8)* are not readily available.
- High proportions of women attending ANC do not have blood examined for anaemia, an indication of the limited quality of some ANC service provision.
- A substantial number of countries do not have data available on testing of ANC attendees for HIV and syphilis or on treatment coverage of those women found (or known) to be HIV-infected or to have a positive syphilis serology. Coverage of pregnant women living with HIV who received ART to reduce the risk of MTCT of HIV falls far short of global targets in all but three reporting countries; 12 countries achieved ≥95% treatment coverage of ANC attendees with positive syphilis serology.
- Many RMNCH programmes currently do not include routine hepatitis B screening for pregnant women, and data on HBsAg testing at ANC are rarely available, despite most countries in the Asia Pacific region having ≥2% HBsAg prevalence in the general population.
- Coverage of HepB3 is high, but coverage of timely HepB-BD is well below the global target in many countries.
- Data on postnatal care of mothers and newborns are limited compared to antenatal and intrapartum care, but they indicate low coverage in the majority of reporting countries.
- Data on EID of HIV are not always available, and coverage is patchy.
- Data on MTCT of HIV and congenital syphilis are limited, and rates are variable: seven of 23 reporting countries achieved MTCT of HIV rates below the global target of 5% in 2014–2017; and 13 of 17 reporting countries had case rates of congenital syphilis below the global target of ≤50 cases per 100 000 live births.
- Availability of data on HBsAg prevalence in children from nationally representative serosurveys is increasing. Twenty-five countries have achieved <1% HBsAg prevalence in children.

Common challenges include limited collaboration, coordination and capacity. The planning, implementation, reporting and monitoring of EMTCT interventions do not always occur in coordination, resulting in gaps or duplications. Global, regional and national guidelines may not be harmonized, with gaps in recommendations between disease-specific and RMNCH policies and guidelines, creating inconsistencies in the application of global standards. Paramount to improving effectiveness and efficiency is the promotion of integration, ensuring that interventions for triple EMTCT are

included in essential health services packages. The importance and value of coordination, integration and collaboration across different programmes in providing EMTCT interventions within the RMNCH platform is highlighted in accounts from China (Box 5) and Thailand (Box 6).

Affected communities, including pregnant women and their families and people living with HIV and/or chronic hepatitis B, should be involved in planning, implementation, and monitoring and evaluation. Better understanding of the value and importance of family planning, antenatal care starting early in pregnancy, the involvement of male partners, the benefits of screening, the implications of results, adherence to treatment, and the value of follow-up of newborns and infants should increase demand for services, strengthen the EMTCT cascade and improve outcomes for mothers and their infants.

Box 5. EMTCT of HIV, hepatitis B and syphilis in China

- In 2010, the Government of China incorporated a nationwide programme for prevention of mother-to-child transmission (PMTCT) of HIV, syphilis and HBV into the existing maternal and child health-care system, building upon the national programme for PMTCT of HIV established in 2003.
- From 2010 to 2013, the number of pregnant women attending ANC clinics with integrated PMTCT (iPMTCT) services increased from 5.5 million to 13.1 million. In 2013, 12.7 million pregnant women were tested for HIV, 12.6 million for syphilis and 12.7 million for hepatitis B. Compared to 2011, the MTCT rate of HIV has been reduced by over 80% in 2015, the incidence of congenital syphilis has been cut by 22% and significant progress has been made in hepatitis B control.
- Characterized by strong Government commitment and leadership, Government policy promotes strong leadership, full social mobilization and broad participation, focusing on integration of services, improving intervention quality, expanding coverage and promoting standardization.
- Since 2015, around 1.4 billion yuan (around US$ 206 million) have been invested in the National Integrated PMTCT Programme annually, allowing expansion of the geographical coverage of the programme across China and ensuring that testing for HIV, hepatitis B and syphilis is provided free of charge to all pregnant women and that PMTCT-related services are provided free of charge to all infected pregnant women and exposed infants.
- Integrated PMTCT of HIV, syphilis and hepatitis B has been feasible and effective in China.

