# Health at a Glance: Asia/Pacific 2020

## MEASURING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE

OECD

World Health Organization

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# *Foreword*

The coronavirus (COVID-19) pandemic is the defining global health crisis of our time. Spreading to nearly every country in the world, it is generating major economic and social costs with potential long-lasting scars.

Governments of Asia-Pacific countries and territories have acted swiftly in the face of already tight fiscal constraints. Radical measures forced the shutdown of entire sectors and imposed restrictions on mobility. While these efforts are vital to suppress transmission and save lives, they also had the unwanted effect of driving economies into recession, causing sharply rising unemployment and growing poverty. The pandemic has inflicted real suffering, with a disproportionate impact on the most vulnerable populations. In order to overcome this crisis, countries and territories should continue to provide support to individuals, households and companies impacted by the crisis while at the same time invest in building resilient health systems to face future pandemics and other shocks. Investments should address risk factors, create adaptable surge capacity, strengthen the health workforce, as well as continue to share experiences to facilitate mutual learning to a relatively unknown disease.

## Support a sustained economic recovery while further strengthening health systems

COVID-19 is much more than a public health crisis, as it has rapidly evolved into a major global economic crisis. Every day, people are losing jobs and income, with no way of knowing how long this new normal will continue and what the new future will look like. In this context, solving the health crisis remains a precondition for solving the associated economic and social crisis.

Governments in the Asia-Pacific region should implement policies that support a sustained recovery from COVID-19 in the coming years, including building strong and resilient health systems, capable of anticipating, absorbing, adapting, and recovering from major shocks in the future. Digital health technologies offer huge opportunities to support better care, disease surveillance and research. With the Asia-Pacific region a main driver of the technological revolution, digitalisation policies can be key to unlocking a sustained recovery from COVID-19. Yet, it is also a region with a significant digital divide, with less than 14% of the population connected to affordable and reliable high-speed Internet. People who remain unconnected are usually those living in rural communities, the poor and women. Scaling up and sustaining investments to increase Internet affordability, accessibility and speed will help modernise health systems in the region, and act as a driving force to breakdown remaining barriers to achieving universal health coverage (UHC).

It is imperative that we harness lessons from the pandemic to better manage future health shocks. COVID-19 revealed how many countries were caught by surprise. It points to the need for sustained investment in health system preparedness to major public health crises; in prevention, to build healthier and stronger populations; and in health services that can address the needs of people directly or indirectly affected by the pandemic. With the right policy focus and investment, countries

can hope not just to recover from this pandemic, but also to emerge from it with stronger and more resilient health systems.

## Accelerate progress to reach universal health coverage

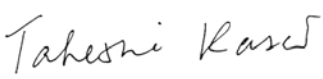
There is a global consensus that the COVID-19 pandemic has inflicted considerable human suffering, with a disproportionate impact on the most vulnerable populations. Asia-Pacific countries have seen the suffering first hand, with existing gaps in care and socio-economic backgrounds leaving many exposed to COVID-19. For example, most countries in the region have high out-of-pocket expenditures for health, leading to unmet care needs. Furthermore, over 1 billion people – including most migrants and refugees – still live below the poverty line of USD 3.2 per day. These individuals are less capable to protect themselves against the spread of COVID-19, often living in overcrowded flats, and having less stable employment conditions in jobs where physical distancing is difficult. Asia-Pacific also accounts for around 65% of the global slum population, which typically have limited access to health care. Some efforts have been made across the Asia-Pacific region to support vulnerable groups during the pandemic, including the removal of financial barriers to COVID-19 related care.

By exposing prevailing gaps in care, the pandemic provides an incentive for Asia-Pacific countries and territories to accelerate progress towards UHC. Renewed policy attention is needed to guarantee that the entire population accesses high-quality health services without facing financial hardship. Making headway to universal health coverage will be an important stepping-stone to stronger health systems.

## Strengthen international collaboration

The COVID-19 pandemic has shed light on the need for multilateralism and a coordinated response at the national and international level. Timely and granular information is fundamental to ensure a rapid response. This requires continued efforts to strengthen digital health data infrastructures across the region, building on the successful experiences in countries like the Republic of Korea and Singapore. OECD and WHO will continue to support efforts to share on-going experiences, and identify and benchmark best practices across countries.

Poonam Khetrapal Singh
Regional Director,
WHO Regional Office for
South-East Asia



Takeshi Kasai,
Regional Director,
WHO Regional Office
for the Western Pacific

Stefano Scarpetta,
Director,
Directorate for Employment, Labour
and Social Affairs, OECD

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# Executive summary

*Health at a Glance: Asia/Pacific 2020* presents key indicators on health status, determinants of health, health care resources and utilisation, health expenditure and financing, and quality of care for 27 Asia-Pacific countries and territories. Countries and territories in the Asia-Pacific region are diverse, and their health issues and health systems often differ. However, these indicators provide a concise overview of the progress of countries and territories towards achieving universal health coverage for their population.

## COVID-19 has had major effects on countries and territories' health systems. Indeed, the global pandemic is making a difficult situation even worse as countries – in particular low- and middle-income ones – try to tackle the COVID-19 pandemic by diverting already limited resources away from essential health services.

- In terms of the overall health impact, India, the Philippines and the Hubei province in China were the most affected in the first nine months of 2020, based on data on COVID-19 reported deaths. Indonesia has also been badly hit by the virus. In contrast, most countries situated in the Indochinese peninsula as well as Pacific Islands countries have been less adversely affected to date.
- Prevention and treatment services for cancer, cardiovascular disease and diabetes as well as for HIV, tuberculosis and malaria have been severely disrupted since the COVID-19 pandemic began, in particular in low- and middle-income countries. The indirect effects of COVID-19 on pregnant women, newborns, young children and adolescents are also huge.

## Life expectancy increased by 6 years since 2000 to reach 70 years in 2018, but maternal mortality is still twice the Sustainable Development Goal target in lower-middle and low-income countries in the region

- Life expectancy at birth across lower-middle and low-income Asia-Pacific countries reached 70 years in 2018, an increase of 6 years since 2000. Upper-middle and high-income Asia-Pacific countries gained – on average – 4.5 and 4 years respectively, and OECD countries almost 4 years during the same period.
- The infant mortality rate has fallen dramatically in particular across the lower-middle and low-income Asia-Pacific countries since 2000, with a decline – on average – of 50%. At an average of 27.2 deaths per 1 000 live births in 2018, infant mortality in lower-middle and low-income Asia-Pacific countries is still seven times the high-income Asia-Pacific countries and OECD rate, and more than two times the SDG target of 12 deaths per 1 000 live births.

- Between 2000 and 2017, the average maternal mortality ratio across lower-middle and low-income Asia-Pacific countries was cut by half, but it is still high at 140 deaths per 100 000 live births, twice the SDG target of 70 deaths per 100 000 live births.

## The share of the population aged over 65 years and over 80 will more than double in the next four decades, with faster growth in middle- and low-income countries

- In high-income Asia-Pacific countries and territories, the share of population aged over 65 years is expected to almost double to reach – on average – 32.6% for females and 27.5% for males and in 2050, whereas the share of population aged over 80 years is expected to triple between 2020-50 to reach 13.3% for females and 9.7% for males.
- In lower-middle and low-income Asia-Pacific countries, the share of population over 65 and over 80 will be two and half and three times the current share, and reach 14.1% for females and 11% for males (population aged over 65 years) and 3.1% for females and 1.9% for males (population aged over 80 years).

## Almost half of health spending comes from payments made by households out-of-pocket in lower-middle and low-income countries

- Lower-middle and low-income Asia-Pacific countries spend – after adjusting for differences in prices across countries – just below USD 250 per person per year on health, against USD 689 and USD 3 712 in upper-middle-income and high-income Asia-Pacific countries respectively. This amounts to over 4% of gross domestic product (GDP), on average, in middle- and low-income Asia-Pacific countries, compared to 7.2% in high-income Asia-Pacific countries in 2017. On average, high-income countries reported an increase of 0.7 percentage points from 2010-17, twice the increase reported by upper-middle-income countries at 0.3 percentage points. The percentage of GDP spent on health in lower-middle and low-income countries did not change between 2010-17 (at 4% of GDP).
- The share of public spending in total health spending increased – on average – in all Asia-Pacific country income groups from 2010 to 2017, but it is much lower in lower-middle and low-income Asia-Pacific countries compared to upper-middle and high-income countries: 41.9% compared to 59.8% and 72.7%, respectively.
- On average, household out-of-pocket expenditure – that is, payments made directly by households for health services and goods – accounted for 47.4% of total health expenditure in lower-middle and low-income Asia-Pacific countries in 2017, a slight decrease in the percentage share but an increase in level from 2010.
- Curative and rehabilitative care services comprise the greatest share of spending – typically accounting for around 60% of all health spending across Asia-Pacific reporting countries. Medical goods (mostly retail pharmaceuticals) take up a further 17%, followed by a growing share on preventive care, which in 2017 averaged around 8% of health spending.

# *Reader's guide*

*Health at a Glance: Asia/Pacific* presents a set of key indicators on health and health systems for 27 Asia-Pacific countries and territories. It builds on the format used in previous editions of *Health at a Glance* to present comparable data on health status and its determinants, health care resources and utilisation, health care expenditure and financing and health care quality.

This publication was prepared jointly by the WHO Western Pacific Regional Office (WHO/WPRO), the WHO Office for South-East Asia (WHO/SEARO), the OECD and the OECD/Korea Policy Centre, under the co-ordination of Luca Lorenzoni from the OECD Health Division.

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Liv Gudmundson and Lucy Hulett (OECD) helped with the formatting and editing of the publication.

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This publication benefited from the comments and suggestions of Martin Robert Taylor, Director, Health Systems and Services (WHO/WPRO), Manoj Jhalani, Director, Health Systems Development (WHO/SEARO), Hwan Choi, Director of the OECD/Korea Policy Centre, and Francesca Colombo, Head of the OECD Health Division.

## Structure of the publication

*Health at a Glance: Asia/Pacific 2020* is divided into seven chapters:

Chapter 1 *Dashboards* shows a set of key indicators to compare performance across countries in each of the following dimensions: health status; risk factors; quality of care and health care resources. For each dimension, a set of five indicators is presented in the form of country dashboards. The indicators are selected based on their policy relevance, but also on data availability and interpretability.

Chapter 2 on *The impact of the COVID-19 outbreak on Asia-Pacific health systems* provides an overview of the human impact of COVID-19 and of government responses to the challenges posed by the COVID-19 crisis. It then considers the fiscal impact of the crisis, and discusses the vulnerability of health systems to the COVID-19 shock.

Chapter 3 on *Health status* highlights the variations across countries and territories in life expectancy and survival rate to age 65, infant and childhood mortality and major causes of mortality and morbidity, including both communicable and non-communicable diseases. It includes new indicators on Healthy life expectancy at birth and on Neonatal mortality.

Chapter 4 on *Determinants of health* focuses on non-medical determinants of health. It features the health of mothers and babies, through family planning issues, low birthweight and breastfeeding. It includes lifestyle and behavioural indicators such as smoking and alcohol drinking, unhealthy diets, and underweight and overweight, as well as water and sanitation. It includes also an indicator on road safety.

Chapter 5 on *Health care resources, utilisation and access* reviews some of the inputs, outputs and outcomes of health care systems. This includes the supply of doctors and nurses and hospital beds, as well as the provision of primary and secondary health care services, such as doctor consultations and hospital discharges, as well as a range of services surrounding pregnancy, childbirth and infancy.

Chapter 6 on *Health care expenditure and financing* examines trends in health spending across Asia-Pacific countries. It looks at how health services and goods are paid for, and the different mix between public funding, private health insurance, direct out-of-pocket payments by households and external resources. It also includes a new indicator on health expenditure by type of service.

Chapter 7 on *Health care quality* builds on the indicators used in the OECD's Health Care Quality Indicator programme to examine trends in health care quality improvement across Asia-Pacific countries and territories. It also includes a new indicator on incidence, survival and mortality for stomach cancer.

Annex A provides the list of national data sources used for this publication. Annex B provides some additional tables on the demographic context within which different health systems operate.

## Asia-Pacific countries and territories

For this sixth edition of *Health at a Glance: Asia/Pacific*, 27 countries and territories were compared: 22 in Asia (Bangladesh; Brunei Darussalam; Cambodia; China; Democratic People's Republic of Korea; Hong Kong, China; India; Indonesia; Japan; Lao People's Democratic Republic; Macau, China; Malaysia; Mongolia; Myanmar; Nepal; Pakistan; Philippines; Republic of Korea; Singapore; Sri Lanka; Thailand and Viet Nam), and five in the Pacific region (Australia, Fiji, New Zealand, Papua New Guinea and Solomon Islands).

## Selection and presentation of indicators

The indicators have been selected on the basis of being relevant to monitoring health systems performance, taking into account the availability and comparability of existing data in the Asia-Pacific region. The publication takes advantage of the routine administrative and programme data collected by the World Health Organization, especially the Regional Office for the Western Pacific and South-East Asia Regional Office, as well as country population surveys collecting demographic and health information.

The indicators are presented in the form of easy-to-read figures and explanatory text. Each of the topics covered in this publication is presented over two pages. The first page defines the indicator and notes any significant variations, which might affect data comparability. It also provides brief commentary highlighting the key findings conveyed by the data. On the facing page is a set of figures. These typically show current levels of the indicator and, where possible, trends over time. In some cases, an additional figure relating the indicator to another variable is included.

The cut date for all the data reported in this publication is Monday 5 October 2020.

## Averages

Countries and territories are classified into four income groups – high, upper-middle, lower-middle, and low – based on their Gross National Income (GNI) per capita (current USD) calculated using the

Atlas method (World Bank). The classification reported in the table below and used in this publication is the one updated on the 1 July 2019.

In text and figures, *Asia Pacific-H* refers to the unweighted average for high-income reporting Asia-Pacific countries and territories, *Asia Pacific-UM* refers to the unweighted average for upper-middle income reporting Asia Pacific countries, and *Asia Pacific-LM/L* refers to the unweighted average for lower-middle and low income reporting countries.

"OECD" refers to the unweighted average for the 37 OECD member countries. It includes Australia, Japan, New Zealand and the Republic of Korea. Data for OECD countries are generally extracted from OECD sources, unless stated otherwise.

Even if from a statistical viewpoint the use of a population-weighted average is sound, the unweighted average used in this report allows for a better representation of levels and trends observed in countries and territories with small population numbers.

## Country and territory ISO codes, Gross National Income per capita, and classification by income level

| Country/territory | ISO code | Gross National Income per capita in international dollars (2018) | World Bank classification by income level | Classification used in this report |
|---|---|---|---|---|
| Australia | AUS | 49440 | High | H |
| Bangladesh | BGD | 4760 | Lower-middle | LM/L |
| Brunei Darussalam | BRN | 62820 | High | H |
| Cambodia | KHM | 3970 | Lower-middle | LM/L |
| China | CHN | 15329 | Upper-middle | UM |
| Fiji | FJI | 13180 | Upper-middle | UM |
| Hong Kong, China | HKG | 65850 | High | H |
| India | IND | 6630 | Lower-middle | LM/L |
| Indonesia | IDN | 11290 | Lower-middle | LM/L |
| Japan | JPN | 43010 | High | H |
| Korea, DPR | PRK | | Low | LM/L |
| Korea, Rep. | KOR | 39630 | High | H |
| Lao PDR | LAO | 7410 | Lower-middle | LM/L |
| Macao, China | MAC | 124120 | High | H |
| Malaysia | MYS | 27200 | Upper-middle | UM |
| Mongolia | MNG | 11050 | Lower-middle | LM/L |
| Myanmar | MMR | 4860 | Lower-middle | LM/L |
| Nepal | NPL | 3360 | Low | LM/L |
| New Zealand | NZL | 40550 | High | H |
| Pakistan | PAK | 5110 | Lower-middle | LM/L |
| Papua New Guinea | PNG | 4220 | Lower-middle | LM/L |
| Philippines | PHL | 9980 | High | LM/L |
| Singapore | SGP | 92150 | High | H |
| Solomon Islands | SLB | 2320 | Lower-middle | LM/L |
| Sri Lanka | LKA | 12900 | Upper-middle | UM |
| Thailand | THA | 17650 | Upper-middle | UM |
| Viet Nam | VNM | 7230 | Lower-middle | LM/L |

# *Acronyms and abbreviations*

| | |
|---|---|
| **AIDS** | Acquired immunodeficiency syndrome |
| **ALOS** | Average length of stay |
| **ART** | Antiretroviral treatment |
| **BMI** | Body mass index |
| **DALYs** | Disability-adjusted life years |
| **DHS** | Demographic and Health Surveys |
| **DTP** | Diphtheria-tetanus-pertussis |
| **FAO** | Food and Agriculture Organization of the United Nations |
| **GBD** | Global burden of disease |
| **GDP** | Gross domestic product |
| **HIV** | Human immunodeficiency virus |
| **IARC** | International Agency for Research on Cancer |
| **IDF** | International Diabetes Federation |
| **IHD** | Ischemic heart disease |
| **MDG** | Millennium Development Goals |
| **MMR** | Maternal mortality ratio |
| **OECD** | Organisation for Economic Co-operation and Development |
| **PPP** | Purchasing power parities |
| **SEARO** | WHO Regional Office for South-East Asia |
| **SHA** | System of Health Accounts |
| **TB** | Tuberculosis |
| **UN** | United Nations |
| **UNAIDS** | Joint United Nations Programme on HIV/AIDS |
| **UNDESA** | United Nations, Department of Economic and Social Affairs, Population Division |
| **UNESCAP** | United Nations Economic and Social Commission for Asia and the Pacific |
| **UNICEF** | United Nations Children's Fund |
| **WHO** | World Health Organization |
| **WPRO** | WHO Regional Office for the Western Pacific |

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*Chapter 1*

# Country and territory dashboards

The aim of this chapter is to show a set of key indicators to compare performance across countries and territories in each of the following dimensions:

- Health status
- Risk factors for health
- Quality of care
- Health care resources

For each dimension, a set of five indicators is presented in the form of country and territories dashboards. The indicators are selected based on their policy relevance, but also on data availability and interpretability. Indicators where coverage is highest are therefore prioritised.

In order to assess comparative performance across countries and territory, each country/territory is classified for every indicator based on how they compare against the income group-specific median. Therefore, countries and territories significantly above/below their respective group median will be classified as better/worse than median (▲/▼), with the remaining countries and territories classified as close to the median (◉).

**Methodology**

In order to allow for cross-country comparisons of performance, countries and territories are split according to their income group (high income, upper-middle income, lower-middle and low income). The central tendency measures presented, for all indicators and income groups, are medians.

In order to classify countries and territories as “better than”, “close to”, or “worse than” the central tendency of any indicator, a measure of statistical dispersion is needed to compute the reasonable range for values close to the central tendency value, with anything above or below classified accordingly. The preferred measure is the Median Absolute Deviation (MAD), since it is a robust measure that is both more efficient and less biased than a simple standard deviation when outliers are present.

Countries and territories are classified as “better than median” if they lie above the median + 1 MAD, “worse than median” if they lie below the median – 1 MAD, and “close to the median” if they lie within ± 1 MAD from the median. Given the nature of the indicators presented, for “under age 5 mortality rate” and “smoking”, “alcohol consumption” and “children and adolescent overweight”, countries and territories are classified as “better than median” if they lie below the median - 1 MAD, “worse than median” if they lie above the median + 1 MAD, and “close to the median” if they lie within ± 1 MAD from the median.

## Health status

The five indicators used to compare health status are life expectancy at birth for females (2018), life expectancy at birth for males (2018), survival to age 65 for females (2018), survival to age 65 for males (2018), and under age 5 mortality rate per 1 000 live births (2018).

Table 1.1. **Dashboard on health status**

▲ Better than ◉ Close to ▼ Worse than group-specific central tendency

| Country | LE (F) at birth | | LE (M) at birth | | Survival to age 65 (F) | | Survival to age 65 (M) | | Under age 5 mortality rate | |
|---|---|---|---|---|---|---|---|---|---|---|
| | In years | | In years | | % | | % | | Per 1 000 live births | |
| **High income** | **85.6** | | **80.9** | | **94.4** | | **89.4** | | **3.2** | |
| Australia | 84.9 | ◉ | 80.7 | ◉ | 93.6 | ◉ | 89.5 | ◉ | 3.7 | ◉ |
| Brunei Darussalam | 77.0 | ▼ | 74.6 | ▼ | 84.4 | ▼ | 78.1 | ▼ | 11.6 | ▼ |
| Hong Kong, China | 87.7 | ▲ | 82.3 | ▲ | 94.8 | ◉ | 90.1 | ◉ | 2.6 | ◉ |
| Japan | 87.3 | ◉ | 81.3 | ◉ | 94.5 | ◉ | 89.2 | ◉ | 2.5 | ◉ |
| Korea, Rep. | 85.7 | ◉ | 79.7 | ◉ | 95.1 | ◉ | 88.0 | ◉ | 3.2 | ◉ |
| Macau, China | 87.1 | ◉ | 81.1 | ◉ | 96.0 | ◉ | 90.5 | ◉ | | |
| New Zealand | 83.6 | ◉ | 80.2 | ◉ | 92.3 | ▼ | 88.7 | ◉ | 5.7 | ▼ |
| Singapore | 85.4 | ◉ | 81.0 | ◉ | 94.2 | ◉ | 90.1 | ◉ | 2.8 | ◉ |
| **Upper-middle income** | **79.1** | | **73.4** | | **87.6** | | **76.6** | | **8.6** | |
| China | 79.1 | ◉ | 74.5 | ◉ | 89.0 | ◉ | 83.3 | ▲ | 8.6 | ◉ |
| Fiji | 69.2 | ▼ | 65.6 | ▼ | 72.9 | ▼ | 62.3 | ▼ | 25.6 | ▼ |
| Malaysia | 78.2 | ◉ | 74.1 | ◉ | 86.8 | ◉ | 76.6 | ◉ | 7.8 | ◉ |
| Sri Lanka | 80.1 | ◉ | 73.4 | ◉ | 90.6 | ◉ | 77.9 | ◉ | 7.4 | ◉ |
| Thailand | 80.7 | ◉ | 73.2 | ◉ | 87.6 | ◉ | 74.4 | ◉ | 9.1 | ◉ |
| **Lower-middle and low income** | **72.8** | | **67.8** | | **78.7** | | **68.6** | | **29.3** | |
| Bangladesh | 74.3 | ◉ | 70.6 | ▲ | 79.6 | ◉ | 73.8 | ▲ | 30.2 | ◉ |
| Cambodia | 71.6 | ◉ | 67.3 | ◉ | 77.6 | ◉ | 67.9 | ◉ | 28.0 | ◉ |
| India | 70.7 | ◉ | 68.2 | ◉ | 74.6 | ▼ | 68.6 | ◉ | 36.6 | ◉ |
| Indonesia | 73.7 | ◉ | 69.4 | ◉ | 79.7 | ◉ | 71.5 | ◉ | 25.0 | ◉ |
| Korea, DPR | 75.5 | ◉ | 68.4 | ◉ | 82.7 | ▲ | 70.7 | ◉ | 18.2 | ▲ |
| Lao PDR | 69.4 | ▼ | 65.8 | ◉ | 73.8 | ▼ | 66.2 | ◉ | 47.3 | ▼ |
| Mongolia | 74.0 | ◉ | 65.6 | ▼ | 79.4 | ◉ | 59.3 | ▼ | 16.3 | ▲ |
| Myanmar | 69.9 | ▼ | 63.8 | ▼ | 74.7 | ▼ | 61.6 | ▼ | 46.2 | ▼ |
| Nepal | 71.9 | ◉ | 69.0 | ◉ | 78.1 | ◉ | 71.9 | ◉ | 32.2 | ◉ |
| Pakistan | 68.1 | ▼ | 66.2 | ◉ | 72.9 | ▼ | 68.6 | ◉ | 69.3 | ▼ |
| Papua New Guinea | 65.6 | ▼ | 63.0 | ▼ | 68.5 | ▼ | 60.4 | ▼ | 47.8 | ▼ |
| Philippines | 75.4 | ◉ | 67.1 | ◉ | 79.6 | ◉ | 65.0 | ◉ | 28.4 | ◉ |
| Solomon Islands | 74.7 | ◉ | 71.2 | ▲ | 80.3 | ◉ | 74.0 | ▲ | 20.0 | ◉ |
| Viet Nam | 79.4 | ▲ | 71.2 | ▲ | 86.8 | ▲ | 72.0 | ◉ | 20.7 | ◉ |

## Risk factors

The five indicators used to compare risk factors are the age-standardised prevalence estimates for daily tobacco smoking among persons aged 15 and above (2018), recorded alcohol consumption in litres per capita among persons aged 15 and above (2016), the share of population with access to basic sanitation (latest year available), the share of population with access to basic drinking water (latest year available) and the prevalence of overweight among children and adolescent (2016).

Table 1.2. **Dashboard on risk factors for health**

▲ Better than ◉ Close to ▼ Worse than group-specific central tendency

| Country | Smoking | | Alcohol consumption | | Access to basic sanitation | | Access to basic drinking water | | Children and adolescents overweight | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % of daily smokers | | Litres per capita | | % population | | % population | | % population aged 5-19 years | |
| **High income** | **14.1** | | **6.5** | | **100.0** | | **100.0** | | **26.9** | |
| Australia | 12.2 | ◉ | 9.7 | ▼ | 100.0 | ◉ | 100.0 | ◉ | 34.1 | ▼ |
| Brunei Darussalam | 11.5 | ◉ | 0.6 | ▲ | 96.0 | ▼ | 100.0 | ◉ | 26.8 | ◉ |
| Hong Kong, China | 14.9 | ◉ | 2.8 | ▲ | 97.0 | ▼ | 100.0 | ◉ | | |
| Japan | 18.3 | ▼ | 6.9 | ◉ | 100.0 | ◉ | 99.0 | ▼ | 14.2 | ▲ |
| Korea, Rep. | 20.6 | ▼ | 9.1 | ◉ | 100.0 | ◉ | 100.0 | ◉ | 26.9 | ◉ |
| Macau, China | 25.1 | ▼ | 6.1 | ◉ | | | 100.0 | ◉ | | |
| New Zealand | 13.1 | ◉ | 9.2 | ◉ | 100.0 | ◉ | 100.0 | ◉ | 39.5 | ▼ |
| Singapore | 13.3 | ◉ | 1.8 | ▲ | 100.0 | ◉ | 100.0 | ◉ | 22.4 | ◉ |
| **Upper-middle income** | **16.9** | | **2.7** | | **96.0** | | **94.0** | | **26.5** | |
| China | 21.5 | ▼ | 5.7 | ▼ | 85.0 | ▼ | 93.0 | ◉ | 28.5 | ◉ |
| Fiji | 16.4 | ◉ | 2.2 | ◉ | 95.0 | ◉ | 94.0 | ◉ | 34.4 | ▼ |
| Malaysia | 17.6 | ◉ | 0.6 | ▲ | 100.0 | ▲ | 97.0 | ◉ | 26.5 | ◉ |
| Sri Lanka | 10.2 | ▲ | 2.7 | ◉ | 96.0 | ◉ | 89.0 | ▼ | 12.9 | ▲ |
| Thailand | 16.9 | ◉ | 6.6 | ▼ | 99.0 | ◉ | 100.0 | ▲ | 22.1 | ◉ |
| **Lower-middle and low income** | **18.7** | | **3.1** | | **61.0** | | **89.0** | | **12.2** | |
| Bangladesh | 18.9 | ◉ | | | 48.0 | ◉ | 97.0 | ◉ | 9.0 | ◉ |
| Cambodia | 15.3 | ◉ | 3.5 | ◉ | 59.0 | ◉ | 79.0 | ▼ | 11.3 | ◉ |
| India | 10 | ▲ | 3.0 | ◉ | 60.0 | ◉ | 93.0 | ◉ | 6.8 | ▲ |
| Indonesia | 27.6 | ▼ | 0.3 | ▲ | 73.0 | ◉ | 89.0 | ◉ | 15.4 | ◉ |
| Korea, DPR | 13 | ▲ | 3.4 | ◉ | 83.0 | ▲ | 95.0 | ◉ | 22.9 | ▼ |
| Lao PDR | 23.7 | ▼ | 6.8 | ▼ | 74.0 | ◉ | 82.0 | ◉ | 13.6 | ◉ |
| Mongolia | 21.4 | ◉ | 5.7 | ▼ | 58.0 | ◉ | 83.0 | ◉ | 17.8 | ▼ |
| Myanmar | 15.3 | ◉ | 1.6 | ◉ | 64.0 | ◉ | 82.0 | ◉ | 11.6 | ◉ |
| Nepal | 14.4 | ◉ | 0.6 | ▲ | 62.0 | ◉ | 89.0 | ◉ | 7.5 | ◉ |
| Pakistan | 15.7 | ◉ | | | 60.0 | ◉ | 91.0 | ◉ | 9.7 | ◉ |
| Papua New Guinea | 31.1 | ▼ | 0.7 | ▲ | 13.0 | ▼ | 41.0 | ▼ | 31.7 | ▼ |
| Philippines | 18.7 | ◉ | 4.6 | ◉ | 77.0 | ▲ | 94.0 | ◉ | 12.8 | ◉ |
| Solomon Islands | 29.7 | ▼ | 1.0 | ◉ | 34.0 | ▼ | 68.0 | ▼ | 23.1 | ▼ |
| Viet Nam | 18.7 | ◉ | 3.1 | ◉ | 84.0 | ▲ | 95.0 | ◉ | 9.7 | ◉ |

## Quality of care

The five indicators used to compare quality of care are the five-year net survival rate for breast cancer, lung cancer and stomach cancer among persons aged 15 and above (2010-14), and vaccination rates for diphtheria tetanus toxoid and pertussis (DTP3) and measles (MCV) among children aged around 1 (2019). This dashboard does not split countries and territories across income groups due to data coverage limitations for the five-year net survival rates.

Table 1.3. **Dashboard on quality of care**

▲ Better than ◉ Close to ▼ Worse than central tendency

| Country | Breast cancer | | Lung cancer | | Stomach cancer | | Vaccination for DTP3 | | Vaccination for measles | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Five-year net survival rate | | Five-year net survival rate | | Five-year net survival rate | | Coverage (%), children aged around 1 | | Coverage (%), children aged around 1 | |
| **Median** | **83.2** | | **15.5** | | **30.3** | | **95.0** | | **95.0** | |
| Australia | 89.5 | ◉ | 19.4 | ◉ | 31.8 | ◉ | 95.0 | ◉ | 95.0 | ◉ |
| Bangladesh | | | | | | | 98.0 | ◉ | 97.0 | ◉ |
| Brunei Darussalam | | | | | | | 99.0 | ◉ | 97.0 | ◉ |
| Cambodia | | | | | | | 92.0 | ◉ | 84.0 | ▼ |
| China | 83.2 | ◉ | 19.8 | ◉ | 35.9 | ◉ | 99.0 | ◉ | 99.0 | ◉ |
| Fiji | | | | | | | 99.0 | ◉ | 96.0 | ◉ |
| Hong Kong, China | 83.3 | ◉ | | | | | 91.0 | ◉ | 95.0 | ◉ |
| India | 66.1 | ▼ | 3.7 | ▼ | 8.9 | ▼ | 85.0 | ▼ | 88.0 | ◉ |
| Indonesia | | | | | | | 98.0 | ◉ | 96.0 | ◉ |
| Japan | 89.4 | ◉ | 32.9 | ▲ | 60.3 | ▲ | 97.0 | ◉ | 98.0 | ◉ |
| Korea, DPR | | | | | | | 98.0 | ◉ | 98.0 | ◉ |
| Korea, Rep. | 86.6 | ◉ | 25.1 | ▲ | 68.9 | ▲ | 68.0 | ▼ | 69.0 | ▼ |
| Lao PDR | | | | | | | 98.0 | ◉ | 97.0 | ◉ |
| Macau, China | | | | | | | 98.0 | ◉ | 98.0 | ◉ |
| Malaysia | 65.0 | ▼ | 10.1 | ◉ | 30.0 | ◉ | 90.0 | ◉ | 84.0 | ▼ |
| Mongolia | 76.1 | ◉ | | | | | 93.0 | ◉ | 92.0 | ◉ |
| Myanmar | | | | | | | 92.0 | ◉ | 92.0 | ◉ |
| Nepal | | | | | | | 75.0 | ▼ | 75.0 | ▼ |
| New Zealand | 87.6 | ◉ | 15.3 | ◉ | 25.7 | ◉ | 35.0 | ▼ | 37.0 | ▼ |
| Pakistan | | | | | | | 65.0 | ▼ | 67.0 | ▼ |
| Papua New Guinea | | | | | | | 96.0 | ◉ | 95.0 | ◉ |
| Philippines | | | | | | | 94.0 | ◉ | 81.0 | ▼ |
| Singapore | 80.3 | ◉ | 15.5 | ◉ | 30.3 | ◉ | 99.0 | ◉ | 99.0 | ◉ |
| Solomon Islands | | | | | | | 97.0 | ◉ | 75.0 | ▼ |
| Sri Lanka | | | | | | | 89.0 | ◉ | 95.0 | ◉ |
| Thailand | 68.7 | ▼ | 8.6 | ▼ | 12.5 | ▼ | 95.0 | ◉ | 95.0 | ◉ |
| Viet Nam | | | | | | | 98.0 | ◉ | 97.0 | ◉ |

## Health care resources

The five indicators used to compare health care resources are health expenditure per capita in USD international (2017), the share of out-of-pocket (OOP) spending in total current health spending (2017), the number of doctors per 1 000 population (latest year available), the number of nurses per 1 000 population (latest year available), and the number of hospital beds per 1 000 population (latest year available). Given the nature of the indicators presented, whereas they cannot be classified as better or worse performance, the arrows simply imply that the values are significantly higher or lower than the median.

Table 1.4. **Dashboard on health care resources**

▲ Higher than ◉ Close to ▼ Lower than central tendency

| Country | Health spending | | OOP spending | | Doctors per 1 000 population | | Nurses per 1 000 population | | Hospital beds per 1 000 population | |
|---|---|---|---|---|---|---|---|---|---|---|
| | USD international per capita | | Share of health spending | | Number | | Number | | Number | |
| **High income** | **4018.8** | | **15.9** | | **2.4** | | **7.4** | | **3.4** | |
| Australia | 4816.2 | ▲ | 18.2 | ◉ | 3.7 | ▲ | 11.7 | ▲ | 3.8 | ◉ |
| Brunei Darussalam | 1875 | ▼ | 5.2 | ▼ | 1.6 | ▼ | 5.9 | ◉ | 2.9 | ◉ |
| Hong Kong, China | | | | | 2.0 | ◉ | 7.6 | ◉ | 4.1 | ◉ |
| Japan | 4563.5 | ◉ | 12.8 | ◉ | 2.4 | ◉ | 12.2 | ▲ | 13.1 | ▲ |
| Korea, Rep. | 2980.2 | ▼ | 33.7 | ▲ | 2.4 | ◉ | 7.3 | ◉ | 12.3 | ▲ |
| Macau, China | | | | | 2.6 | ◉ | 3.7 | ▼ | 2.5 | ◉ |
| New Zealand | 3767.5 | ◉ | 13.6 | ◉ | 3.6 | ▲ | 11.9 | ▲ | 2.6 | ◉ |
| Singapore | 4270 | ◉ | 32.1 | ▲ | 2.3 | ◉ | 6.2 | ◉ | 2.0 | ◉ |
| **Upper-middle income** | **670.9** | | **36.1** | | **1.0** | | **2.8** | | **2.1** | |
| China | 841.1 | ◉ | 36.1 | ◉ | 2.0 | ▲ | 2.7 | ◉ | 5.9 | ▲ |
| Fiji | 322.8 | ▼ | 15.6 | ▼ | 0.9 | ◉ | 3.4 | ▲ | 2.0 | ◉ |
| Malaysia | 1139 | ▲ | 37.9 | ◉ | 1.5 | ▲ | 3.5 | ▲ | 1.3 | ◉ |
| Sri Lanka | 503.6 | ◉ | 49.8 | ▲ | 1.0 | ◉ | 1.7 | ▼ | 3.9 | ▲ |
| Thailand | 670.9 | ◉ | 11.1 | ▼ | 0.8 | ◉ | 2.8 | ◉ | 2.1 | ◉ |
| **Lower-middle and low income** | **238.2** | | **53.0** | | **0.6** | | **1.3** | | **1.0** | |
| Bangladesh | 94.3 | ▼ | 73.9 | ▲ | 0.6 | ◉ | 0.4 | ◉ | 0.8 | ◉ |
| Cambodia | 238.2 | ◉ | 60.4 | ◉ | 0.2 | ◉ | 0.7 | ◉ | 0.9 | ◉ |
| India | 253.3 | ◉ | 62.4 | ◉ | 0.9 | ◉ | 1.7 | ◉ | 0.7 | ◉ |
| Indonesia | 367.9 | ▲ | 34.1 | ▼ | 0.4 | ◉ | 1.5 | ◉ | 1.0 | ◉ |
| Korea, DPR | | | | | 3.7 | ▲ | 4.1 | ▲ | 14.3 | ▲ |
| Lao PDR | 177.9 | ◉ | 46.2 | ◉ | 0.4 | ◉ | 1.0 | ◉ | 1.5 | ◉ |
| Mongolia | 518.1 | ▲ | 32.2 | ▼ | 2.9 | ▲ | 3.9 | ▲ | 8.0 | ▲ |
| Myanmar | 287.6 | ◉ | 76.2 | ▲ | 0.7 | ◉ | 0.7 | ◉ | 1.0 | ◉ |
| Nepal | 150.1 | ◉ | 57.8 | ◉ | 0.7 | ◉ | 3.1 | ▲ | 1.2 | ◉ |
| Pakistan | 160.6 | ◉ | 60.2 | ◉ | 1.0 | ◉ | 0.5 | ◉ | 0.6 | ◉ |
| Papua New Guinea | 103.9 | ▼ | 9.0 | ▼ | 0.1 | ◉ | 0.4 | ◉ | | |
| Philippines | 371.7 | ▲ | 53.0 | ◉ | 0.6 | ◉ | 4.9 | ▲ | 1.0 | ◉ |
| Solomon Islands | 115.2 | ▼ | 5.4 | ▼ | 0.2 | ◉ | 2.2 | ◉ | 1.4 | ◉ |
| Viet Nam | 375.6 | ▲ | 45.3 | ◉ | 0.8 | ◉ | 1.1 | ◉ | 2.6 | ◉ |

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*Chapter 2*

# The impact of the COVID-19 outbreak on Asia-Pacific health systems

*This chapter provides an overview of the impact of the COVID-19 pandemic on Asia-Pacific health systems, and of government responses to the challenges posed by the COVID-19 crisis. It then discusses the vulnerability of health systems to the COVID-19 shock, in terms of workforce, intensive care unit beds, different sources of health care financing, and testing and contact tracing systems. It also looks at delayed and foregone care for non-communicable diseases, HIV, tuberculosis and malaria as well as rising health needs for mental health due to COVID-19.*

*COVID-19 has had major effects on countries and territories' economies and health systems. Much remains unknown as to how COVID-19 will affect health spending and the different sources of health financing across Asia-Pacific countries and territories. However, it is critical to ensure that economic pressures - either during or after the pandemic has ended - do not divert already limited resources away from essential health services in low- and middle-income countries.*

## Introduction

The COVID-19[1] pandemic is the most serious global threat to public health in a century. The first reports of a cluster of novel coronavirus came in December 2019 in the Wuhan city of Hubei Province in China. The World Health Organization (WHO) declared COVID-19 a pandemic on 11 March 2020. Due to the proximity and various links to China, COVID-19 has badly hit Asia early on, along with several Pacific islands countries. As of 5 October 2020, cumulative cases in the region have reached over 8.3 million, and deaths have reached over 140 000 (ADB, 2020[1]). However, countries and territories in this report experienced very different impacts, from extensive deaths in India to a limited number of losses in New Zealand and the Republic of Korea.

The direct health impacts – deaths, hospitalisations and long-term complications – from COVID-19 are compounded by the indirect impacts in terms of foregone and delayed care for other health conditions. Prevention and treatment services for non-communicable diseases as well as for HIV, tuberculosis and malaria have been severely disrupted since the COVID-19 pandemic began. This could lead to a substantial number of additional deaths and years of life lost, in particular in low- and middle-income Asia-Pacific countries. The indirect effects of COVID-19 on pregnant women, newborns, young children and adolescents are also likely to be significant. Countries must also respond to the mental health consequences of the pandemic, which are considerable and likely to persist.

In response to the pandemic, governments have promptly put in place strict containment and mitigation policies to minimise the risk of transmission, to slow the spread of the virus and, in some places, to suppress transmission completely. Also because of their experience with previous SARS and MERS outbreaks, Asia-Pacific governments responded early to the COVID-19 outbreak compared with other region of the world (IMF, 2020[2]).

Across Asia and the Pacific, governments have also introduced countercyclical fiscal and monetary policies. While many measures have been taken to protect jobs, businesses, and ease the strain on health systems, they are not without consequence. Higher government spending and lower revenue collection has driven increased government borrowing, leading to surges in public debt. As a result, the fiscal deficit in Asia-Pacific reporting countries and territories is projected to increase, on average, by more than 3 percentage points of GDP in 2020 compared to 2015-19 to reach 5.9% of GDP (IMF, 2020[3]).

As shown in this report, the health systems in low- and lower-middle-income Asia-Pacific countries have limited capacity and heavily depend on household out-of-pocket spending. Much remains unknown as to how much COVID-19 will affect the different sources of health financing and service delivery across Asia-Pacific countries and territories. However, the significant cost of the

COVID-19 response may not fully be within the financial capacity of low- and lower-middle-income countries.

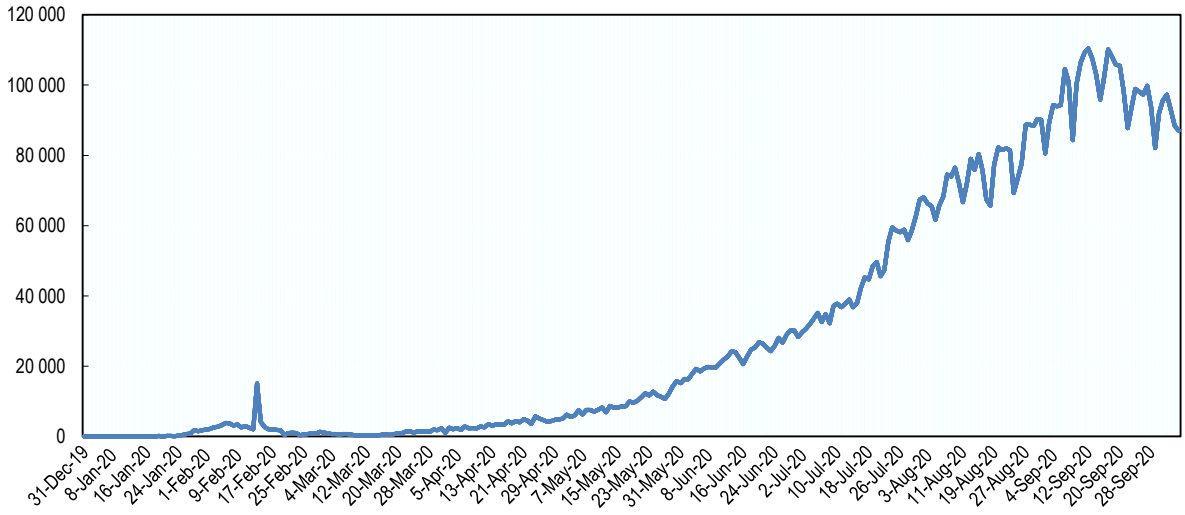
## The health impact of COVID-19

### *The incidence of COVID-19 in Asia-Pacific countries is significant, and for some, still rising*

Wuhan city of Hubei Province in China reported the first cluster of COVID-19 cases in December 2019. More cases have been reported across the Asia-Pacific region and worldwide. As of 5 October 2020, cumulative cases in the region have reached over 8.3 million – one fourth of the total cases reported in the world -, with a cumulative incidence of 2 060.2 per million population[2].

Despite China reaching its peak in February 2020 with nearly 60 000 total cases, other parts of Asia and the Pacific continue to see upwards trends (Figure 2.1). Notably, at the beginning of October in India daily new cases remain at around 80 000, making it the worst hit country in terms of cases in absolute terms. In the Philippines too, daily cases have continued to rise through mid-July and August.

Figure 2.1. **Daily new cases of COVID-19 in Asia-Pacific up to 5 October 2020**




Source: ADB, 2020.

Adjusting for population size, Singapore reported the highest number of total cases per population, totalling over 10 000 cases per 1 million people up to the 5 October 2020[3]. Following this, India and Wuhan city reported 5 000 cases or more per 1 million people. In contrast, Lao PDR, Myanmar and Viet Nam reported less than 18 cases per 1 million people (Table 2.1).