Success of the programme is attributed to the following factors:

- ♦ iPMTCT is fully implemented through the current maternal and child health-care system at the county, township and village levels.
- ♦ Infected women and exposed children are immediately enrolled in iPMTCT programme services as part of routine ANC, postnatal care and children's care.
- ♦ Strong collaboration is evident among maternal and child health clinics/hospitals, the national and local centres for disease control and prevention, and general hospitals.

- In September 2017, the National Health and Family Planning Commission and the United Nations Children's Fund, in collaboration with WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS), launched a demonstration project to validate EMTCT of HIV, syphilis and viral hepatitis. A national pilot validation framework was developed in response to gaps and challenges identified. It includes a specific targeted plan and strategies aligned with the global guidelines and the *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030*.
- Roll-out of the demonstration project at the subnational level will inform policy and programmes and accelerate a national move towards achieving EMTCT targets and validation.

Source: Wang A-L, Qiao Y-P, Wang L-H, Fang L-W, Wang F, Jin X, et al. Integrated prevention of mother-to-child transmission for human immunodeficiency virus, syphilis and hepatitis B virus in China. Bull World Health Organ 2015 Jan 1;93(1):52–6.
Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4271682/

Substantial scale-up of interventions requires investment in strengthening the capacity, scope and quality of RMNCH care. Sustainable domestic funding is needed – a challenge for countries that have been heavily dependent on external funding; broader recognition is needed that integrated, collaborative EMTCT services built into existing health systems

are less expensive and more effective than parallel, vertical programmes. Social and financial barriers for all women, children and their families, including vulnerable and marginalized populations, are a critical consideration. Currently national budgets or health insurance schemes may not cover all costs related to triple EMTCT, particularly screening of pregnant women for syphilis and hepatitis B, treatment of those found to be infected, and partner testing.

Service quality is dependent on the availability and capacity of the health workforce; where there are too few RMNCH staff, health-care workers are poorly distributed or inadequately trained, high-quality RMNCH care including EMTCT interventions cannot be assured. Some countries experience difficulties with health workforce motivation (often due to low salaries and overwork), retention or distribution, and the persistence of inappropriate health-care practices. Introduction of new procedures and protocols requires additional training of overstretched staff, which can in turn bring further challenges to quality service provision. Adequate and sustainable human resources must be assured and workforce capacity developed to ensure quality services including interventions for triple EMTCT.

Underlying the coordination of programmes and policies is the need for integrated, unified online health information systems. Key EMTCT indicators must be reviewed and standardized based on global and regional recommendations. Procedures for data collection and analysis should be critically examined to identify duplications or gaps and develop plans to improve data quality. Existing data collection systems, including those in the private sector, should be linked to support the monitoring of EMTCT progress towards targets by national programmes and other stakeholders. Improved methods for identifying and tracking mother–baby pairs promote better retention in care and more complete data collection. Subregional disaggregation allows geographical disparities in disease epidemiology and differences relating to hard-to-reach and other key populations, which often have a higher disease burden, to be identified.

Box 6. EMTCT of HIV, hepatitis B and syphilis in Thailand

- Thailand's commitment to address MTCT of HIV started in the 1980s, when the spread of AIDS began to accelerate in the country. In the mid-1990s, the Thai Government piloted a programme to distribute a short-course oral antiretroviral. Between 1997 and 1999, several PMTCT projects were piloted, including Government-sponsored interventions in HIV testing and counselling, distribution of ARVs, and MTCT monitoring protocols.[1]
- In 2000, the national Government created the first nationwide PMTCT policy and guidelines. All public hospitals were required to integrate prevention measures into routine maternal, newborn and child health (MNCH) services, implement HIV counselling and testing for all pregnant women, provide access to ART for PMTCT, ensure infant HIV testing, and provide formula for infants born to HIV-positive mothers.[1]
- In 2011, the Thai Government committed to the *Global Plan towards the Elimination of New HIV Infections among Children by 2015 and Keeping Their Mothers Alive* and guaranteed universal access for pregnant women to ANC, delivery services and PMTCT services for HIV and syphilis, integrating these services into the new UHC scheme for all pregnant women, irrespective of citizenship or legal residence status throughout the country, even in the most remote areas. PMTCT interventions were also successfully integrated into RMNCH services, so free routine testing for couples was included in ANC. Testing followed strategies and algorithms recommended by WHO using quality-assured diagnostic services for HIV and syphilis. Mothers diagnosed with HIV or syphilis were followed up in health facilities and supported by their communities. Their exposed infants underwent EID, received treatment and were monitored until the age of 18 months if breastfed. In 2015, the ANC coverage rate was 98.5%, coverage of HIV testing among pregnant women was 99.6%, coverage of ART among HIV-positive pregnant women was 95.9%, coverage of syphilis testing among pregnant women was 98.5%, and treatment coverage of syphilis-positive pregnant women was 96.2%.[2]
- In 2008, Thailand's HIV MTCT rate was 4.6%; by 2015, it had fallen to 1.9%.[3] In 2000, 1000 children were newly infected with HIV; in 2015, there were 85 new paediatric HIV cases.[4] The infection rate among women fell by 87%, from 15 000 new infections each year to <2000. The congenital syphilis case rate was 10.9 cases per 100 000 live births in 2015.[5]
- Thailand received WHO validation for EMTCT of HIV and syphilis on 7 June 2016. Several key factors were critical to this success: 1) the Thai Government's strong and consistent national leadership; 2) politically committed officials at all levels of the health system; 3) a well-developed national health system; 4) a favourable legal and policy environment; 5) ongoing strengthening of the health system's building blocks and community systems; and 6) collaboration with partners.

- To sustain EMTCT status, Thailand must continue to maintain ongoing, routine, effective programme interventions and quality surveillance systems to monitor EMTCT of HIV and syphilis.
- In 2016, Thailand had high coverage rates for HBsAg testing at ANC (>98%), institutional delivery (>98%), and HepB-BD and HepB3 (>99%). Thailand is aiming for WHO validation of EMTCT of hepatitis B (<0.1% transmission rate) by 2025. A national working group for EMTCT of hepatitis B was established in January 2018. Guidelines published in 2017 recommend the use of tenofovir for HBeAg-positive pregnant women at 26–30 weeks of pregnancy until four weeks after delivery while monitoring alanine aminotransferase (ALT) levels. The new guidelines will be piloted in 12 provinces in 2018, with data from the demonstration project being used to advocate for expansion of the programme nationwide.[6]

Sources:

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[4] UNAIDS 2016 estimates, July 2017.

[5] Dr Sarawut Boonsuk, Director of Regional Health Promotion Center 10, Department of Health, Thailand Ministry of Public Health. National Programme for Elimination of Mother-to-Child Transmission of HIV and Syphilis, 2017.

[6] Informal Consultation on Validation of Elimination of Mother-to-child Transmission of HIV, Hepatitis B and Syphilis: Developing the Method for Validating Hepatitis B Elimination, 27–28 February 2018.

5.2 Conclusions

The transition from the MDGs to the SDGs has brought fresh attention to the importance of enhancing health services for women, children and their families to improve health outcomes overall. The *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030* provides guidelines on how to achieve triple EMTCT within the platform of strong RMNCH services, placing the health of women and their newborns at the centre of an integrated, holistic and human rights-based approach to improved health outcomes.

The Asia Pacific region is extremely diverse in terms of demography, economics, geography and culture. Differences also exist with respect to national health systems and the epidemiology of HIV, syphilis and hepatitis B. While many countries already have policies and health systems in place to support the integration of EMTCT and RMNCH services, others still need to shift from vertical programmes to an integrated and coordinated approach that is more effective and efficient.

The *Regional Framework for the Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific 2018–2030* has set ambitious goals and targets for triple EMTCT. Some have been met, but many have not. This baseline report presented the most recent available data on triple EMTCT impact and process indicators, highlighting both achievements and challenges. By bringing together data from the whole of the Asia Pacific region, this report provides a baseline against which progress can be measured and evaluated and help to focus attention on areas that are working well and those in which improvements are needed.