### *The loss of human life is considerable*

While the majority of people who are infected with COVID-19 recover, the death toll in Asia-Pacific is considerable, and many of those who recovered from the acute stage continue to suffer for months with fatigue and other symptoms. Death rates are highest among elderly populations, and those with pre-existing health conditions. Deaths in the Asia-Pacific region attributed to COVID-19[4] have increased over time (Figure 2.2) and reached over 140 300 – around 12% of the deaths reported in the world – at the beginning of October 2020[5]. Of this, in absolute terms, India suffered the highest number of deaths, reaching over 102 600.

Table 2.1. **COVID-19 cases and deaths by Asia-Pacific country and territory as of 5 October 2020**

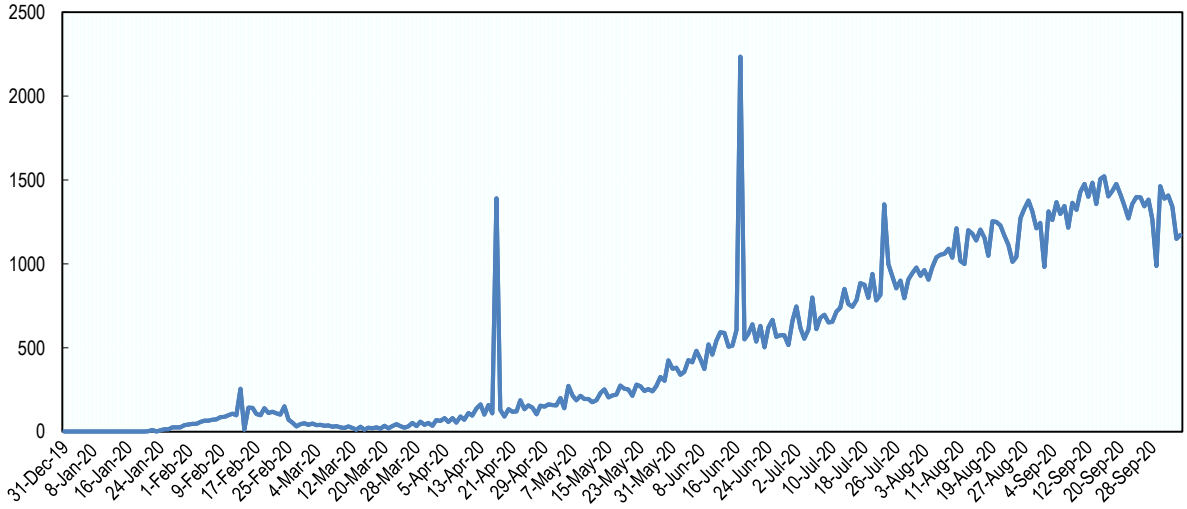
| Country/territory | Cumulative cases per 1 000 000 population | Cumulative deaths per 1 000 000 population |
|---|---|---|
| Australia | 1 085.8 | 35.8 |
| Bangladesh | 2 284.9 | 33.1 |
| Brunei Darussalam | 340.4 | 7.0 |
| Cambodia | 17.2 | 0.0 |
| China | 61.4 | 3.3 |
| - Hubei Province | 1 149.6 | 76.1 |
| - Wuhan city | 5 554.3 | 426.9 |
| Fiji | 36.2 | 2.3 |
| Hong Kong, China | 687.8 | 14.1 |
| India | 4 897.0 | 75.9 |
| Indonesia | 1 133.9 | 41.7 |
| Japan | 677.6 | 12.6 |
| Korea, Rep. | 466.0 | 8.1 |
| Lao PDR | 3.3 | 0.0 |
| Macau, China | 72.8 | 0.0 |
| Malaysia | 392.7 | 4.3 |
| Mongolia | 99.0 | 0.0 |
| Myanmar | 331.3 | 7.7 |
| Nepal | 3 091.1 | 19.0 |
| New Zealand | 306.8 | 5.1 |
| Pakistan | 1 482.5 | 30.7 |
| Papua New Guinea | 62.7 | 0.8 |
| Philippines | 3 023.8 | 54.2 |
| Singapore | 10 252.8 | 4.8 |
| Sri Lanka | 157.0 | 0.6 |
| Thailand | 51.7 | 0.8 |
| Viet Nam | 11.5 | 0.4 |

Note: As in more than 40% of China's counties not even a single COVID-19 case has been identified, the table shows also the cumulative cases and deaths in the Hubei Province and Wuhan city, the geographical areas most hit by the pandemic in China. Solomon Islands reported no cases as of 5 October 2020.
Source: ADB (2020[1]) *COVID-19 Policy Database*; National Health Commission, China, for Hubei Province and Wuhan City data.

Adjusting for population, Wuhan city reported the highest number of deaths from coronavirus, with over 426 deaths per 1 million people. Following this, India reported over 75 deaths per 1 million people, and Australia, Bangladesh, Indonesia, Pakistan and the Philippines reported over 30 deaths per 1 million people (Table 2.1). Meanwhile, Papua New Guinea, Sri Lanka, Thailand, and Viet Nam reported less than one death per million people, while Cambodia; Lao PDR; Macau, China; and Mongolia reported no deaths from COVID-19.

Variation in population density, the rural-urban composition, the degree of international visitors, as well as demographic characteristics, among others, may well explain these observed differences in death rates.

Figure 2.2. **Daily reported COVID-19 deaths in Asia-Pacific up to 5 October 2020**




Note: The peak on the 16 April is explained by the high number of deaths added for Wuhan city (China) on that day, whereas the peak on the 17 June is explained by the high number of deaths reported in India on that day.
Source: ADB (2020[1]) *COVID-19 Policy Database*.

## Containment and mitigation, and fiscal policies

### *Stringent containment and mitigation policies were employed across much of Asia-Pacific*

Containment and mitigation policies aim to minimise the risk of transmission of COVID-19 from infected to non-infected individuals in order to prevent the virus from accelerating exponentially, or at least to substantially reduce its growth rate, and also aim to avoid health systems to become completely overwhelmed (OECD, 2020[4]). Policies can be grouped into three broad categories:

- Social or physical distancing measures, such as closing workplaces and non-essential services, school closures, banning mass gatherings, and travel restrictions;.
- Improved personal and environmental hygiene, including the use of personal protective equipment; and
- Testing, tracking and tracing of infected individuals, with confinement of infected persons and their close contacts.

Data from Oxford's COVID-19 Government Response Tracker (OxCGRT) were used to compare government responses across Asia-Pacific countries and territories and over time Box 2.1.

In order to compare the stringency of government policies across Asia-Pacific countries and territories, each country/territory is classified based on how they compare against the Asia-Pacific median. Therefore, countries and territories government policies significantly above/below the median will be classified as "more stringent"/"less stringent" than median (▲/▼), with the remaining countries and territories classified as close to the median (◉) (Table 2.2).

Compared to the 179 countries covered by the Oxford database, Asia-Pacific countries and territories government policies were slightly more stringent than the global average at the end of the first quarter 2020 (67.3 vs 66.8), while they were similar at the end of the second quarter (62.2), and at the end of August 2020 (57.9). India and Nepal are the only countries that systematically reported policies that were more stringent then the Asia-Pacific median over time. On the contrary, policies in Brunei Darussalam, Cambodia, Japan and Macau, China were systematically less stringent. Across Asia-Pacific countries and territories, policies were more stringent at the end of the first quarter 2020 compared to the end of the second quarter 2020 and to the end of August 2020.

### Box 2.1. **The Oxford's government response index**

OxCGRT collects information on government policy measures across 17 indicators, organised into four groups: containment and closure policies, economic policies, health system policies and miscellaneous policies. This OECD report is using the "government response index" to measure the government responses across Asia-Pacific countries and territories at three points in time, namely the end of the first quarter 2020, the end of the second quarter 2020 and at the end of August. This index uses scores assigned to each of the following policies: school closures; workplace closures; public event cancellations; restrictions on gatherings; public transportation closures; stay-at-home orders; restrictions on internal movement; international travel bans; income support for households; debt/contract relief for households; public information campaigns; testing policy; and contact tracing. The database assigns a score to the stringency of each measure by, for example, depicting whether the measure is a recommendation or a requirement and whether it is targeted or nation-wide. The higher the score, the more active/stringent government policies in the specific field. As an example, a score of 0 is assigned to "restrictions on gatherings" if there are no restrictions, whereas a score of 4 is assigned if restrictions on gatherings of ten people or less are in place. And a score of 0 is assigned if there are no restrictions to international travels, while a score of 4 is assigned if a total border closure is in place.

The government response index aggregates policy responses into indices between 1 and 100 to reflect the level of government action. A high score – meaning a high level of stringency of government measures – does not imply that a country/territory has necessarily been more appropriate or effective in its response.

Source: Hale et al. (2020[5]), *Oxford COVID-19 Government Response Tracker*, *https://covidtracker.bsg.ox.ac.uk/*.

### Table 2.2. **Stringency of government policies in Asia-Pacific countries and territories according to the Oxford "government response index"**

| Country/territory | End of Q1 2020 | | End of Q2 2020 | | End- August 2020 | |
|---|---|---|---|---|---|---|
| Australia | 67.3 | ◉ | 63.1 | ◉ | 79.2 | ▲ |
| Bangladesh | 73.1 | ◉ | 68.3 | ◉ | 72.1 | ▲ |
| Brunei Darussalam | 47.4 | ▼ | 44.9 | ▼ | 36.5 | ▼ |
| Cambodia | 46.2 | ▼ | 40.4 | ▼ | 40.4 | ▼ |
| Fiji | 85.9 | ▲ | 67.3 | ◉ | 60.3 | ◉ |
| Hong Kong, China | 72.4 | ◉ | 57.1 | ◉ | 76.9 | ▲ |
| India | 91.0 | ▲ | 77.2 | ▲ | 76.6 | ▲ |
| Indonesia | 41.7 | ▼ | 43.9 | ▼ | 51.6 | ◉ |
| Japan | 42.3 | ▼ | 37.2 | ▼ | 41.7 | ▼ |
| Korea, Rep. | 75.6 | ◉ | 62.5 | ◉ | 60.6 | ◉ |
| Lao PDR | 69.2 | ◉ | 43.0 | ▼ | 46.8 | ▼ |
| Macau, China | 50.6 | ▼ | 38.5 | ▼ | 39.7 | ▼ |
| Malaysia | 60.9 | ◉ | 62.2 | ◉ | 66.7 | ◉ |
| Mongolia | 53.9 | ▼ | 67.3 | ◉ | 58.3 | ◉ |
| Myanmar | 48.7 | ▼ | 64.7 | ◉ | 65.4 | ◉ |
| Nepal | 88.5 | ▲ | 85.9 | ▲ | 77.6 | ▲ |
| New Zealand | 86.5 | ▲ | 35.9 | ▼ | 54.2 | ◉ |
| Pakistan | 73.1 | ◉ | 62.2 | ◉ | 57.4 | ◉ |
| Papua New Guinea | 61.5 | ◉ | 48.1 | ▼ | 51.9 | ◉ |
| Philippines | 82.1 | ◉ | 72.4 | ◉ | 55.8 | ◉ |
| Singapore | 39.7 | ▼ | 65.4 | ◉ | 64.1 | ◉ |
| Sri Lanka | 79.5 | ◉ | 57.7 | ◉ | 38.5 | ▼ |
| Thailand | 53.5 | ▼ | 67.3 | ◉ | 56.4 | ◉ |
| Viet Nam | 70.5 | ◉ | 55.1 | ◉ | 69.6 | ▲ |
| **Median** | 68.3 | | 62.2 | | 57.9 | |

Note: China is not included in the above table as the variation of government policies implemented at Province and County level is large. Solomon Islands is not included in the above table as it is an outlier in terms of the government response index.
Source: Authors' calculations based on Hale et al. (2020[5]), *Oxford COVID-19 Government Response Tracker*, *https://covidtracker.bsg.ox.ac.uk/*.

A non-exhaustive list of the main containment policies in selected countries and territories in Asia-Pacific is reported in (Table 2.3).

Table 2.3. **Examples of containment and mitigation policies in Asia-Pacific countries and territories**

| Policy | Country examples: | Selected examples |
|---|---|---|
| *Social distancing or physical measures:* | | |
| Travel restrictions | Australia; Cambodia; Fiji; Hong Kong; China; India; Japan; Lao PDR; Macau, China; Malaysia; Mongolia; Myanmar; Nepal; Pakistan; Papua New Guinea; Philippines; Solomon Islands; Thailand; Viet Nam | **Fiji** closed international airports and placed restrictions on domestic travel on 16 March. Domestic travel resumed in May.<br>**Solomon Islands** closed borders on 25 March, they are remaining closed until at least 21 January 2021.<br>**Mongolia** imposed a travel ban from high risk countries, beginning on 27 January with China.<br>From 27 March, all foreign arrivals into **Cambodia** must obtain a visa, a health certificate, and a deposit of USD 2000 to cover potential health care costs. |
| Banning public gatherings | Australia; Fiji; Hong Kong, China; Mongolia; Myanmar | **Australia** banned public gatherings of more than two people from 29 March until 8 May.<br>**Hong Kong, China** prohibited public gatherings of more than four people from 27 March until late August. |
| Mobility restrictions | China; Fiji; India; Indonesia; Nepal; Pakistan; Papua New Guinea; the Philippines; Sri Lanka; Viet Nam | In early January, **China** implemented large-scale mobility restrictions at the national level, which were gradually eased starting mid-February.<br>**India** announced a nationwide lockdown on 24 March, with localised lockdowns in containment zones further extended.<br>Partial lockdown introduced in **Indonesia** in mid-late March with authority delegated to subnational governments. Relaxed in June; re-imposed on 14 September.<br>**Viet Nam** imposed a nationwide lockdown from 1 April to 15 April. Targeted lockdowns introduced in July following new cases in selected areas of the country.<br>Lockdowns from 15 March to 30 April for Metro Manila (**the Philippines**). |
| School closures | China; Fiji; India; Indonesia; Japan; Lao PDR; Macau, China; Malaysia; Mongolia; Myanmar; New Zealand; Pakistan; Philippines; Solomon Islands; Thailand; Viet Nam | In **Indonesia**, schools in most affected areas were closed at end of March. Schools in low-risk areas began opening from July.<br>During mid-March, **Lao PDR** closed all schools. Schools re-opened two months later with new social distancing measures.<br>**Mongolia** closed all schools, universities and educational institutions from 27 January to 1 September. Live classroom lessons are broadcasted on TV. |
| Workplace closures | Bangladesh; Macau, China; New Zealand; Papua New Guinea; | From 21 January, **Macau, China** introduced a temporary mandatory remote work arrangement for civil servants.<br>On 24 March **Papua New Guinea** imposed work-from-home requirements. |
| Closure of non-essential services | Australia; China; New Zealand; Solomon Islands; Viet Nam | On 25 March **New Zealand** implemented the closure of all non-essential businesses, re-opening began in late April.<br>The government in **Solomon Island** temporarily scaled down public services to essential services only from 25 March until 8 May. |
| *Improved personal and environmental hygiene:* | | |
| Use of masks in public place | Australia; Hong Kong, China; New Zealand; Pakistan; Viet Nam | Victoria, **Australia** mandated the use of masks in public places from 11 October.<br>**Hong Kong, China** required mask-wearing in all public places from 23 July, including on public transport.<br>From **16 March,** Vietnam made wearing face masks compulsory for people in public. |
| *Testing, tracking and tracing of infected individuals, with confinement of infected persons:* | | |
| Contact tracing apps | Australia; Brunei Darussalam, China; India; Japan; Malaysia; Singapore; Vietnam | **Australia** launched a contact tracing application 'COVIDSafe' on 26 April.<br>**India** launched in April the Aarogya Setu (Health Bridge) app.<br>**Japan** launched its Contact-Confirming Application on the 19 June.<br>**Malaysia** launched its contact tracing application MySejahtera on 17 April. |
| Large-scale testing and quarantine policies | China; Hong Kong, China | In May, **China** tested the entire city of Wuhan – home to around 11 million people – over a 10-day period. In October, a mass-screening campaign was conducted in the 9 million metropolis of Qingdao over 5 days.<br>In **Hong Kong, China**, the government provided one-off virus testing services to all citizens on voluntary basis during 1-14 September, with about 1.8 million people participating in the testing exercise. |

Note: not all measures were implemented nationwide.
Source: Authors compilation based on the IMF Policy Tracker and on national sources.

There are several "success stories" in Asia-Pacific that point to different strategies that countries have used to suppress the COVID-19 epidemic. The Republic of Korea promptly did extensive testing, tracing, and isolating of all cases from the start of the epidemic, supported by innovative surveillance technology (Box 2.2).

### Box 2.2. **Prompt extensive testing, tracing and isolating of all cases, supported by innovative surveillance technology in the Republic of Korea**

The Republic of Korea has been praised for the successful containment of COVID-19. Following substantial spread among the members of a large religious group that fuelled early virus transmission, the country was quickly able to bring COVID-19 under control. The Republic of Korea's response stands out because it flattened the epidemic curve swiftly without closing businesses, issuing stay-at-home orders or implementing many of the stricter measures adopted by other countries.

This success seems first to stem from the lessons learnt by the country following the 2015 outbreak of Middle East respiratory syndrome coronavirus (MERS). After this outbreak, the country enforced a series of policy changes to improve pandemic preparedness and response. When COVID-19 struck, the authorities were ready to establish an aggressive response, and the population was experienced in the use of face masks and contact tracing activities.

When the first COVID-19 cases were reported, the Republic of Korea promptly set-up mass population testing, tracing and isolating of all cases. Many biotechnology companies were created in the aftermath of the MERS crisis and this facilitated the establishment of public-private partnerships to develop and scale up testing for COVID-19. After expanding testing capacity, the government quickly designed a targeted screening policy. Authorities opened around 600 screening centres using innovative approaches to expand and enhance case finding, such as drive-through or phone booth style testing centres. To prevent infected people from entering hospitals, screening clinics were set up outside entrances. Some facilities were also transformed into temporary isolation wards so to avoid transmission within households and reduce hospital occupancy rates. Health care workers regularly monitored these patients who did not warrant inpatient treatment.

Aggressive contact tracing was also key, and massive public communications campaigns were set up to empower citizens to assist the health system with contact tracing.

The Korean experience may not necessarily be relevant to all Asia Pacific countries and territories. The country is urbanised and isolated in terms of borders. Cultural factors may be relevant too. Yet it is clear that the country's investments in preparedness and an early decision to focus on a massive testing and tracing strategy certainly are a lesson for other countries.

Source: The Government of the Republic of Korea (2020[6]) "How Korea responded Flattening the curve on COVID-19. How Korea responded to a pandemic using ICT".

Viet Nam has fewer resources, and achieved sustained success by swiftly deploying strict containment measures with the help of the military, public security services and grass-root organisations (Box 2.3).

A cluster-based approach to contact tracing and an easy to grasp risk communication strategy have been two pillars of the government's response to COVID-19 in Japan (Box 2.4).

### *Governments across Asia-Pacific have rolled out substantial fiscal measures in the health sector in response to the coronavirus*

Governments within the Asia-Pacific region and beyond put together substantial response packages to combat COVID-19. For example, as of July 2020, in China the package of economic measures totals USD 2 161 billion (or 16% of GDP (ADB, 2020[1])).

The health sector was an early recipient of these additional resources. Amongst Asia and Pacific countries with comparable data, central government budgetary commitments to health system responses to COVID-19 ranged from around 1.1% of GDP in Hong Kong, China to around 0.01% in Myanmar and Papua New Guinea (Figure 2.3).

### Box 2.3. **Viet Nam reacted very quickly with extreme but sensible measures**

Viet Nam received international praise for its handling of the coronavirus pandemic. By August 2020 officials had reported no deaths, and daily new cases remained low. The success can be attributed to the country's experience with dealing with infectious disease outbreaks, such as the Severe Acute Respiratory Syndrome in 2003, alongside pre-emptive containment measures, a comprehensive testing and tracing system, and a strong central government.

Viet Nam swiftly deployed an aggressive strategy to contain COVID-19, with the help of the military, public security services and grass-root organisations. Borders were closed early on to foreign visitors, and nationals returning from abroad were faced with airport health screenings and a 14-day quarantine period. Measures such as physical distancing, school closures, public event cancellations and the wearing of masks at public venues were all strictly implemented, along with requiring hand sanitizers in public areas, workplaces and residential buildings. The government introduced a nationwide shut-down of all non-essential services, as well as strict restrictions on movements imposed across most of the country for three weeks in early April.

Alongside containment measures, Viet Nam established an extensive contract tracing system, with isolation and quarantining for up to third-tier contacts. Groups of people who lived near confirmed cases, sometimes an entire street or village, were swiftly tested and isolated, which helped limit community transmission.

Public buy-in was critical for success. From an early stage, communications about the virus and the strategy were transparent. Details on symptoms, protective measures, and testing sites were communicated through mass media, a government website, public grass-root organisations, posters at hospitals, offices, residential buildings and markets, via text messages on mobile phones, and as voice messages before a phone call could be made.

The Viet Nam experience shows the influence of a strong centre of government in creating a unified response to the pandemic. The government framed the virus as a "common foreign enemy", and called on the harmonisation of the population to defeat it. Other countries and territories with a weaker central of government may therefore struggle to replicate such as response.

Source: IMF (2020[7]) "Vietnam's Success in Containing COVID-19 Offers Roadmap for Other Developing Countries".

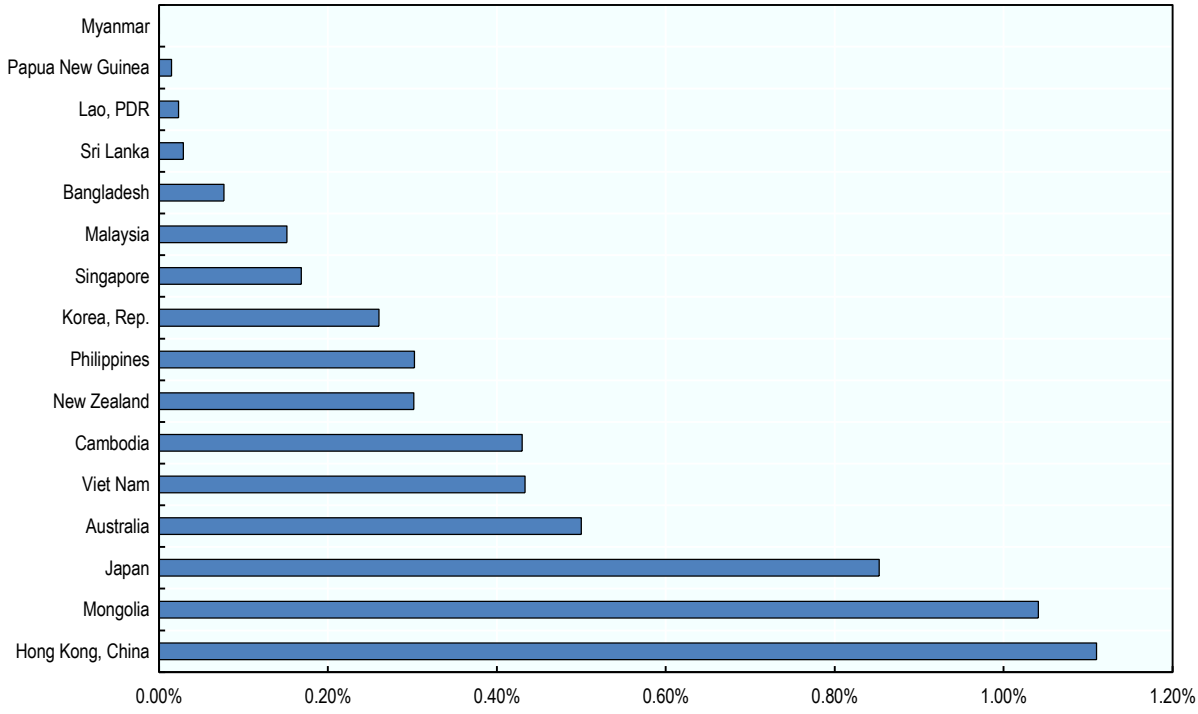
### Box 2.4. **A cluster-focused approach and an easy to grasp risk communication in Japan**

Japan have focused on retrospectively identifying clusters – groups of infected people from a single source - to capture the evolution of transmission dynamics. Under this cluster-based approach, each cluster of more than five COVID-19 cases is tracked to the original infection source, and persons with high transmissibility isolated to prevent the spread of infection. This approach is in addition to a 'prospective' contact tracing.

Moreover, based on analyses of the shared characteristics of clusters, Japan developed an easy to grasp risk communication to modify citizens' behaviour. The concept is known as the "Three Cs" (*https://www.mhlw.go.jp/content/3CS.pdf*). It denotes three environmental conditions increasing the risk of COVID-19 transmission – that is Confined and enclosed spaces with poor ventilation; Crowded places with many people nearby; and Close-contact settings especially when people have close-range conversations. The population is asked to avoid these "Three-Cs", in particular when they overlap as the risk is higher. The political leaders and experts joined efforts to repeat this simple message to reduce the social contacts to mitigate the spread of the epidemic.

In Australia for example, the federal government injected over 14% of GDP in fiscal and balance sheet measures to address the significant impacts of COVID-19. These measures include over AUD 9.4 billion in additional health spending. Specific measures include AUD 1.4 billion on guaranteeing Medicare, AUD 3.4. billion on the emergency response including purchasing personal protection equipment and testing, and AUD 3.6 billion on providing support to hospitals responding to COVID-19. Alongside federal measures, every state and territory in Australia has announced a spending response to the COVID-19 crisis, including measures taken in the health sector (Australian Government, 2020[8]).

Figure 2.3. **Central government COVID-19 health spending commitment, percentage of GDP, as of July 2020**




Source: ADB, 2020, and government country websites (Australia, Japan, Republic of Korea and New Zealand).

## Assessing health system vulnerabilities

This section will look at health systems capacity to respond to the COVID-19 outbreak, in terms of workforce, intensive care unit beds, different sources of health care financing, and testing and contact tracing systems. It will also look at delayed and foregone care as well as rising health needs for mental health due to COVID-19.

### *Workforce shortages existed prior to the crisis*

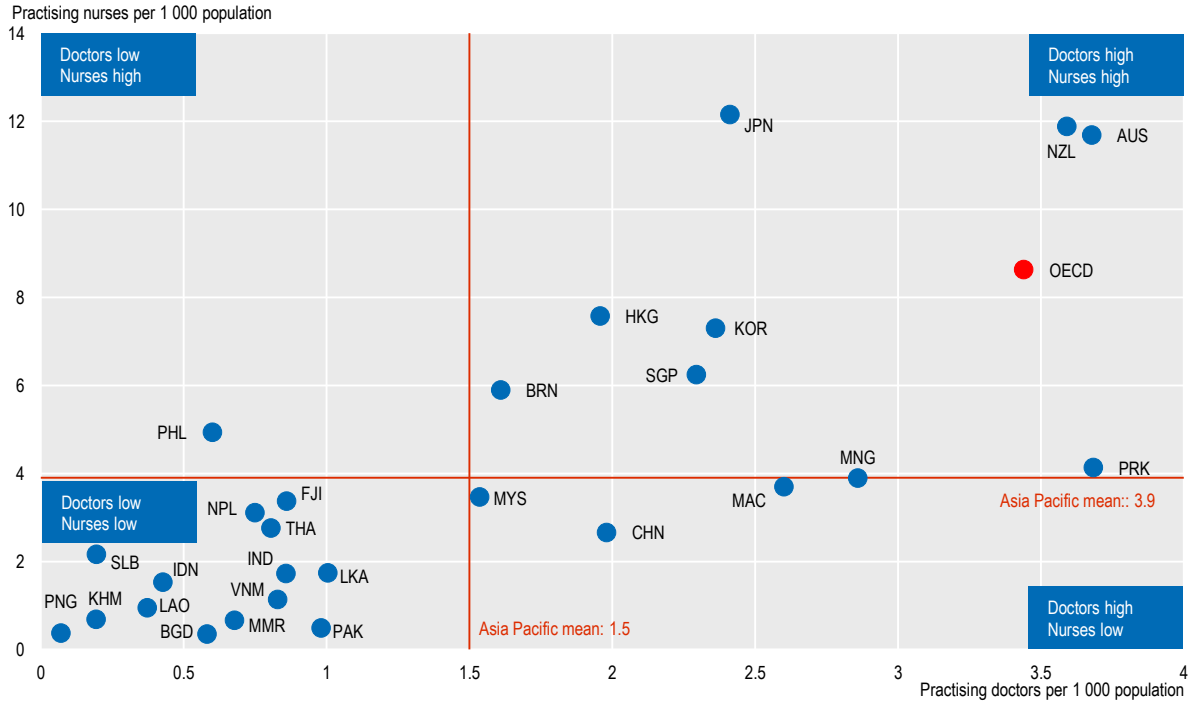
The coronavirus pandemic has put health systems around the world under severe stress, testing their capacity to care for patients and protect health workers. This stresses risk being even more significant in lower-income settings where health system capacity is typically limited (Walker et al., 2020[9]).

Doctors, nurses and other health professionals are at the forefront of the coronavirus pandemic. The pandemic made pre-existing shortages of doctors and nurses more visible and acute in many Asia-Pacific countries and territories. Some countries, such as Australia, New Zealand and Japan, have relatively high numbers of doctors and nurses, which provided them with a greater capacity to respond to the COVID-19 pandemic. Low-income countries, such as Papua New Guinea, Cambodia and Lao PDR, on the other hand, have fewer doctors and nurses, and therefore – in principle – less capacity to respond when it by an epidemic (Figure 2.4).

### *Many health systems in the region lack critical ICU beds and critical care capacity*

The number of hospital beds varies between 2.7 and 3 per 1 000 population on average across upper-middle and lower-middle and low-income Asia-Pacific countries respectively. This is lower than

Figure 2.4. **Number of practicing doctors and nurses per 1 000 population, latest year available**




Note: The red labels relate to the lines, and the intersection of the two lines is the equivalent of the mean for the Asia-Pacific countries. The OECD dot is the mean for all OECD countries.
Source: WHO Global Health Observatory, 2020; OECD Health Statistics, 2020.

the OECD average of 4.6 and the high-income Asia-Pacific countries and territories average of 5.4, but it varied considerably across countries. More than 10 beds per 1 000 population are available in Japan, the Republic of Korea and Korea DPR, whereas the stock of beds was less than one per 1 000 population in Bangladesh, Pakistan, Cambodia, and India. These large disparities reflect substantial differences in the resources available and invested in hospital care across countries.

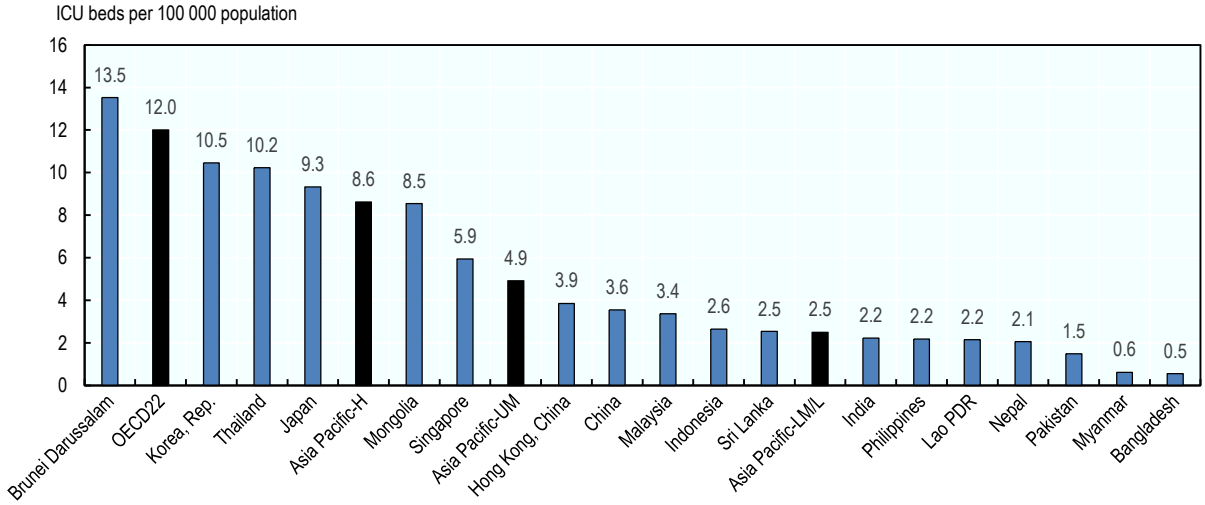
Whilst hospital bed capacity matters, intensive care unit (ICU) capacity is paramount in case of this pandemic as a significant share of patients infected by COVID-19 develop severe forms of the disease that need to receive care within an ICU.

Notwithstanding definitional differences[6], the most recent publicly available data suggests that, before the COVID-19 crisis, the variation in ICU capacity across Asia-Pacific countries and territories ranged from 13.5 ICU beds per 100 000 people in Brunei Darussalam to less than one ICU bed per 100 000 people in Myanmar and Bangladesh. On average, upper-middle and high-income Asia-Pacific countries and territories have an ICU capacity three times and two times the capacity of lower-middle and low-income countries respectively (Figure 2.5).

### *Testing and contact tracing*

Comprehensive testing and contact tracing infrastructure can affect the ability of a country to respond and contain the COVID-19 pandemic, and has flow on implications for health care including the number of cases requiring ICU care. Adequate testing is needed to ensure early detection of new infection clusters, and an effective contact tracing system can facilitate timely isolation and quarantine of new infection clusters to reduce community transmission (*https://iris.wpro.who.int/bitstream/handle/10665.1/14553/WPR-DSE-2020-025-eng.pdf*). Several Asia Pacific countries ramped up testing and tracing capabilities during the COVID-19 pandemic, but some countries lagged behind

Figure 2.5. **ICU beds per 100 000 population, around 2017**




Note: Paediatric and neonatal ICU beds are excluded. High-care units/beds are excluded too.
Source: Phua et al. (2020[10]) "Critical Care Bed Capacity in Asian Countries and Regions", *http://dx.doi.org/10.1097/ccm.0000000000004222*. The figure for Japan is from the Ministry of Health, Labour and Welfare official data.

(IMF, 2020[2]). The number of tests performed up to 5 October 2020 ranged from less than 8 per 1 000 population in Myanmar and Indonesia to 202.1 and 525.1 per 1 000 population in New Zealand and Singapore respectively (Hasell et al., 2020[11]).

According to the Oxford COVID-19 Government Response Tracker, as of 5 October there is no government policy on contact tracing in the Solomon Islands, whereas Bangladesh, Brunei Darussalam, Cambodia, Indonesia and Myanmar have in place a limited contact tracing after a positive diagnosis of COVID-19. All the other countries and territories in this study report a comprehensive contact tracing after a positive diagnosis of COVID-19.

For interventions such as testing, contact tracing and isolation to be effective in controlling disease spread, people must truthfully disclose information about their symptoms and contact patterns, and isolate as necessary. Therefore, the effectiveness of these measures also depends on societal preferences and legal and regulatory frameworks relating to privacy.

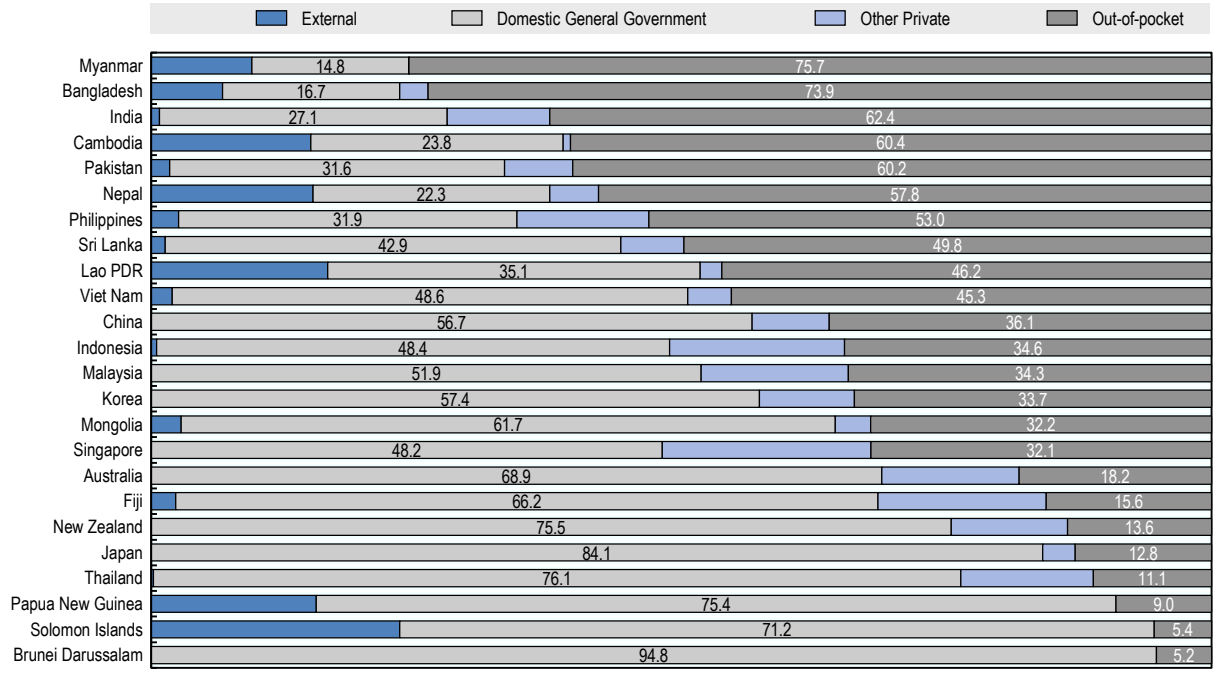
### *In at least one third of the countries, low levels of health spending and large dependency on out-of-pocket spending limit the ability of health systems to respond*

Per capita health care spending can be observed in Asia-Pacific countries in 2017 ranged from USD PPP 94 (with exchange rates calculated using PPPs) in Bangladesh to Australia's USD PPP 4 816 international dollars. The average OECD current health spending per capita in 2017 was around 16 times that of the low-income countries in Asia-Pacific (3 996 versus USD PPP 247). This differences have implications for a country capacity and ability to respond to a pandemic, or other high-impact crisis.

Health care is financed by a combination of public, household out-of-pocket (OOP) and external sources. The mix of financing sources for health vary across Asia-Pacific countries. In Pakistan, Cambodia, India, Bangladesh and Myanmar more than 60 cents out of one dollar spent on health are financed by household OOP. Conversely, in New Zealand, Japan, Thailand, Papua New Guinea and Brunei Darussalam more than three quarters of health financing was from government sources in 2017 (Figure 2.6).

It is still unclear how COVID-19 is affecting the different sources of health financing across Asia-Pacific countries, as the pandemic is still unfolding and there is a general dearth of real time reporting of these data. Despite declining government revenues, government expenditures are expected to rise as a share of GDP in 2020, fuelled by a significant increase in borrowing. Part of this increase in government spending has been to finance the immediate response to the pandemic in terms of increasing the capacity of health systems to manage the COVID-19 outbreak (IMF, 2020[2]).

Figure 2.6. **Percent share of current health spending by financing source, 2017**




Source: WHO Global Health Expenditure Dataset, 2020.

A recent study (Tan-Torres Edejer et al., 2020[12]) estimated the additional costs of implementing the pillars of a strategic preparedness and response plan[7] to the COVID-19 pandemic. These additional costs have been estimated at USD 3.3 and USD 9.1 per capita per 4 and 12 weeks respectively in low-income countries in a status quo scenario. This represents a significant cost that may not be within the financial capacity of some countries.

### *The ongoing health effects of COVID-19 may put additional strain on already weakened health systems*

COVID-19 has highlighted critical workforce gaps in health systems and, as the pandemic progresses, the strain on the health workforce is likely to shift to those providing rehabilitation and primary care services.

A large proportion of COVID-19 patients require some form of rehabilitation and support after their illness. There is also emerging evidence that COVID-19 can lead to long-term and ongoing symptoms in patients who have recovered from infection. This can include a range of symptoms, including chronic fatigue, lung damage, anxiety and depression (Smith, 2020[13]). As case numbers continue to rise, the disease burden of 'long COVID' will lead to increasing demands on health services and health systems.

### *The COVID-19 pandemic is also expected to have lasting effects due to delayed and foregone care as well as other health needs for mental health*

The pandemic has unleashed a secondary crisis by disrupting the supply and demand for health services. According to a WHO rapid survey (WHO, 2020[14]) to which 163 (out of 194) countries provided responded, prevention and treatment services for non-communicable diseases (NCDs) have been severely disrupted since the COVID-19 pandemic began, particularly for low-income countries. Many people who need treatment for diseases like cancer, cardiovascular disease and diabetes have not been receiving the health services and medicines they need since the COVID-19 pandemic began. More than half of the countries surveyed have partially or completely disrupted services for hypertension treatment; 49% for treatment for diabetes and diabetes-related complications; 42.5% for cancer treatment, and 31% for cardiovascular emergencies. Rehabilitation services have been disrupted in two-thirds of these countries. In the majority of responding countries, ministry of health staff working on NCDs were partially or fully reassigned to support COVID-19. The postponement of public screening programmes was also widespread, reported by more than half of countries. As an example, screening mammograms delivered in specialised facilities in Australia were suspended from late March to late April/early May 2020 due to COVID-19 restrictions (AIHW, 2020[15]).

Disruptions to the services for human immunodeficiency virus (HIV), tuberculosis and malaria resulting from the COVID-19 pandemic and its response could lead to a substantial number of additional deaths and years of life lost in low- and middle-income countries (Hogan et al., 2020[16]). In regions most affected by HIV, TB and malaria, such as South Asia, the knock-on impact of COVID-19 on these three diseases in terms of incremental deaths may outweigh the direct impact of COVID-19 virus (The Global Fund, 2020[17]). The results of a Global Fund survey (*https://globalfund.exposure.co/disruptions-in-hiv-tb-and-malaria-programs-due-to-covid19*) indicate challenges to HIV prevention; testing and case finding for HIV, TB and malaria; cancelled or delayed prevention activities; and medical and laboratory staff being reassigned to the fight against COVID-19. Qualitative data from this survey indicates lockdowns, restriction on gatherings of people and transport stoppages are the main reasons activities were cancelled or delayed.

The indirect effects of COVID-19 on pregnant women, new-borns, young children and adolescents are also significant (WHO Independent Accountability Panel 2020 *https://iapewec.org/wp-content/uploads/2020/07/IAP-2020-Report-Executive-Summary-English.pdf*). There have been closures of both static and mobile reproductive health clinics, scaling-down of sexual and reproductive health services and shortfalls in reproductive health commodities. Lockdowns and movement restrictions, and health workers being diverted from maternity to COVID-19 units, limits availability of life-saving services for pregnant women and newborns, while immunisation campaigns were disrupted.

The unpredictability and uncertainty of the COVID-19 pandemic, the need to implement lockdowns, physical distancing and other containment strategies and the resulting economic breakdown have also had adverse impacts on the physical and mental health of populations and exacerbate health inequalities, especially in people with pre-existing mental health disorders (Moreno et al., 2020[18]). Since the outbreak of COVID-19, violence against women and girls, particularly domestic violence, has intensified (*https://www.unwomen.org/en/news/in-focus/in-focus-gender-equality-in-COVID-19-response/violence-against-women-during-COVID-19*).

Approaches to mitigate consequences of containment strategies are possible. For example, Australia has been able to implement a range of additional health measures to mitigate some of the COVID-19 adverse impacts, such as telehealth consultations and additional funding for mental health services (*https://www.health.gov.au/sites/default/files/documents/2020/10/budget-2020-21-*

*prioritising-mental-health-and-telehealth-COVID-19-pandemic-response-budget-2020-21-prioritising-mental-health-and-telehealth-COVID-19-pandemic-response.pdf*).

## Conclusions

COVID-19 has had a huge impact across Asia-Pacific, testing the resilience of economies and health systems, and placing immense pressure on health workers operating at the front line. An overall and complete assessment of country and territories responses will only be possible after the pandemic is over, but some early findings are already apparent.

In terms of the overall health impact, India, the Philippines and the Hubei province in China were the most affected in the first nine months of 2020, based on data on COVID-19 reported deaths. Indonesia has also been badly hit by the virus. In contrast, most countries situated in South-East Asia as well as Pacific Islands countries, have been less adversely affected to date.

Variation in population density, the rural-urban composition, the degree of international visitors, as well as demographic characteristics, among others, may well explain these observed differences in death rates. Differences in containment and mitigation strategies, in particular restrictions on movement, the speed and effectiveness in which they were implemented, and testing and contact tracing infrastructure have also played a role (IMF, 2020[2]).

This chapter has also illustrated certain differences in the capacities of countries' health systems to absorb and adapt to the crisis, also based on planning and preparedness as lessons have been learned from SARS and MERS outbreaks. Looking at countries and territories' core (pre-existing) capacity provides an approximate sense of a health system's ability to cope with such a surge in demand – with availability of sufficient health workers, infection prevention and control and personal protection equipment particularly critical.

Much remains unknown as to how COVID-19 will affect health spending and the different sources of health financing across Asia-Pacific countries and territories. However, the significant cost of the COVID-19 response may not fully be within the financial capacity of Asia Pacific countries, in particular low-income ones.