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ANNEX

Table A1. Country population and selected economic and health workforce indicators, Asia Pacific region, 2008–2019

Country	Total population[a] (thousands)	Income level[b]	Gross domestic product per capita[c] (at current prices in US$)	Domestic general government health expenditure (GGHE-D) as % of general government expenditure (GGE)[d] (%)	Composite density of physicians, nursing and midwifery personnel[e] (per 1000 population)	Data year
Data year	2019	2018	2017	2016	2008–2017	
Afghanistan	37 209	Low	619	2.0	0.6	2016
Australia	25 089	High	57 613	17.4	16.2	2016
Bangladesh	168 066	Lower-middle	1 492	3.4	0.8	2017
Bhutan	826	Lower-middle	3 173	8.3	1.9	2017
Brunei Darussalam	439	High	28 291	5.7	8.4	2015
Cambodia	16 483	Lower-middle	1 382	6.2	1.1	2014
China	1 420 062	Upper-middle	8 682	9.1	4.1	2015
Cook Islands	17	Upper-middle	17 798	5.7	7.2	2014
Democratic People's Republic of Korea	25 727	Low	685	na	8.1	2017
Fiji	919	Upper-middle	5 382	7.7	3.8	2015
India	1 368 738	Lower-middle	1 923	3.1	2.9	2017
Indonesia	269 536	Lower-middle	3 847	8.3	2.4	2017
Japan	126 855	High	38 220	23.4	13.9	2016
Kiribati	120	Lower-middle	1 694	5.5	5.0	2016
Lao People's Democratic Republic	7 064	Lower-middle	2 457	3.7	1.5	2014
Malaysia	32 454	Upper-middle	9 951	8.2	5.6	2015
Maldives	452	Upper-middle	11 151	20.2	5.0	2016
Marshall Islands	53	Upper-middle	3 753	20.7	4.0	2012
Micronesia (Federated States of)	107	Lower-middle	3 188	5.7	3.8	2009
Mongolia	3 166	Lower-middle	3 620	5.3	6.9	2016
Myanmar	54 336	Lower-middle	1 257	4.8	1.8	2017
Nauru	11	Upper-middle	10 045	5.0	7.4	2015
Nepal	29 942	Low	849	5.3	3.3	2017
New Zealand	4 792	High	42 935	22.5	14.0	2017
Niue	2	Upper-middle	na	2.0	11.9	2008
Pakistan	204 596	Lower-middle	1 534	3.9	1.5	2015
Palau	22	High	13 417	18.7	6.4	2014
Papua New Guinea	8 587	Lower-middle	2 667	7.2	0.6	2010
Philippines	108 106	Lower-middle	2 989	7.1	4.6	2010
Republic of Korea	51 339	High	30 025	13.5	9.3	2017
Samoa	199	Upper-middle	4 356	12.5	2.2	2014
Singapore	5 868	High	56 737	13.6	9.5	2016
Solomon Islands	635	Lower-middle	1 982	8.0	2.3	2016
Sri Lanka	21 019	Lower-middle	4 184	8.6	3.1	2016
Thailand	69 306	Upper-middle	6 595	15.3	3.8	2017
Timor-Leste	1 352	Lower-middle	2 279	3.2	2.4	2017
Tonga	110	Upper-middle	3 950	8.0	4.5	2016
Tuvalu	11	Upper-middle	3 924	9.0	4.7	2014
Vanuatu	288	Lower-middle	3 128	5.4	1.6	2016
Viet Nam	97 429	Lower-middle	2 342	8.9	2.3	2016
South-East Asia Region	1 947 632[f]	not applicable	na	8.5[f]	1.3[h]	2005–2013
Western Pacific Region	1 889 901[f]	not applicable	na	8.8[f]	3.5[h]	2005–2013
South Asia	1 765 989[g]	na	6 063[g]	na	na	na
East Asia and the Pacific	2 291 492[g]	na	17 025[g]	na	na	na
Global	7 430 261[f]	not applicable	16 217	9.9[f]	2.5[h]	2005–2013