Prevention and treatment services for non-communicable diseases as well as for HIV, tuberculosis and malaria have been severely disrupted since the COVID-19 pandemic began. This could lead to a substantial number of additional deaths and years of life lost, in particular in low- and middle-income countries. The indirect effects of COVID-19 on pregnant women, newborns, young children and adolescents are also huge.

COVID-19 has had major effects on countries and territories' economies and health systems. It is critical to ensure that economic pressures - either during or after the pandemic has ended - do not divert already limited resources away from essential health services in low- and middle-income countries.

### *Notes*

1. The official names for the virus responsible for COVID-19 is "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)" and the disease it causes "coronavirus disease (COVID-19)". In this chapter, COVID-19 is used to refer to the virus and the disease it causes.
2. It should be noted that there is a considerable variation in testing rates on a country-by-country basis.
3. As Singapore conducts more testing than many other countries in the region, including screening of migrant workers in dormitories, it detects more mild and asymptomatic cases which contributes to their high case population rate.
4. There may be variation in the completeness of COVID-19 death counts across countries.

5. Whilst reported COVID-19 deaths are a critical measure of how much a country or territory has been affected by the virus, cross-country comparisons of this indicator are not straightforward due to significant differences in recording, registration and coding practices. Looking at all deaths – and particularly excess mortality, a measure of deaths over and above what could normally be expected at a given time of the year – avoids these problems caused by differences in reporting. Excess mortality is by definition not a direct measure of COVID-19 deaths, as it captures all excess deaths irrespective of the cause. However, unfortunately, this measure is not readily available for the countries and territories covered in this report.
6. There may be differences in the notion of intensive care affecting the comparability of the data. These differences mainly concern therapeutic capacity, personnel, monitoring capacity, unit design and organ support and responsiveness (Marshall et al., 2017[19]).
7. The nine pillars are: country-level coordination, planning and monitoring; risk communication and community engagement; surveillance, rapid-response teams and case investigation; points of entry and international travel and transport; national laboratories; infection prevention and control; case management; operational support and logistics; maintaining essential health services and systems.

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*Chapter 3*

# Health status

Life expectancy at birth continues to increase remarkably in Asia-Pacific, reflecting sharp reductions in mortality rates at all ages, particularly among infants and children (see indicators "Infant mortality" and "Under age 5 mortality" in Chapter 3). These gains in longevity can be attributed to a number of factors, including rising living standards, better nutrition and improved drinking water and sanitation facilities (see indicator "Water and sanitation" in Chapter 4). Improved lifestyles, better education and enhanced access to health care also play an important role (WHO; US National Institute on Aging; National Institutes of Health;, 2011[1]). The large decline in under age 5 mortality, which reflects important commitment and investment at local, national, and global levels over several decades, is another major drive of the increase of life expectancy (Dicker et al., 2018[2]).

Life expectancy at birth across low and lower-middle Asia-Pacific countries reached 70 years on average in 2018, a gain of 6.2 years since 2000, whereas it reached 74.8 years in upper-middle income countries, a gain of 4.5 years since 2000. In comparison, OECD countries gained 3.9 years during the same period (Figure 3.1, left panel). Nonetheless, a very large regional divide persists as a newborn in Hong Kong, China, is expected to live 30 years more than a newborn in Papua New Guinea. Japan; Macau, China; Singapore; Australia; the Republic of Korea; and New Zealand reported a life expectancy of more than 80 years in 2018. In contrast, Lao PDR, Fiji, Pakistan and Myanmar had a life expectancy of less than 68 years.

Women live longer than men do (Figure 3.1, right panel), but the degree of disparities varies across countries. The gender gap in life expectancy stood at 4.8 and 5.3 years on average across Asia-Pacific low and lower-middle, and upper-middle countries respectively in 2018, less than the OECD country average of 5.6 years. The gender difference was particularly large in Viet Nam, the Philippines, and Mongolia with eight years or more, while Pakistan reported a gender gap of less than two years.

Women also have greater rates of survival to age 65 Figure 3.2, regardless of the income level of the country. On average, 77.7% and 85.4% of a cohort of newborn women would survive to age 65 in low and lower-middle, and upper-middle income Asia-Pacific countries respectively, while only 68% and 74.9% of males will survive to age 65 in low and lower-middle, and upper-middle income Asia-Pacific countries respectively. In Japan; the Republic of Korea; Singapore; Hong Kong, China, and Macau, China 94% of newborn women will survive to age 65, whereas in Mongolia, Papua New Guinea, Myanmar, Fiji, the Philippines, and Lao PDR less than 2 out of 3 newborn males will survive to age 65. Many reasons contribute to this gender difference, such as biological differences resulting in slower ageing of immune systems and the later onset of cardiovascular diseases such as heart attacks and strokes among women (UNESCAP, 2017[3]).

Besides life expectancy, another indicator of the population health status is the healthy life expectancy. Higher healthy life expectancy is generally associated with higher life expectancy, and therefore it is longer – on average – for women. The difference of healthy life years for women born in 2016 between low and lower-middle, and upper-middle income countries across Asia-Pacific is of five years, with 63 and 68 healthy life years, respectively (Figure 3.3). This difference is increased to six years when comparing upper-middle income to high income countries, which exhibit an average of 74 healthy life years for women. Gender gaps amount to three, four, and three healthy life years for each of the aforementioned income groups, respectively.

Women born in 2016 in Singapore, Japan, and the Republic of Korea are expected to live more than 75 years of good health, while men from the same cohort in Cambodia, Myanmar, India, Papua New Guinea, Lao PDR and Pakistan have a healthy life expectancy of less than 60 years.

### Definition and comparability

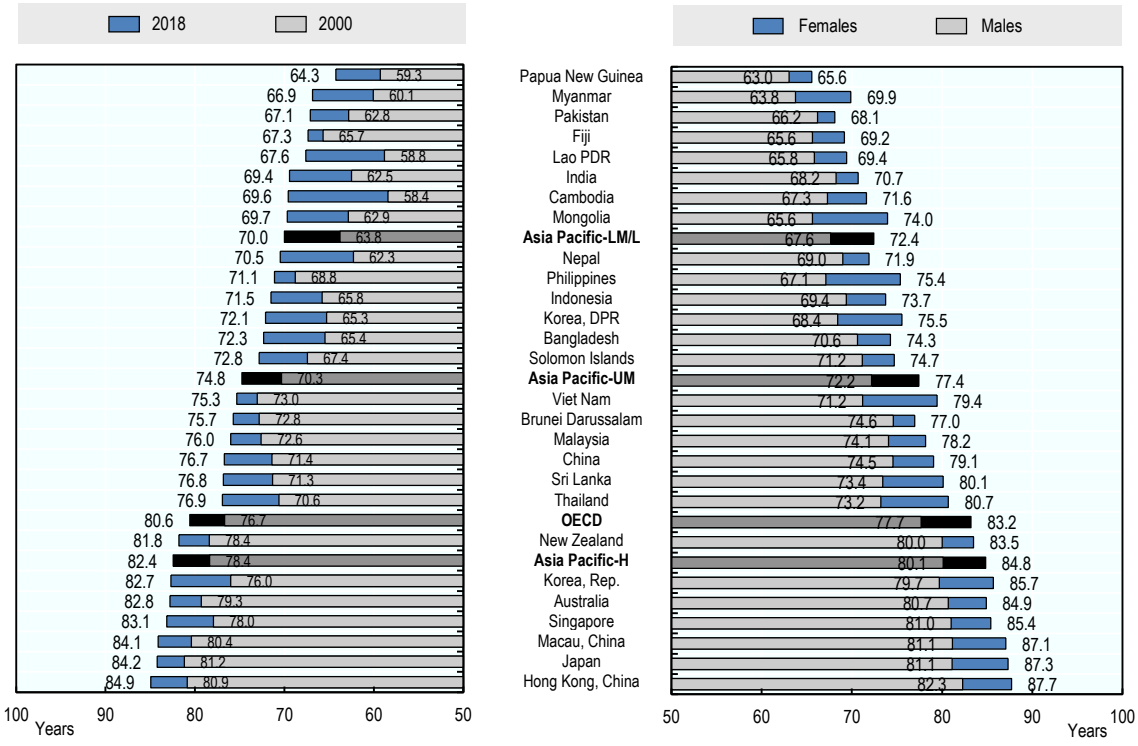
Life expectancy at a specific age is the number of additional years that a person of that age can expect to live if current mortality levels observed for higher ages continue for the rest of that person's life. Thus, life expectancy at birth is the number of years that today's new-borns would live on average if current age-specific mortality rates were to continue throughout the lifespan of the newborn cohort.

Age-specific mortality rates are used to construct life tables from which life expectancies are derived. The methodologies that countries use to calculate life expectancy can vary somewhat, and these can lead to differences of fractions of a year. Some countries base their life expectancies on estimates derived from censuses and surveys, and not on accurate registration of deaths.

Survival to age 65 refers to the percentage of a cohort of newborns that would survive to age 65, if subject to current age-specific mortality rates.

Healthy life expectancy at birth measures the number of years of good health that a newborn can expect.

Figure 3.1. **Life expectancy at birth, 2000 and 2018, and by sex, 2018**




Source: OECD Health Statistics 2019; the World Bank World Development Indicators Online.

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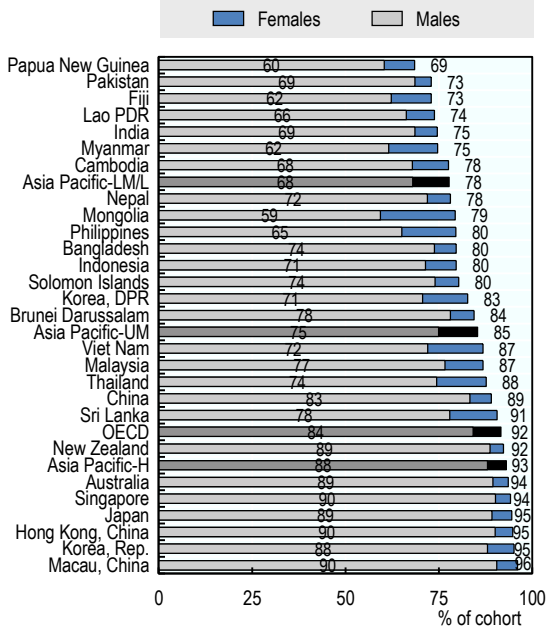
Figure 3.2. **Survival rate to age 65, by sex, 2018**




Source: The World Bank World Development Indicators Online.

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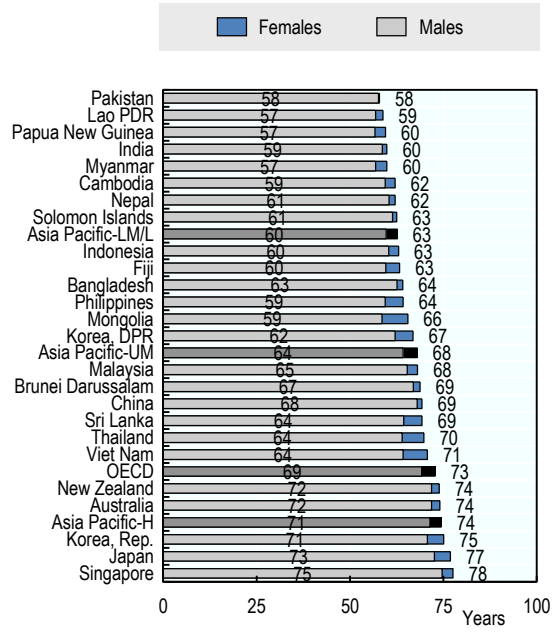
Figure 3.3. **Healthy life expectancy at birth by sex, 2016**




Source: WHO GHO 2020.

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Neonatal mortality, deaths in children within 28 days of birth, encompasses the effect of socio-economic and environmental factors on new-borns and mothers, and also the capacities and responsiveness of national health systems.

Prematurity, birth asphyxia and birth trauma and sepsis and other infectious conditions are the leading causes of deaths in newborns (WHO Health Observatory Data Repository). In Pakistan, these three causes accounted for 32.5 deaths per 1,000 live births in 2017. Mortality rates due to neonatal infections, birth asphyxia and birth trauma and prematurity steadily decreased since 2010 in all countries, except a slight increase reported in Fiji for mortality due to prematurity and infections and in Lao PDR for mortality due to infections. Congenital anomalies and other conditions arising during pregnancy are also listed as primary causes of mortality during the first four weeks of life. Undernutrition continues to be among the leading causes of death in both mothers and newborns [see sections "Young child malnutrition (including undernutrition and overweight)" and "Overweight and obesity" in Chapter 4]. In the Asia-Pacific region, around two-thirds of the deaths in the first year of life occur during the neonatal period.

Sustainable Developing Goals set a target of reducing neonatal mortality to 12 deaths or less per 1 000 live births by 2030. In 2018, the average among lower-middle and low income countries in Asia-Pacific was 17.7 deaths per 1 000 live births, around half the rate observed in 2000 but still above the SDG target (Figure 3.4). Upper-middle income Asia-Pacific countries already reached the SDG target in 2000 reporting a rate – on average – of 11.5 deaths per 1 000 live births, which then decreased to 4.6 in 2018. High income countries reported neonatal mortality rates similar to those of the OECD, with an average of 2.4 deaths per 1 000 live births.

Geographically, countries in South and South-East Asia experienced higher neonatal mortality rates than those in eastern Asia and Australasia. Japan; Hong Kong, China; Singapore; the Republic of Korea and Australia reported two deaths or less per 1 000 live births in 2018, whereas neonatal mortality rates were higher than 20 in Papua New Guinea, the Lao PDR; India and Myanmar, and higher than 40 in Pakistan.

Between 2000 and 2018, the neonatal mortality rate has fallen in almost all Asia-Pacific countries (Figure 3.4). The rate in 2018 was one-third of the rate in 2010 in Korea DPR and Mongolia, while in China the rate reported in 2018 was one-fifth of the one reported in 2010. Both Brunei Darussalam and Fiji reported an increase in neonatal mortality rates during the period in this study.

Key determinants of neonatal mortality rates across countries include income status, geographical location and mother education. For instance, in Indonesia and Nepal, neonatal mortality is three times or more higher in the poorest households compared to richest ones, and twice as high when mothers have no education rather than secondary or tertiary education. Geographical location is another determinant of differences reported in neonatal mortality in the region, though relatively less important in comparison to households' income. For example, neonatal mortality rate in rural areas of Myanmar and Cambodia was twice the rate reported for urban areas (Figure 3.5).

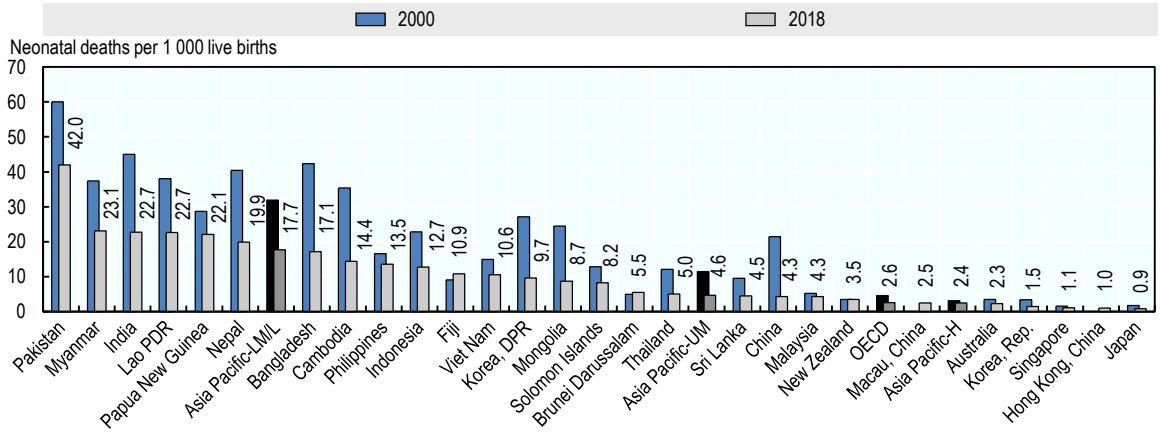
Neonatal mortality rates recede through cost-effective and appropriate interventions. These include immediate skin-to-skin contact between mothers and newborns after delivery, and kangaroo mother care for babies weighing 2000g or less as well as neonatal resuscitation training, prevention and management of neonatal sepsis, reducing mortality from prematurity and low birthweight, and prioritizing the roles of breastfeeding and antenatal corticosteroids (Conroy, Morrissey and Wolman, 2014[4]).

Reductions in neonatal mortality will require not only providing quality care through the aforementioned strategies and systems strengthening, but also ensuring that all segments of the population benefit from quality care (Gordillo-Tobar, Quinlan-Davidson and Lantei Mills, 2017[5]).

**Definition and comparability**

Neonatal mortality rate is defined as the number of children who die during their first 28 days of life, expressed per 1 000 live births.

Figure 3.4. **Neonatal mortality rates, 2000 and 2018 (or latest year available)**




Source: UN Inter-agency Group for Child Mortality Estimation (IGME) Child Mortality Report 2019; Hong Kong annual digest of statistics 2019; Macau yearbook of statistics, 2018.

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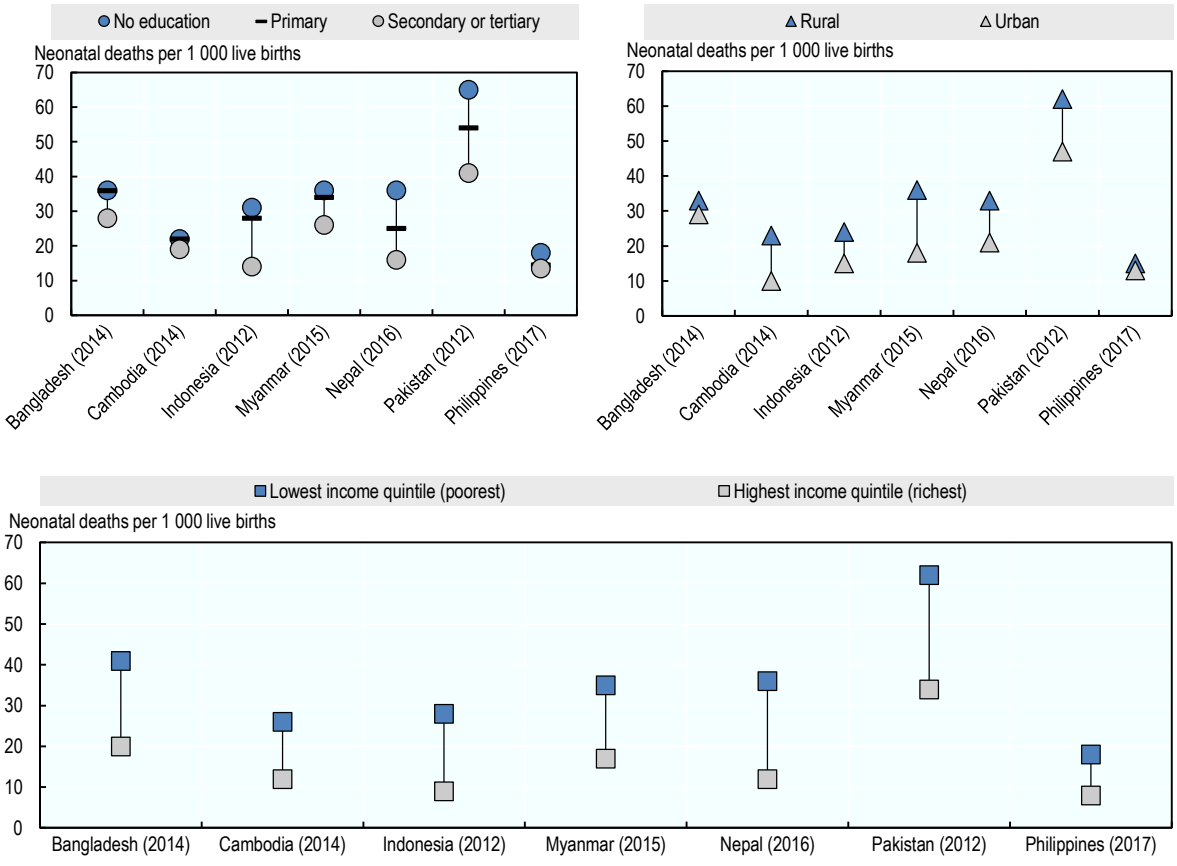
Figure 3.5. **Neonatal mortality rates by socio-economic characteristic and geographical location, selected countries**




Source: DHS and MICS surveys, various years.

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Infant mortality reflects the effect of social, economic and environmental factors on infants and mothers, as well as the effectiveness of national health systems.

Factors such as the health of the mother, quality of antenatal and childbirth care, preterm birth and birth weight, immediate newborn care and infant feeding practices are important determinants of infant mortality (see indicators "Preterm birth and low birthweight" and "Pregnancy and birth" in Chapter 4). Pneumonia, diarrhoea and malaria continue to be among the leading causes of death in infants. In Asia-Pacific, around two-thirds of the deaths in the first year of life occur during the neonatal period (i.e. during the first four weeks of life or days 0-28).

Infant mortality can be reduced through cost-effective and appropriate interventions. These include early and exclusive breastfeeding for the first six months of life, and management and treatment of neonatal infections, pneumonia, diarrhoea and malaria (UNICEF, 2013[6]). Oral rehydration therapy is a cheap and effective means to offset the debilitating effects of diarrhoea (WHO and UNICEF, 2006[7]), and countries could also implement relatively inexpensive public health interventions including immunisation, and provide clean water and sanitation (see indicator "Water and sanitation" in Chapter 4 and "Childhood vaccination" in Chapter 7).

In 2018, among lower-middle and low income Asia-Pacific countries, the infant mortality rate was 27.2 deaths per 1 000 live births, half the rate observed in 2000 (Figure 3.6). Upper-middle income Asia-Pacific countries reported a rate of 10 deaths per 1 000 live births, down from 18.2 in 2000. Geographically, infant mortality was lower in eastern Asian countries, and higher in South and South-East Asia. Hong Kong, China; Japan; Singapore and the Republic of Korea had three deaths or lower per 1 000 live births in 2018, whereas in Pakistan almost six children per 100 live births die before reaching their first birthday.

Infant mortality rates have fallen dramatically in the Asia-Pacific since 2000, with many countries experiencing significant declines (Figure 3.6). In Cambodia, China and Mongolia rates have declined in 2018 to one third or less of the value reported in 2010, whereas rates in Brunei Darussalam and Fiji have increased in recent years.

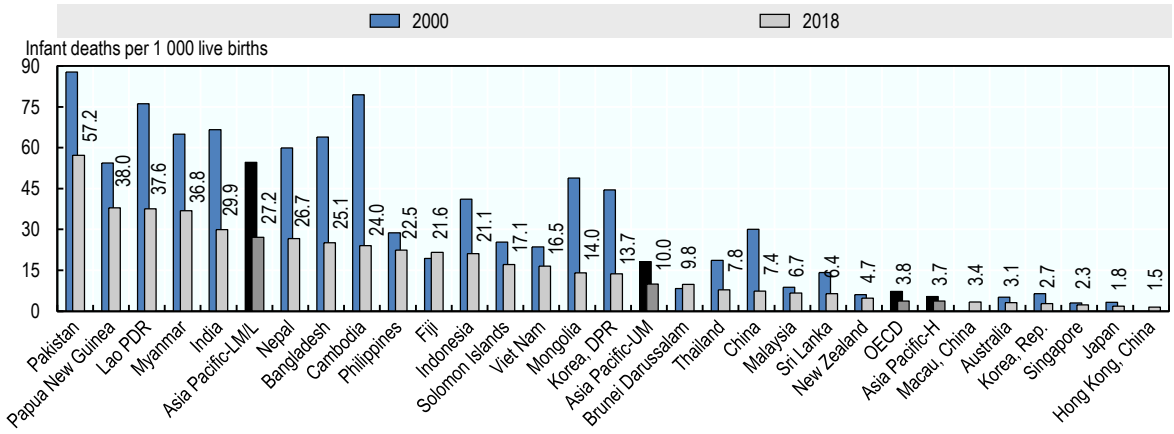
Across countries, important inequities persist in infant mortality rates largely related to income status and mother's education level (Figure 3.7). In Cambodia, Myanmar and the Philippines infant mortality rates are more than three times higher in poorest households compared to richest ones. Similarly, in Viet Nam and the Lao PDR children born to mothers with no education had a six- to seven-fold higher risk of dying before their first birthday compared to children whose mothers had achieved secondary or higher education. Geographical location (urban or rural) is another determinant of infant mortality in the region, though relatively less important in comparison to household income or mother's education level – except for Cambodia and the Lao PDR (Figure 3.7). Reductions in infant mortality will require not only improving quality of care, but also ensuring that all segments of the population benefit from better access to care.

### Definition and comparability

The infant mortality rate is defined as the number of children who die before reaching their first birthday in a given year, expressed per 1 000 live births.

Some countries base their infant mortality rates on estimates derived from censuses, surveys and sample registration systems, and not on accurate and complete registration of births and deaths. Differences among countries in registering practices for premature infants may also add slightly to international variations in rates. Infant mortality rates are generated by either applying a statistical model or transforming under age 5 mortality rates based on model life tables.

Figure 3.6. **Infant mortality rates, 2000 and 2018 (or latest year available)**




Source: UN Inter-agency Group for Child Mortality Estimation (IGME) Child Mortality Report 2019; Hong Kong annual digest of statistics 2019; Macau yearbook of statistics, 2018.

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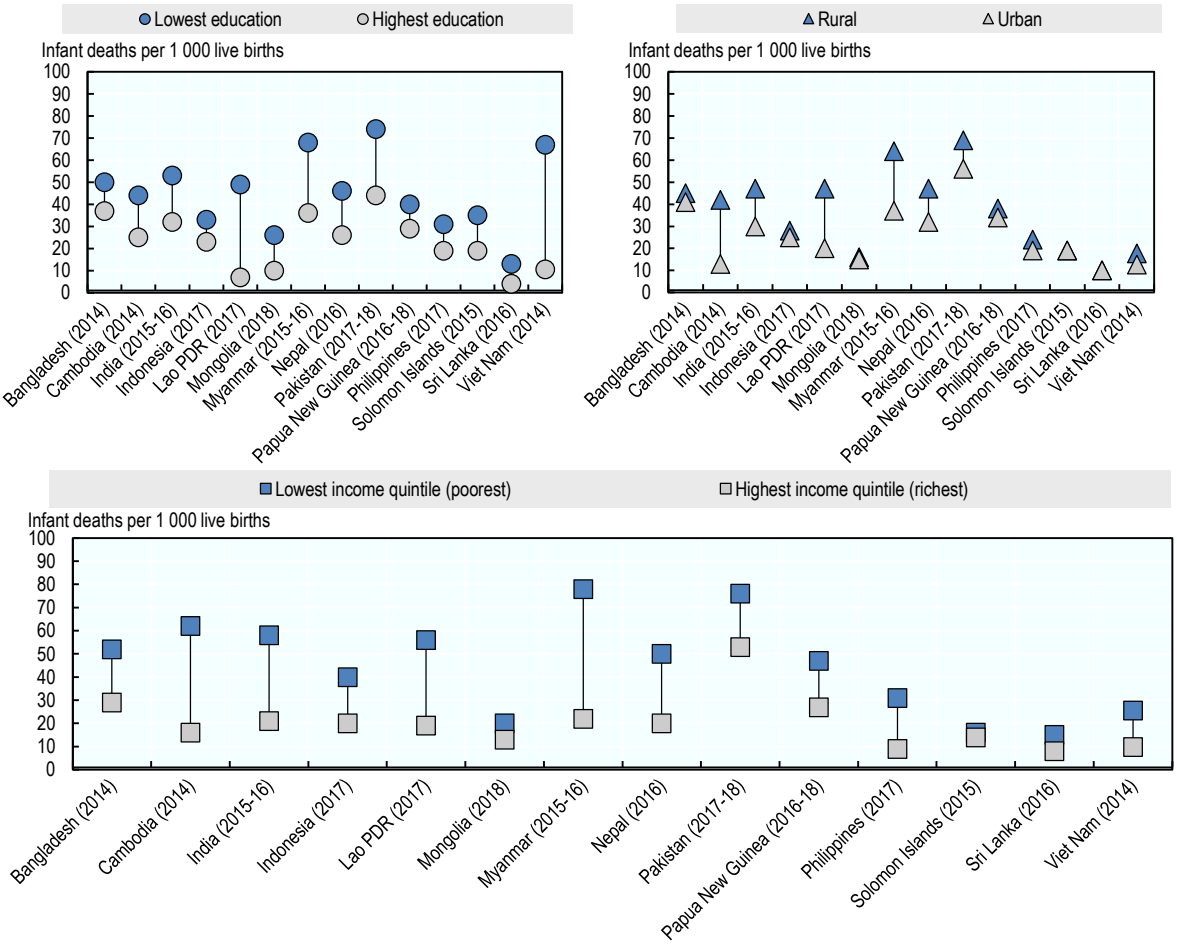
Figure 3.7. **Infant mortality rates by socio-economic characteristic and geographical location, selected countries**




Source: DHS and MICS surveys, various years.

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The under age 5 mortality rate is an indicator of child health as well as the overall development and well-being of a population. As part of their Sustainable Development Goals, the United Nations has set a target of reducing under age 5 mortality to at least as low as 25 per 1 000 live births by 2030 (United Nations, 2015[8]).

The main causes of death among children under age 5 include pneumonia (15%), diarrhoea (8%) and malaria (5%). Undernutrition, suboptimal breastfeeding and zinc deficiency are overlapping risk factors of these common childhood illnesses. Nutrition-related factors contribute to about 45% of deaths in children under 5 years of age (United Nations Inter-agency Group for Child Mortality Estimation (UN IGME), 2019[9]). Malnutrition is an impediment to the progress towards achieving the SDGs. In view of the importance of improving nutrition to promote heath and development, in 2012 the World Health Assembly endorsed a "Comprehensive implementation plan on maternal, infant and young child nutrition", which specified a set of six global nutrition targets. The UN General Assembly has also proclaimed the UN Decade of Action on Nutrition (2016-2025).

In 2018, 5.3 million children died worldwide before their fifth birthday and slightly more than a third of these deaths (1.9 million) occurred in the Eastern and Southern Asia regions (United Nations Inter-agency Group for Child Mortality Estimation (UN IGME), 2019[9]). The average under age 5 mortality rate across lower-middle and low, and upper middle income Asia-Pacific countries was 33.7 and 11.7 deaths per 1 000 live births respectively (Figure 3.8). Japan: Hong Kong, China; Singapore; the Republic of Korea and Australia achieved very low rates of four or less deaths per 1 000 live births, below the average across OECD countries. Mortality rates in Pakistan, Papua New Guinea, the Lao PDR and Myanmar were high, in excess of 40 deaths per 1 000 live births. These countries also had the highest infant mortality in the region. Due to its population, India alone accounted for 17% (0.9 million) of total under age five deaths in the world.

Whilst under age five mortality has significantly declined in lower-middle and low income Asia-Pacific countries, progress varies among countries. In China, Cambodia and Mongolia, mortality rate in 2018 was around one fourth of the rate reported in 2010 (Figure 3.8). Evidence (WHO, 2015[10]) suggests that reductions in Cambodia are associated with better coverage of effective preventive and curative interventions such as essential immunisations, malaria prevention and treatment, vitamin A supplementation, birth spacing, early and exclusive breastfeeding and improvements in socio-economic conditions. In order to achieve the SDG target, countries need to accelerate their efforts, for example by scaling effective preventive and curative interventions, targeting the main causes of post-neonatal deaths, namely pneumonia, diarrhoea, malaria and undernutrition, and reaching the most vulnerable newborn babies and children (UNICEF, 2013[6]). In addition, focused efforts need to be undertaken to improve neonatal survival as more than three-quarters of under age 5 deaths occur in the neonatal period.

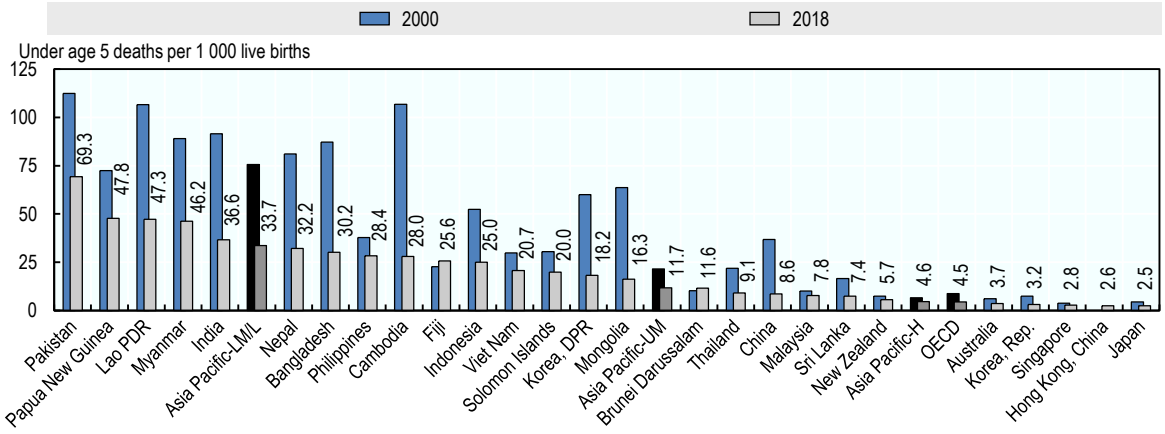
As is the case for infant mortality (see indicator "Infant mortality" in Chapter 3), inequalities in under age five mortality rates are widely prevalent (Figure 3.11). Across countries, under age 5 mortality rates consistently vary based on household income and mother's education level, and to a certain extent by geographical location. For example, in Viet Nam and Lao PDR under age 5 mortality was more than five times higher among children whose mother had no education compared to those whose mother had at least completed secondary education. In Cambodia, India, Myanmar and the Philippines disparities in under age 5 mortality according to household income were also large with children in the poorest 20% of the population three to four times more likely to die before their fifth birthday than those in the richest 20%. Inequalities in mortality rates based on geographic locations (rural or urban) were significant in Cambodia and the Lao PDR (Figure 3.9). Accelerating reductions in under age five mortality will require identifying these populations and tailoring health interventions to effectively address their needs.

### Definition and comparability

Under age 5 mortality is defined as the probability of a child born in a given year dying before reaching their fifth birthday, and is expressed per 1 000 live births. Since under age 5 mortality is derived from a life table, it is, strictly speaking, not a rate but a probability of death.

Age-specific mortality rates are used to construct life tables from which under age 5 mortality is derived. Some countries base their estimates on censuses, surveys and sample registration systems, and not on accurate and complete registration of deaths.

Figure 3.8. **Under age 5 mortality rates, 2000-18 (or latest year available)**




Source: UN IGME Child report 2019; The Hong Kong council of social service.

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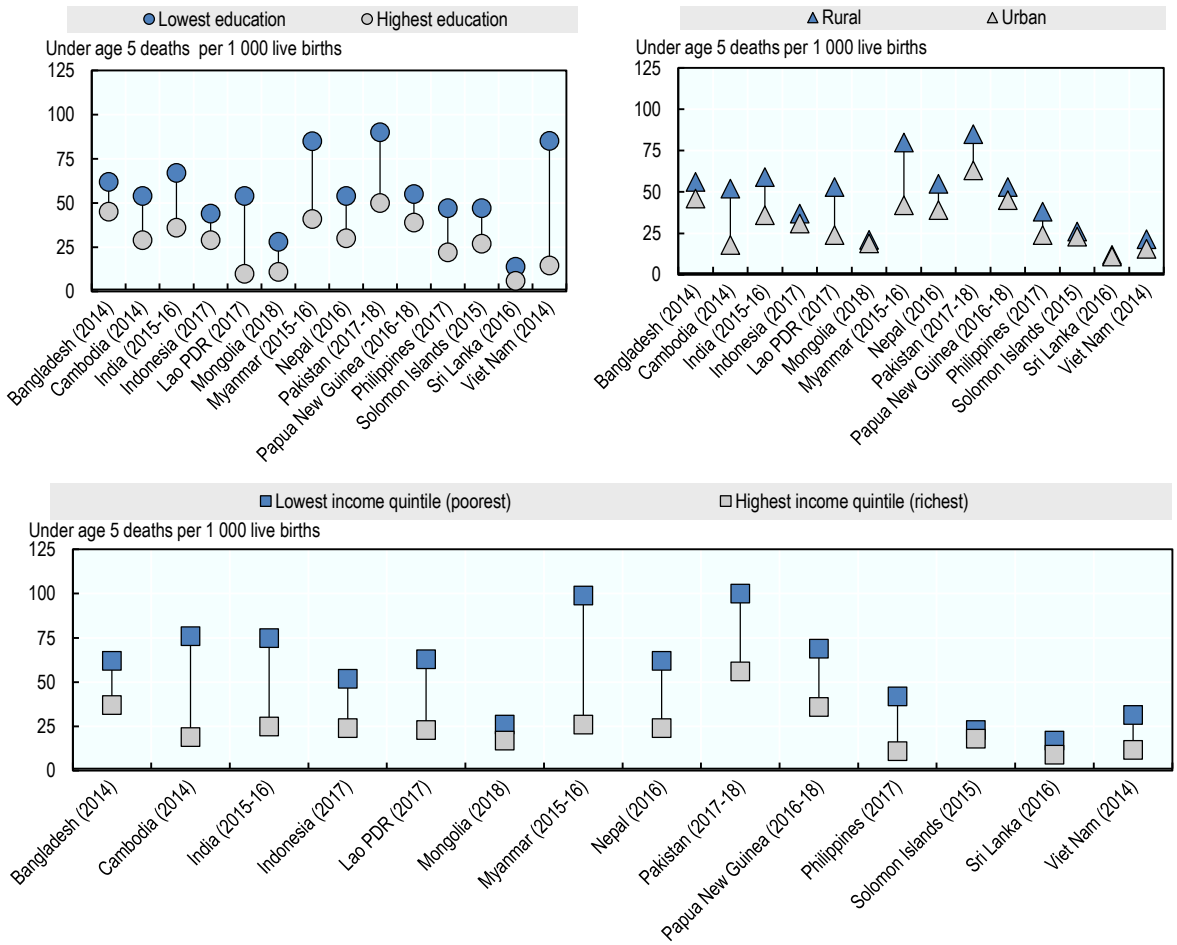
Figure 3.9. **Under age 5 mortality rates by socio-economic characteristic and geographical location, selected countries**




Source: DHS and MICS surveys, various years.

StatLink https://stat.link/2wsnqa

The burden from non-communicable diseases among adults – the most economically productive age group – is rapidly increasing in Asia-Pacific. Increasing development in countries and territories is bringing an "epidemiological transition", whereby early deaths are replaced by late deaths, and communicable diseases by non-communicable diseases (Omran AR, 2005[11]). The level of adult mortality, all-cause mortality for the population and cause of death are important for identifying the country's public health priorities and assessing the effectiveness of a country's health system.

There are wide disparities in adult mortality in the region. For males in 2016, the probability of dying between ages 15 and 60 ranged from a low of 65 per 1 000 population in Singapore and Japan to 294 per 1 000 in Mongolia (Figure 3.10). It also exceeded 250 per 1 000 population in Papua New Guinea, and was less than 80 also in Australia. Among females, the probability ranged from 36 per 1 000 population in the Republic of Korea and Japan to a high of 191 in Papua New Guinea. Probabilities were also less than 40 in Singapore. Mortality was higher among men than women across countries and territories and in Viet Nam, Sri Lanka, the Republic of Korea, Mongolia and Malaysia, rates for men were more than twice as high as those for females. Across lower-middle and low income Asia-Pacific countries, the average probability of dying was 204.3 per 1 000 population for adult men and 130.7 per 1 000 population for adult women, still much higher than the average adult mortality in OECD countries (101 per 1 000 population for men and 52 per 1 000 population for women), and higher than the average adult mortality in upper-middle income Asia-Pacific countries (171.3 for men and 95 for women).

All-cause mortality for the entire population ranged from less than 300 per 100 000 population in Japan and Macau, China, to over 1 000 in Pakistan, Papua New Guinea, Myanmar and the Lao PDR (Figure 3.11). The average rate in lower-middle and low income Asia-Pacific countries and territories was 921, 50% higher than that of the OECD. Nonetheless, mortality for the entire population had declined in all reporting Asia-Pacific between 2000 and 2016, and the gap with OECD countries had narrowed.

The share of deaths due to non-communicable diseases is increasing in Asia-Pacific. Non-communicable diseases such as cardiovascular diseases and cancers were the most common causes of death, being responsible for over 82% and 78% of all deaths, on average, across high and upper-middle income Asia-Pacific countries and territories (Figure 3.12; see also indicator "Mortality from cardiovascular diseases" and indicator "Mortality from cancer" in Chapter 3). In OECD countries, the average was at 87% and the share was also increasing. However, communicable diseases such as respiratory infections, diarrhoeal diseases and tuberculosis, along with maternal and perinatal conditions, also remained major causes of death among lower-middle and low income countries and territories in Asia-Pacific accounting for 16% of all deaths. In WPRO, violence and injuries are the leading cause of death for those aged 5-49, and the first five leading causes of deaths in the 15-29 age group are all violence and injury subtypes (see indicator "Mortality from injuries" in Chapter 3).

### Definition and comparability

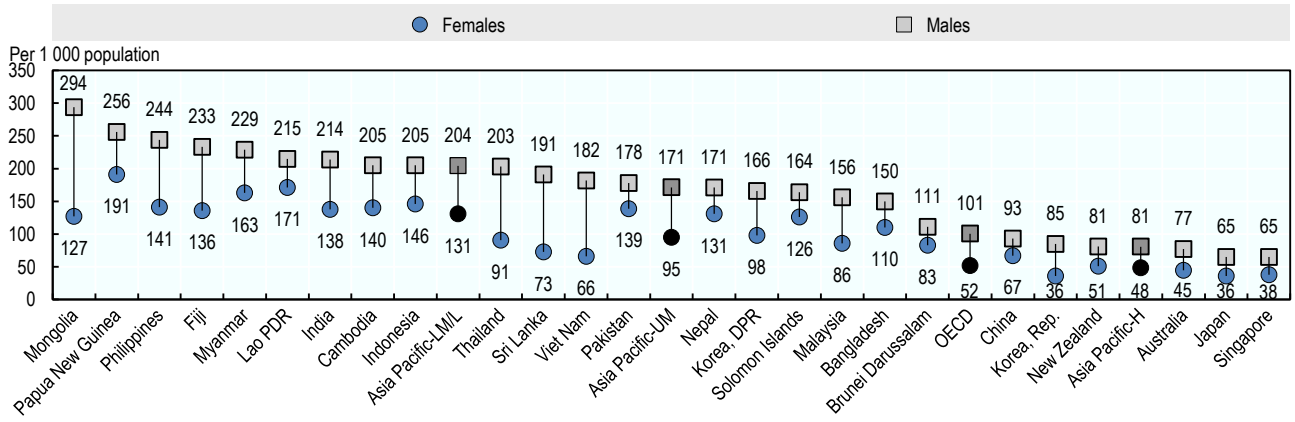
Mortality rates are calculated by dividing annual numbers of deaths by mid-year population estimates. Rates have been age-standardised to the World Standard Population to remove variations arising from differences in age structures across countries and territories.

Complete vital registration systems do not exist in many developing countries and territories, and about one-third of countries and territories in the region do not have recent data. Misclassification of causes of death is also an issue. A general assessment of the coverage, completeness and reliability of causes of death data has been published by WHO (Mathers et al., 2005[12]).

The WHO Global Health Estimates (GHE) project draws on a wide range of data sources to quantify global and regional effects of diseases, injuries and risk factors on population health. WHO has also developed life tables for all member states, based on a systematic review of all available evidence on mortality levels and trends. The probability of dying between 15 and 60 years of age (adult mortality rate) derive from these life tables.

All-cause mortality rates for Hong Kong, China and Macau, China are not age-standardised.

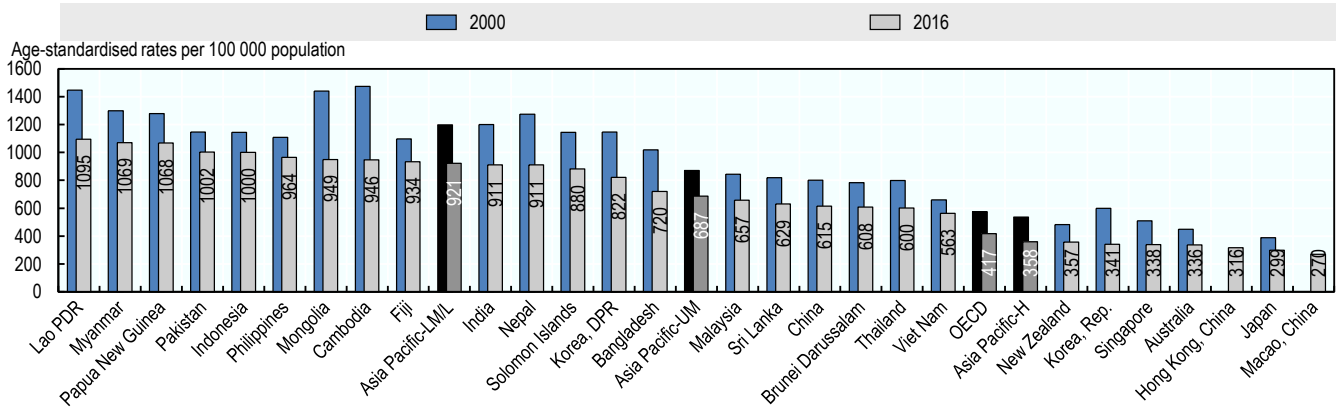
Figure 3.10. **Adult mortality rate (probability of dying between 15 and 60 years per 1 000 population), 2016**




Source: WHO Global Health Observatory (GHO) 2018.

*StatLink* https://stat.link/dk0vyu

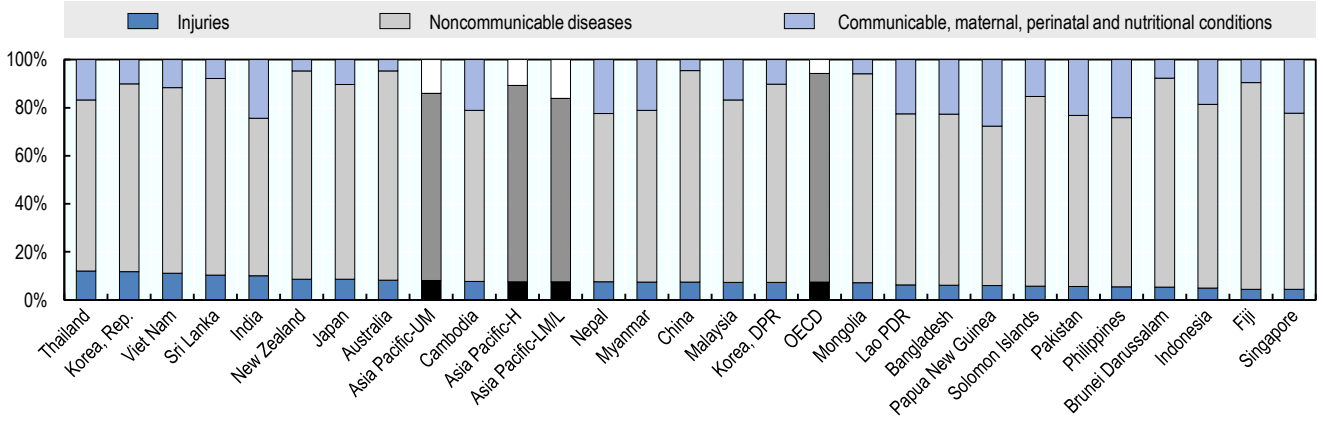
Figure 3.11. **All cause-mortality rates for all populations, 2000 and 2016**




Source: WHO Global Burden of Disease, 2018; Department of Health, Hong Kong, China, 2018; Statistics and Census Service, Macau, China, 2017.

*StatLink* https://stat.link/5wrcn2

Figure 3.12. **Proportions of all cause deaths, 2016**




Source: WHO Global Burden of Disease, 2018.

*StatLink* https://stat.link/6lkpy5

Cardiovascular disease (CVD) is the leading cause of death in Asia-Pacific, although highly preventable. CVD was the cause of an estimated 9.4 million deaths in SEARO and WPRO and accounted for one-third of all deaths in 2016 in these regions (*https://www.who.int/data/gho*).

CVD covers a range of diseases related to the circulatory system, including ischaemic heart disease (IHD) and cerebrovascular disease (or stroke). Ischemic heart disease is caused by the accumulation of an atherosclerotic plaque in the inner wall of a coronary artery, restricting blood flow to the heart. Cerebrovascular diseases refer to a group of diseases that relate to problems with the blood vessels that supply the brain. Common types of cerebrovascular disease include ischemic stroke, which develops when the brain's blood supply is blocked or interrupted, and haemorrhagic stroke, which occurs when blood leaks from blood vessels onto the subarachnoid space or the surface of the brain. Together, IHD and stroke comprise 87.8% of all cardiovascular deaths in WPRO and SEARO countries and territories combined (*https://www.who.int/data/gho*).

The majority of CVD is caused by risk factors that can be controlled, treated or modified, such as high blood pressure, high blood glucose, high blood cholesterol, obesity (see indicator "Overweight or obesity" in Chapter 4), lack of physical activity, tobacco use (see indicator "Tobacco" in Chapter 4) and excessive alcohol consumption.

Mortality from cardiovascular disease varied across countries and territories with a notably high level, exceeding 440 deaths per 100 000 population in Mongolia in 2016 (Figure 3.13). This was in contrast to a group of developed countries and territories – Republic of Korea, Japan, Singapore, Australia, Macau, China, Hong Kong, China and New Zealand – where death rates were below 100 per 100 000 population. The large variation in mortality may be due to differences in the prevalence of risk factors for CVD and also access to high quality acute care (see indicator "In-hospital mortality following acute myocardial infarction and stroke" in Chapter 7) across countries and territories. The average mortality rate from CVD in lower-middle and low income Asia-Pacific countries and territories was twice the one in OECD countries (311 versus 127.8 deaths per 100 000 population). While all Asia-Pacific countries and territories and territories had decreased mortality from CVD, the rate was unchanged in Bangladesh, Myanmar and the Philippines from 2000-16.

Success of reducing the mortality rates from CVD in OECD countries owes to a decline in smoking rates, expanded health system's capacity to control high cholesterol and blood pressure, and greater access to effective care in the event of an acute episode such as a stroke or heart attack (OECD, 2015[13]). As an example, in Japan population-based interventions such as salt reduction campaigns and an increased use of antihypertensive drugs covered by the health insurance system were successful in controlling blood pressure, resulting in the reduction of CVD mortality (Ikeda et al., 2011[14]).

The types of CVD that are fatal differ across countries and territories in the region. In China, Cambodia, Korea DPR, the Republic of Korea, Viet Nam, Bangladesh and Myanmar mortality from stroke was greater than IHD (Figure 3.14). In all other Asia-Pacific countries and territories, the trend was similar to European and North American countries and territories and mortality from IHD was greater than for stroke (Ueshima et al., 2008[15]).

While mortality rates from CVD by age group follow a similar curve in Asia-Pacific and OECD countries, mortality is systematically higher in lower-middle and low income Asia-Pacific countries and territories across all age groups (Figure 3.15).

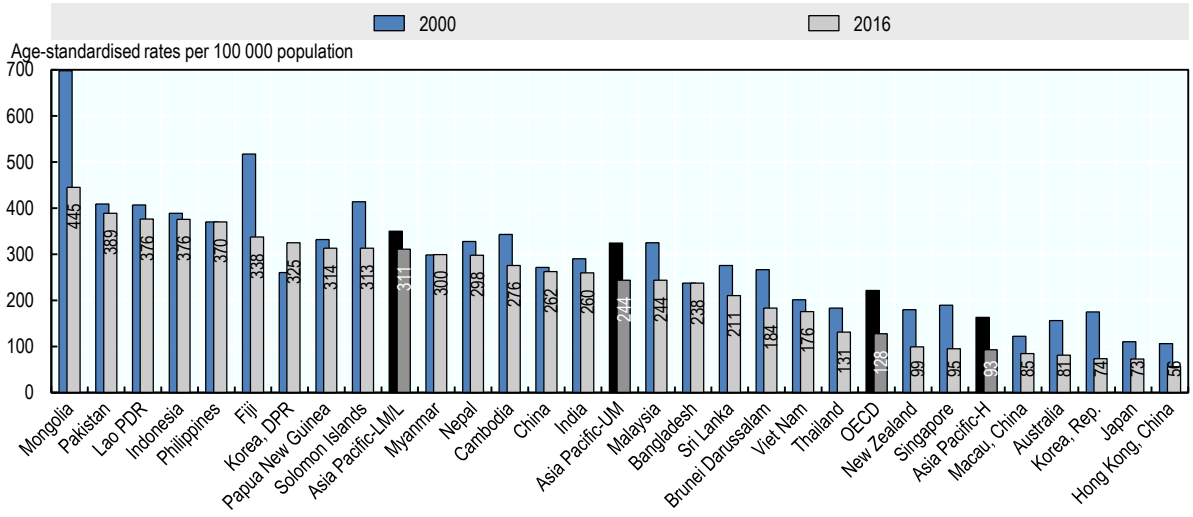
As the proportion of older people increases in Asia-Pacific (see indicator "Ageing" in Chapter 3), demand for health care will increase and the complexity and type of care that CVD patients require will change. Increases in total cholesterol and blood pressure, along with smoking, overweight/obesity and high blood glucose (see indicator "Diabetes" in Chapter 3) highlight the need for management of risk factors to prevent an epidemic of CVD. In addition to efforts to improve lifestyles, primary care needs to be strengthened and quality of acute care needs to improve through better emergency care and improved professional skills and training capacity (OECD, 2015[13]).

### Definition and comparability

See indicator "Mortality from all causes" in Chapter 3 for definition, source and methodology underlying mortality rates.

CVD mortality rates for Hong Kong, China and Macau, China are not age-standardised.

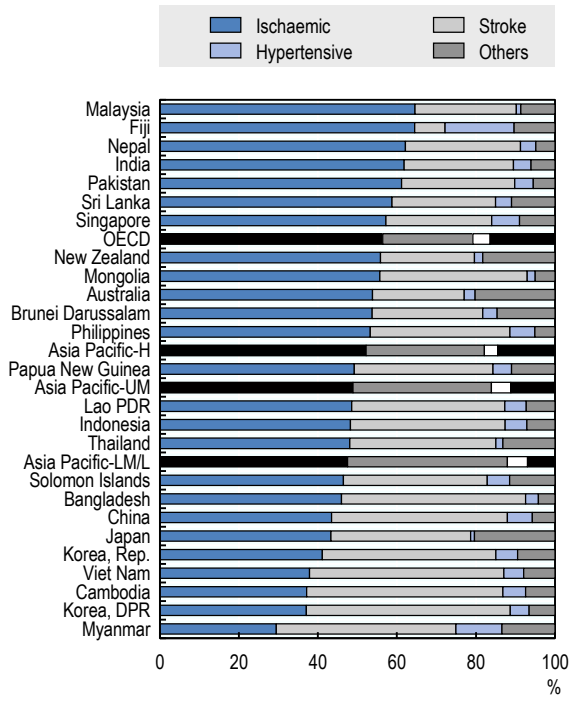
Figure 3.13. **Cardiovascular disease, estimated mortality rates, 2000 and 2016**




Source: WHO Global Burden of Disease, 2018; Department of Health, Hong Kong, China, 2018; Macau statistical yearbook, 2017.

*StatLink https://stat.link/4df8ms*

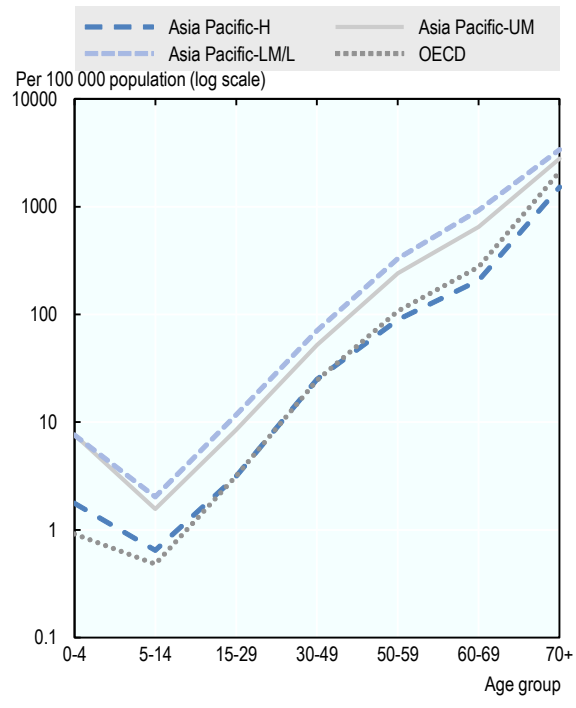
Figure 3.14. **Proportions of cardiovascular disease deaths, 2016**




Source: WHO Global Burden of Disease, 2018.

*StatLink https://stat.link/xfcg8b*

Figure 3.15. **Cardiovascular diseases, age-specific mortality rates, 2016**




Source: WHO Global Burden of Disease, 2018.

*StatLink https://stat.link/240tmi*

Cancer is the second leading cause of death after CVD in the Asia-Pacific region. Cancer was the cause of an estimated 4.5 million deaths (or 16.3% of total deaths) in Asia-Pacific in 2016 (*https://www.who.int/data/gho*).

There are more than 100 different types of cancers, with most named after the organ in which they start. Cancer occurs when abnormal cells divide without control and are able to invade other tissues. While genetics are a risk factor, only about 5% to 10% of all cancers are inherited. Modifiable risk factors such as smoking, obesity, exercise, and excess sun exposure, as well as environmental exposures, explain as much as 90-95% of all cancer cases (Islami et al., 2017[16]; Wilson et al., 2018[17]; Whiteman and Wilson, 2016[18]). Prevention, early detection and treatment remain at the forefront in the battle to reduce the burden of cancer, and progress towards fighting cancer needs to be monitored not only by mortality rates but also by survival estimates, taking account of early detection of the disease and the effectiveness of treatment (OECD, 2013[19]).

Mongolia had higher cancer mortality rates, all with over 200 deaths per 100 000 population in 2016 (Figure 3.16). Cancer deaths were less common in Sri Lanka, India, Nepal, Bangladesh and Fiji, and they had less than 90 deaths per 100 000 population.

The average rate of death in Asia-Pacific countries and territories was lower than that of OECD countries (115.5 in lower-middle and low, 111.9 in high and 104.1 in upper-middle income Asia-Pacific countries and territories versus 120.9 deaths per 100 000 population in 2016). While cancer mortality had increased in all Asia-Pacific countries and territories and territories, India, Papua New Guinea, Brunei Darussalam and Fiji reported an increase from 2000-16 of 1.2%, 6%, 12.5% and 27.2% respectively.

Trachea, bronchus and lung cancer were the leading type of cancer in upper-middle and high-income Asia-Pacific countries and territories (Figure 3.17), accounting for 19.7%, and 19.8% of all cancer deaths – on average – respectively in 2016. Liver cancer was the first cause of cancer deaths in lower-middle and low income Asia-Pacific countries and territories, accounting for around 17% of cancer deaths in 2016. In Mongolia, with the highest cancer mortality, the large proportion of deaths was due to liver cancer, precipitated by hepatitis B infection. Besides Mongolia, liver cancer deaths occurred frequently in the Lao PDR, Viet Nam and Thailand. Incidence is expected to fall in coming decades, with increased immunisation for hepatitis B (see indicator “Childhood vaccination” in Chapter 7).

Other main causes of cancer deaths were stomach, colorectal and breast cancer. Mortality from stomach cancer accounted for 6.3% and 5.7% all cancer deaths in high-income and upper-middle income countries and territories respectively, linked to *Helicobactor pylori* infection, with deaths more prevalent in Mongolia, China, the Republic of Korea, Japan and Viet Nam. Colorectal cancer deaths were higher in New Zealand, Singapore and Brunei Darussalam. Breast cancer deaths, the most common cause among women, were responsible for over 15% of all cancer deaths in Pakistan and Fiji, and the mortality rate was also high in Solomon Islands, Malaysia and the Philippines.

Cancer causes the highest economic loss among top causes of death worldwide as a large proportion of cancer deaths occur in the economically productive age group (Figure 3.18). OECD and high-income Asia-Pacific countries and territories had high mortality rates among older people (70 years or more), whereas lower-middle and low income Asia-Pacific countries and territories had high mortality rates for people aged less than 60 years. For a large number of cancers, the risk of developing the disease rises with age but in lower-middle and low-income countries and territories, life expectancy is considerably lower than other countries and territories, so the older people die of other diseases.

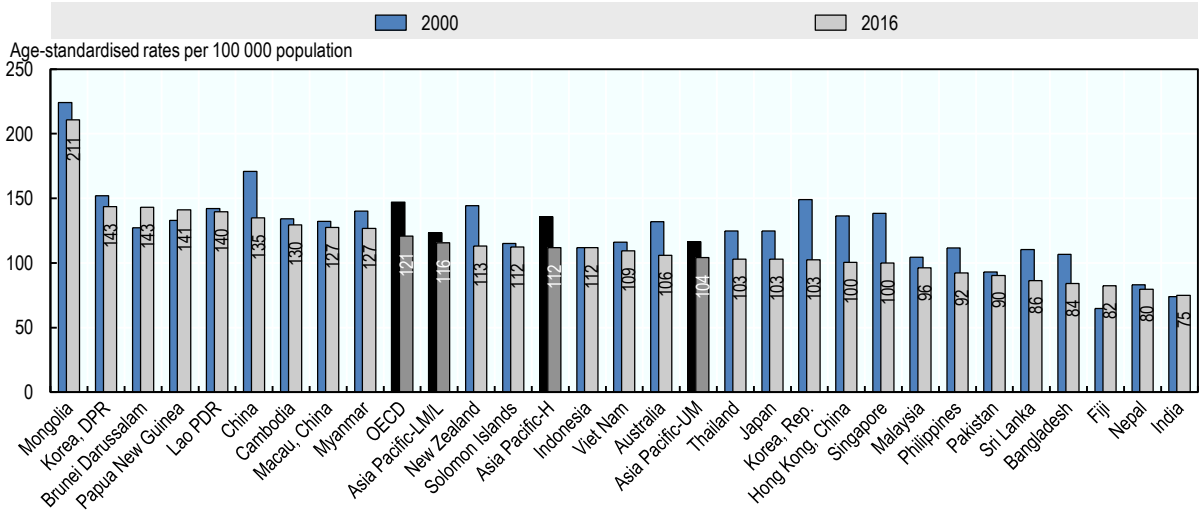
As with cardiovascular disease, the ageing of the population will lead to many more cases of cancer in coming decades, taxing underprepared health systems. Since the drugs and technologies for treating patients are expensive, cancer control planning in the Asia-Pacific region might more effectively target smoking, physical activity and overweight/obesity. Early diagnosis is also a key to reducing mortality, so access to cancer diagnosis and care needs to be promoted through public health interventions or wider health coverage (OECD, 2013[19]).

### Definition and comparability

See indicator “Mortality from all causes” in Chapter 3 for definition, source and methodology underlying mortality rates.

Cancer mortality rates for Hong Kong, China and Macau, China are not age-standardised.

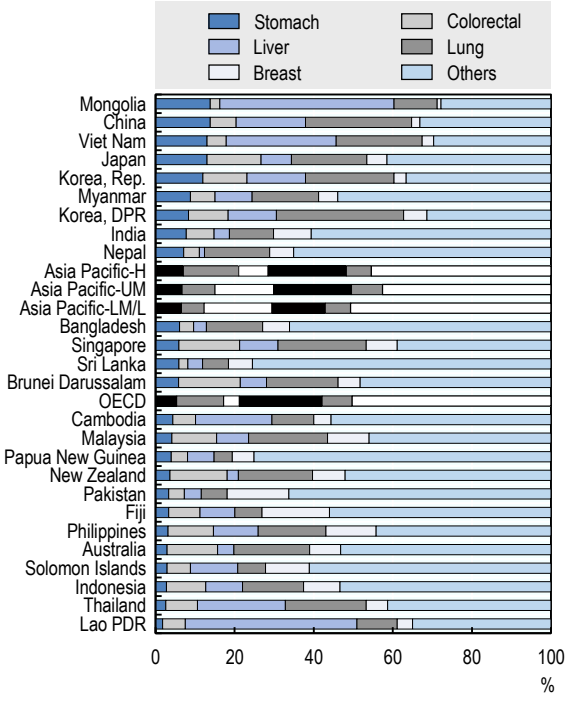
Figure 3.16. **All cancers, estimated mortality rates, 2000 and 2016**




Source: WHO Global Burden of Disease, 2018; Department of Health, Hong Kong, China, 2018; Disease Registry, Macau, China, 2017.

*StatLink https://stat.link/wj7zp9*

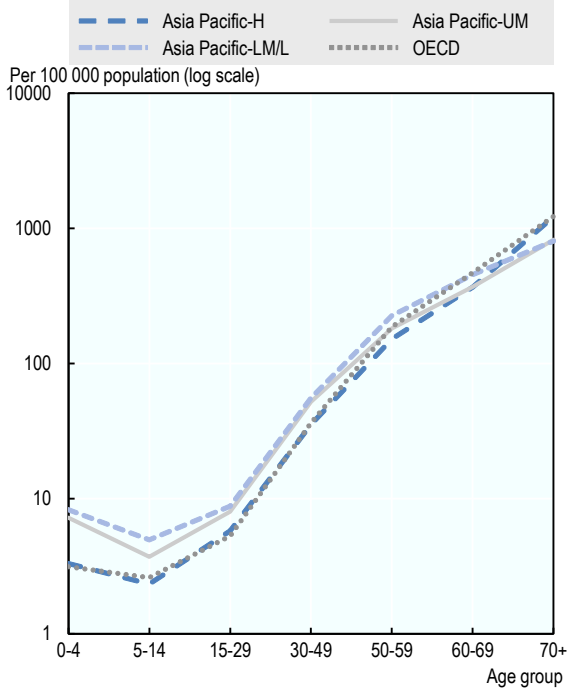
Figure 3.17. **Proportions of cancer deaths, 2016**




Source: WHO Global Burden of Disease, 2018.

*StatLink https://stat.link/jpz42v*

Figure 3.18. **Malignant neoplasms, age-specific mortality rates, 2016**




Source: WHO Global Burden of Disease, 2018.

*StatLink https://stat.link/5uhwr1*

Injuries are a leading cause of death and disability for all age groups and took 2.3 million lives in 2016 in WPRO and SEARO, accounting for 8.6% of all deaths in these regions. Injuries can result from traffic collisions, drowning, poisoning, falls or burns, and violence from assault, self-inflicted or acts or war. The magnitude of the problem varies considerably across countries and territories by cause, age, sex, and income group. However, injury deaths, both intentional and unintentional, are largely preventable events.

Mortality from injuries was highest in India, Myanmar, Cambodia and Thailand with greater than 70 deaths per 100 000 populations, while the rate was lowest in Hong Kong, China; and Singapore with 15 deaths per 100 000 population in 2016 (Figure 3.19). Lower-middle and low income Asia-Pacific countries and territories had twice the injury mortality rate than OECD countries (64 versus 31 deaths per 100 000 population).

Injury deaths have declined in all Asia-Pacific countries and territories between 2000 and 2016. A large decrease in injury deaths observed in Sri Lanka was due to the end of armed conflict in 2009.

Deaths due to road traffic crashes represent 37.7% and 30.1% of all injuries deaths in upper-middle and lower-middle and low income Asia-Pacific countries and territories respectively in 2016. However, this figure should be considered in the context of a corresponding global increase in the number of registered vehicles, suggesting that interventions to improve global road safety have mitigated the expected rise in the number of deaths (WHO, 2018[20]). With the support of Bloomberg Philanthropies, the WHO, the Global Road Safety Partnership and Johns Hopkins University have been implementing the Bloomberg Philanthropies Global Road Safety Programme (BP-GRSP) in ten countries and territories with high burden of fatal road traffic injuries, including China, Cambodia, India, and Viet Nam. Commencing in 2010, this five-year programme focuses on saving lives and preventing injuries by scaling up enhanced enforcement of major risk factors like motorcycle helmet wearing, speed, alcohol or seatbelts, pertinent to each country (Peden, 2010[21]). On 11 May 2011, the first ever Decade of Action for Road Safety 2011-20 was launched with great enthusiasm and optimism across the world. Mandated by the United Nations General Assembly, the Decade is a historic opportunity for countries and territories to stop and reverse the trend which – without action – would lead to the loss of around 1.9 million lives on the roads each year by 2020 (*http://www.who.int/roadsafety/decade_of_action/en/*). This policy message was strengthen by SDG 3.6, which targets halving the number of global deaths and injuries from road traffic accidents by 2020.

The main causes of injury deaths are different across countries and territories in the region (Figure 3.20). In China, Solomon Islands, Thailand and Malaysia, 39% or more of all injury deaths were due to road traffic crashes, while in the Republic of Korea mortality rates for road traffic injuries are one of the highest in high-income countries and territories at 19.9% of all injury deaths. In the Republic of Korea, Singapore and Japan, self-inflicted injuries were the leading cause of injury mortality, accounting for over 50% of all injury deaths. Over 90% of people who had attempted or committed suicide were diagnosed with psychiatric disorders such as severe depression, bipolar disorder and schizophrenia (Turecki and Brent, 2016[22]), but mental disorders are still under-treated or ineffectively treated (Hewlett and Moran, 2014[23]). Interpersonal violence is the main cause of injury deaths for men in the Philippines.

Age-specific mortality was consistently higher in middle and low-income countries and territories across all age groups, and significant higher for children up to the age of 15 (Figure 3.21). Drowning is the leading cause of unintentional injury-related deaths among those aged 5-14 in the region (WHO, 2104[24]). Drowning is a largely preventable cause of death that is strongly associated with poverty. Population most at risk are those living in low-income countries and territories of densely populated communities with high exposure to open water.

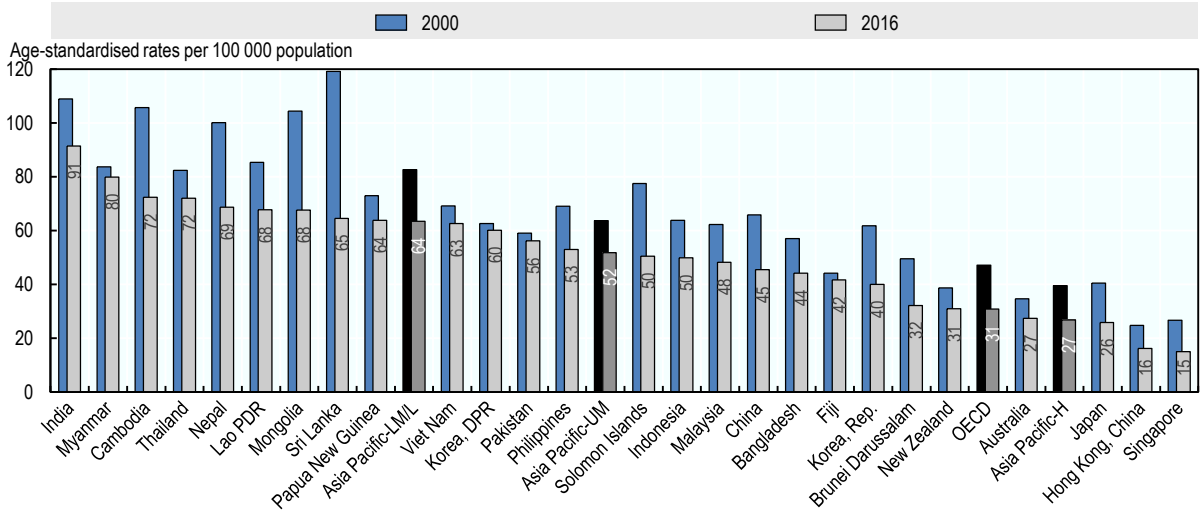
### Definition and comparability

See indicator “Mortality from all causes” in Chapter 3 for definition, source and methodology underlying mortality rates.

Injury deaths where the intent is not determined are distributed proportionately to all causes below the group level for injuries.

Estimates for road injury deaths drew on death registration data, reported road traffic deaths from official road traffic surveillance systems and revised regression model for countries and territories without usable death registration data (WHO, 2018[20]).

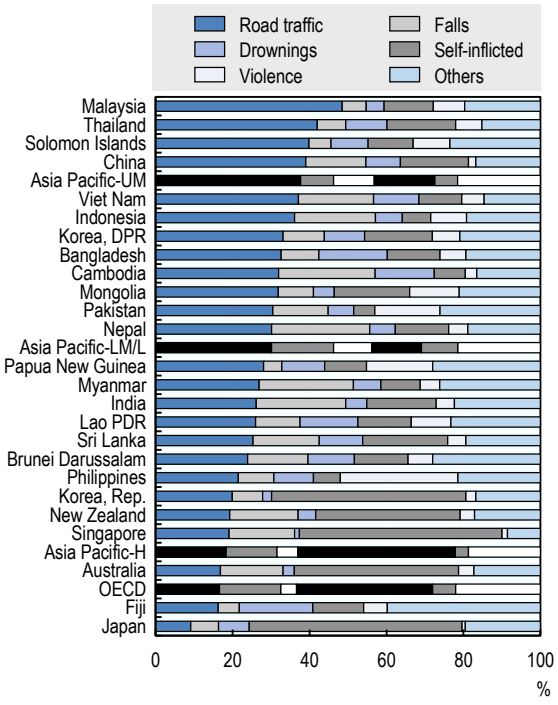
Figure 3.19. **Injuries, estimated mortality rates, 2000 and 2016**




Source: WHO Global Burden of Disease, 2018; Department of Health, Hong Kong, China, 2017.

StatLink https://stat.link/pa30d2

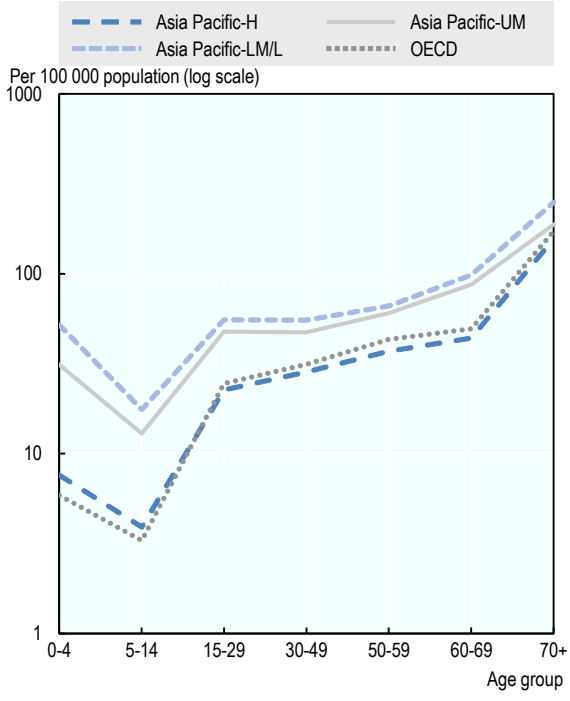
Figure 3.20. **Proportions of injury deaths, 2016**




Source: WHO Global Burden of Disease, 2018.

StatLink https://stat.link/y5twsq

Figure 3.21. **Injuries, age-specific mortality rates, 2016**




Source: WHO Global Burden of Disease, 2018.

StatLink https://stat.link/b14dve

Pregnancy and childbearing, whilst offering women opportunities for personal development and fulfilment, also present inherent risks. Maternal mortality is an important indicator of a woman's health and status. The Sustainable Development Goals set a target of reducing the maternal mortality ratio to less than 70 deaths per 100 000 live births by 2030.

295 000 maternal deaths were estimated to have occurred worldwide in 2017, and a woman's lifetime risk of maternal death – the probability that a 15-year-old woman will die eventually from a maternal cause – is 0.53, that is one woman in 190, which is approximately half the rate reported in 2000 (WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division, 2019[25]).

The leading causes of deaths are severe bleeding after childbirth, infections, high blood pressure during pregnancy and unsafe abortion. The majority of these deaths are preventable and occur in resource-poor settings (WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division, 2019[25]). Fertility and maternal mortality have strong associations with economic development. Risk of maternal death can be reduced through family planning, better access to high-quality antenatal, intrapartum and postnatal care by skilled health professionals.

Maternal mortality ratio (MMR) averaged around 140 deaths per 100 000 live births in lower-middle and low income Asia-Pacific countries in 2017, more than four times the upper-middle income and 14 times the high-income Asia-Pacific countries average respectively (Figure 3.22, left panel). Estimates for 2017 show a small group of countries – Hong Kong, China; Australia; Japan; Singapore and New Zealand – with very low ratios (less than 1 per 10000 live births), whereas Myanmar, Nepal and the Lao PDR had high MMRs at 180 or more deaths per 100 000 live births. Almost 15% of the world's maternal deaths occurred in India and Pakistan alone.

Despite high ratios in certain countries, significant reductions in maternal mortality have been achieved in Asia-Pacific over the last 17 years (Figure 3.22, right panel). The MMR declined by 50% between 2000 and 2017 across lower-middle and low income Asia-Pacific countries. Bangladesh, Cambodia, India, the Lao PDR and Nepal showed the largest reductions among countries reporting ratios higher than the low and lower-middle income countries average in 2000. According to a study (WHO, 2015[10]), Cambodia's success is related to reduced fertility through wider use of contraceptives and increased coverage of antenatal care and skilled birth attendance – achieved through increasing the number of midwives and facilities providing Emergency Obstetric and Newborn Care.

Across countries, maternal mortality is inversely related to the coverage of skilled birth attendance (Figure 3.23). Nepal and Papua New Guinea reported that less than 60% of live births are attended by skilled health professionals (see indicator "Pregnancy and birth" in Chapter 5). These countries have relatively high MMRs above 145 deaths per 100 000 live births.

Higher coverage of antenatal care[1] is associated with lower maternal mortality, indicating the effectiveness of antenatal care across countries (Figure 3.24). Addressing disparities in the unmet need of family planning and providing essential reproductive health services to underserved populations may also substantially reduce maternal deaths in the region (UNESCAP, 2017[3]).

To improve quality of care, maternal death surveillance and response (MDSR) has been implemented in countries. MDSR is a continuous cycle of identification, notification and review of maternal deaths followed by actions to prevent future death. Global survey of national MDSR system instigated in 2015 provides baseline data on status of implementation. The implementation status of countries in WPRO (Cambodia, China, Fiji, Laos PDR, Malaysia, Mongolia and Papua New Guinea) can be found at *http://www.who.int/maternal_child_adolescent/epidemiology/maternal-death-surveillance/en/*.

### Definition and comparability

Maternal mortality is defined as the death of a woman while pregnant or during childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from unintentional or incidental causes (WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division, 2019[25]).

This includes direct deaths from obstetric complications of pregnancy, interventions, omissions or incorrect treatment. It also includes indirect deaths due to previously existing diseases, or diseases that developed during pregnancy, where these were aggravated by the effects of pregnancy.

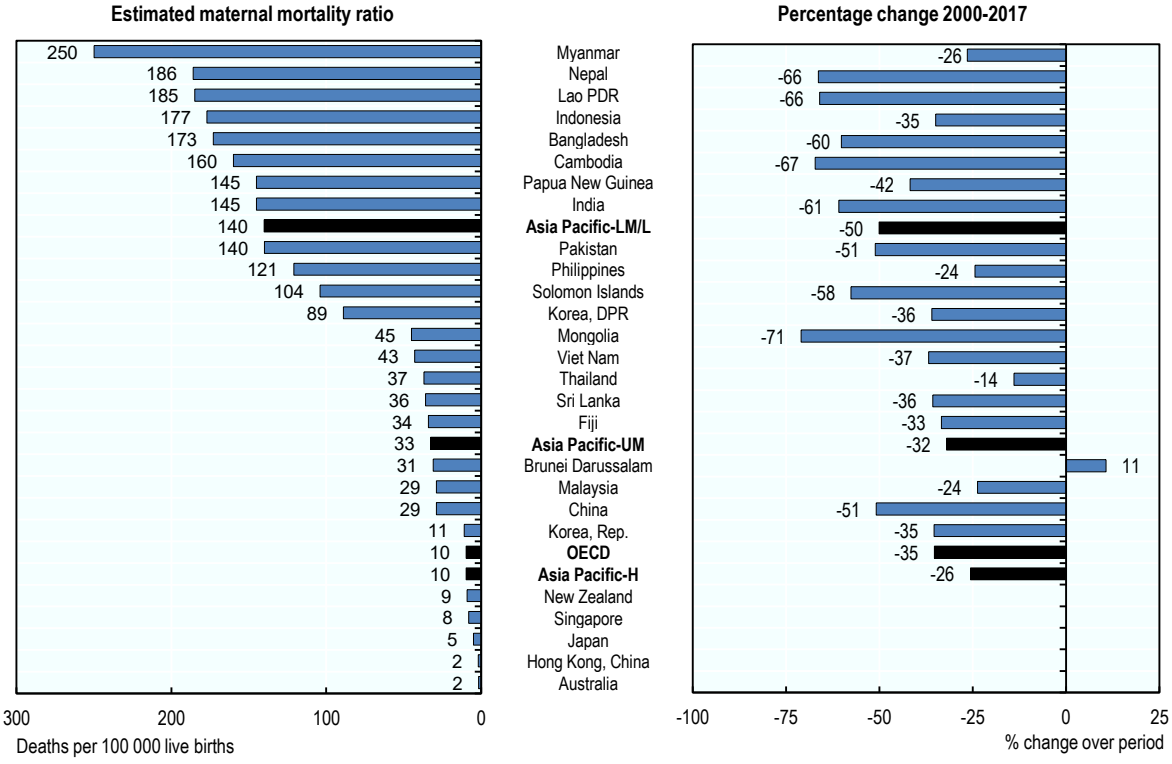
Maternal mortality is here measured using the maternal mortality ratio (MMR). It is the number of maternal deaths during a given time period per 100 000 live births during the same time period.

There are difficulties in identifying maternal deaths precisely. Many countries in the region do not have accurate or complete vital registration systems, and so the MMR is derived from other sources including censuses, household surveys, sibling histories, verbal autopsies and statistical studies. Because of this, estimates should be treated cautiously.

### *Note*

1. Evidence is based on at least four times, but latest WHO Recommendations are at least eight antenatal visits, comprising pregnancy monitoring, managing problems such as anaemia, counselling and advice on preventive care, diet, and delivery by or under the supervision of skilled health personnel.

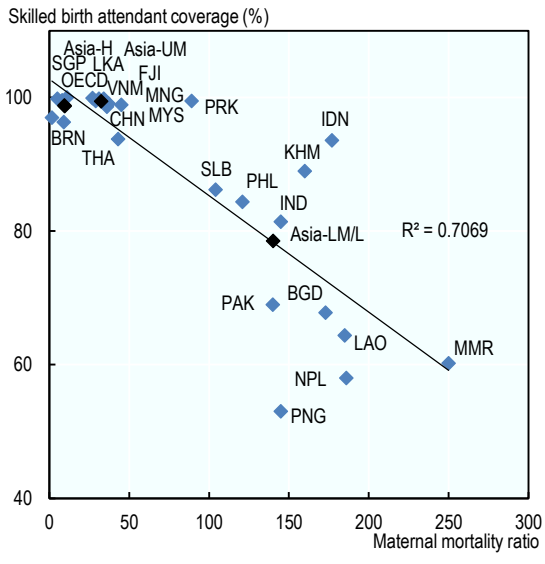
Figure 3.22. **Estimated maternal mortality ratio, 2017 (or latest year available), and percent change since 2000**




Source: OECD Health Statistics 2020; WHO (2019); Health facts of Hong Kong 2019.

StatLink https://stat.link/1pgxlm

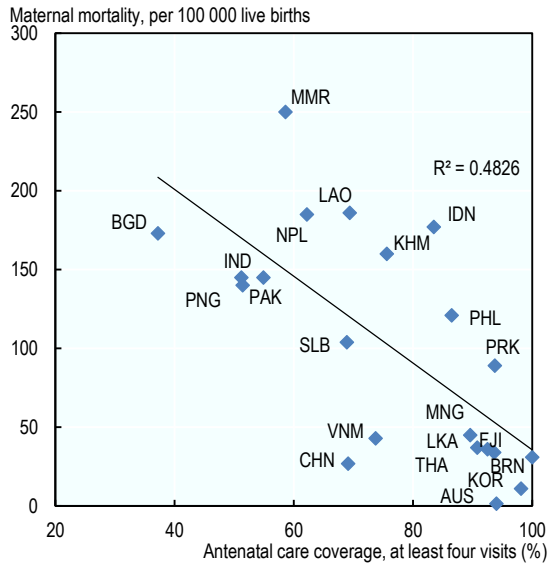
Figure 3.23. **Skilled birth attendant coverage and estimated maternal mortality ratios, latest year available**




Source: OECD Health Statistics 2020; WHO (2019); WHO GHO 2019.

StatLink https://stat.link/niguwx

Figure 3.24. **Antenatal care coverage and maternal mortality ratios, latest year available**




Source: WHO GHO 2019.

StatLink https://stat.link/8kys0o

Tuberculosis (TB) is the leading cause of death from an infectious disease in Asia-Pacific. In 2018, there were 10 million incident (new and relapsed) TB cases worldwide, 1.2 million deaths among HIV-negative people globally. More than 40% of new cases and almost half of deaths were estimated in India, Indonesia and Pakistan alone. Most of these TB cases and deaths occur disproportionately among men, but the burden of disease among women is also high as it remains among the top three killers for them in the world. Most cases of TB are curable if diagnosed early and the right treatment is provided – such as first-line antibiotics for 6 months -, therefore curtailing onward transmission of infection (WHO, 2019[26]).

TB was declared a global health emergency by WHO in 1993 and the WHO-coordinated Stop TB Partnership set targets of halving TB prevalence and deaths by 2015, compared with a baseline of 1990. The WHO's End TB Strategy (post-2015) which followed the Stop TB Strategy aims at ending the global TB epidemic by 2035, in line with the Sustainable Development Goals. In the Delhi Call for Action to End TB in the WHO South-East Asia Region by 2030, the health ministers pledged to implement national tuberculosis programmes through an "empowered national initiative" (Sharma, 2017[27]).

In Asia-Pacific, TB mortality rates were high in Korea DPR and Papua New Guinea with over 50 deaths of people without HIV per 100 000 populations (Figure 3.25, left panel).

Five countries in the world which collectively accounted to 56% of the estimated TB cases globally in 2018 were in the Asia-Pacific region: India (2.69 million), China (0.86 million), Indonesia (0.84 million), the Philippines (0.59 million) and Pakistan (0.56 million). The case notification rate is particularly high in Korea DPR, Papua New Guinea and the Philippines, at more than 300 cases per 100 000 population. An incidence rate higher than 500 cases per 100 000 population was estimated for the Philippines and Korea DPR, while for Australia, New Zealand and Japan less than 15 incident cases per 100 000 population were estimated (Figure 3.25, right panel).

High-quality TB services have expanded and many cases are treated, reaching the treatment success rate for new TB cases of more than 80% in most Asia-Pacific countries in 2017 (Figure 3.26). Nevertheless, Hong Kong, China, Japan and Papua New Guinea report a low treatment success rate at 70%.

The Asia-Pacific region is rising to the challenges presented by TB. In a large part of the countries, incidence rates have declined from 2013 to 2018 (Figure 3.27). However, countries like Malaysia, the Philippines, Fiji, Singapore, New Zealand, Australia and Brunei Darussalam are showing upward trends, with the latter four belonging to the high-income economies group and experiencing low base incidence rates. In the period in this study, TB incidence was stable in Bangladesh, Mongolia and Papua New Guinea.

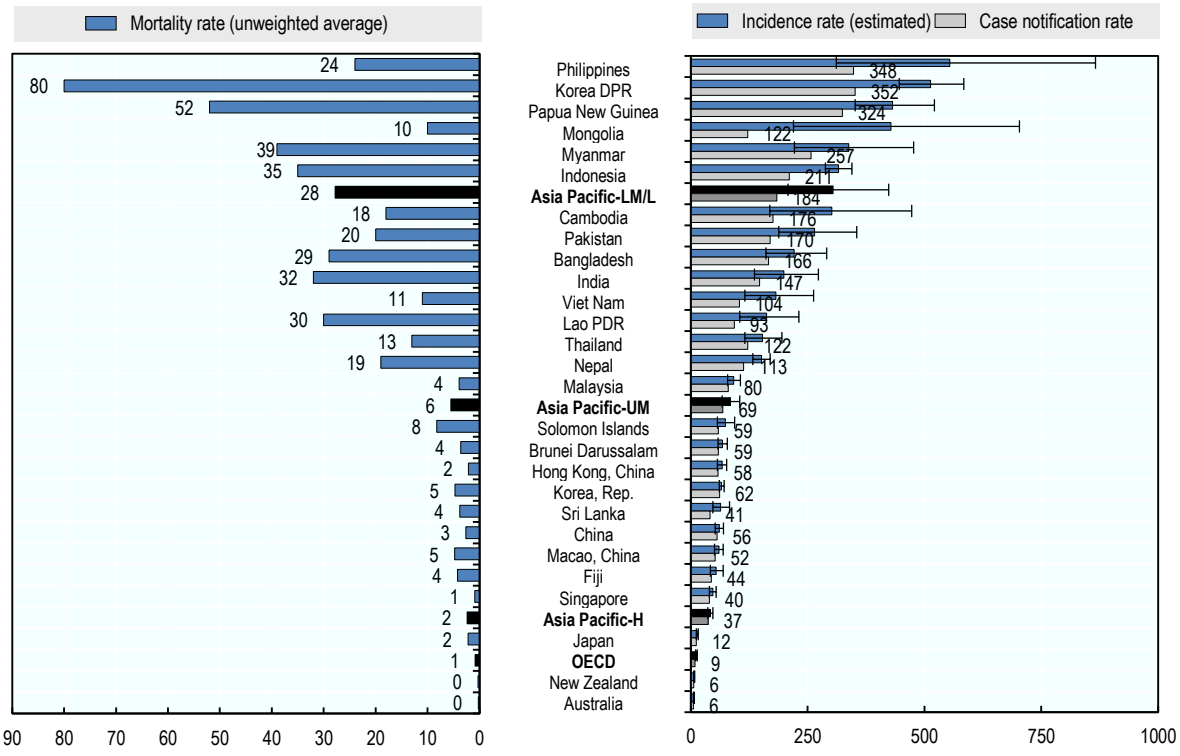
The region still faces important challenges in TB control, including providing services to those in greatest need, especially the poor and vulnerable. HIV-TB co-infection, the emergence of drug-resistant strains, a sizeable proportion of TB-affected population facing catastrophic costs due to TB, funding gaps and the need for greater technical expertise all remain threats to progress (WHO, 2016[28]; WHO, 2019[26]). Concerning drug-resistant TB (MDR/RR-TB), the burden is high in China with 7.1% of new cases are estimated to have MDR/RR-TB. This proportion is also high at 5.1% in Myanmar and Viet Nam, at above 4%. Treatment of MDR/RR-TB can take up to two years and is far more costly than drug susceptible strains.