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Table A2. Basic maternal and child health indicators by country, Asia Pacific region, 2015–2017

Country	Annual number of births[a] (thousands)	Adolescent birth rate[b] (per 1000 women aged 15–19 years)	Maternal Mortality Ratio[c] (per 100 000 live births)	Neonatal mortality rate[d] (per 1000 live births)	Under-5 mortality rate[e] (per 1000 live births)	Stillbirth rate[f] (per 1000 total births)
SDG Target for 2030			<70 per 100 000 live births	<25 per 1000 live births	<12 per 1000 live births	
Data year	2015	2017	2015	2017	2017	2015
Afghanistan	1 143	64.5	396	39.2	67.9	26.7
Australia	311	12.9	6	2.1	3.5	2.7
Bangladesh	3 110	83.5	176	18.4	32.4	25.4
Bhutan	15	20.3	148	16.9	30.8	16.0
Brunei Darussalam	7	10.3	23	4.7	10.5	6.5
Cambodia	368	50.2	161	14.9	29.2	11.9
China	17 035	6.4	27	4.7	9.3	7.2
Cook Islands	na	na	na	3.9	7.6	8.7
Democratic People's Republic of Korea	350	0.3	82	10.0	19.0	13.5
Fiji	18	43.9	30	10.6	25.3	11.9
India	25 244	23.1	174	24.0	39.4	23.0
Indonesia	4 991	47.4	126	12.4	25.4	13.2
Japan	1 053	4.1	5	0.9	2.6	2.1
Kiribati	3	16.2	90	23.0	54.6	16.3
Lao People's Democratic Republic	163	62.6	197	28.2	63.4	23.7
Malaysia	524	13.4	40	4.3	7.9	5.8
Maldives	8	5.8	68	4.5	7.9	7.7
Marshall Islands	na	na	na	15.7	34.0	15.6
Micronesia (Federated States of)	2	13.9	100	16.5	32.2	17.8
Mongolia	73	23.6	44	9.1	17.2	7.3
Myanmar	944	28.7	178	24.1	48.6	20.0
Nauru	na	na	na	20.5	33.0	15.5
Nepal	573	60.5	258	20.7	33.7	18.4
New Zealand	62	20.0	11	3.0	5.3	2.3
Niue	na	na	na	11.1	21.5	9.7
Pakistan	5 439	36.9	178	44.2	74.9	43.1
Palau	na	na	na	7.9	15.3	8.4
Papua New Guinea	221	52.7	215	23.7	53.4	15.9
Philippines	2 386	60.5	114	13.6	28.1	10.9
Republic of Korea	449	1.6	11	1.5	3.3	2.1
Samoa	5	23.9	51	8.6	16.5	11.1
Singapore	50	3.7	10	1.1	2.8	2.6
Solomon Islands	17	46.4	114	8.5	20.6	17.6
Sri Lanka	323	14.1	30	5.8	8.8	4.9
Thailand	726	51.9	20	5.3	9.5	5.0
Timor-Leste	44	44.0	215	20.7	47.6	17.8
Tonga	3	14.7	124	6.7	16.0	8.6
Tuvalu	na	na	na	16.0	24.9	13.8
Vanuatu	7	41.9	78	11.6	26.9	13.9
Viet Nam	1 582	27.3	54	10.6	20.9	10.1
South-East Asia Region	33 528	33.0[h]	164[h]	22.6[h]	38.9[h]	na
Western Pacific Region	24 339	14.2[h]	41[h]	6.5[h]	12.9[h]	na
South Asia	35 853[g]	44[g]	182[g]	28[g]	48[g]	na
East Asia and the Pacific	31 393[g]	21[g]	59[g]	8[g]	16[g]	na
Global	140 875	43.9[h]	216[h]	18.6[h]	40.8[h]	18.4

na, not available; SDG, Sustainable Development Goal.

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