### Definition and comparability

Tuberculosis (TB) is a contagious disease, caused by the Mycobacterium tuberculosis bacteria. Tuberculosis usually attacks the lungs but can also affect other parts of the body. It is spread through the air, when people who have the disease cough, sneeze, talk or spit. Most infections in humans are latent and without symptoms, with about one in ten latent infections eventually progressing to active disease. If left untreated, active TB kills between 20% and 70% of its victims within ten years depending on severity.

The TB incidence rate is the number of new and relapse cases (newly occurring) of the disease estimated to occur in a year, per 100 000 population. TB mortality does not include TB/HIV as per ICD-10. Case notification rate is the total of new and relapse cases and cases with unknown previous TB treatment history notified to the national programmes per 100 000 population.

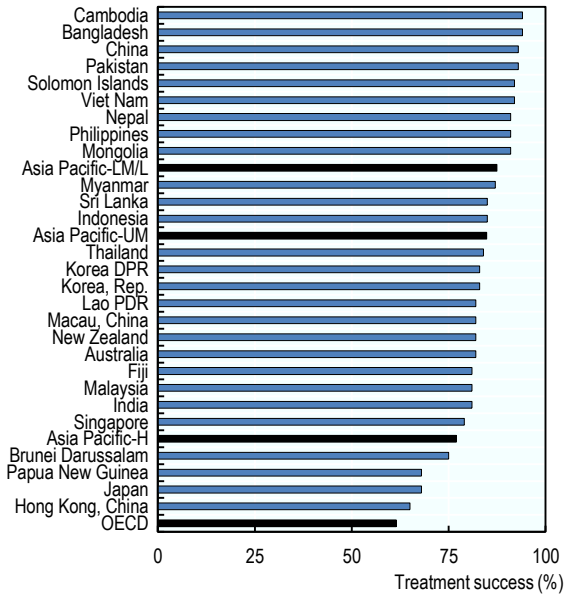
Figure 3.25. **Estimate of the burden of disease caused by tuberculosis, 2018**




H represents lower and upper bounds.
Source: Global Tuberculosis Report 2019.

StatLink https://stat.link/7f2twy

Figure 3.26. **Tuberculosis treatment success for new TB cases, 2017**




Source: Global Tuberculosis Report 2019.

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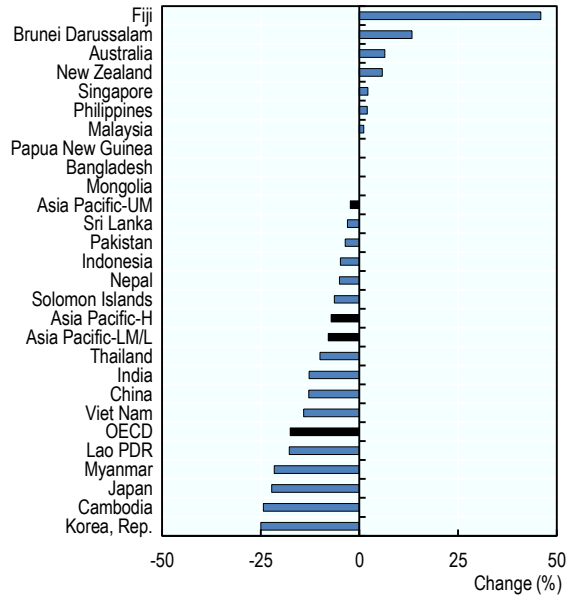
Figure 3.27. **Change in tuberculosis incidence rate, 2013-18**




Source: Global Tuberculosis Report 2019.

StatLink https://stat.link/xqb9o6

Although the first cases of AIDS in Asia were reported mid-1980s, the more extensive spread of HIV began late compared with the rest of the world, occurring in Cambodia, India, Myanmar and Thailand in the early 1990s (Ruxrungtham, Brown and Phanuphak, 2004[29]; UNAIDS, 2013[30]). Asia is second only to sub-Saharan Africa as the region with the greatest number of people with HIV. The UN set a SDG target to end the epidemic of AIDS as a public threat by 2030.

In Asia-Pacific, the prevalence of HIV infection varied importantly, ranging from one in 1 000 adults aged 15 to 49 in Australia, Nepal, New Zealand, Pakistan and the Philippines to 11 out of 1 000 adults aged 15 to 49 in Thailand in 2018 (Figure 3.28, left panel). Although HIV prevalence is low, the absolute number of people living with HIV was high at more than 4.2 million in reporting countries in 2018, because of Asia-Pacific's large population (Figure 3.28, right panel). Over 2.1 million people living with HIV were in India.

Expanded access to antiretroviral therapy (ART) has increased the survival rates of people living with HIV, but about half of the people eligible for HIV treatment do not receive it worldwide (UNAIDS, 2018[31]). The estimated ART coverage among person living with HIV in 2018 was less than one quarter in Bangladesh, Indonesia and Pakistan, whereas more than three quarters had access to ART Thailand, Singapore, Japan, Cambodia and Australia (Figure 3.29).

Over past years, many countries in Asia-Pacific responded to HIV/AIDS successfully and incidence rates have declined. Between 2010 and 2018, new cases of HIV infection were reduced by more than 50% in Sri Lanka, Nepal, Cambodia, Thailand, Viet Nam and Singapore. However, two new cases of HIV infections per 10000 uninfected population were reported in Myanmar and Papua New Guinea in 2018 (Figure 3.30). Moreover, the Philippines more than tripled the new cases of HIV infection between 2000 and 2018 (UNAIDS, 2019[32]).

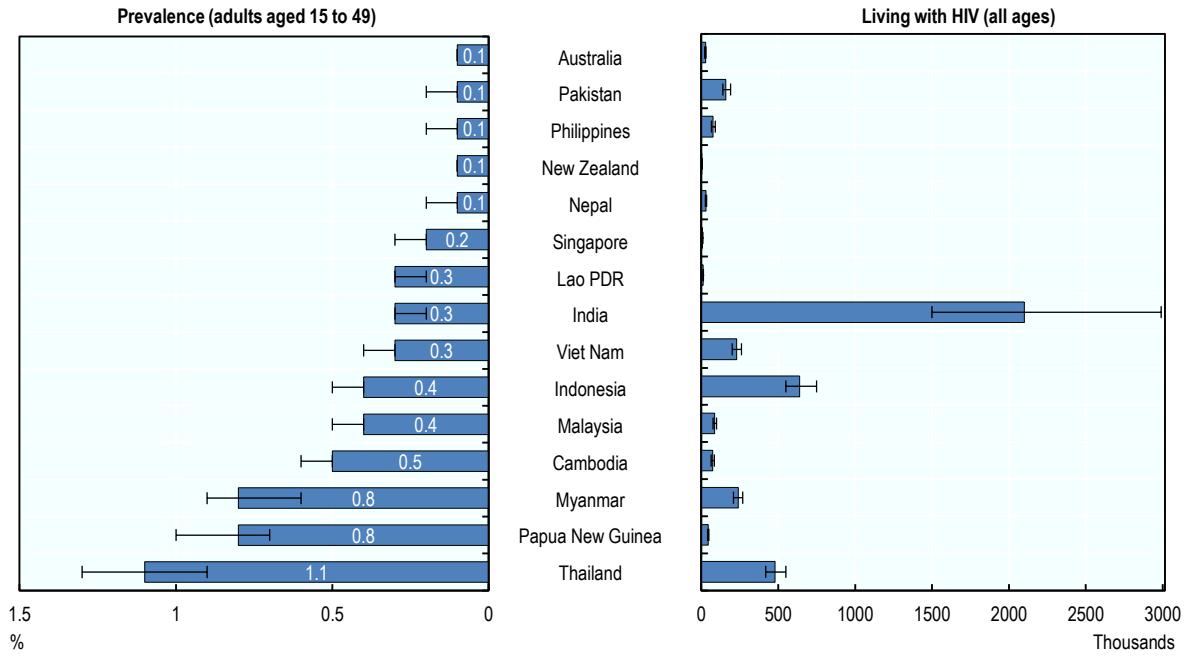
Advances in HIV prevention and treatment could end AIDS as a public health threat in the region. Recent evidence has emerged showing that antiretroviral drugs not only improves the health and prolong the lives of people living with HIV, but also prevents HIV transmission. The rapid scale up antiretroviral therapy in recent years in Asia and the Pacific provides unprecedented opportunity to successfully implement antiretroviral-based interventions for prevention. The benefits of ART can be fully realised only if people living with HIV are diagnosed and successfully linked to care. This will require targeted efforts and removing barriers especially among key affected populations, as most of Asia's epidemics occur among sex workers and their clients, men who have sex with men, transgender persons and injection drug users.

### Definition and comparability

Human immunodeficiency virus (HIV) is a retrovirus that destroys or impairs the cells of the immune system. As HIV infection progresses, a person becomes more susceptible to infections. The most advanced stage of HIV infection is acquired immunodeficiency syndrome (AIDS). It can take 10-15 years for an HIV-infected person to develop AIDS, although antiretroviral drugs can slow down the process.

The HIV prevalence among adults aged 15 to 49 is the number of persons aged 15 to 49 estimated to be living with HIV divided by the total number of persons aged 15 to 49 at a particular time

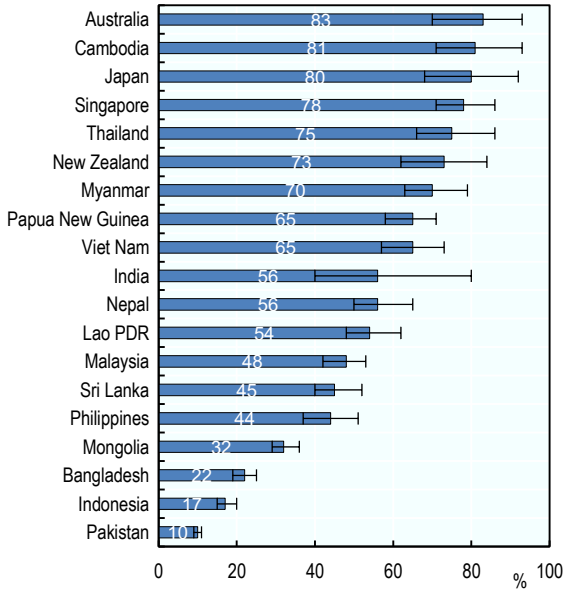
Figure 3.28. **Estimated number of people living with HIV, 2018**




H represents lower and upper bounds.
Source: WHO GHO 2019.

StatLink https://stat.link/ahobus

Figure 3.29. **Estimated antiretroviral therapy coverage among people living with HIV, 2018**




H represents lower and upper bounds.
Source: WHO GHO 2019.

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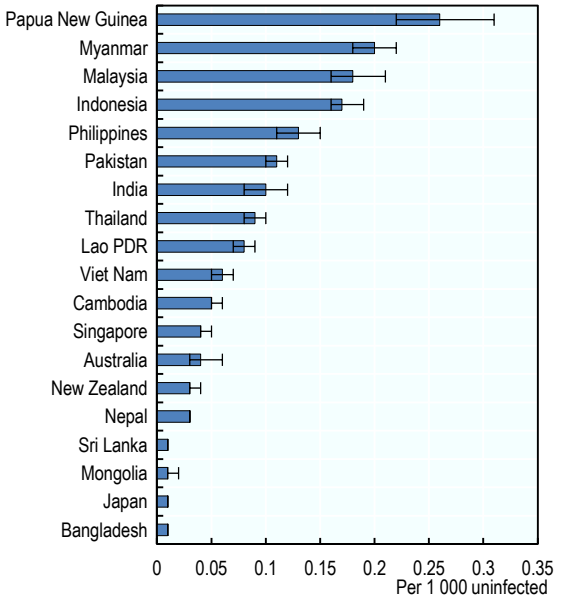
Figure 3.30. **New HIV infections per 1 000 uninfected population, 2018**




H represents lower and upper bounds.
Source: WHO GHO 2019.

StatLink https://stat.link/kz1xin

Malaria is a tropical disease caused by a parasite transmitted by the bites of infected female Anopheles mosquitoes. After a period spent in the liver, malaria parasites multiply within red blood cells, causing symptoms such as fever, headache and vomiting. Malaria is preventable and curable, although no vaccine currently exists (a vaccine against falciparum is currently being trailed in Africa though). If left untreated, malaria can become life-threatening by disrupting the blood supply to vital organs.

As part of the SDG targets, the UN set a goal to end the epidemic of malaria by 2030. China, Malaysia, Nepal, and the Republic of Korea have set an even closer target date of 2020 for elimination. All countries in the South-East Asian region are on target to achieve a reduction in case incidence of around 40% by 2020 (WHO, 2019[33]).

About 2.31 billion people are at high risk in Asia-Pacific. Malaria-endemic countries in the region are Papua New Guinea, Solomon Islands, Pakistan, India, Nepal, the Philippines, Indonesia, Myanmar, the Lao PDR, Cambodia, Thailand, DPR Korea, China, Viet Nam, Bangladesh, the Republic of Korea and Malaysia. Malaria transmission is intense in some areas of Papua New Guinea and the Solomon Islands; it is also intense in focal areas in the Greater Mekong Sub-region, including forested areas of Cambodia, Lao PDR, and Viet Nam, where malaria disproportionately affects ethnic minorities and migrant workers. Malaria is also restricted in its distribution in Malaysia and the Philippines. Mobile and indigenous populations as well as infants, young children and pregnant women are especially vulnerable.

In 2018, there were 7.9 million suspected cases and 0.7 million presumed or confirmed cases in the South-East Asia region. These presumed and confirmed cases were concentrated in Papua New Guinea, Pakistan, and India (Figure 3.31, left panel). Death were estimated to be 11 600 in 2018, with the highest mortality rates in Papua New Guinea and the Solomon Islands (Figure 3.31, right panel) (WHO, 2019[33]).

For a balanced understanding, changes in the number of malaria cases should be viewed in parallel with changes in malaria incidence. The number of cases per 1 000 population at risk showed a decline in all reporting Asia-Pacific countries and territories from 2010 to 2018, except for Papua New Guinea (Figure 3.32). After nearly four years of maintaining zero indigenous cases, and after intensive external evaluations including field assessments, Sri Lanka was certified by WHO as malaria-free in September 2016. The key interventions quoted for the successful reduction of malaria burden in Myanmar were placement of village health volunteers strategically at rural, remote, hard to reach and conflict areas, good coverage of insecticide-treated bed nets among at-risk population and improved access to artemisinin-based combination treatment (Mu et al., 2016[34]; Linn et al., 2018[35]).

The number of malaria cases not treated increased to one in four or more in Lao PDR and the Philippines, whereas it decreased significantly to less than one in ten in Nepal and Bangladesh from 2010 to 2018 (Figure 3.33). During the same period, the number of malaria cases not treated doubled to one in five in Myanmar, while it halved to one in 20 in Cambodia and decreased to almost zero in Viet Nam.

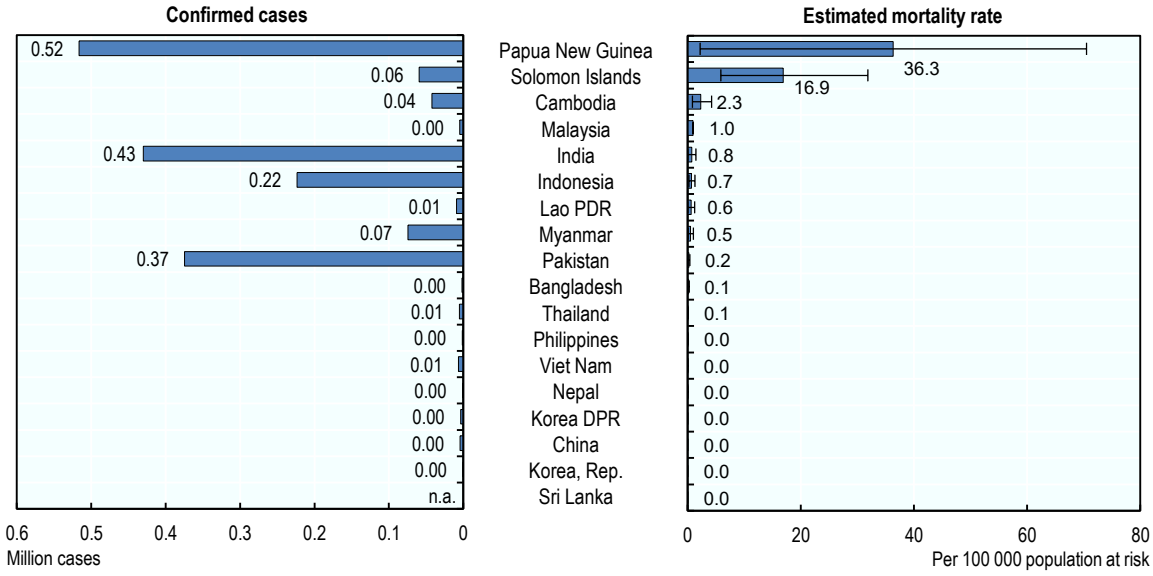
### Definition and comparability

Underreporting of malaria cases and deaths remain a major challenge in countries with inadequate and limited access to health services and weak surveillance systems. The number of deaths was estimated by adjusting the number of reported malaria cases for completeness of reporting, the likelihood that cases are parasite positive, and the extent of health service use.

Population at risk is defined as population living in areas where malaria transmission occurs.

For China, the Republic of Korea, Sri Lanka, Malaysia, Korea DPR and Thailand, it is assumed that all cases are identified and treated. For the others countries, the cases reported by the national malaria control programme are adjusted for diagnosis and reporting completeness, and for care seeking behaviour to estimate the proportion of malaria cases not treated.

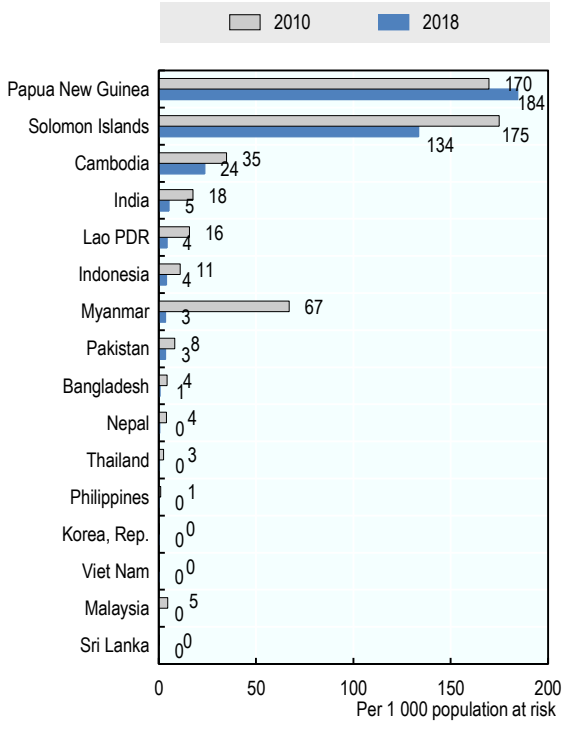
Figure 3.31. **Confirmed malaria cases and estimated mortality rates, 2018**




H represents lower and upper bounds.
Source: World Malaria Report 2019.

StatLink https://stat.link/3iql1m

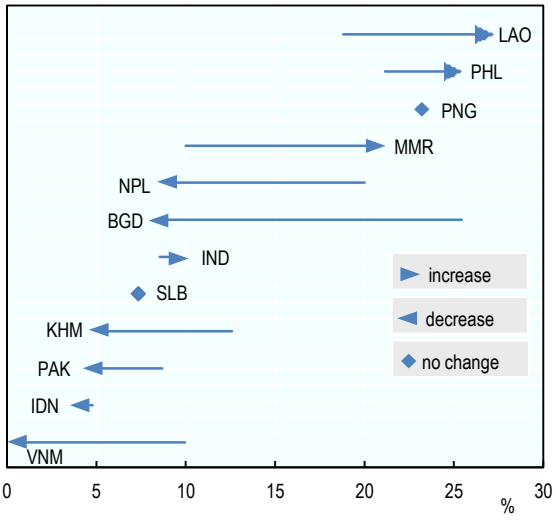
Figure 3.32. **Malaria incidence rates, 2010-18**




Source: WHO GHO 2020.

StatLink https://stat.link/htcfxm

Figure 3.33. **Change in the proportion of malaria cases not treated, 2000-18**




Source: World Malaria Report 2019.

StatLink https://stat.link/4qukvo

Diabetes is a chronic metabolic disease, characterised by high levels of glucose in the blood. It occurs either because the pancreas stops producing the hormone insulin (type 1 diabetes, insulin-dependent diabetes, genetic predisposition), which regulates blood sugar, or through a reduced ability to produce insulin (type 2 diabetes, non-insulin dependent, lifestyle related), or through reduced ability to respond to insulin (i.e. insulin resistance). People with diabetes are at a greater risk of developing cardiovascular diseases such as heart attack and stroke. They also have elevated risks for vision loss, foot and leg amputation due to damage to nerves and blood vessels, and renal failure requiring dialysis or transplantation.

Diabetes is one of the most common non-communicable diseases globally, affecting 422 million people in 2014, a prevalence of 9% and 7.9% among the male and female adult population (18 years or older) respectively (NCD Risk Factor Collaboration, 2016). In Asia-Pacific, about 227 million people live with type 2 diabetes and about half of them are undiagnosed and unaware of developing long-term complications. In 2012, diabetes caused 1.5 million deaths worldwide and an additional 2.2 million deaths were related to higher-than-optimal blood glucose (WHO, 2016[36]).

Type 2 diabetes comprises 90% of people with diabetes around the world, and until recently, this type of diabetes was seen only in adults, but it is now also occurring in children. For many people, the onset of type 2 diabetes can be prevented or delayed through regular physical exercise and maintaining a healthy weight (see indicators “Child malnutrition (including undernutrition and overweight” and “Overweight or obesity” in Chapter 4) and a healthy diet. The cause of type 1 diabetes is not fully understood yet – but we know there is a genetic predisposition and environmental factors play a role as well.

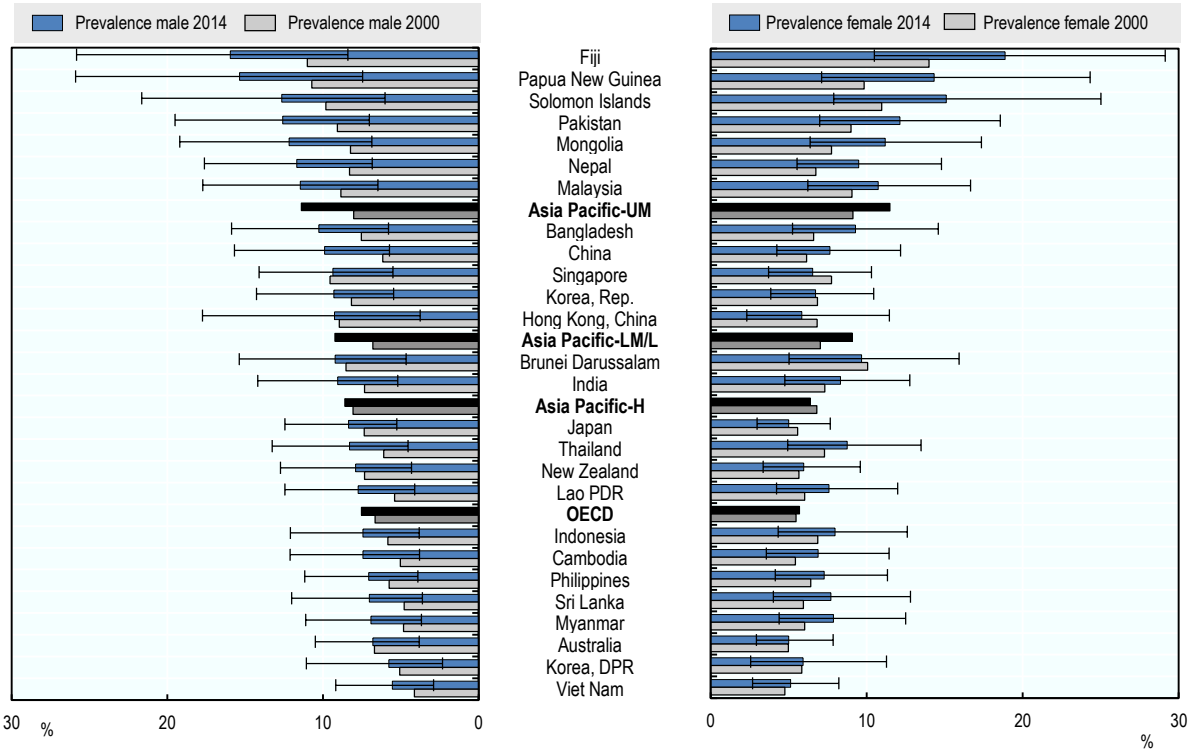
Among the 27 Asia-Pacific countries and territories and territories in this report, the prevalence of diabetes for women ranged from 5% in Australia to 18.9% in Fiji of the adult population (Figure 3.34, right panel), while the prevalence for males ranged from 5.5% in Viet Nam to 15.9% in Fiji (Figure 3.34, left panel). In all countries and territories and territories in study (except Singapore), the prevalence of diabetes among males increased from 2000-14, whereas the prevalence of diabetes among women increase in all countries and territories but Japan, Brunei Darussalam, Honk Kong, China and Singapore.

Among lower-middle and low income Asia-Pacific countries and territories, deaths attributable to high blood glucose increased by 50% between 2000 and 2015 (Figure 3.35). More than 190 deaths per 100 000 population were caused by high blood glucose in adults in Fiji in 2015. This mortality rate doubled in the Bangladesh and Myanmar between 2000 and 2015, and increased by more than 80% in India and Sri Lanka.

### Definition and comparability

Country data used in Figure 3.34 were downloaded from the NCD Risk Factor Collaboration website at: *http://ncdrisc.org/*.

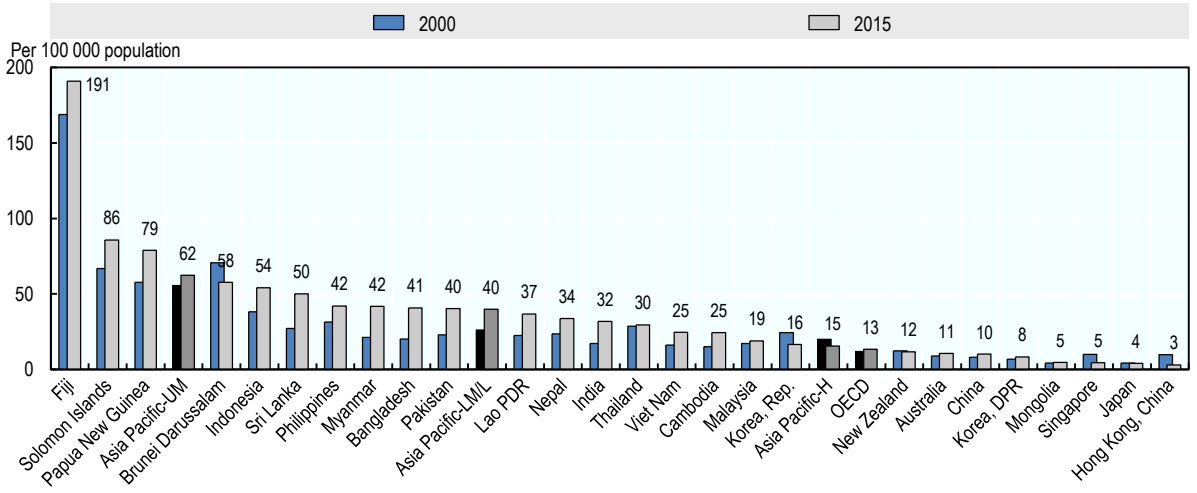
Figure 3.34. **Diabetes prevalence among adults, 2010 and 2014**




H represents 95% uncertainty intervals.
Source: NCD Risk Factor Collaboration.

StatLink https://stat.link/3ejtp2

Figure 3.35. **Age standardised mortality rates attributable to high blood glucose for adults, 2000 and 2015**




Source: WHO GHO 2018; Health facts of Hong Kong 2017.

StatLink https://stat.link/uj8t3s

Population ageing is characterised by a rise in the share of the older people resulting from longer life expectancy (see indicator "Life expectancy at birth and survival rate to age 65" in Chapter 3) and declining fertility rates. In Asia-Pacific countries, since 2000, life expectancy has increased by about 6 years in low and lower-middle income countries and by 4 years in upper-middle and high income counties. During the same period, fertility has decreased from 2.6 children per woman of reproductive age, to the population replacement level of 2.1. This has been mainly due to better access to reproductive health care, primarily a wider use of contraceptives (see indicator "Family planning" in Chapter 4). Population ageing reflects the success of health and development policies over the last few decades.

The share of the population aged 65 years and over is expected to increase by nearly two and half times in lower-middle and low income Asia-Pacific countries in the next decades to reach 14.1% for females and 11% for males in 2050. This is still lower than the high-income and upper-middle income countries average of 32.6% and 23.1% for females and 27.5% and 19.4% for males respectively in 2050 (Figure 3.36, left panel). The share of older people will be particularly large in Japan and the Republic of Korea and Singapore where more than one third of the population will be aged 65 and over in 2050. Ageing wears mainly a woman's face, as women tend to outlive men.

Globally, the speed of ageing in the region will be unprecedented. In 2050, 10 Asia-Pacific countries will be qualified as "ageing society" (as compared to eight countries in 2020), five as "aged society" (six countries in 2020) and 11 as "super-aged society" (only one country in 2020, that is Japan). Only Papua New Guinea is expected to show a share of population over age 65 lower that 7%, while 12 countries fulfil this criterion in 2020. The speed of ageing is particularly fast in Brunei Darussalam and Viet Nam, where the share of the population over 65 is expected to increase by almost four- and three-fold respectively between 2020 and 2050. Many low and middle income countries are faced with much shorter timeframes to prepare for the challenges posed by the ageing of their populations.

The growth in the share of the population aged 80 years and over will be even more dramatic (Figure 3.36, right panel). On average across lower-middle and low income Asia-Pacific countries, the share of the population aged 80 years and over is expected to triple between 2020 and 2050, to reach 3.1% for females and 1.9% for males. This proportion is expected to triple and to quadruple in high income and upper-middle income countries for both females and males during the same period. The proportion of the population aged 80 years and over is expected to grow by over six times in Brunei Darussalam and more than five times in Macao, China for both females and males, and by over five times for males in the Republic of Korea and Singapore over the next decades.

The pressure of population ageing will depend on the health status of people as they become older, highlighting that the health and well-being of older people are strongly related to circumstances across their life course. Given overall numbers of older people in the population, there is likely to be a greater demand for health care that meets the need of older people in the Asia-Pacific region in coming decades. All countries in the region will urgently need to address drastic changes in demographic structures and subsequent changes in health care needs, especially shifting disease burden to NDCs. Health promotion and disease prevention activities will increasingly need to address cognitive and functional decline, including frailty and falls. The health and well-being of older adults are determined by a complex interplay of factors that accumulate across a person's lifetime including political, social, economic and environmental conditions that are largely outside the health sector. Therefore, WHO advocates that the health sector champions whole-of-government and whole-of-society approaches to health, addressing the individual's life-long needs. Health systems will need to be reoriented to become more responsive to older people's changing needs, including by investing in integrated and person-centred service delivery, supported by health financing arrangements and a health workforce with the right skills and ways of working, and integrated health and non-health services (e.g. welfare, social, education). The development of long-term care systems as seen in OECD countries may also be worth noting. Increasingly, there is a need to foster innovative home- and community-based long-term care pathways tailored to older people's specific and diverse needs.

Over the next few decades, the increase in the population aged 65 years or more will outpace the increase in the economically active population aged 15-64 across countries in Asia-Pacific (Figure 3.37). In 2050, the ratio of people aged 15-64 to people aged over 65 years will be around one third of the 2020 value in high income Asia-Pacific countries (2 in 2050 vs 5.4 in 2020), whereas it will be slightly above half the 2020 value in upper-middle (3.3 vs 7.6) and lower-middle and low income (5.8 vs 12.4) Asia-Pacific countries. In Macao, China; Thailand; Singapore; Hong Kong, China; Japan and the Republic of Korea there will be two or less persons aged 15-64 for each person aged over 65 years. This underscores the importance of the society reform to encourage social participation of older people. Older adults contribute to society in a variety of ways including through paid and unpaid work, caregiver for family members, passing down knowledge and traditions to the younger generations.

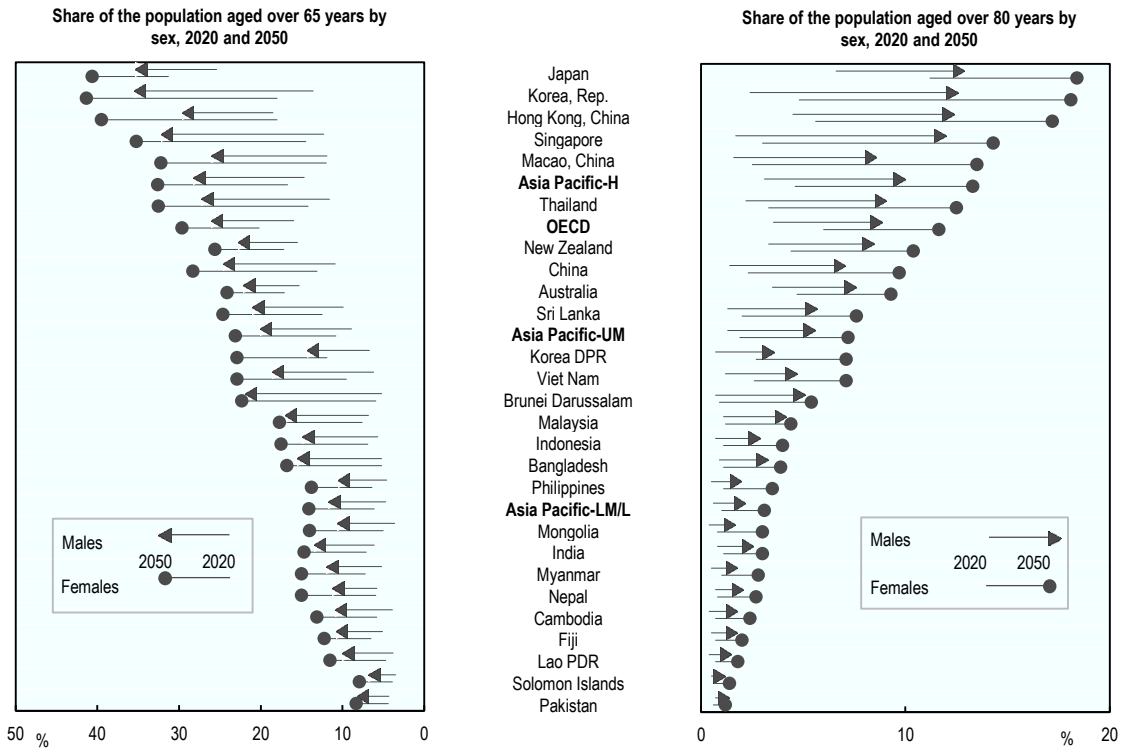
These dramatic demographic changes will affect the financing of not only health systems but also social protection systems as a whole, and also the economy. Moreover, older age often exacerbates pre-existing inequities based on income, education, gender and urban/rural residence, highlighting the importance of equity-focused policy-making in future. Population ageing does not only call for equity-focused, gender-responsive and human rights-based action within the health sector but also require collaboration across sectors to address the underlying determinants of health of older people, including housing, transport and the built environment.

### Definition and comparability

Population projections are based on the most recent "medium-variant" projections from the United Nations (United Nations, 2019[37]).

In this report, we qualify a country as "ageing society" if the share of people aged 65 years or more is between 7% and 14 of the total population, as "aged society" if this share is between 15% and 20% and as "super-aged society" if this share is 21% or higher.

Figure 3.36. **Share of the population aged over 65 and 80 years by sex, 2020 and 2050**




Source: UN World Population Prospects, 2019.

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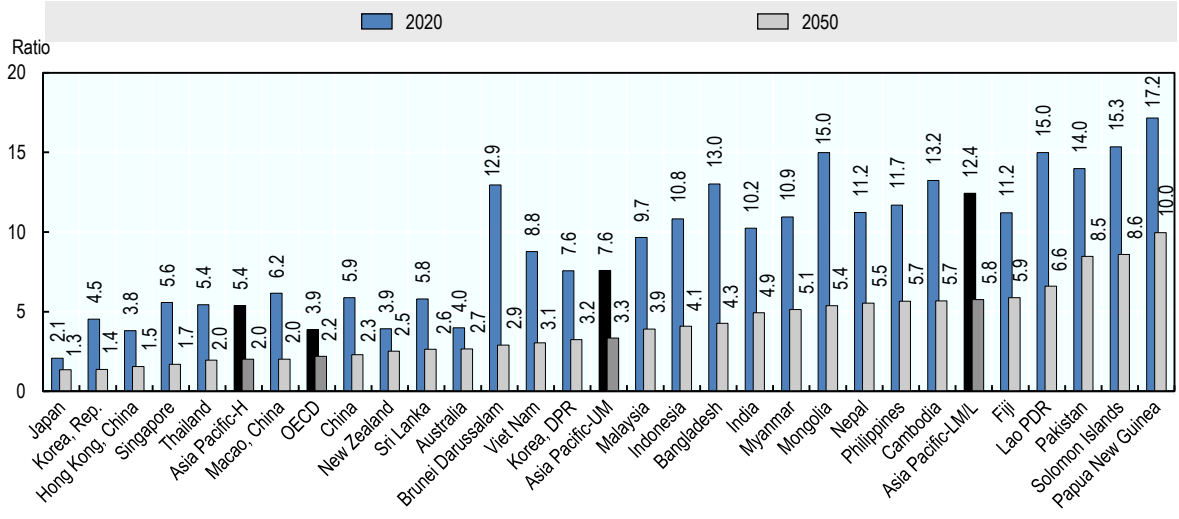
Figure 3.37. **Ratio of people aged 15-64 to people aged over 65 years, 2020 and 2050**




Source: UN World Population Prospects, 2019.

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*Chapter 4*

# Determinants of health

The United Nations Sustainable Development Goals set a target of ensuring universal access to reproductive health care services by 2030, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes. Providing family planning services is one of the most cost-effective public health interventions, contributing to significant reductions in maternal mortality and morbidity as well as overall socio-economic development (UNFPA, 2019[1]).

Reproductive health requires having access to effective methods of contraception and appropriate health care through pregnancy and childbirth, so as to allow women and their partners to make decisions on fertility and provide parents with the best chance of having a healthy baby.

Women who have access to contraception can protect themselves from unwanted pregnancy. Spacing births can also have positive benefits on both the reproductive health of the mother and the overall health and well-being of the child.

Modern contraceptive methods, such as condoms, contraceptive oral pills, injections, intrauterine devices, and implants, are more effective than traditional ones (WHO and Johns Hopkins Bloomberg School of Public Health, 2018[2]). The prevalence of modern methods use varies across countries and territories in Asia-Pacific. It was high on average across high income and upper-middle income countries and territories (62.3% and 60.4%, respectively). In a few of these countries and territories including China; Macau, China and Thailand, more than three-quarters of married or in union women of reproductive age reported using modern contraceptive methods (Figure 4.1).The average prevalence was low in lower-middle and low income countries and territories (45.2%). In Papua New Guinea, Pakistan and the Solomon Islands less than one out of three married or in union women reported using any modern method.

Based on women's socio-economic background, differences in the prevalence of modern methods use exist in all reporting Asia-Pacific countries. In Myanmar and the Philippines, use of modern methods is 22 and 16 percentage points higher respectively among women with highest education than among women with lowest education, whereas in Nepal and Mongolia women with lowest education report a higher percentage of use of modern methods (Figure 4.2). In Papua New Guinea, use of modern methods is 11 percentage points higher among women living in urban areas than among those living in rural areas, while in Mongolia and Cambodia women living in rural areas report a higher percentage of use of modern methods. Based on income levels, differences in the use of modern methods are large in India, Pakistan and particularly Papua New Guinea, where use of modern methods is 24 percentage points higher among women from households in the highest income quintile than among women in the lowest quintile (Figure 4.2). Demand for family planning not satisfied is high among adolescents and youth in Asia-Pacific countries and territories where the average age of marriage is low and gender inequality is high (UNESCAP, 2018[3]).

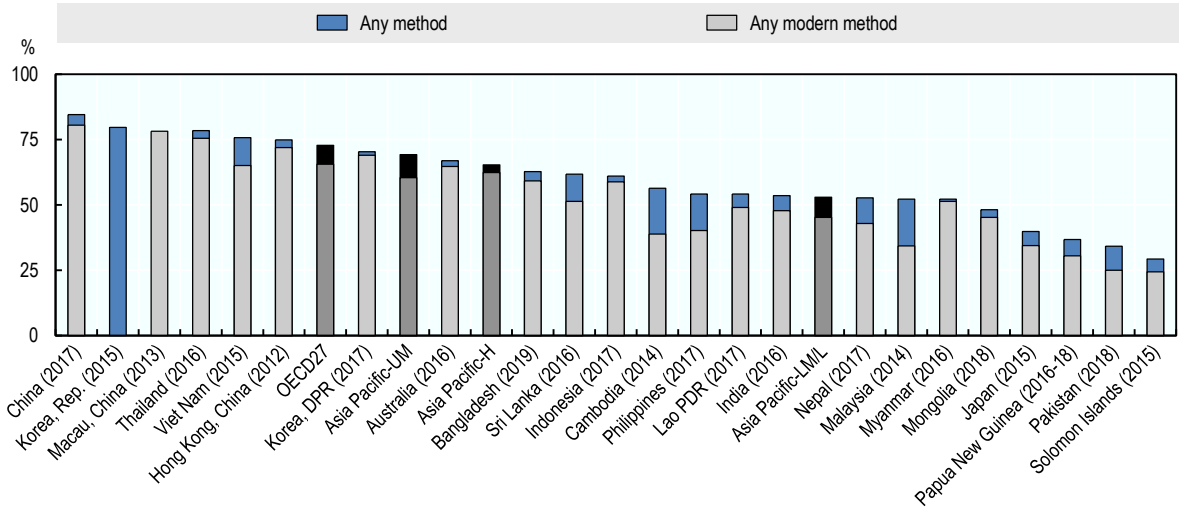
### Definition and comparability

Contraceptive prevalence is the percentage of women who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used. It is usually reported as a percentage of married or in union women aged 15-49.

Women with a demand for family planning satisfied are those who are fecund and sexually active, are using a method of contraception, and report wanting to space births. It is reported as a percentage of married or in union women aged 15-49.

Information on contraceptive use and demand satisfied for family planning is generally collected through nationally representative household surveys.

Figure 4.1. **Contraceptive prevalence, married or in-union women, latest year available**




Source: UN World Contraceptive Use 2019; DHS & MICS surveys, various years; and Bureau of Health, Macau, China, 2014.

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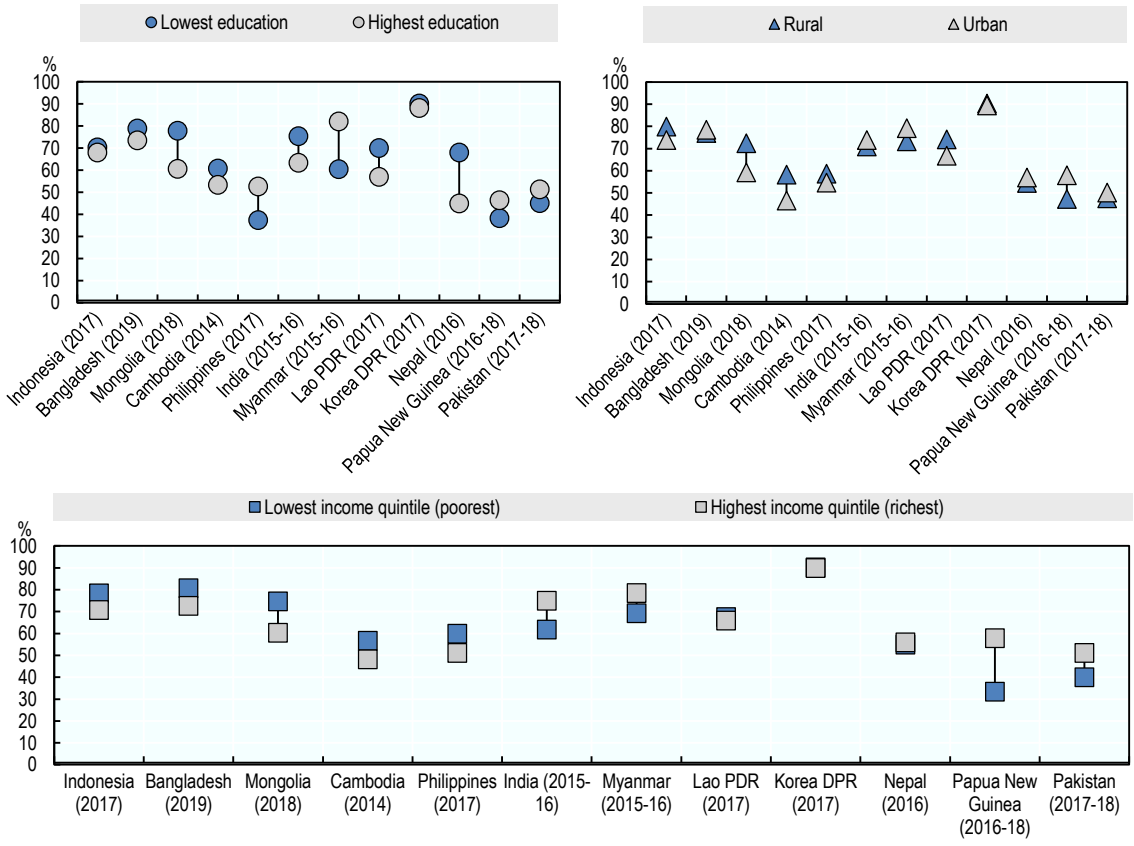
Figure 4.2. **Demand for family planning satisfied by modern methods by socio-economic characteristic and geographical location, selected countries, latest year available**




Source: DHS & MICS surveys, various years.

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Preterm birth (i.e. birth before 37 completed weeks of gestation) is the leading cause of both neonatal death during the first four weeks of life (days 0-28), and death of children under 5 (see indicator "Under age 5 mortality" in Chapter 3). Survivors of preterm births may also face a lifetime of disability, including learning disabilities, and visual and hearing as well as other long-term developmental problems (*https://www.who.int/news-room/fact-sheets/detail/preterm-birth*). However, preterm birth can be largely prevented. Three-quarters of deaths associated with preterm birth can be saved without intensive care facilities. Current cost-effective interventions include antenatal corticosteroids injections for pregnant women of 24-34 weeks of gestational age at risk of preterm delivery, kangaroo mother care, early initiation (initiated within the first hour of birth) and exclusive breastfeeding for the first six months of life and basic care for infections and breathing difficulties (see "Infant mortality" in Chapter 3). Preterm birth rates can be also reduced if women, particularly adolescents, had better access to family planning services and increased empowerment, as well as improved care and nutrition during pregnancy (see indicator "Family planning" in Chapter 4).

An estimated 15 million babies are born preterm worldwide every year, and around 1 million babies died from preterm birth complications in 2015 (WHO, 2018[4]). In the Asia-Pacific region, India, China, Bangladesh, Indonesia and Pakistan reported a particularly large number of preterm births that accounted for over 40% of the 2014 preterm births globally (Chawanpaiboon et al., 2019[5]). Across lower-middle and low income Asia-Pacific countries, almost 11 babies out of 100 were born preterm on average in 2014 while the rate was lower on average in high income and upper-middle income countries and territories (9 and 8 babies per 100 live births, respectively). The preterm birth rate was particularly high in Bangladesh at 19 per 100 live births, followed by India and the Philippines at over 13 per 100 live births (Figure 4.3, left panel). Since 2010, large improvement was made in Nepal, where preterm birth rate had more than halved, reaching the lowest rate in the region at 5 per 100 live births.

Overall, it is estimated that almost 15% of all births worldwide are low birth weight (<2500g), representing around 20.5 million births in 2015; and nearly half of them happened in South Asia (UNICEF, 2019[6]). Beside preterm birth, low birth weight is also an important determinant of child health as it is associated with greater risk of death, poor health, and disabilities. Low birth weight is the result of many factors but largely preventable. Mothers' risk factors include poor nutritional status such as low body-mass index (BMI), being a young mother, smoking or exposure to second hand smoke, excessive alcohol consumption, and history of unnecessary C-section deliveries (UNICEF and WHO, 2019[7]; Blencowe et al., 2019[8]).

On average, one newborn out of ten had low weight at birth across Asia-Pacific countries and territories (Figure 4.3, right panel). There was a significant regional divide between countries and territories in eastern Asia (such as China, Korea DPR, Mongolia and the Republic of Korea) and southern Asia (such as Bangladesh, India, Nepal, Pakistan, and Sri Lanka). Korea DPR, Mongolia and China had the lowest birth weight rates at 3.1%, 4.6% and 5% respectively, while Pakistan reported the highest rate of 22%.

Since 2000, Bangladesh, Nepal and the Lao PDR made the most progress in reducing low birth weight rates, and lower-middle and low income Asia-Pacific countries and territories achieved a larger decrease compared to upper-middle and high income countries and territories in the region (Figure 4.4). In 2012, the World Health Assembly endorsed the Comprehensive implementation plan on maternal, infant and young child nutrition, which specified a set of six global nutrition targets, and one of the targets aims to a 30% reduction in low birth weight by 2025 (WHO, 2017[9]). Bangladesh, Cambodia, Indonesia, Myanmar and the Philippines have already met this target. Recently, the reduction is slower in China but it achieved one of the lowest birth weight rates in the Asia-Pacific region through rapid and sustained economic growth and improved access to food in many provinces.

Antenatal care can also help women prepare for delivery and understand warning signs during pregnancy and childbirth to avoid low birth weight. Higher coverage of antenatal care was associated with lower share of infants with low birth weight (Figure 4.5), suggesting the significance of antenatal care over infant health status across Asia-Pacific countries and territories. For instance, the Republic of Korea with one of the highest antenatal care coverage (98%) had less than 6 low birthweight infants per 100 live births while Bangladesh with one of the lowest antenatal care coverage (37%) had almost 15 low birthweight infants per 100 live births.

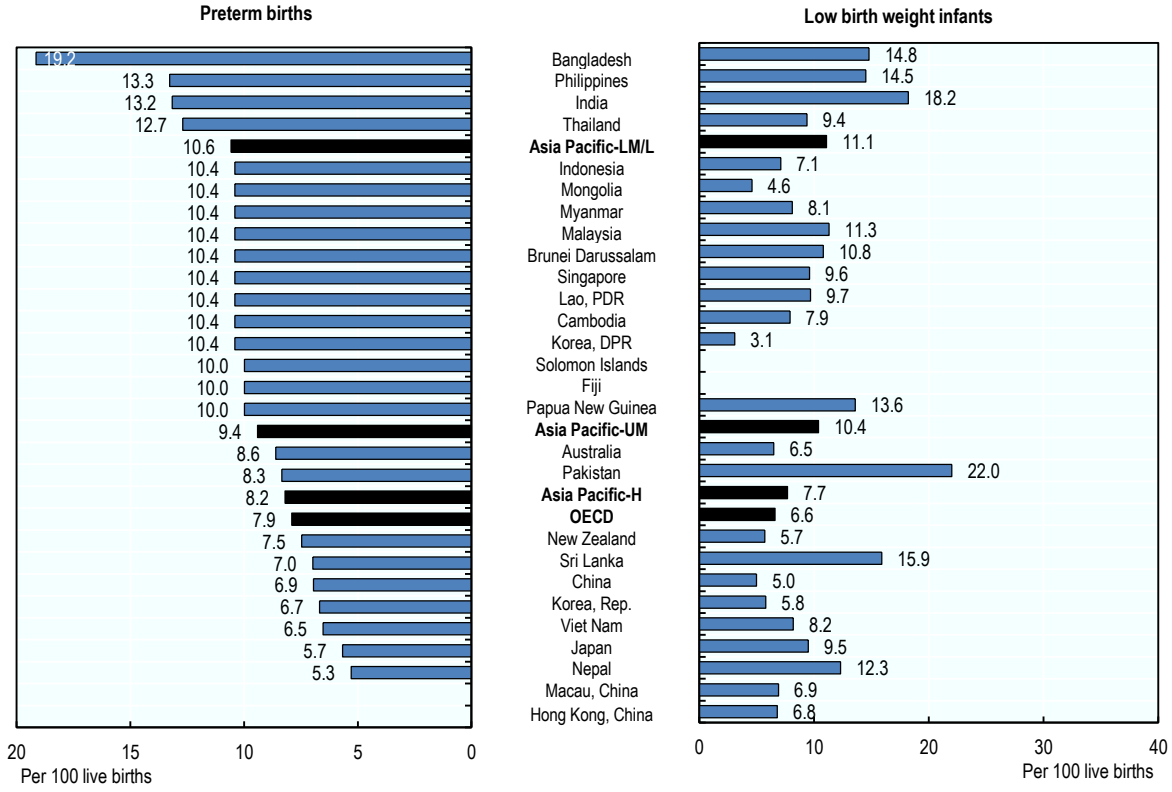
### Definition and comparability

Preterm birth is defined as babies born alive before 37 weeks of pregnancy are completed. There are sub-categories of preterm birth based on gestational age: extremely preterm (less than 28 weeks); very preterm (28-32 weeks); moderate to late preterm (32-37 weeks).

Low birth weight is defined by the World Health Organization as the weight of an infant at birth of less than 2 500 grammes (5.5 pounds) irrespective of the gestational age of the infant. This figure is based on epidemiological observations regarding the increased risk of death to the infant and serves for international comparative health statistics.

In developed countries, the main information sources for low birth weight are national birth registers. For developing countries, estimates are primarily derived from mothers participating in national household surveys, as well as routine reporting systems (UNICEF and WHO, 2019[7]; Blencowe et al., 2019[8])

Figure 4.3. **Preterm birth rate, 2014 and percentage of low birth weight infants, 2016 (or latest year available)**




Source: WHO HRP 2020; WHO GHO 2020; DHS and MICS surveys, various years; OECD Health Statistics 2020; World Bank WDI; Department of Health, Hong Kong, China, 2017; Statistics and Census Service, Macau, China, 2018.

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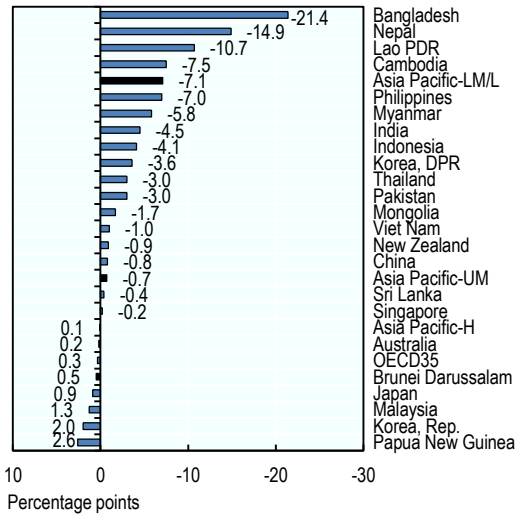
Figure 4.4. **Low birthweight, percentage point change, 2000-16 (or latest year available)**




Source: WHO GHO 2020; DHS & MICS surveys, various years; UNICEF; WB WDI.

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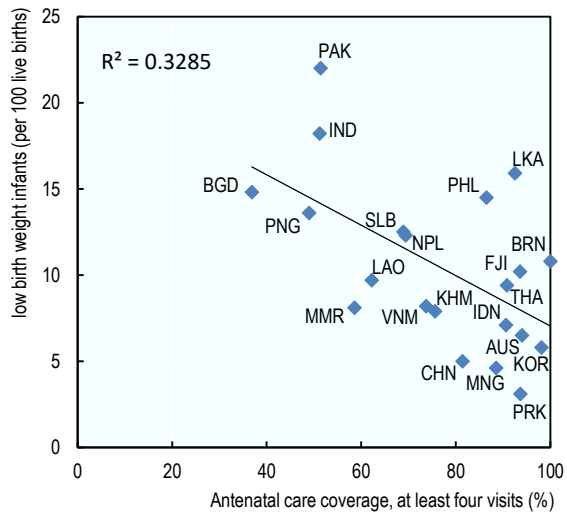
Figure 4.5. **Antenatal care coverage and low birth weight, latest year available**




Source: WHO GHO 2020; DHS & MICS surveys, various years; WB WDI; UNICEF; Department of Health, Hong Kong, China, 2017 and Statistics and Census Service, Macau, China, 2018.

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Optimal feeding practices of infants can increase their chances of survival. They play an important role for healthy growth and development, decrease rates of stunting and obesity and stimulate intellectual development (UNICEF, 2019[10]).

Breastfeeding is an unequalled way of providing nutrition for infants. Breast milk gives infants the nutrients they need for healthy development, including the antibodies that help protect them from common childhood illnesses such as diarrhoea and pneumonia, the two primary causes of child mortality worldwide. Breastfeeding is also linked with better health outcomes later in life. Adults who were breastfed as babies often have lower blood pressure and lower cholesterol, as well as lower rates of overweight, obesity and type 2 diabetes. Breastfeeding also improves school attendance and is associated with higher income in adult life. More than 800 000 deaths among children under five could be saved every year globally, if all children 0-23 months were optimally breastfed. Breastfeeding also benefits mothers through assisting in fertility control, reducing the risk of breast and ovarian cancer later in life and lowering rates of obesity (UNICEF, 2019[10])

The Global Strategy for Infant and Young Child Feeding and the Breastfeeding Advocacy Initiative, developed by UNICEF and WHO, outlines detailed recommendations on infant feeding including timing, initiation, and types of complementary food and its frequencies. UNICEF and WHO recommend exclusive breastfeeding for the first six months of life and the introduction of solid or semisolid foods to complement breastfeeding after six months. UNICEF and WHO also recommend continued breastfeeding up to two years and beyond.

In 2012, the World Health Assembly endorsed a Comprehensive implementation plan on maternal, infant and young child nutrition, which specified a set of six global nutrition targets and one of the targets aims to increase the rate of exclusive breastfeeding in the first six months up to at least 50% by 2025. Globally, this target has not been achieved as 42% of children under six months being exclusively breastfed in 2018. However, in the Asia-Pacific region, Bangladesh, Cambodia, India, Indonesia, Korea DPR, Mongolia, Myanmar, Nepal, Papua New Guinea, Solomon Islands and Sri Lanka have already achieved this target (Figure 4.6). Exclusive breastfeeding was more common in lower-middle and low income Asia-Pacific countries and territories than upper-middle income countries and territories.

However, several Asia-Pacific countries and territories are lagging behind as less than one in four infants was exclusively breastfed in China; Macau, China; Thailand; and Viet Nam (Figure 4.6). Key factors contributing to inadequate breastfeeding rates include unsupportive hospital and health care practices and policies; lack of adequate skilled support for breastfeeding, specifically in health facilities and the community; aggressive marketing of breast milk substitutes and inadequate maternity and paternity leave legislation and unsupportive workplace policies (UNICEF, 2019[10]). Several countries and territories which increased exclusive breastfeeding practice have implemented these policies. Starting 2004, the Cambodian government implemented a number of diverse activities; breastfeeding practices were established in hospitals, and community-based volunteers advocated the benefit of breastfeeding to expecting and new mothers. Consequently, exclusive breastfeeding rates for babies under six months rose from 7% in 2000 to 60% in 2005 (UNICEF, 2008[11]). In 2013, the Bangladesh Breastmilk Substitutes (BMS) Act was developed to ensure that mothers and families get accurate and unbiased information, free of commercial pressure, to feed infants and young children, and it also regulates the inappropriate marketing and distribution of BMS (Toolkits, 2019[12]). The rate of exclusive breastfeeding has increased from 55.3% in 2014 to 62.6% in 2019.

In Cambodia, Lao PDR, Mongolia, the Philippines and Viet Nam, the rate of exclusive breastfeeding was around twice as high among women living in households in the poorest income quintile as compared to women living in the richest households (Figure 4.8). Across countries and territories in Asia-Pacific, a higher level of education was not always associated with a higher rate of exclusive breastfeeding. While in Myanmar and Thailand women with the highest education level were much more likely to follow exclusive breastfeeding recommendations than those with the lowest education, the opposite trend was observed in countries and territories such as Cambodia, Pakistan and the Philippines. In Cambodia, women living in rural areas are almost twice likely to breastfeed as compared to women living in urban areas.

After the first six months of life, an infant needs additional nutritionally adequate and safe complementary foods, while continuing breastfeeding. Appropriate complementary foods were introduced to less than half of the children between 6-8 months in India, whereas complementary foods were introduced to nine out of ten infants in Cambodia and Vietnam (Figure 4.7). Lao PDR reported a significant increase from 58.5% of children exclusively breastfed in 2011-12 to 86.7% in 2017 (UNICEF, 2019[13]).

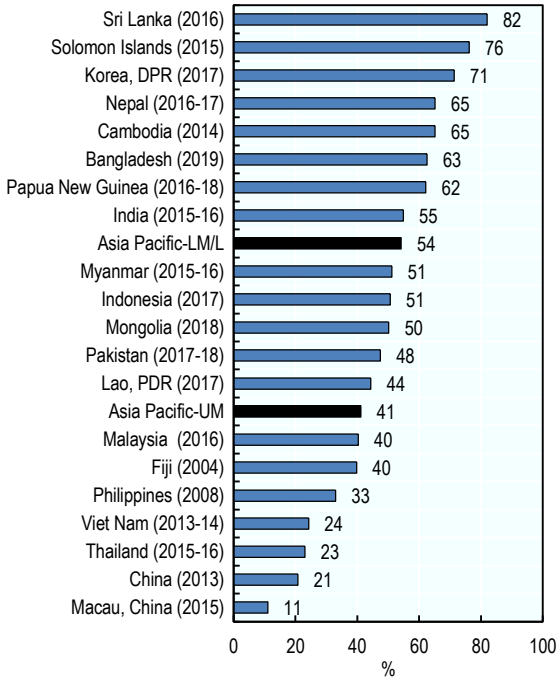
Considering persisting high levels of childhood malnutrition (see indicator “Child malnutrition (including undernutrition and overweight)” in Chapter 4), infant feeding practices must be further improved (UNICEF, 2019[10]).

### Definition and comparability

Exclusive breastfeeding is defined as no other food or drink, not even water, other than breast milk (including milk expressed or from a wet nurse) for the first six months of life, with the exception of oral rehydration salts, drops and syrups (vitamins, minerals and medicines) (UNICEF, 2019[10]). Thereafter, to meet their evolving nutritional requirements, infants should receive adequate and safe complementary foods while continued breastfeeding up to two years of age or beyond.

The usual sources of information on the infant feeding practices are household surveys. They also measure other indicators of infant feeding practices such as minimal meal frequency, minimal diet diversity and minimum acceptable diet.

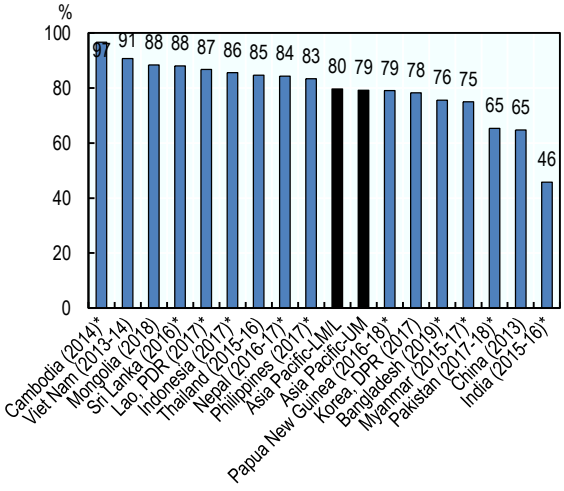
Figure 4.6. **Infants exclusively breastfed – first 6 months of life**




Source: UNICEF World Children Report 2019, SSM statistics 2015, Macau.

*StatLink* https://stat.link/hoxpfe

Figure 4.7. **Infants aged 6-8 months with solid, semi-solid and soft-foods, selected countries and years**




Note: * DHS surveys measure introduction of any solid and semi-solid foods.
Source: UNICEF World Children Report 2019, DHS & MICS surveys, various years.

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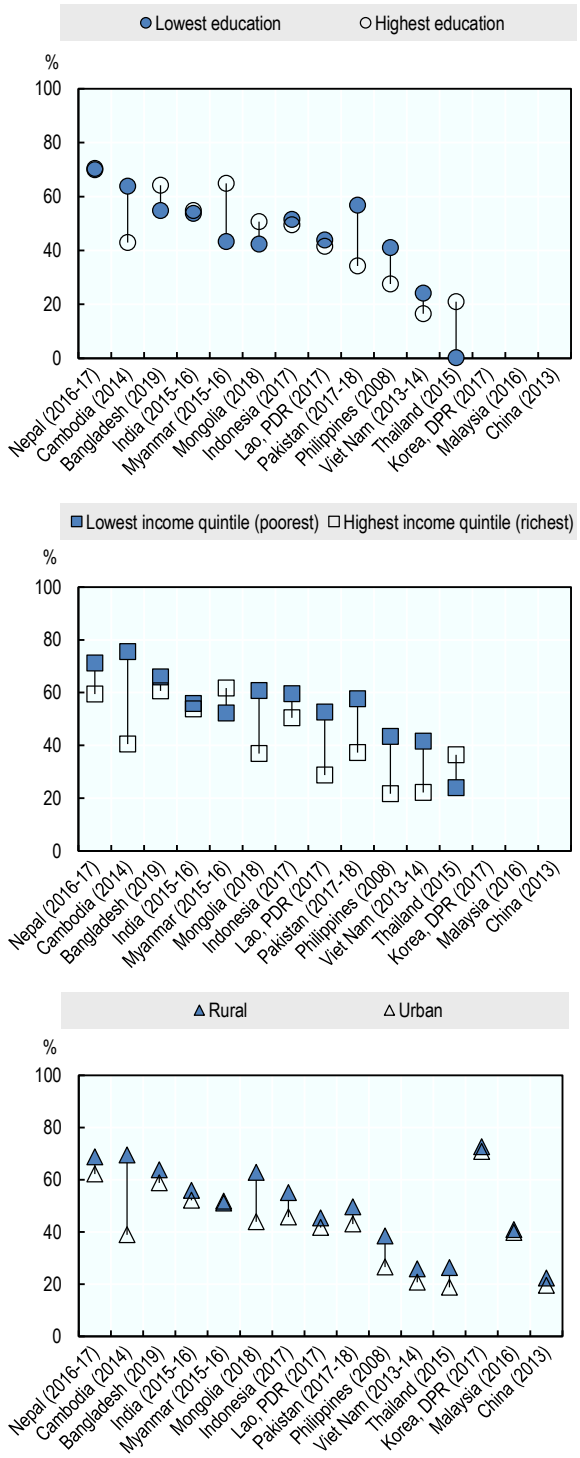
Figure 4.8. **Infants exclusively breastfed in the first six months of life, by socio-economic characteristic and geographical location, selected countries**




Source: DHS and MICS surveys, various years.

*StatLink* https://stat.link/jlq4d6

National development is largely dependent on healthy and well-nourished people, but many children are not always able to access sufficient, safe and nutritious food and a balanced diet that meets their needs for optimal growth and development for an active and healthy life (UNICEF, 2019[10]). Malnutrition among children in low and middle income countries and territories encompasses both undernutrition and a growing problem with overweight and obesity. Many countries and territories are facing a double burden of malnutrition – characterised by the coexistence of undernutrition along with overweight, obesity or diet-related non-communicable diseases (NCDs) – which poses a real and growing health challenge. In order to simultaneously and synergistically address these challenges, the United Nations declared the Decade of Action on Nutrition in 2016 until 2025 and proposed actions such as strengthening sustainable, resilient food systems for healthy diets, assuring safe and supportive environments for nutrition at all ages, promoting nutrition-related education, and strengthening nutrition governance and promoting accountability (WHO, 2017[14]).

Undernutrition is an important determinant of poor health among young children and is estimated to explain around 45% of all under 5 child deaths worldwide (Development Initiatives, 2018[15]). In order to reduce under age 5 mortality, countries and territories need to not only implement effective preventive and curative interventions for newborns, children and their mothers during and after pregnancy (see indicator "Infant and child health" in Chapter 5) but also to promote optimal feeding practice (see indicator "Infant feeding" in Chapter 4).

Child undernutrition is also associated with poorer cognitive and educational outcomes in later childhood and adolescence, and has important education and economic consequences at the individual, household and community levels. Overweight in childhood is related to early cardiovascular, gastrointestinal, musculoskeletal and orthopaedic problems. It is also a major predictor of obesity in adulthood, which is a risk factor for the leading causes of poor health and early death. Hence, preventing overweight has direct benefits for children's health and well-being, in childhood and continuing into adulthood (UNICEF, 2019[10]).

In 2012, the World Health Assembly endorsed a Comprehensive implementation plan on maternal, infant and young child nutrition, which specified a set of six Global Nutrition Targets by 2025 and they include targets in stunting, wasting and overweight (WHO, 2014[16]). In 2015, the UN SDG also set target referring to stunting, wasting and overweight among children.

High levels of stunting in a country are associated with poor socio-economic conditions and increased risk of frequent and early exposure to adverse conditions such as illness and/or inappropriate feeding practices. Wasting may also be the result of a chronic unfavourable condition, like unsafe water and poor or lacking sanitary facilities. Recurrent events of wasting can increase the risk of stunting, and stunting increases the risk of overweight and obesity later in life (UNICEF, 2019[10]).

In Asia-Pacific, many countries and territories had a high prevalence of stunting among children under age 5. Stunting prevalence was high at around 50% in Papua New Guinea, and more than one in three children were stunted in India, Indonesia, Nepal and Pakistan. On the other hand, stunting prevalence was below 5% in Australia, the Republic of Korea and Singapore (Figure 4.9). In the past few years, Mongolia had made a substantial progress and became the first country in the Asia-Pacific region to have achieved the Global Nutrition Target to reduce by 40% the number of children under 5 years who are stunted.

Countries and territories with high stunting prevalence had a high under age 5 mortality rate (Figure 4.10), also reflecting the fact that about 45% of under age 5 deaths were attributable to undernutrition (Development Initiatives, 2018[15]).

As to wasting, if there is no severe food shortage, the prevalence is usually below 5 % even poor countries (*https://www.who.int/nutgrowthdb/about/introduction/en/index2.html*), but it was higher than this threshold in India, Indonesia, Malaysia, Papua New Guinea and Sri Lanka. So far, however, Australia, Brunei Darussalam, China, Japan, Korea DPR, Mongolia, the Republic of Korea and Singapore have attained the Global Nutrition Target of reducing and maintaining childhood wasting to less than 5% (Figure 4.9).

In 2018, almost 20 million overweight or obese children under age 5 lived in Asia (UNICEF, 2019[10]), and a high prevalence of overweight was reported for Pacific Island countries. However, the prevalence of childhood overweight varied across Asia-Pacific countries and territories. More than one child out of ten was overweight in Australia, Indonesia, Mongolia and Papua New Guinea, whereas less than 2% of children under age 5 were overweight in Japan, Myanmar and Nepal (Figure 4.11). Nepal, Pakistan and Thailand reduced under 5 overweight rates since 2012, so they meet the Global Nutrition Target 2025 of not increasing childhood overweight prevalence (WHO, 2020[17]). A low prevalence of overweight, however, did not always mean a proper nutrition intake among children. For instance, a study in Nepal showed that children under age 2 were getting a quarter of their energy intake from non-nutritive snacks and beverages such as biscuits or instant noodles (UNICEF, 2019[10]).

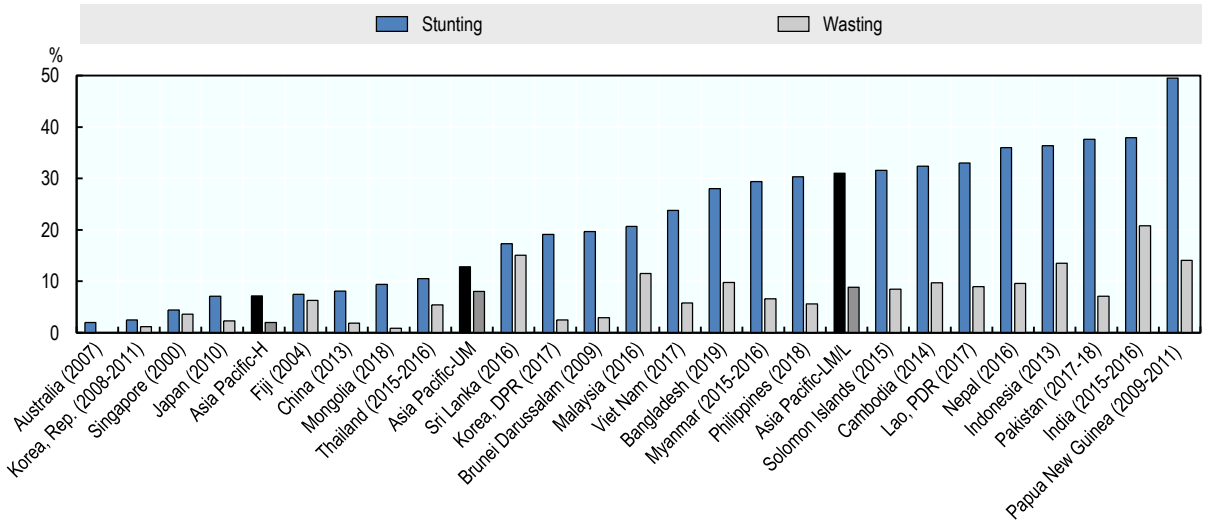
### Definition and comparability

Stunted growth (low height-for-age) reflects failure to reach linear growth potential as a result of long-term suboptimal health and/or nutritional conditions.

Wasting (low weight-for-height) usually indicates recent and severe weight loss, because a person has not had enough food to eat and/or has had an infectious disease, such as diarrhoea, which has caused them to lose weight.

According to the WHO definition, child overweight is weight-for-height greater than 2 standard deviations above WHO Child Growth Standards median, and child obesity is weight-for-height greater than 3 standard deviations above the WHO Child Growth Standards median.

Figure 4.9. **Prevalence of stunting and wasting among children under age 5, latest year available**




Source: WHO GHO 2020; UNICEF 2020; DHS & MICS surveys, various years.

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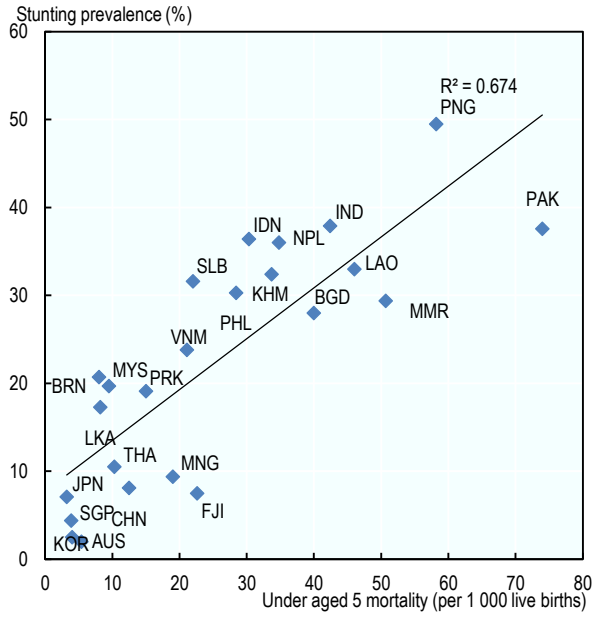
Figure 4.10. **Under-5 mortality and stunting prevalence, latest year available**




Source: DHS and MICS surveys, various years; WHO GHO 2020; UNICEF 2020; UN IGME; Childinfo 2019.

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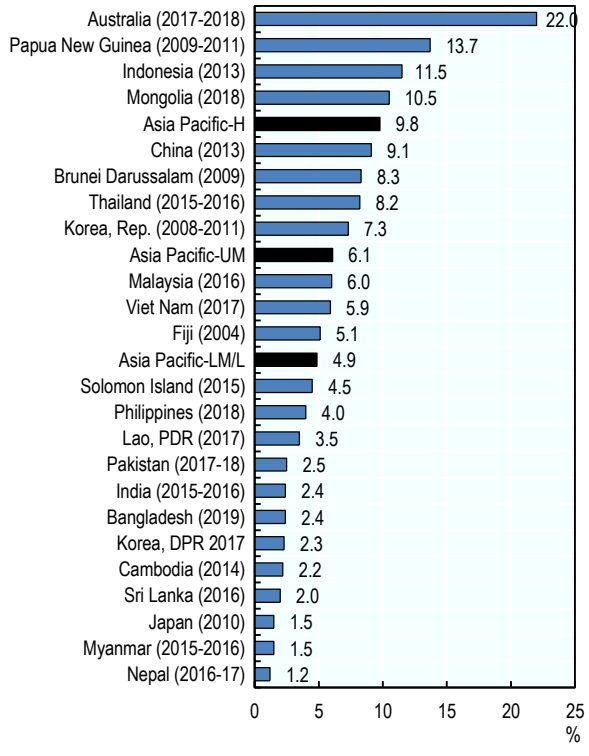
Figure 4.11. **Prevalence of overweight among children under age 5, latest year available**




Source: UNICEF/WHO/WB, 2020; DHS & MICS surveys, various years.

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Adolescence is a vulnerable phase in human development as it represents a transition from childhood to physical, psychological and social maturity. During this period, adolescents learn and develop knowledge and skills to deal with critical aspects of their health and development while their bodies mature. Adolescent girls, especially younger girls, are particularly vulnerable because they face the risks of premature pregnancy and childbirth. Since the beginning of 2000s, however, there has been an increase in adolescent births in East Asia and the Pacific regions (UNICEF, 2019[18]). The Global Strategy for Women's, Children's and Adolescent's Health 2016-30 was launched to foster a world in which "every woman, child and adolescent in every setting realises their rights to physical and mental health and well-being, has social and economic opportunities, and is able to participate fully in shaping prosperous and sustainable societies" (WHO, 2015[19]).

The 1.2 billion adolescents (10-19 years) in the world today represent 16% of the global population, and the regions of South Asia, East Asia and the Pacific have the largest share of adolescents in the world with around 650 million (UNICEF, 2019[20]). In 2016, more than 1.1 million adolescents died. The main cause of adolescent deaths was road traffic injuries; other major causes include self-harm, HIV/AIDS, interpersonal violence, lower respiratory infections, diarrhoeal diseases, drowning, and complications during pregnancy and childbirth, which is the leading cause of deaths globally among girls aged 15-19 years old (UNICEF, 2019[20]).

Underweight in adolescents is associated with adverse health consequences throughout their life course. While the prevalence of overweight and obese children and adolescent in high income countries and territories was two times the prevalence reported for lower-middle and low income Asia-Pacific countries and territories (see indicator "Overweight and obesity" in Chapter 4), the prevalence of underweight was high in lower-middle and low income countries in the region. It was high among male adolescents compared to female adolescents in all Asia-Pacific countries and territories. In India, where the prevalence was the highest, almost one in three male adolescents and over one in five female adolescents were thin (Figure 4.12).

Risk factors for non-communicable disease (NCD), the leading cause of premature adult deaths, are often acquired in adolescence. They include alcohol or tobacco use, lack of physical activity, which lead to an increased risk of overweight, obesity and diabetes and, ultimately, to a higher risk of NCDs across the life course (see indicator "Tobacco" in Chapter 4; (WHO, 2015[19])). WHO recommends at least 60 minutes of moderate- to vigorous-intensity physical activity accumulated every day (WHO, 2015[19]). However, the majority of adolescents in Asia-Pacific countries and territories do not carry out sufficient amount of physical activities every day, and the prevalence of inactivity in the region is the highest in the world (Guthold et al., 2020[21]). In the Republic of Korea and the Philippines more than nine out of ten adolescents were inactive, while in Bangladesh about three out of ten adolescents did the recommended physical activity daily. In all countries and territories in the region, inactivity was more prevalent among female adolescents than male adolescents (Figure 4.13).

Adolescent pregnancies are a global problem that occurs in high, middle, and low income countries and territories. Around the world, adolescent pregnancies are more likely to occur in marginalised communities, commonly driven by poverty and lack of education and employment opportunities. For some adolescents, pregnancy and childbirth are planned and wanted. However, for many adolescents, pregnancy and childbirth are neither planned nor wanted. Adolescents face barriers to accessing contraception including restrictive laws and policies regarding provision of contraceptive based on age or marital status, health worker bias and/or lack of willingness to acknowledge adolescents' sexual health needs. Adolescents face also difficulties in accessing contraceptive methods because of lack of adequate knowledge of these methods, and transportation and financial constraints. Adolescent pregnancy remains a major contributor to maternal and child morbidity and mortality, increased preterm births and low birthweight and to intergenerational cycles of ill-health and poverty. Adolescent pregnancy can also have negative social and economic effects on girls, their families and communities. Around 3.9 million unsafe abortions among girls aged 15-19 years occur each year, contributing to maternal mortality and lasting health problems (Darroch et al., 2016[22]). Unmarried pregnant adolescents may face stigma or rejection by parents and peers and threats of violence. Similarly, girls who become pregnant before age 18 are more likely to experience violence within marriage or a partnership. With regards to education, school-leaving is often the consequence when adolescent girls become pregnant, and this hinders their likelihood of returning into education and future employment opportunities (WHO, 2020[23]).

Adolescent birth rates vary widely across Asia-Pacific countries and territories. In Bangladesh, Lao PDR and Nepal, more than 80 out of 1 000 adolescents gave birth, whereas in Korea, DPR and the Republic of Korea the birth rate was as low as 1 out of 1 000 adolescents. On average across lower-middle and low income Asia-Pacific countries and territories, 1 out of 20 women aged 15-19 gave birth, over twice the average rate reported for upper-middle income countries and territories (Figure 4.14).

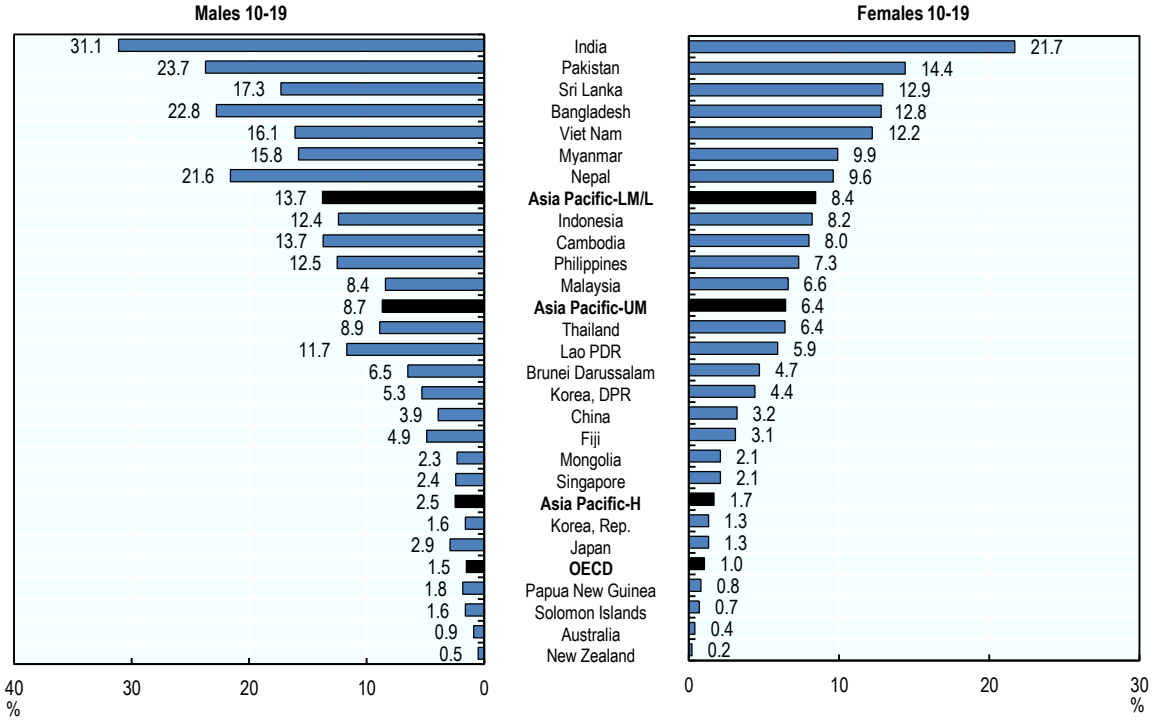
### Definition and comparability

Thin adolescents are individuals aged 10-19 whose body mass index (BMI) is less than 2 standard deviations below the median.

The prevalence of insufficient physical activity refers to a proportion of school going adolescents not doing more than 60 minutes of moderate- to vigorous-intensity physical activity daily.

Adolescent birth rate is defined as the annual number of births to women aged 15-19 years per 1 000 women in that age group. It is also referred to as the age-specific fertility rate for women aged 15-19 years.

Figure 4.12. **Adolescents who are thin, 2016**




Source WHO GHO 2020.

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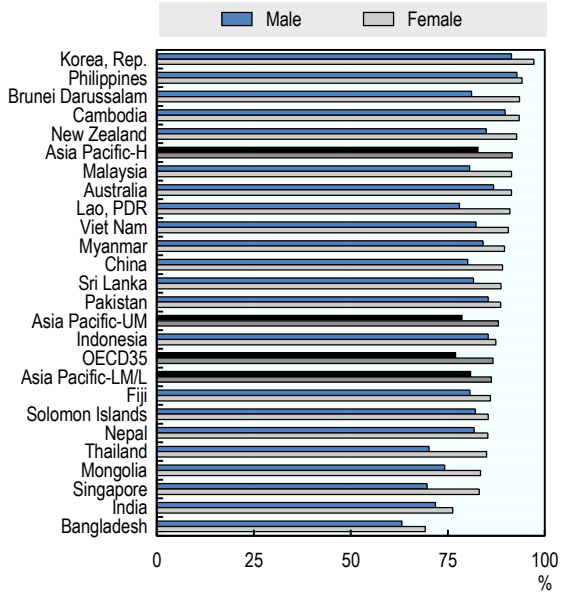
Figure 4.13. **Prevalence of insufficient physical activity among adolescents aged 11-17, 2016**




Source: WHO GHO, 2020.

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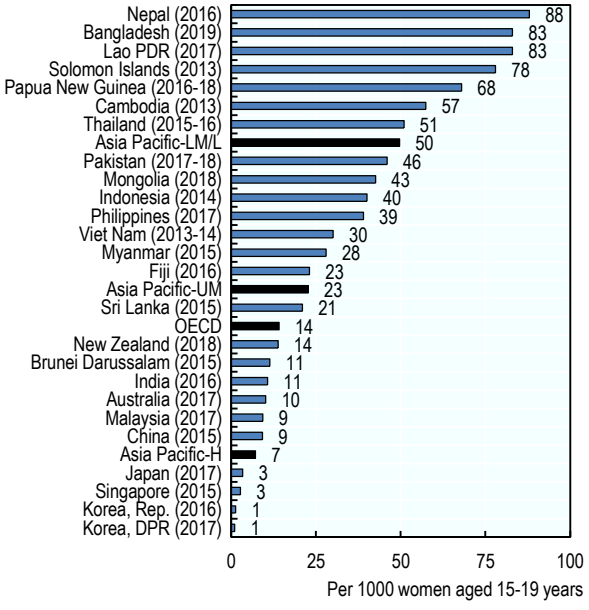
Figure 4.14. **Adolescent birth rate (per 1 000 women aged 15-19 years), latest year available**




Source: WHO GHO 2020; DHS & MICS surveys, various years.

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Globally, overweight and obesity is a major public health concern, and there are more overweight or obese than underweight adults. In 2016, 39% men and 40% of women aged 18 and over, accounting for nearly 2 billion adults, were overweight, and 11% of men and 15% of women, more than half a billion, were obese worldwide. Both overweight and obesity have shown a marked increase over the past four decades (WHO, 2020[24]).

Obesity is a known risk factor for numerous health problems, including hypertension, high cholesterol, diabetes, cardiovascular diseases, respiratory problems (asthma), musculoskeletal diseases (arthritis) and some forms of cancer, and mortality also increases progressively once the overweight threshold is crossed (OECD, 2019[25]; WHO, 2020[24]). Furthermore, overweight, and obesity in particular, are found to be associated with higher risks of developing severe pneumonia and dying among COVID-19 patients (Qingxian et al., 2020[26]).

A key driver of the increasing obesity epidemic is a changing food environment, in which nutrient poor and energy dense processed foods are aggressively marketed, readily available and often cheaper than healthier alternatives. The economic priorities and policies that promote consumption-based growth, and the regulatory policies that promote market and trade liberalisation are increasingly regarded as contributing to the global rise of obesity too (OECD, 2019[25]; UNICEF, 2019[10]).

In Asia-Pacific, the obesity rate among children and adolescents varied widely between the high of 16.3% in New Zealand, followed by 14.1% in Brunei Darussalam, and the low of 1.7% and 2.0% in Nepal and India respectively, where the prevalence of underweight was high among adolescents (see indicator "Adolescent health" in Chapter 4). On average across high and upper-middle income Asia-Pacific countries and territories, over one in ten children and adolescents were obese in 2016, more than twice the prevalence observed across lower-middle and low income Asia-Pacific countries and territories. In New Zealand where the obesity rate is the highest in Asia-Pacific, the prevalence of overweight was also the highest in the region at almost 40%, whereas in India with one of the lowest obesity rates, the prevalence of overweight was lowest at less than 7% (Figure 4.15 right panel).

Among adults, obesity prevalence was high in Australia, Fiji and New Zealand in 2016 where almost one in three in adults were obese. In these countries and territories, the prevalence of overweight adults was also high at more than 60%. On the other hand, obesity rate was low in Bangladesh, Cambodia, India and Viet Nam at below 4%, and in India and Viet Nam, overweight prevalence among adults was also the lowest in Asia-Pacific, at less than 20%. In high and upper-middle income countries and territories, 15% of adults were obese and 43% of adults were overweight, whereas the average prevalence for lower-middle and low income countries and territories was lower at 9% and 31%, respectively (Figure 4.15, left panel). Across countries and territories, the prevalence of obesity and overweight among children and adolescents was positively associated with the prevalence among adults.

Between 2010 and 2016, the increase in the prevalence of obesity was fast particularly in lower-middle and low income countries and territories in Asia-Pacific. This increase was higher among children and adolescents in most countries and territories. In lower-middle and low income countries and territories, the prevalence of obesity increased on average by 61% among children and adolescents (from 2.7% to 4.4%) and by 28% among adults (from 6.8% to 8.7%). The average increase was lower in higher income countries and territories – by 14% among children and adolescents (from 9% to 10.2%) and by 16% among adults (from 12.8% to 14.8%). The increase was particularly high in Viet Nam, by 1.6 times among children and adolescents (from 1% to 2.6%) and by 50% among adults (from 1.4% to 2.1%). The obesity prevalence also doubled in India among children and adolescents (from 1% to 2%) and increased by over 50% among adults in Lao PDR (from 3.5% to 5.3%) (Figure 4.16).

Since 2010, the prevalence of overweight has increased in almost all Asia-Pacific countries and territories. The increase was again faster in lower-middle and low income countries and territories – 38% for children and adolescents (from 10.8% to 14.9%) and 15% for adults (from 26.9% to 30.8%) – than in high income countries and territories – 8% (from 25.4% to 27.3%) and 7% (from 40.7% to 43.4%), respectively. Between 2010 and 2016, the prevalence of overweight grew rapidly in Viet Nam among children, adolescents and adults. The prevalence also grew fast by 55% among children and adolescents in India (from 4.4% to 6.8%) and Cambodia (from 7.3% to 11.3%), and a significant increase was also observed among adults in Lao PDR (23%, from 20.6% to 25.4%), Thailand (22%, from 26.7% to 32.6%) and Bangladesh (22%, from 16.4% to 20%) in the same period (Figure 4.17). In developing countries obesity is more common among people with a higher socio-economic status, those living in urban regions and middle-aged women. In developed countries, obesity is associated with lower socio-economic status, especially among women (OECD, 2010[27])

### Definition and comparability

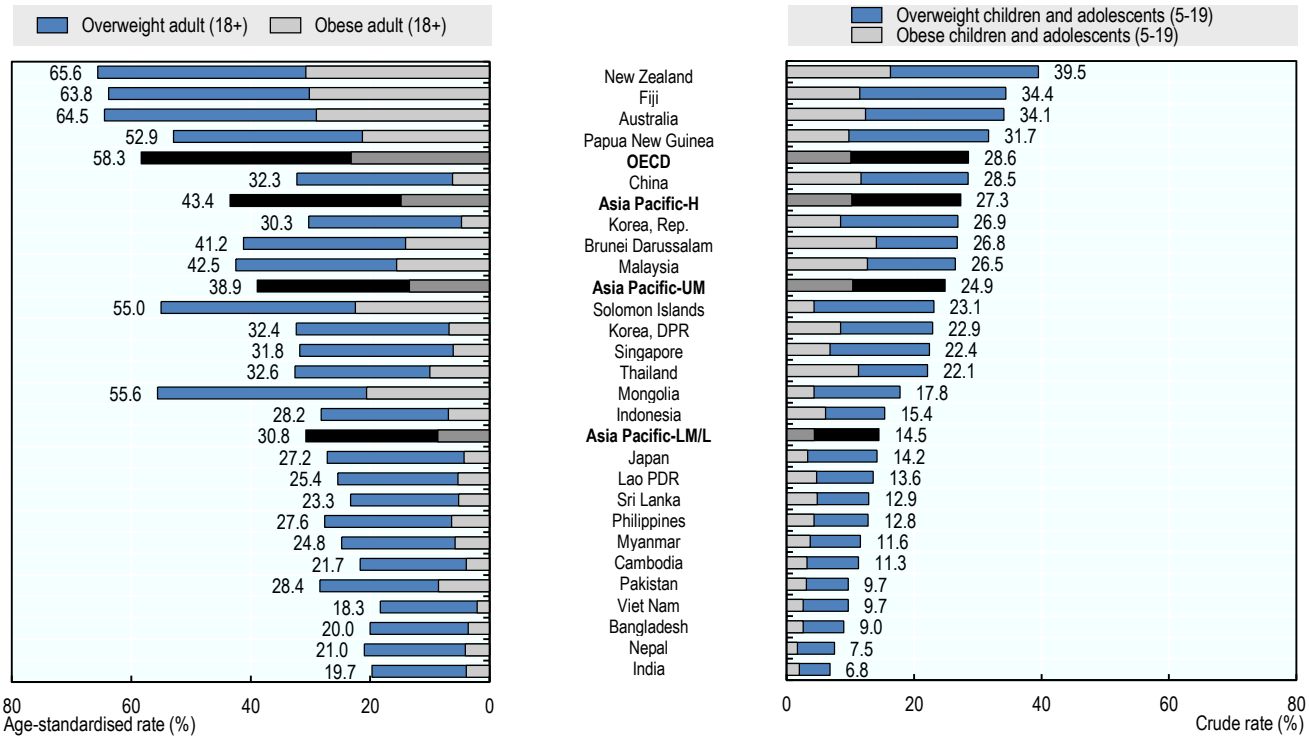
The most frequently used measure of overweight and obesity is the Body Mass Index (BMI). This is a single number that evaluates an individual's weight in relation to height, and is defined as weight in kilograms divided by the square of height in metres (kg/m2).

The WHO definition of child and adolescent overweight is a BMI greater than 1 standard deviation above the median, and the definition of child and adolescent obesity is a BMI greater than 2 standard deviation above the median.

Based on the WHO classification, adults with a BMI 25 or over are overweight and adults who have a BMI of 30 or over are defined as obese.

In many countries, self-reported estimates of height and weight are collected through population-based health surveys while in Australia, Japan, the Republic of Korea and New Zealand, health examinations measure actual height and weight. These differences limit data comparability. BMI estimates from health examinations are more reliable, and generally result in higher values than from self-report surveys.

Figure 4.15. **Adults, children and adolescents who are overweight or obese, 2016**




Source: WHO GHO 2020.

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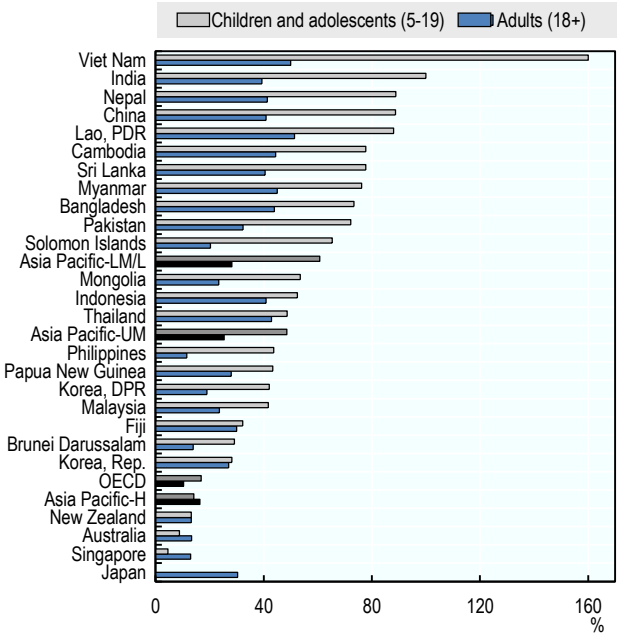
Figure 4.16. **Percent change in obesity prevalence, 2010-16**




Source: WHO GHO 2020.

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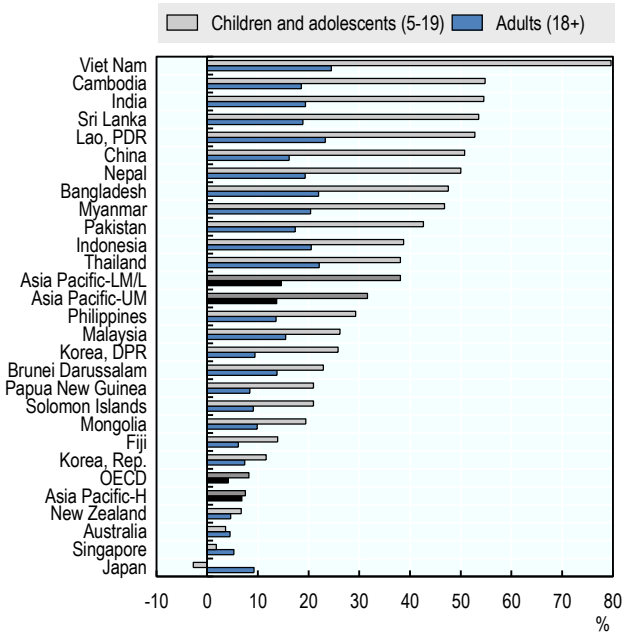
Figure 4.17. **Percent change in overweight prevalence, 2010-16**




Source: WHO GHO 2020.

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Safe water and adequate sanitation are vital to individual health, livelihood and well-being. Yet, more than one out of four people in the world, around 2 billion people, do not have access to basic sanitation services. A lack of access to basic sanitation can lead to transmission of different diseases such as diarrhoea, cholera and hepatitis A -, and adds to the burden of malnutrition. Better access to water and sanitation could prevent the deaths of 297 000 children under age 5 annually (WHO, 2019[28]). Improving access contributes not only to better health but also leads to great social and economic benefits, whether through higher educational participation, improved living standards, lower health care costs or a more productive labour force. Consequently, the United Nations has set a target of achieving universal and equitable access to safe and affordable drinking water for all, as well as achieving access to adequate and equitable sanitation and hygiene for all and end open defecation by 2030. Furthermore, UNICEF's strategy for Water, Sanitation and Hygiene (WASH) 2016-30 seeks to ensure that every child lives in a clean and safe environment, gains access to basic sanitation and safe drinking water in early childhood development centres, school, health centres and in humanitarian situations (UNICEF, 2018[29]).

In 2017, while more than nine in ten people in Asia-Pacific high income countries and territories had access to basic sanitation, in lower-middle and low income countries and territories only one in two people living in rural areas and about three out of four people living in urban areas had access to basic sanitation for adequate excreta disposal (Figure 4.18, left panel). Access was low in rural areas at 8% in Papua New Guinea and 20% in the Solomon Islands, where open defecation were still common among the vast majority of the population. In urban areas, only about half of the population had access to basic sanitation in Papua New Guinea and Bangladesh in 2017.

Over recent years, the proportion of the population using basic sanitary facilities has grown in most Asia-Pacific countries and territories, and faster improvement was observed in rural areas (Figure 4.18, right panel). The progress was particularly rapid in rural areas in Cambodia, India and Nepal, where the proportion of population with access to basic sanitation increased by more than 20 percentage points between 2010 and 2017. In urban areas, Cambodia reported a significant increase of 21 percentage points in the proportion of population with access to basic sanitation during the same period. On the contrary, Papua New Guinea and Myanmar reported a decrease in the percentage of the population having access to basic sanitation both in rural and urban areas from 2010 to 2017.

In almost all Asia-Pacific countries and territories in 2017, more than nine out of ten people had access to basic drinking water in urban areas, while access was limited in rural areas in some countries and territories. In Papua New Guinea, only about one in three people had access to basic drinking water in rural areas. Access to basic water sources was also low in rural areas in Mongolia (56%) and the Solomon Islands (61%) (Figure 4.19, left panel).

During the period of 2010-17, access to basic drinking water improved in most Asia-Pacific countries and territories, and the progress was generally faster in lower-middle and low income countries and territories than in upper-middle income countries and territories. In urban areas, access to basic drinking water increased by 9 percentage points in Cambodia and Myanmar, while decreased by 2 percentage points in Nepal. In rural areas, Cambodia, Lao PDR, Mongolia and Myanmar reported an increase in the population living in rural areas having access to basic drinking water of more than 10 percentage points, whereas Solomon Islands reported the largest decrease of 8 percentage points from 2010 to 2017 (Figure 4.19, right panel). In recent years, many countries and territories in the region, including Bangladesh, Mongolia, the Philippines and Viet Nam established water safety plans, allowing millions to access safer drinking water. Tax-based public subsidies, well-designed water tariffs and strategic use of aid flows to the water sector can assist in ensuring that poor and vulnerable groups have access to sustainable and affordable water services (WHO, 2018[30]).

### Definition and comparability

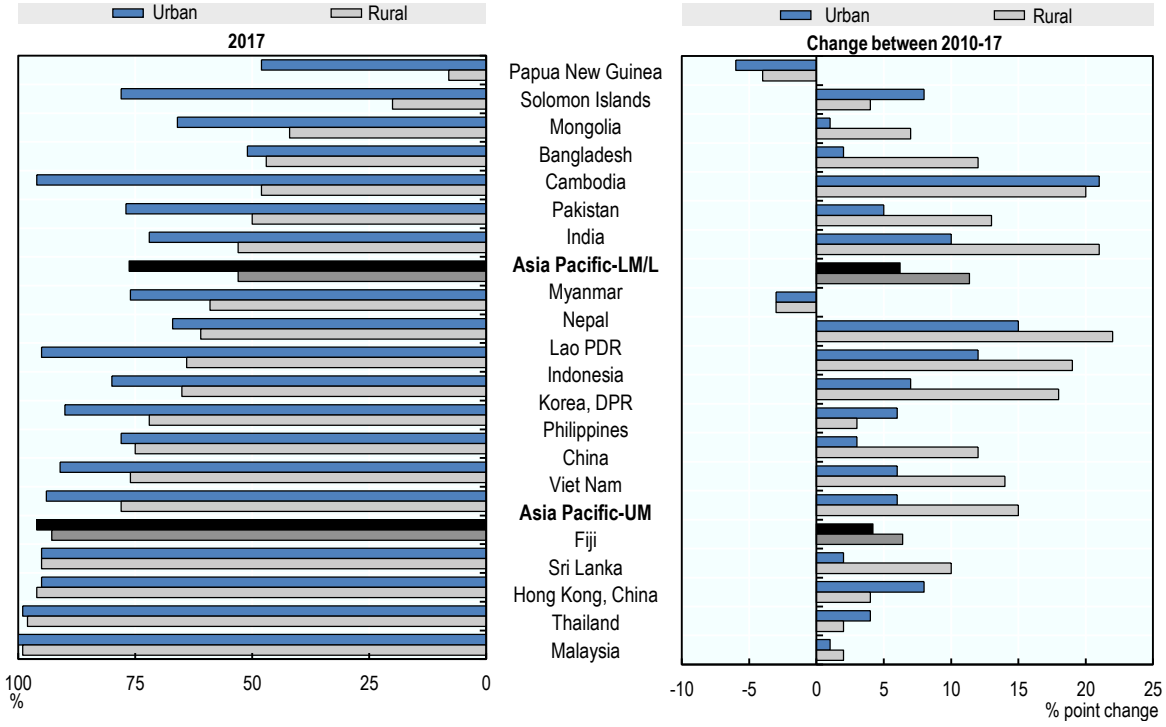
People that use improved sources of drinking water that required no more than 30 minutes per trip to collect water are classified as having at least basic drinking water services. An improved drinking-water source is constructed so that it is protected from outside contact, especially from faecal matter. Improved sources include piped water, public taps, boreholes, and protected dug wells or springs (UNICEF and WHO, 2019[31]).

People that use an improved sanitation facility that was not shared with other households are classified as having at least basic sanitation services. Improved sanitation facilities hygienically separate excreta from human contact, through the use of flushing to piped sewer systems, septic tanks or pit latrines, along with improved pit latrines or composting toilets (UNICEF and WHO, 2019[31]).

The WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) database includes nationally representative household surveys and censuses that ask questions on water and sanitation, mostly conducted in developing countries. Generally, developed countries supply administrative data.

Australia, Japan, New Zealand, the Republic of Korea, and Singapore report a coverage of 100% for basic sanitation and basic drinking water. Therefore these countries are not shown in Figure 4.18 and Figure 4.19.

Figure 4.18. **Access to basic sanitation, 2017 and change between 2010-17**




Source: WHO/UNICEF JMP database 2020.

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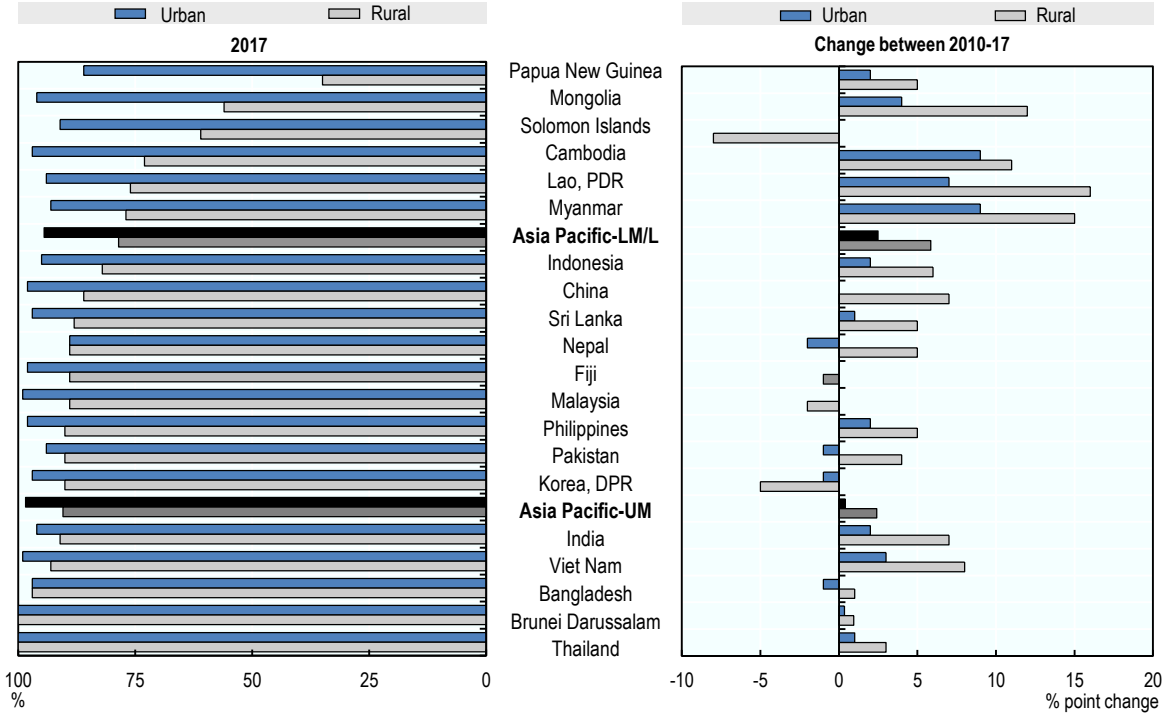
Figure 4.19. **Access to basic drinking water, 2017 and change between 2010-17**




Source: WHO/UNICEF JMP database 2020.

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Tobacco use is the leading global cause of preventable deaths and kills more than 8 million people each year, of whom more than 7 million are from direct tobacco use and around 1.2 million are non-smokers exposed to second-hand smoke. It is estimated that there were 1.1 billion current smokers in 2018, 82% of which were males. Among children between ages 13 and 15, 24 million were smokers. Although global tobacco use has fallen over the past two decades, the progress is still off track for achieving the WHO's target of cutting tobacco use by 30% between 2010 and 2025 as part of the global efforts to reduce mortality from the four main non-communicable diseases (cardiovascular diseases, cancer, chronic lung diseases and diabetes) (WHO, 2019[32]). The United Nations SDGs call for strengthening the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries and territories, as appropriate.

Tobacco smoking is a major risk factor for six of the eight leading causes of premature mortality – ischemic heart disease, cerebrovascular disease, lower respiratory infections, chronic obstructive pulmonary disease, tuberculosis and cancer of the trachea, bronchus and lung. Moreover, smoking in pregnancy can lead to low birthweight and illness among infants. Children who establish smoking habits in early adolescence also increase their risk of cardiovascular diseases, respiratory illnesses and cancer, and they are more likely to experiment with alcohol and other drugs. Smoking is also a risk factor for dementia. New studies have shown that 14% of Alzheimer's cases worldwide may be attributed to smoking (Livingston et al., 2017[33]). Recently, tobacco smoking is also found to be associated with higher risks of developing severe symptoms and mortality among COVID-19 patients (WHO, 2020[34]; Vardavas and Nikitara, 2020[35]). Smoking is harmful not only for smokers but also surrounding people such as families and colleagues.

As of 2019, comprehensive smoke-free legislation was in place for almost 1.6 million people in 62 countries and territories, covering only 22% of the world's population. In Asia-Pacific, Australia, Cambodia, Lao PDR, Nepal, New Zealand, Pakistan, Papua New Guinea and Thailand have complete smoke-free policies. Evidence shows that countries and territories with smoke-free policies have decreased the number of smokers and reduced mortality from smoking-related illnesses (WHO, 2019[32]).

The economic and social costs of tobacco use are also high, with families deprived of breadwinners, large public health costs for treatment of tobacco-related diseases, and lower workforce productivity (WHO, 2019[32]). Tobacco use is greatest among those who can least afford it (Hosseinpoor et al., 2012[36])

Almost one in three men aged 15 and above in middle and low income Asia-Pacific countries and territories reported to smoke tobacco daily in 2017, as compared to one in four in high income countries and territories (Figure 4.20, left panel). The proportion of daily tobacco smokers varied greatly across countries and territories. This proportion among men was highest in Indonesia at 54.3%, and Lao PDR and China had over two in five adult males smoking daily. Australia, India and New Zealand, however, reported the lowest prevalence, with less than 20% of adult males smoking tobacco daily. India has reduced smoking rates recently partly through an innovative smoking cessation programme developed in 2015 that sends personalised encouraging text messages to quit smoking to registered smokers' cell phones (WHO, 2019[32]). However, India has a high prevalence of daily smokeless tobacco use among adults at 18.2% in 2018 (Global Adult Tobacco Survey, *https://www.who.int/tobacco/surveillance/survey/gats/GATS_India_2016-17_FactSheet.pdf*), and one in four adult men use smokeless tobacco daily.

There are large male-female disparities and 7.2%, 2.0% and 2.9% of women aged 15 and above report smoking daily in high, upper-middle, and lower-middle and low income Asia-Pacific countries and territories respectively (Figure 4.20, right panel). The rates were highest in New Zealand (12.4%), Australia (11.1%) and Japan (8.9%).

Figure 4.21). In all reporting countries and territories, except Nepal, the prevalence of regular smoking among females was higher for adolescents than adults. On the contrary, the prevalence among males was higher for adults than for adolescents in all reporting countries and territories, except India.

Increasing tobacco prices through higher taxes is an effective intervention to reduce tobacco use, by discouraging youth from beginning tobacco use and encouraging tobacco users to reduce their consumption or quit (WHO, 2019[32]). Higher taxes also assist in generating additional government revenue. However, only Australia, Bangladesh, Lao PDR, New Zealand, the Philippines, the Republic of Korea and Thailand have total taxes that account for over 70% of the tobacco retail price (Figure 4.22). In Thailand, increased tax revenue has been used to support smoking cessation programmes (WHO, 2019[32]).

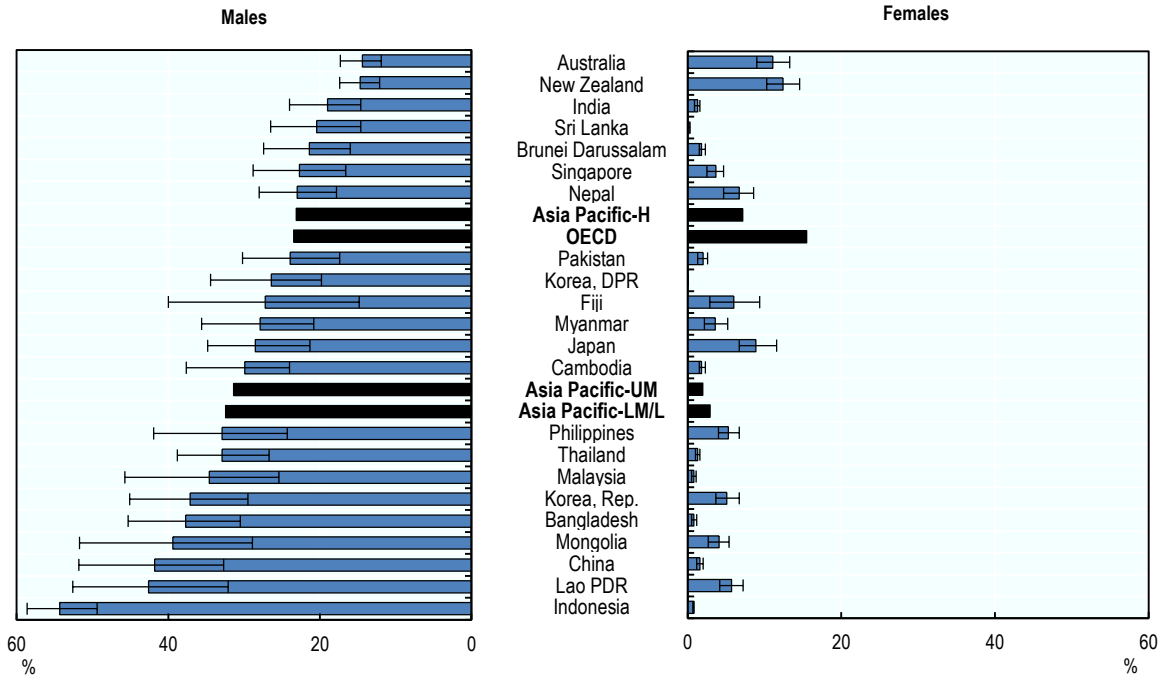
In Asia-Pacific, health warnings against tobacco use, including labels on tobacco product packaging and anti-tobacco mass media campaigns to build public awareness, could be used more to reduce tobacco use. Australia, Pakistan, Singapore and Thailand report that graphic pictorial warning labels have effectively impacted smoking-related behaviour. To increase the effectiveness of health warnings, Australia, New Zealand, Singapore (starting in 2020) and Thailand have also mandated plain packaging of tobacco (WHO, 2019[32]).

### Definition and comparability

Adults smoking daily is defined as the percentage of the population aged 15 years and over who reported smoking every day.

Current tobacco use among youth is defined as the percentage of young people aged 13-15 years who consumed any tobacco product at least once during the last 30 days prior to the survey.

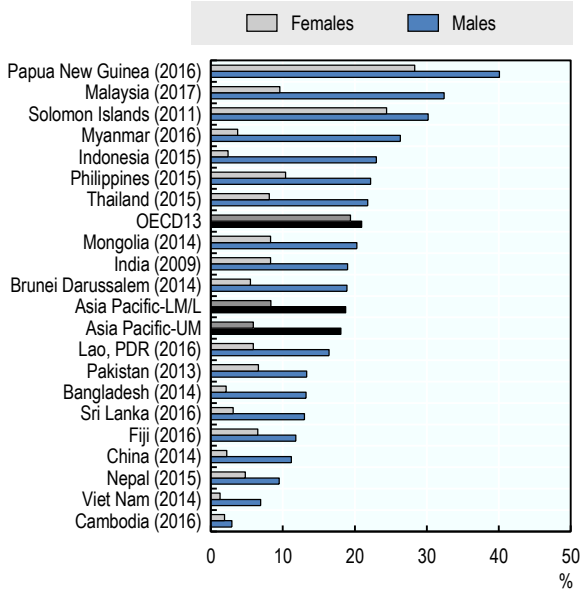
Figure 4.20. **Age-standardised prevalence estimates for daily tobacco smoking among persons aged 15 and above, by sex, 2017 (or latest year available)**




Source: WHO Report on the Global Tobacco Epidemic 2019.

StatLink https://stat.link/eviotb

Figure 4.21. **Prevalence of current tobacco use among youth aged 13 to 15, by sex, latest year available**




Note: Youth aged 13 to 17 for Brunei Darussalam and Malaysia.
Source: WHO report on the global tobacco epidemic 2019.

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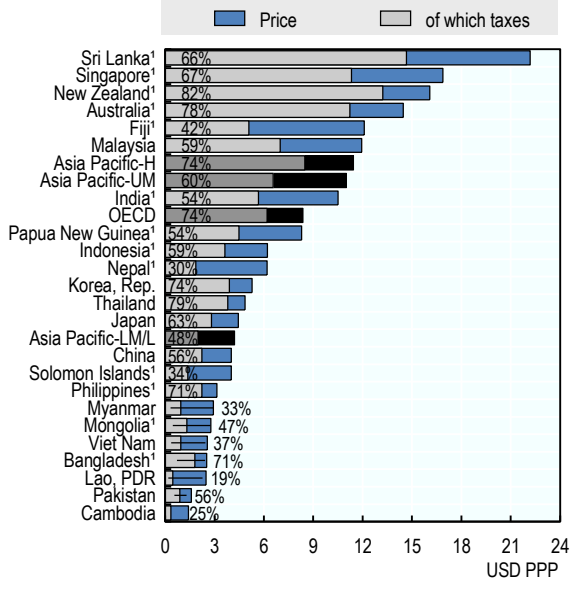
Figure 4.22. **National taxes and retail price for a pack of 20 cigarettes of the most sold brand, 2018**




Source: WHO report on the global tobacco epidemic 2019.

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The health burden related to harmful alcohol consumption, both in terms of morbidity and mortality, is considerable in most parts of the world (WHO, 2018[37]; Sassi, 2015[38]). Alcohol use is associated with numerous harmful health and social consequences, including an increased risk of mouth and throat, larynx, esophagus, colon and rectal, liver and breast cancers, stroke, and liver cirrhosis, among others. Foetal exposure to alcohol increases the risk of birth defects and intellectual impairment. Alcohol misuse is also associated with a range of mental health problems, including depressive and anxiety disorders, obesity and unintentional injuries (WHO, 2018[37]). In 2016, the harmful use of alcohol – including road traffic deaths attributable to alcohol – resulted in some 3 million deaths worldwide (5.3% of all deaths), and 132.6 million DALYs lost (– 5.1% of all DALYs in that year) (WHO, 2018[39]; see indicator "Road safety" in Chapter 4). While many countries set age limits for purchasing or drinking alcohol, lack of enforcement and no age limits in some countries allow young people to access alcohol easily, increasing their consumption and risk of harmful consequences.

Alcohol accounts for more deaths than TB, HIV/AIDS, hypertension, diabetes, digestive diseases, road injuries and violence (WHO, 2018[37]). The direct and indirect economic costs of alcohol (which include lost productivity, health care costs, and road traffic crashes and crime-related costs) are substantial – in Thailand and the Republic of Korea these are about 2% of GDP (WHO, 2018[37]; Rhem et al., 2009[39]; Thavorncharoensap et al., 2010[40]).

In Asia-Pacific, alcohol consumption is highest among more developed countries and territories (Figure 4.23, left panel). Adults aged 15 years and over in Australia, New Zealand and the Republic of Korea consumed over nine litres of alcohol per capita in 2016. In China, Japan, Lao PDR, Mongolia and Thailand, alcohol consumption was between five and seven litres. Because cultural and religious traditions in a number of the remaining countries and territories prohibit drinking alcohol, consumption figures in these are minimal. In some countries and territories, only certain groups of people consume alcohol. In Thailand, for example, only about one-third of adults drinks alcohol, but still they have the highest per capita alcohol consumption in South-East Asia. (WHO, 2018[37]).

Average consumption increased by 1 litre per capita in middle and low income Asia-Pacific countries and territories since 2010 (Figure 4.23, right panel), although variations exist across countries and territories. Alcohol consumption declined in Australia, Japan, Korea DPR, the Philippines, the Republic of Korea and Singapore. In Cambodia, China, India and Mongolia, the increase in alcohol consumption per capita was very large at more than two litres per capita.

In many Asia-Pacific countries and territories, the proportion of people with binging and heavy drinking has increased in recent years, and on average across countries and territories in the region, one man in two and one woman in five reported heavy episodic drinking during the last 30 days in 2016 (Figure 4.24; OECD/WHO, 2018[12]). In Fiji, Papua New Guinea and Solomon Islands, around 70% of males and over 30% of women reported heavy episodic drinking during the past 30 days.

More than two in five road traffic deaths were attributable to alcohol in Asia-Pacific in 2016. Australia has the highest proportion of road traffic deaths associated with alcohol in the region, followed by New Zealand, Singapore and the Republic of Korea. In all countries and territories in Asia-Pacific, the proportion of road traffic deaths attributable to alcohol was higher, for males than for females. The difference is particularly large in Thailand where the proportion for male (34%) is more than twice the proportion for female (15%) (Figure 4.25). Based on the blood alcohol concentration (BAC) at which crash risk begins to increase exponentially, WHO recommends drink-driving prevention legislation set maximum legal thresholds at 0.05g/dl. For novice and probationary drivers, WHO recommendations go further to specify no higher than 0.02 g/dl due to the interaction of alcohol and inexperience. Setting and enforcing legislation on BAC limits of 0.05 g/dl can lead to significant reductions in alcohol-related crashes. Japan sets the limit of to 0.015g/d; and some countries and territories – such as Australia, Fiji and New Zealand – have limited BAC level to 0g/dl for novice drivers.

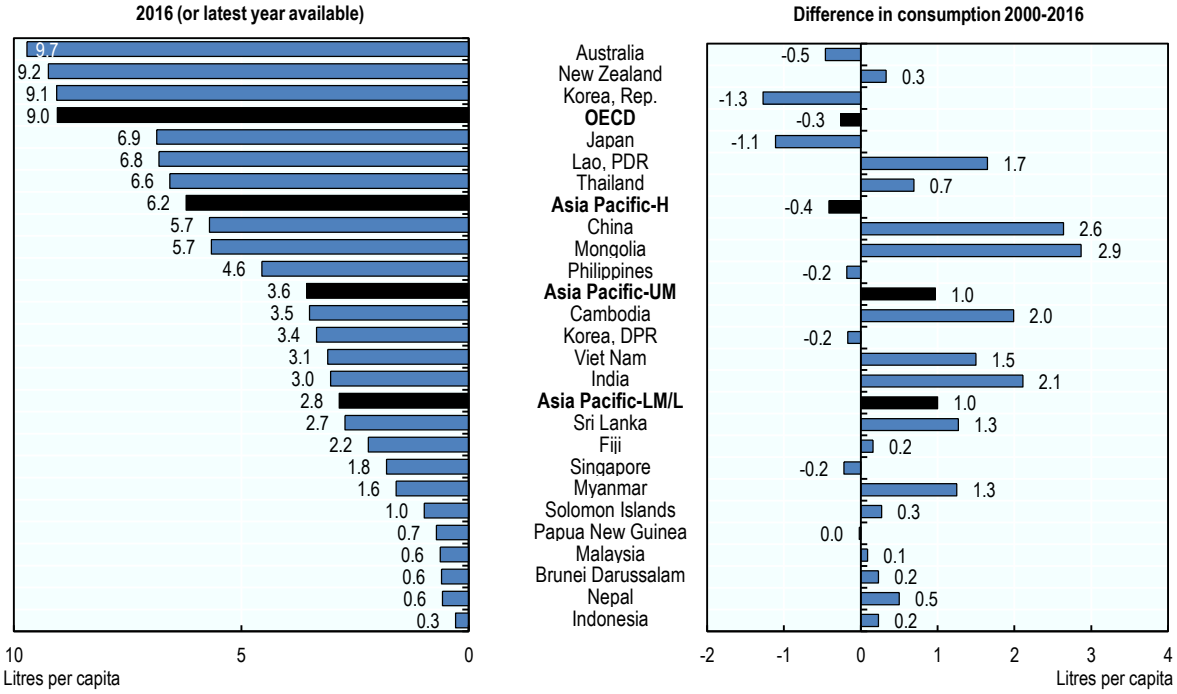
### Definition and comparability

Alcohol intake is measured in terms of annual consumption of litres of pure alcohol per person aged 15 years and over.

The methodology to convert alcoholic drinks to pure alcohol may differ across countries. Data are for recorded alcohol, and exclude homemade sources, cross-border shopping and other unrecorded sources. Information on drinking patterns is derived from surveys and academic studies (WHO, 2018[37]).

Heavy episodic drinking refers to the proportion of adult drinkers aged 15 and over who had at least 60 grams of pure alcohol at least once in the past 30 days. Sixty grams of pure alcohol is contained in approximately six standard alcoholic drinks (WHO, 2020[41]).

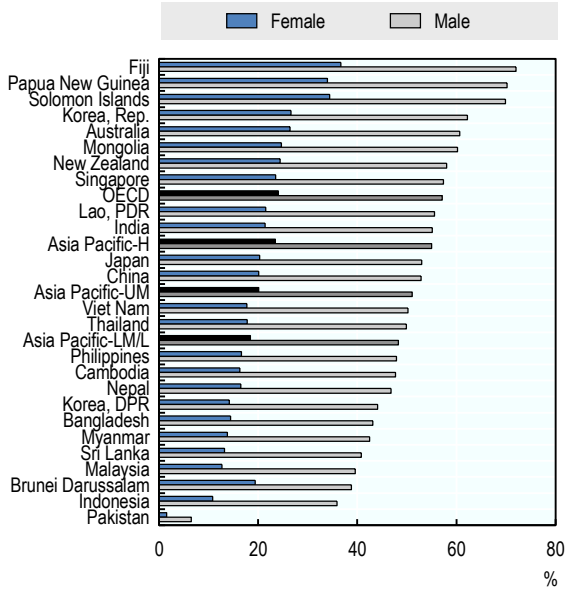
Figure 4.23. **Recorded alcohol consumption, population aged 15 years and over, 2016 or latest year available**




Source: WHO GISAH 2018.

StatLink https://stat.link/g47b0w

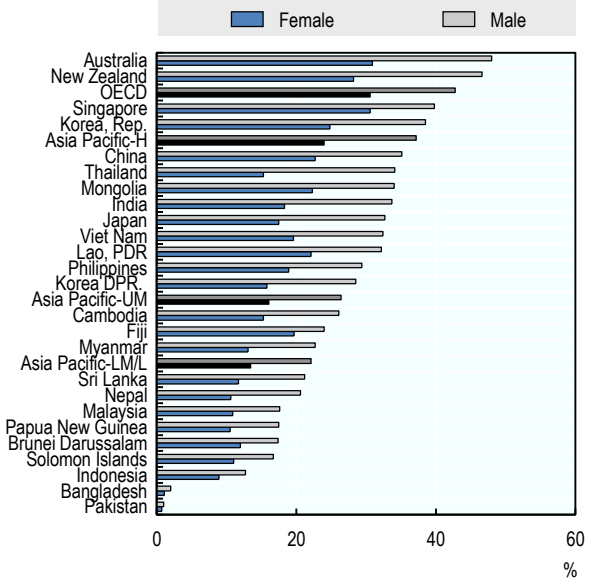
Figure 4.24. **Heavy episodic drinking (drinkers only), past 30 days (percent), 2016 (or latest year available)**




Source: WHO GISAH 2018.

StatLink https://stat.link/gwt763

Figure 4.25. **Proportion of road traffic deaths that are attributable to alcohol, 2016**




Source: WHO GISAH 2018.

StatLink https://stat.link/dovqm4

Road traffic accidents are the main cause of death for people between 5 and 20 years of age worldwide, with approximately 1.35 million road traffic deaths in 2016. While the global rate for road traffic deaths is around 18 per 100 000 population, there is great disparity by income, with rates more than three times higher in low and middle income countries and territories than in the world's high income countries and territories (WHO, 2018[42]). South-East Asia is one of the most affected regions, with 20.7 road traffic deaths per 100 000 population. Western Pacific countries, however, have a rate of 16.9 road traffic deaths per 100 000 people, lower than the global average. Generally, speed contributes to about half of road deaths in high income countries and territories, whereas in middle and low income countries speeding accounts for 37% and 13% of the deaths respectively. The burden of road traffic deaths falls disproportionately on vulnerable road users as more than half of deaths are among pedestrians, cyclists and motorcyclists. The proportion of deaths among these vulnerable road users is higher in emerging economies where urbanisation and motorisation accompany rapid economic growth. In many of these countries, necessary infrastructural developments, policy changes and levels of policy enforcement have not kept pace with vehicle use (WHO, 2018[42]). The UN SDGs includes a target aiming to halve the number of global deaths and injuries from road traffic crashes by 2020 (SDG 3.6).

In 2016, Asia-Pacific countries and territories reported 20 deaths per 100 000 population aged 15 years and over due to road traffic accidents, three times the rate observed across OECD countries. Male deaths are higher than female deaths in all Asia-Pacific countries and territories. India, Thailand and Viet Nam have more than 50 male deaths per 100 000 population due to road traffic injuries, whereas the rate is less than 10 in Australia, Japan and Singapore. Cross-country variation is smaller among women. In Asia-Pacific, the average proportion of deaths due to road traffic accidents for both male and females in middle and low income countries and territories is more than three times higher than the average rate in high income countries and territories (Figure 4.26). Improvements have been made in several countries and territories in Asia-Pacific. For example, the Republic of Korea significantly reduced traffic fatalities with a national strategy for improved traffic behaviours around school zones; which decreased road traffic deaths of children age 14 by 95% between 1998 and 2012 (WHO, 2018[42]).

The five key risk factors for road traffic deaths and injuries are drink-driving, speeding, and failing to use motorcycle helmets, seat-belts and child restraints (Table 4.1).In addition, distracted driving – such as using mobile phones and other in-vehicle technologies while driving – is a growing threat to road safety. Texting causes cognitive manual and/or visual distraction. Even talking on mobile phones without holding or browsing a phone can reduce driving performance (WHO, 2018[42]). Since hands-free phone and hand-held phones are equally at risk of causing cognitive distraction, some national laws regulate both types of using mobile phones use (Table 4.1).

Drinking and driving, especially with a blood alcohol concentration (BAC) level of over 0.05g/dl (grammes per decilitre), greatly increases the risk of a crash and the likelihood of death or serious injury (see indicator "Alcohol" in Chapter 4). It is estimated that reducing BAC from 0.08% to 0.05% could reduce alcohol-related road injuries and deaths by between 5% and 18% (WHO, 2018[37]). Furthermore, setting a lower BAC limit (0.02 g/dl) for young people and novice drivers can reduce the risk of road crashes. Hence Australia, Fiji, New Zealand and Viet Nam have introduced additional national laws for young and novice drivers with the BAC level to 0 g/dl. Law enforcement through random breath testing checkpoints is considered highly cost effective (WHO, 2018[42]).

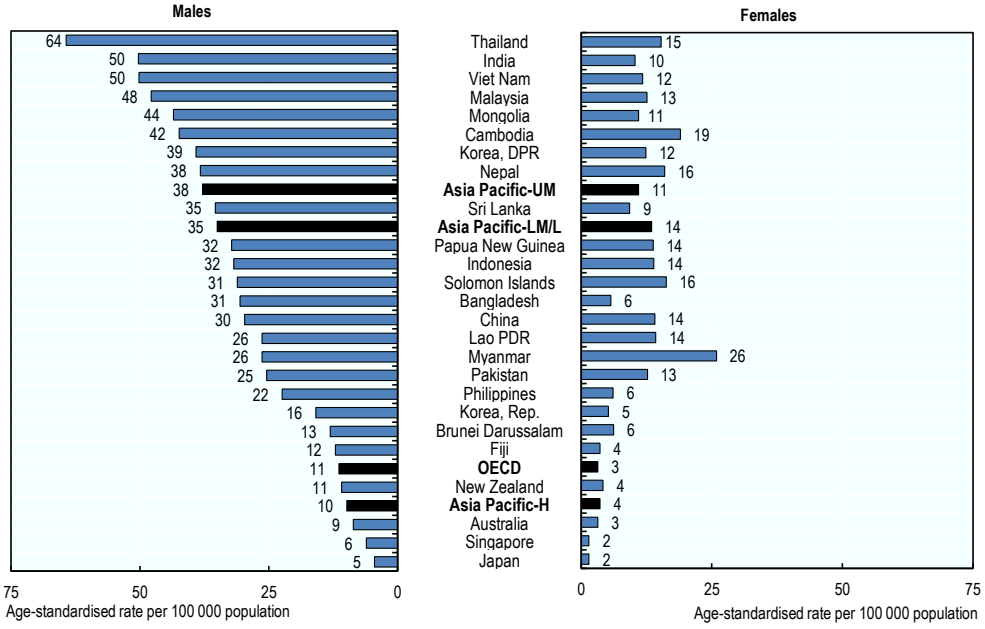
Speed limits are enforced by a national law in all Asia-Pacific countries. However, in several countries and territories speed limits are not able to be adapted at local level, creating potential barriers for a rapid response to local need (Table 4.1). Australia, New Zealand and Sri Lanka have introduced the WHO recommended speed limit less or equal to 50 km/h in urban areas. Several countries and territories in the region have implemented this suggested speed limit at the subnational level. For instance, as of 2017, the WHO recommended urban speed limit has been set in half of Thailand's 76 provinces (WHO, 2018[42]). A number of initiatives aimed to reduce speeding are being implemented across the Asia-Pacific to decrease the risk of injuries and fatalities due to road traffic. For example, in 2019, the Philippines established a speed limit and enforcement management project funded by the UN Road Safety Fund (UNECE, 2020[43]).

Wearing a motorcycle helmet correctly can reduce the risk of death by more than 40% and the risk of severe injuries by almost 70%. When motorcycle helmet laws are enforced, helmet-wearing rates can increase to over 90%. Nonetheless, helmet-wearing enforcement is very low in a number of Asia-Pacific countries, such as China (20%), Pakistan (10%) and Mongolia (7%) (Table 4.1).

Wearing a seat-belt can reduce fatalities among front-seat passengers by up to 50% and among rear-seat car passengers by up to 25%. A national law on wearing seat belts has not been adopted in Bangladesh and the Solomon Islands yet (Table 4.1).

Child restraint systems, such as child seats for infants and booster seats for older children, decrease their risk of death in a crash by at least 60%. However, mandatory child restraint national laws exist only in seven Asia-Pacific countries– namely Australia, Cambodia, Fiji, Japan, Lao PDR, New Zealand and Singapore (WHO, 2018[42]).

Figure 4.26. **Road traffic mortality due to alcohol-related conditions, population aged 15 years and over, 2016**




Source: WHO GISAH 2018.

StatLink https://stat.link/muqa26

Table 4.1. **Road safety measures, latest year available**

| Country | Law enforcement | | | | | Speed Limit | | Wearing rate (percentage) | |
|---|---|---|---|---|---|---|---|---|---|
| | Drink-driving | Seat-belt | Speed limit | Child-restraint | Motorcycle helmet | Rural (km/h) | Urban (km/h) | Seat-belt (driver) | Motorcycle helmet |
| Australia | National law | National law | Local authorities can modify national law | National law | Law requires helmet to be fastened | 100 or higher | 50 | - | 99 |
| Bangladesh | National law | Law not adopted | National law | Law not adopted | Law not adopted | 100 or higher | above 50 | - | - |
| Cambodia | National law | National law | National law | National law | Law not adopted | 90 | 40 | | 64 |
| China | National law | National law | Local authorities can modify national law | Law not adopted | Law not adopted | 70 | 50 | 37 | 20 |
| Fiji | National law | National law | National law | National law | Law requires helmet to be fastened | 80 | 50 | 90 | - |
| India | National law | National law | Local authorities can modify national law | Law not adopted | Law requires helmet to be fastened | 100 or higher | above 50 | 14- 40 | 60 |
| Indonesia | National law | National law | Local authorities can modify national law | Law not adopted | Law not adopted | 80 | 50 | - | 80 |
| Japan | National law | National law | Local authorities can modify national law | National law | Law not adopted | 60 | above 50 | 99 | - |
| Korea, Rep. | National law | National law | Local authorities can modify national law | Law not adopted | Law not adopted | 80 | above 50 | 94 | 74 |
| Lao PDR | National law | National law | National law | National law | Law not adopted | 90 | 40 | - | - |
| Malaysia | National law | National law | Local authorities can modify national law | Law not adopted | Law requires helmet to be fastened | 90 | above 50 | 83 | 97 |
| Mongolia | National law | National law | National law | Law not adopted | Law not adopted | 80 | above 50 | - | 7 |
| Myanmar | National law | National law | Local authorities can modify national law | Law not adopted | Law requires helmet to be fastened | 80 | 50 | 7 | - |
| Nepal | National law | National law | National law | Law not adopted | Law not adopted | 80 | 40 | - | - |
| New Zealand | National law | National law | Local authorities can modify national law | National law | Law requires helmet to be fastened | 100 or higher | 50 | 97 | - |
| Pakistan | National law | National law | Local authorities can modify national law | Law not adopted | Law not adopted | 100 or higher | above 50 | - | 10 |
| Papua New Guinea | National law | National law | National law | Law not adopted | Law requires helmet to be fastened | 80 | above 50 | - | - |
| Philippines | National law | National law | Local authorities can modify national law | Law not adopted | Law not adopted | 80 | 40 | 80 | 87 |
| Singapore | National law | National law | National law | National law | Law requires helmet to be fastened | - | above 50 | - | - |
| Solomon Islands | National law | Law not adopted | Local authorities can modify national law | Law not adopted | Law requires helmet to be fastened | - | - | - | - |
| Sri Lanka | National law | National law | National law | Law not adopted | Law not adopted | 70 | 50 | 75 | - |
| Thailand | National law | National law | National law | Law not adopted | Law requires helmet to be fastened | 90 | above 50 | 58 | 52 |
| Viet Nam | National law | National law | National law | Law not adopted | Law requires helmet to be fastened | 90 | above 50 | - | 96 |

Source: WHO GHO 2020, Global Status Report on Road Safety 2018, WHO.

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*Chapter 5*

# Health care resources and utilisation

Access to high-quality health services critically depends on the size, skill-mix, competency, geographic distribution and productivity of the health workforce. Health workers, in particular doctors and nurses, are the cornerstone of health care systems.

The number of doctors per 1 000 population varies widely across Asia-Pacific countries and territories, but it is generally lower than the OECD average (Figure 5.1). Across lower-middle and low income Asia-Pacific countries, there is one doctor per 1 000 population, whereas a slightly higher number of doctors – 1.2 per 1 000 population – is reported in upper-middle income countries. Australia and DPR Korea have the highest number of doctors per capita, with 3.7 doctors per 1 000 population, slightly higher than the OECD average of 3.4. In contrast, Papua New Guinea, Cambodia and the Solomon Islands have the lowest number of physicians at or below 1 per 5 000 population.

The specialisation-mix and distribution of doctors may be improved in Asia-Pacific. In Japan, for example, the number of medical facilities with surgical and paediatric departments is on decline, while shortages of doctors in emergency departments, obstetrics and gynaecology, internal medicine and anaesthesia have been identified (Sakamoto, Rahman and Nomura, 2018[1]). Furthermore, an uneven geographical distribution of health workers is a serious concern. The majority of health workers tend to be concentrated in urban areas, leaving a shortage of health workers in remote and rural areas that results in poor availability of health services particularly for vulnerable populations (Liu and Zhu, 2018[2]).

There is a large variation also in the number of nurses across countries and territories in Asia-Pacific (Figure 5.2). The number of nurses is highest in high income countries such as Japan, Australia and New Zealand, with around 12 nurses per 1 000 population. The supply is much lower in several low income countries, including Papua New Guinea, Pakistan and Bangladesh, where there are 1 nurse or less per 2 000 population. On average, less than two and three nurses per 1 000 population are available in lower-middle and low and upper-middle income Asia-Pacific countries respectively, much lower than the OECD average at more than eight nurses per 1 000 population. Furthermore, nurses are not well distributed geographically within countries such as Indonesia and the Philippines (Dayrit et al., 2018[3]; Harimurti, Prawira and Hort, 2017[4]), and several other countries in the region face the same issue (WHO, 2020[5]).

In some countries, national human resources for health planning needs to take account of migration trends in order to secure the necessary number of health professionals domestically. For example, around 69 000 Indian-trained physicians worked in the United States, United Kingdom, Canada and Australia in 2017, and nearly 56 000 Indian-trained nurses work in the same four countries (Walton-Roberts and Rajan, 2020[6]), despite a domestic density of half of the Asia-Pacific average for doctors and less than half for nurses. On the other hand, the Philippines is also a leading exporter of nurses and a major exporter of doctors (Dayrit et al., 2018[3]), but the density of these health professionals is at about the Asia-Pacific average.

As seen in OECD countries, nurses outnumber doctors and there are 2 and 2.3 nurses per doctor in lower-middle and low income, and upper-middle income Asia-Pacific countries respectively (Figure 5.3). However, there are some exceptions. Due to very few numbers of doctors, the Solomon Islands have more than 11 nurses per doctor. On the other hand, doctors outnumber nurses in Bangladesh and Pakistan.

Countries and territories in Asia-Pacific need to respond to the changing demand for health services and hence the health professional skill-mix in the context of rapidly ageing populations (see indicator “Ageing” in Chapter 3). The WHO global strategic directions (WHO, 2016[7]) provide the framework for strengthening health workforce services to help countries achieve universal health coverage. In addition, target 3.C of the Sustainable Development Goals calls for “substantially increase the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States”.

OECD countries, already experiencing population ageing, have developed formal systems to care for people with limitations on activities of daily living, and long-term care workers, typically nurses and personal carers, provide care and/or assistance to these people at home or in institutions (Muir, 2017[8]).

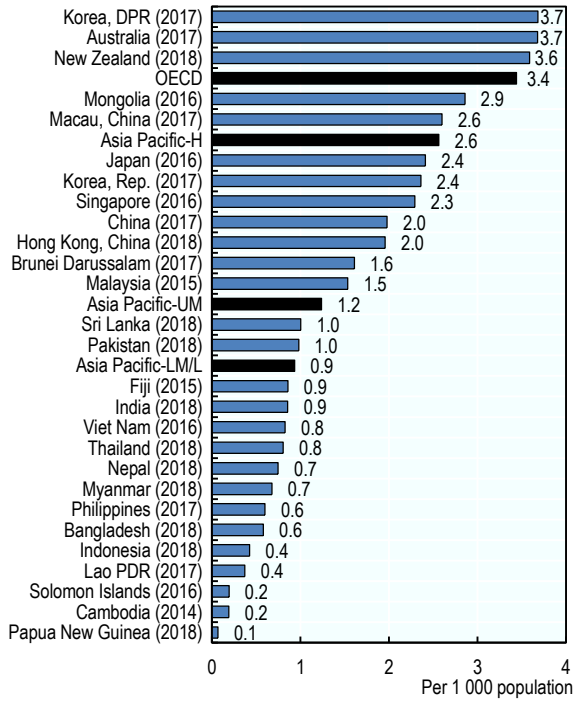
### Definition and comparability

Doctors include generalist medical doctors (including family and primary care doctors) and specialist medical doctors.

For Asia-Pacific non-OECD countries and territories, “Nurses” refers to the number of nursing and midwifery personnel, including professional nurses, professional midwives, auxiliary nurses, auxiliary midwives, enrolled nurses, enrolled midwives and related occupations such as dental nurses and primary care nurses. For OECD countries, “Nurses” refers to practising nurses that provide services directly to patients. This number includes professional nurses, associate professional nurses and foreign nurses licensed to practice and actively practising in the country. It excludes students who have not yet graduated, nursing aids/assistants and personal care workers who do not have any recognised qualification/certification in nursing, midwives (unless they work most of the time as nurses), nurses working in administration, management, research and in other posts that exclude direct contact with patients, unemployed nurses and retired nurses no longer practising and nurses working abroad.

Data are based on head counts.

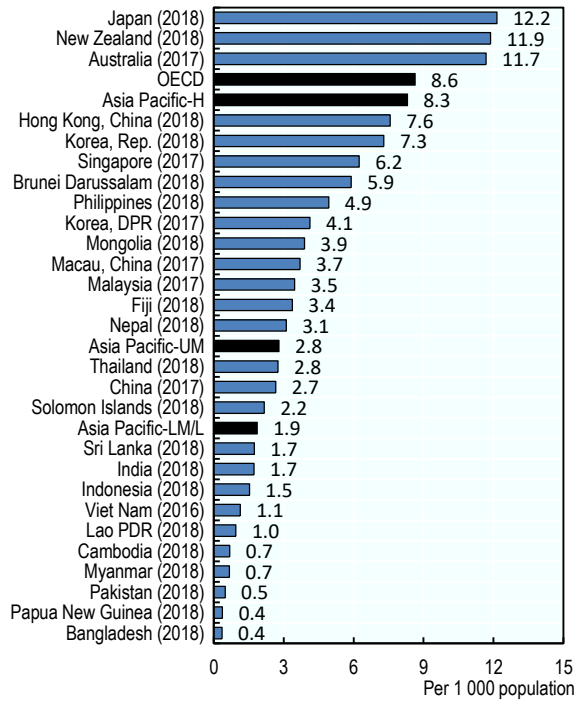
Figure 5.1. **Doctors per 1 000 population, latest year available**




Source: OECD Health Statistics 2020; WHO GHO, 2020; National Data Sources (see Annex A).

StatLink https://stat.link/acisvh

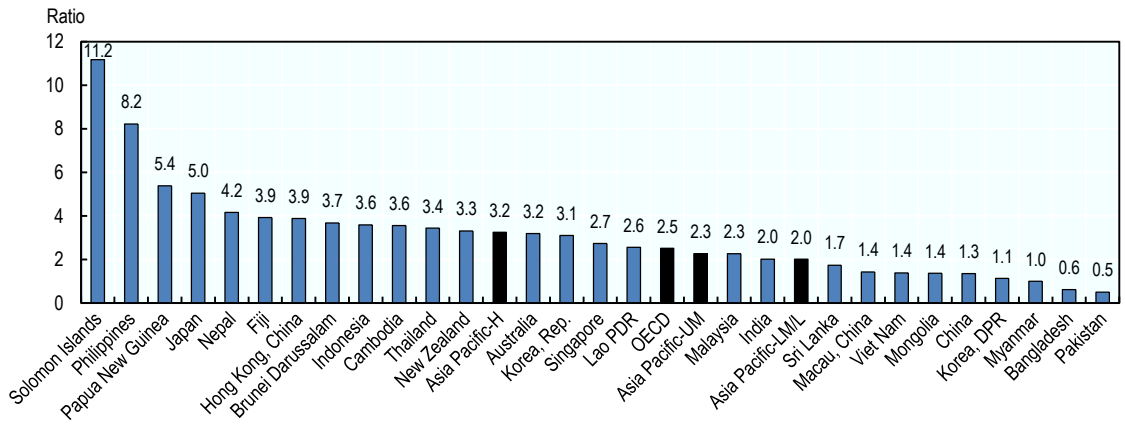
Figure 5.2. **Nurses per 1 000 population, latest year available**




Source: OECD Health Statistics 2020; WHO GHO, 2020; National Data Sources (see Annex A).

StatLink https://stat.link/i2a4nd

Figure 5.3. **Ratio of nurses to doctors, latest year available**




Source: OECD Health Statistics 2020; WHO GHO, 2020; National Data Sources (see Annex A).

StatLink https://stat.link/hz6k8e

Consultations with doctors are an important measure of overall access to health services, since most diseases can be managed effectively in primary care without hospitalisation, and a doctor consultation often precedes a hospital admission.

Generally, the annual number of doctor consultations per person in Asia-Pacific is lower than the OECD average of 6.7, but there are some cross-country variations (Figure 5.4). The doctor consultation rate ranges from above ten per person in the Republic of Korea, Japan and Hong Kong, China to less than one per person in Bangladesh and Cambodia. In general, consultation rates tend to be highest in the high-income countries and territories in the region (except Singapore) and significantly lower in low-income countries, suggesting that income levels have some impact on populations' health care-seeking behaviours. It should be noted that in low-income countries most primary contacts are with medical assistants, clinical officers or nurses, and not with doctors.

Mainly reflecting the limited supply of doctors (see indicator "Doctors and nurses" in Chapter 5), the number of consultations per doctor is – in most Asia-Pacific countries – higher that the OECD average at 2 144 per year, but there is a large cross-country variation (Figure 5.5). Doctors had more than 6 000 consultations on average in the Republic of Korea, Sri Lanka, Thailand and Hong Kong, China in a year, while a doctor in Bangladesh, Mongolia, and Viet Nam generally delivers less than 2 000 consultations per year.

The number of consultations per doctor should not be taken as a measure of productivity as consultations can vary in length and effectiveness, and doctors also undertake work devoted to inpatients, administration and research. This measure is also subject to comparability limitations such as the exclusion of doctors working in the private sector or the inclusion of other health professionals providing primary care in some countries (see box below on "Definition and comparability").

There is a close relationship between doctor consultation rates – a proxy for access to services – and healthy life expectancy at birth, with consultation rates being highest in countries reporting the highest healthy life expectancy (Figure 5.6). This simple correlation, however, does not necessarily imply causality since overall living standards may influence both consultation rates and life expectancy. There are also country examples such as Mongolia (Singapore) where healthy life expectancy is much lower (higher) than expected based on consultation rates, indicating that other factors, such as geographical accessibility and income level, affect life expectancy.

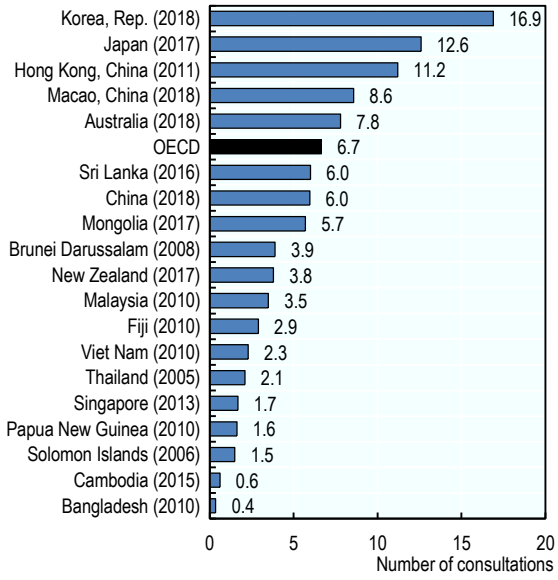
### Definition and comparability

Consultations with doctors are defined as contacts with physicians (both generalists and specialists, for more details see indicator "Doctors and nurses" in Chapter 5). These may take place in doctors' offices or clinics, in hospital outpatient departments and at home.

Two main data sources are used to estimate consultation rates: administrative data and household health surveys. In general, administrative data sources in non-OECD countries and territories of the Asia-Pacific region only cover public sector physicians or physicians remunerated by the public sector, although physicians in the private sector provide a large share of overall consultations in most of these countries. Moreover, outpatient visits recorded in administrative data can be also with non-physicians. The alternative data source is household health surveys, but these tend to produce lower estimates owing to incorrect recall and non-response rates. Administrative data have been used where available but survey data are used for Hong Kong, China, Singapore, Solomon Islands and Sri Lanka. Caution must be applied in interpreting the data from different sources.

The annual number of consultations per doctor is estimated by dividing the number of total consultations in a year by the number of doctors.

Figure 5.4. **Doctor consultations per capita, latest year available**




Source: OECD Health Statistics 2020; National Data Sources (see Annex A).

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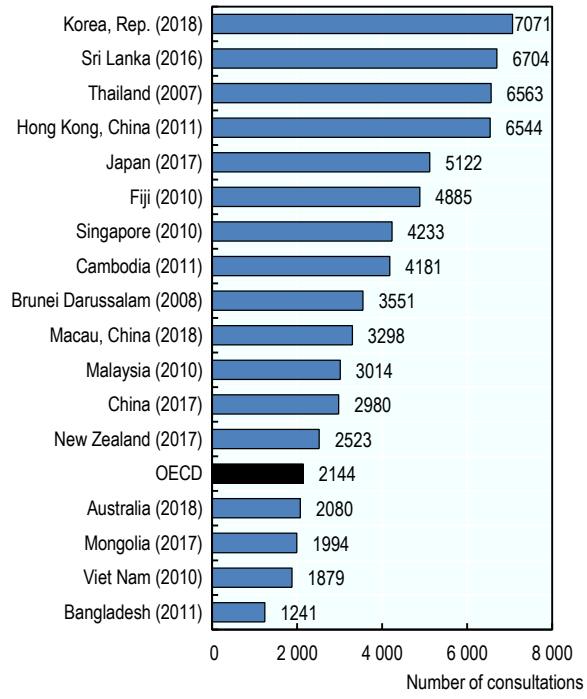
Figure 5.5. **Estimated number of consultations per doctor, latest year available**




Source: OECD Health Statistics 2020; National Data Sources (see Annex A).

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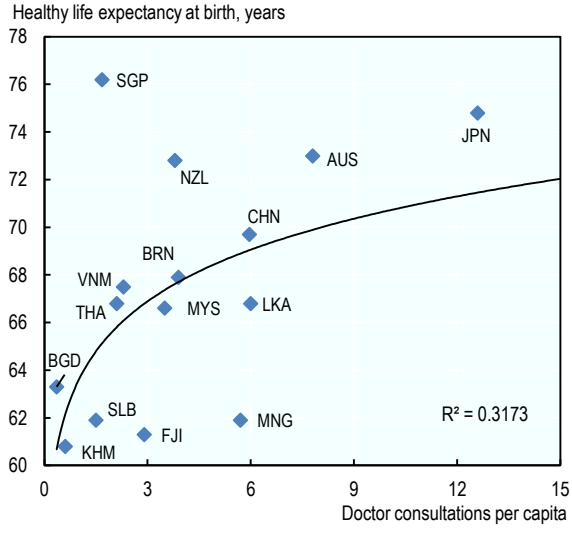
Figure 5.6. **Doctor consultations per capita and healthy life expectancy at birth, latest year available**




Source: OECD Health Statistics 2020; WHO GHO 2020; National Data Sources (see Annex A).

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The need to prevent diseases, diagnose early and treat effectively under the Universal Health Coverage mandate of the Sustainable Development Goals 5 calls for safe, effective, and appropriate medical.

Medical technologies are crucial in the prevention, diagnosis and treatment of illness and diseases as well as patient rehabilitation, but they also contribute to increases in health spending devices (WHO, 2017e). Computed tomography (CT) scanners and magnetic resonance imaging (MRI) units help doctors diagnose a range of conditions by producing images of internal organs and structures of the body. MRI exams do not expose patients to ionising radiation, unlike conventional radiography and CT scanning. Mammography is used to diagnose breast cancer, and radiation therapy units are used for cancer treatment. However, such equipment is expensive.

Data indicate that there are huge differences in availability of technologies across countries, and that the higher the country income level the higher the availability of medical equipment per million population for all four selected medical equipment types.

Japan has by far the highest number of CT scanners per million population. More than 110 CT scanners are available per million population in Japan, as opposed to less than one per million population in Lao PDR, Papua New Guinea, Pakistan and Myanmar (Figure 5.7). Also for MRI units, Japan reports 55 units per million population, whereas Sri Lanka, the Philippines, Pakistan, Myanmar and Cambodia report less than one unit per million population (Figure 5.8) The Republic of Korea has the highest number of mammographs at 443 per million females aged 50-69, as opposed to Papua New Guinea, Sri Lanka, Pakistan and Myanmar where less than 10 mammographs are available per million females aged 50-69 (Figure 5.9).

There is no general guideline or benchmark regarding the ideal number of CT scanners or MRI units per population. However, if there are too few units, this may lead to access problems in terms of geographic proximity or waiting times. If there are too many, this may result in an overuse of these costly diagnostic procedures, with little if any benefits for patients. Although there is limited evidence on the use of medical technologies in the Asia-Pacific region, data from OECD countries show that several countries with a high number of CT scanners and MRIs, such the United States, also have a higher number of diagnostic exams per population, suggesting some degree of overuse (OECD, 2017[9]).

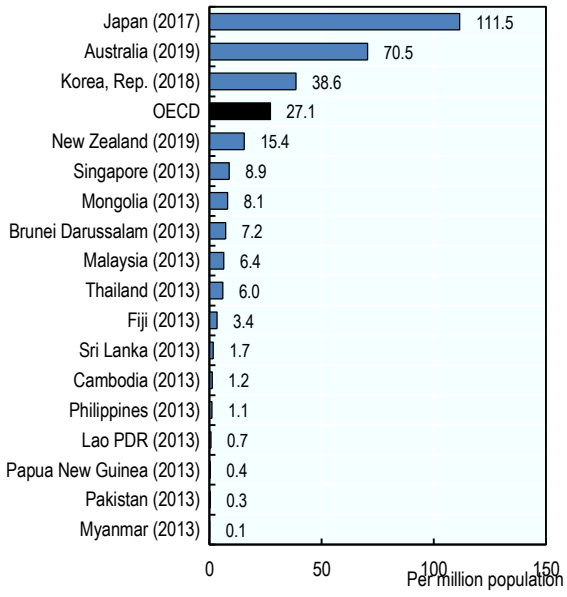
The availability of treatment equipment is also much higher in high income countries. New Zealand and Australia have over 10 radiation therapy units per million population, whereas there is only one unit per 10 million people in Myanmar, Cambodia, Pakistan, Bangladesh and Papua New Guinea and Sri Lanka (Figure 5.10).

Clinical guidelines have been developed in some OECD countries to promote more rational use of diagnostic technologies (OECD, 2017[9]). In the United Kingdom, the National Institute for Health and Clinical Excellence (NICE) has issued a number of guidelines on the appropriate use of MRI and CT exams (NICE - National Institute for Health and Care Excellence, 2020[10])e. In Australia, a “Choosing Wisely” campaign has developed clear guidelines for doctors and patients to reduce the use of unnecessary diagnostic tests and procedures. The guidelines include, for instance, avoiding imaging studies such as MRI, CT or X-rays for acute low back pain without specific indications (Choosing Wisely Australia, 2020[11]). In Australia, clinicians may use Diagnostic Imaging Pathways (DIP), an evidence-based clinical decision support tool and educational resource for diagnostic imaging. DIP guides the choice of the most appropriate diagnostic examinations in the correct sequence in a wide range of clinical scenarios. The broad objective is to reduce the number of unnecessary examinations that may expose patients to risk without benefits, and increase the number of appropriate examinations resulting in cost-effective diagnosis (Government of Western Australia, 2020[12]).

### Definition and comparability

The data cover equipment installed both in hospitals and the ambulatory sector and public and private sectors in most countries. However, there is only partial coverage for some countries. In Myanmar, data refer to equipment in the public sector. MRIs in Brunei Darussalam refer to those in the private sector, and in Mongolia, radiation therapy units refer to those in the public sector. For Australia, the number of medical technology equipment includes only those eligible for public reimbursement (about 60% of total MRI units are eligible for reimbursement under Medicare, the universal public health system).

Figure 5.7. **Computed tomography scanners, latest year available**




Source: OECD Health Statistics 2020; WHO GHO 2020.

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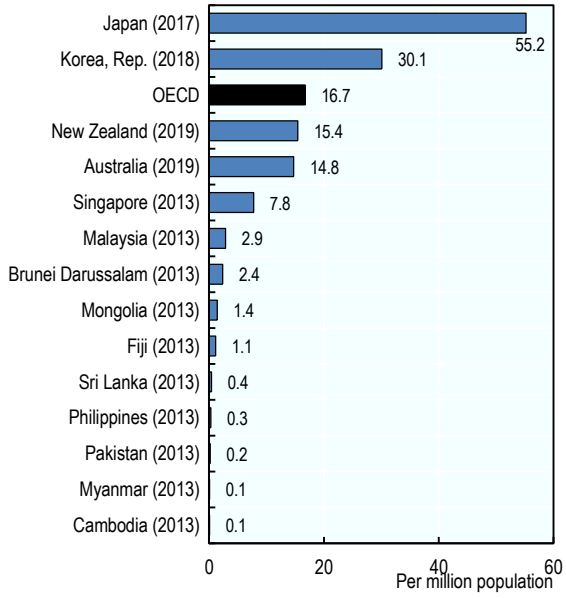
Figure 5.8. **MRI units, latest year available**




Source: OECD Health Statistics 2020; WHO GHO 2020.

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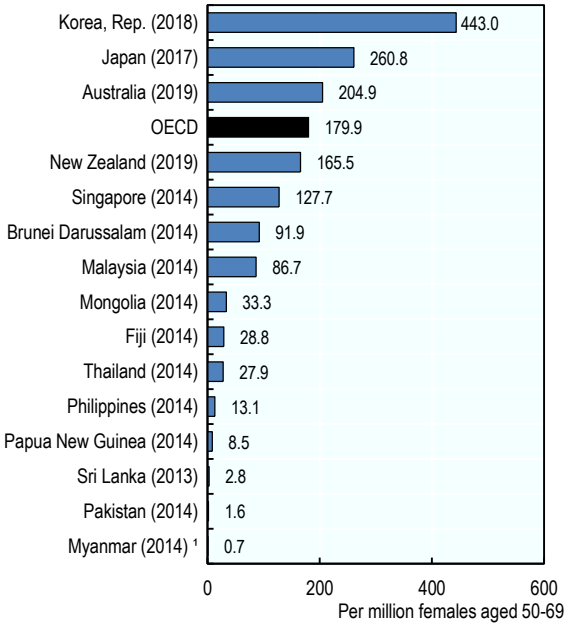
Figure 5.9. **Mammographs, latest year available**




Source: OECD Health Statistics 2020; WHO GHO 2020.

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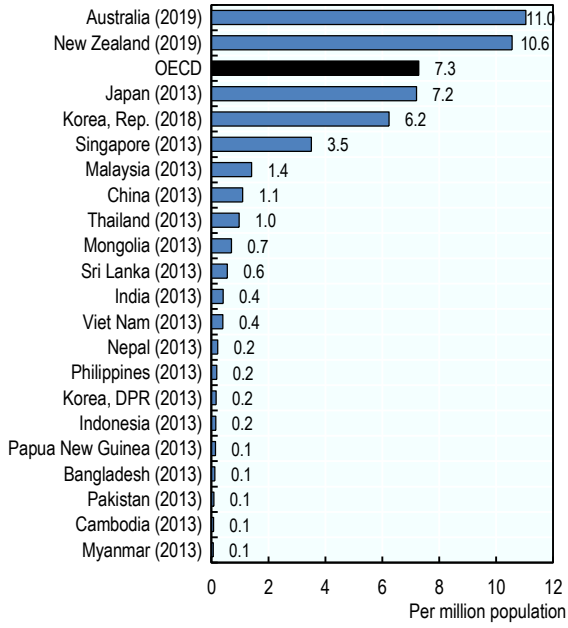
Figure 5.10. **Radiation therapy equipment, latest year available**




Source: OECD Health Statistics 2020; WHO GHO 2020.

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Hospitals in most countries account for the largest part of health care expenditure. Capacity of the hospital sector and access to hospital care are assessed in this report by the number of hospital beds and hospital discharge rates. However, increasing the numbers of beds and overnight stays in hospitals does not always bring positive outcomes as resources need to be used efficiently. Hence, the average length of stay (ALOS) is also used to assess appropriate access to and use of hospital care, but caution is needed in its interpretation. Although, all other things being equal, a shorter stay will reduce the cost per discharge and provide care more efficiently by possibly shifting care from inpatient to less expensive post-acute settings, too short a length of stay may reduce the comfort and hamper the recovery of the patient or increase hospital readmissions.

The number of hospital beds is 3 and 2.7 per 1 000 population on average across upper-middle and lower-middle and low income Asia-Pacific countries respectively, lower than the OECD average of 4.6 and the high income Asia-Pacific countries and territories average of 5.4, but it varies considerably (Figure 5.11). More than one bed per 100 population is available in Japan, the Republic of Korea and Korea DPR, whereas the stock of beds is less than one per 1 000 population in Bangladesh, Pakistan, Cambodia, and India. These large disparities reflect substantial differences in the resources invested in hospital care across countries.

Hospital discharge is at 151.1 and 85.3 per 1 000 population on average in upper-middle and lower-middle and low income Asia-Pacific countries respectively, compared with the OECD average of 150.7. There is a large variation between countries in the region (Figure 5.13). The highest rates are in Sri Lanka and Mongolia, with over 275 discharges per 1 000 population in a year, while in Nepal, Cambodia and Bangladesh discharge rates are less than 50 per 1 000 population, suggesting deferrals in accessing hospital services.

In general, countries with more hospital beds tend to have higher discharge rates, and vice versa (Figure 5.13). However, there are some notable exceptions. Japan, with the second highest number of hospital beds per population, has a relatively low discharge rate while Sri Lanka, with approximately average bed availability, has the highest discharge rate.

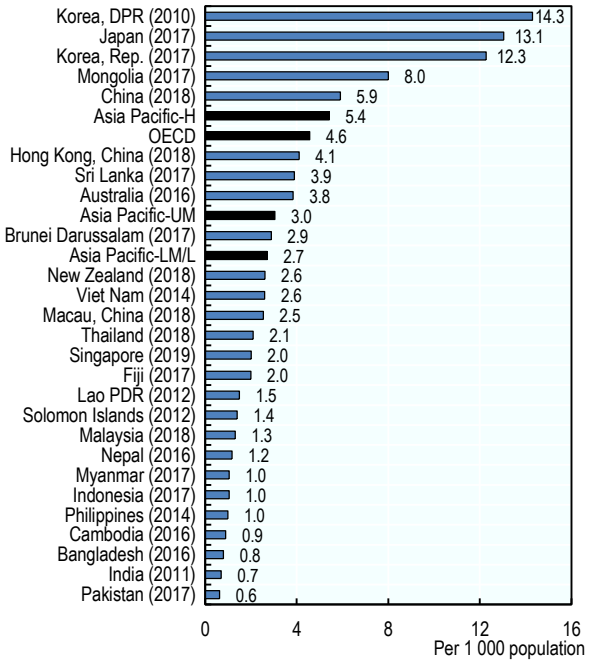
In Asia-Pacific, the variation across countries in the number of days spent – on average – in hospital is large (Figure 5.14). Lower-middle and low income countries report the lowest ALOS in Asia-Pacific at five days. The longest average length of stay is 16 days or more in Japan and the Republic of Korea, while the shortest length of stay is 2.5 days in Lao PDR and Bangladesh. In Japan, “social admission”, in that some “acute care” beds are devoted to long-term care for the elderly, partly explains the large number of beds and long ALOS (Sakamoto, Rahman and Nomura, 2018[1]). A short ALOS, coupled with the high admission rates in Sri Lanka, suggests that inpatient services may be partly substituting for outpatient and primary care.

### Definition and comparability

All hospital beds include those for acute care and chronic/long-term care, in both the public and private sectors. A discharge is defined as the release of a patient who has stayed at least one night in hospital. It includes deaths in hospital following inpatient care but usually excludes same-day separations. The discharge rates presented are not age-standardised, not taking into account differences in the age structure of the population across countries.

The figures reported for ALOS refer to the number of days that patients spend overnight in an acute-care inpatient institution. ALOS is generally measured by dividing the total number of days stayed by all patients in acute-care inpatient institutions during a year by the number of admissions or discharges. There are considerable variations in how countries define acute care, and what they include or exclude in reported statistics. For the most part, reported ALOS data in the developing countries of the Asia-Pacific region cover only public sector institutions.

Figure 5.11. **Hospital beds per 1 000 population, latest year available**




Source: OECD Health Statistics 2020; WHO GHO 2020.

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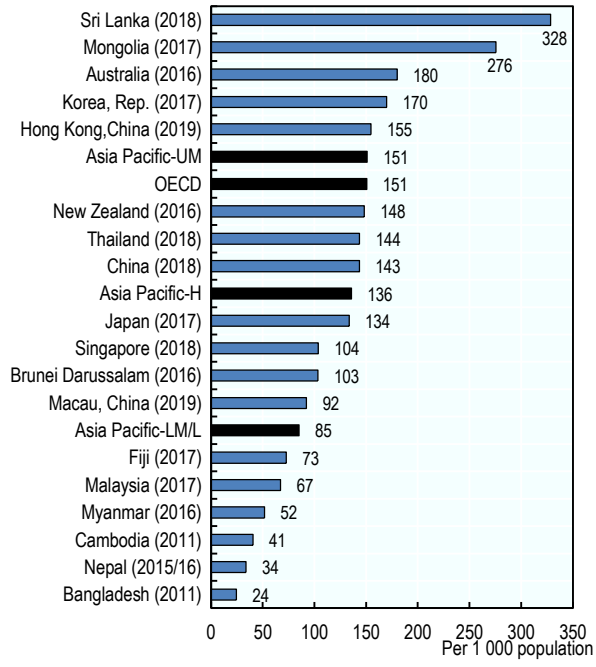
Figure 5.12. **Hospital discharges per 1 000 population, latest year available**




Source: OECD Health Statistics 2020; National sources (see Annex A).

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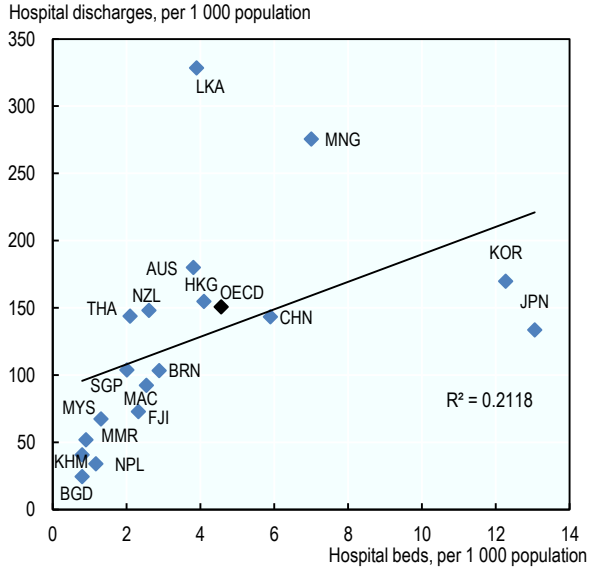
Figure 5.13. **Hospital beds per 1 000 population and hospital discharges per 1 000 population, latest year available**




Source: OECD Health Statistics 2020; WHO GHO 2020.

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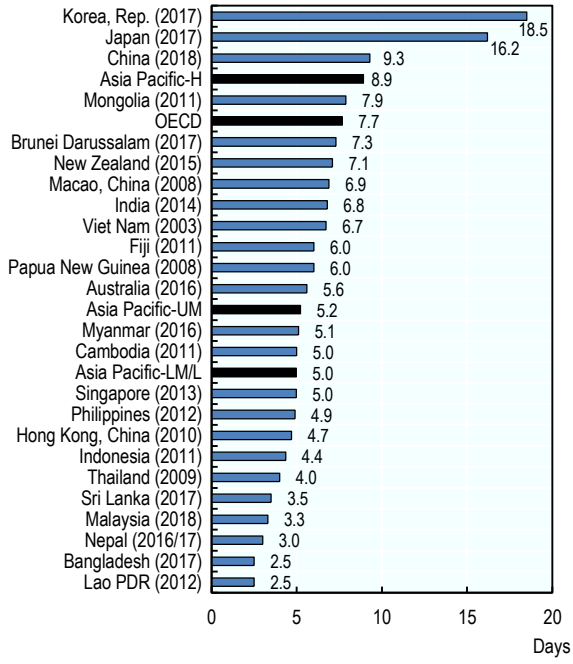
Figure 5.14. **Average length of stays for acute care in hospitals, latest year available**




Source: OECD Health Statistics 2020; National data sources (see Annex A).

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Antenatal care, delivery attended by skilled health professionals and access to health facilities for delivery are important for the health of both mothers and their babies as they reduce the risk of birth complications and infections (see indicators "Preterm births and low birthweight" and "Infant feeding" in Chapter 4). WHO currently recommends a minimum of eight antenatal visits (WHO, 2016[13]), and antenatal care coverage has been monitored to 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 by 2030 (Sustainable Development Goal 3.7).

In Asia-Pacific, only two in three pregnant women – on average – received the recommended four visits in lower-middle and low income countries, but access to antenatal care varies across countries (Figure 5.15, left panel). DPR Korea, Sri Lanka, Brunei Darussalam, Fiji, Thailand, and Australia have nearly complete coverage of four antenatal visits. At the other end, in Bangladesh and Papua New Guinea the coverage of four antenatal care visits is less than 50%.

Only three women in four had births attended by a skilled health professional – a doctor, nurse or midwife – in lower-middle and low income Asia-Pacific countries, whereas almost all births were attended by a skilled health professional in high and upper-middle income countries and territories (Figure 5.15, right panel). Less than two births in three in Bangladesh, Lao PDR and Papua New Guinea were attended by a skilled health professional, with most deliveries assisted by *dais* or untrained birth attendants. Traditional birth attendants are important in several other countries including Cambodia, India, Indonesia, Myanmar, Pakistan and the Philippines, especially in rural settings.

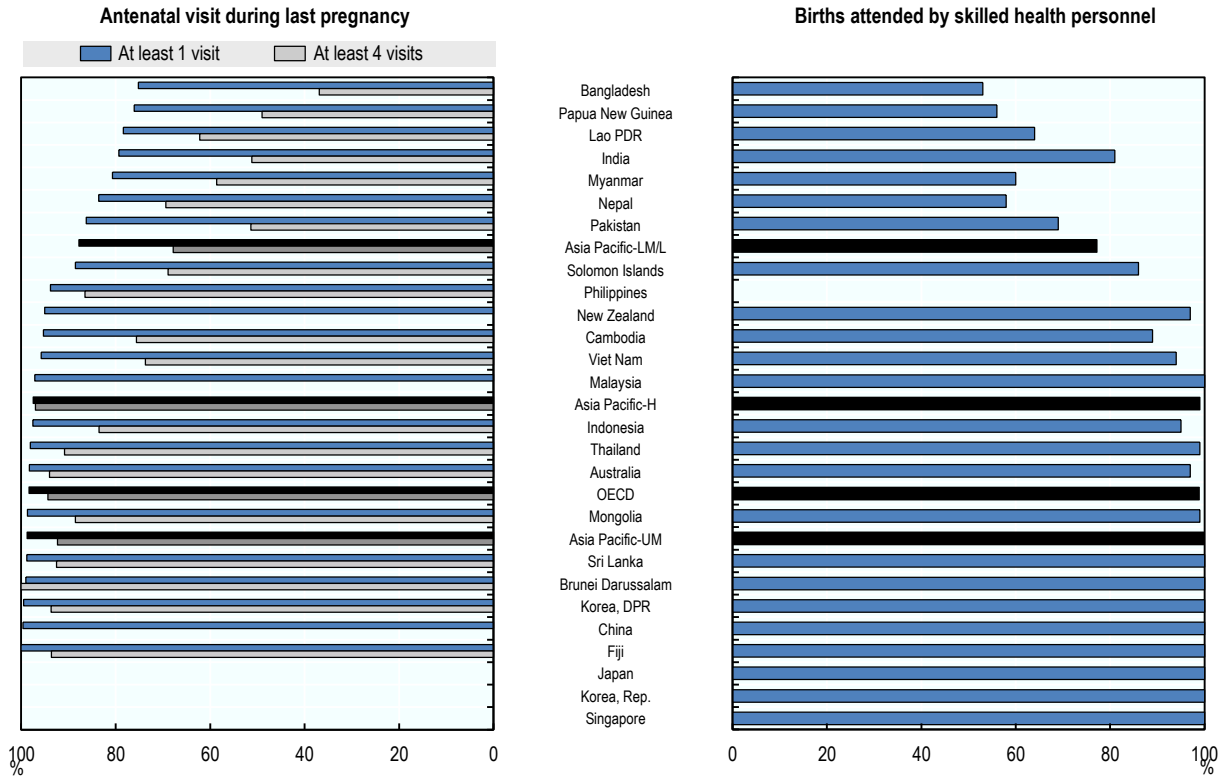
Delivery in health facilities varies across countries (Figure 5.16). In Australia, Thailand, Mongolia, Sri Lanka, DPR Korea and Viet Nam, almost all deliveries take place at a health facility. On the other hand, in Myanmar, most deliveries occur at home and only less than 40% of births takes place in a health facility. Across countries, deliveries in health facilities are more common among mothers giving birth for the first time, or those who have had at least four antenatal visits, as well as among mothers living in urban regions and those with higher education and wealth.

Access to skilled birth attendants varies by socio-economic factors (Figure 5.17). Mongolia, Thailand and Sri Lanka have a high coverage of births attended by skilled health professionals among mothers with different education and income levels, and living in different geographical locations. However, in other countries, the coverage of births attended by skilled health professionals is highly unequal among women of different income and education levels. For example, in Myanmar and Lao PDR, access differs more than three-fold between mothers of the lowest education level and mothers of the highest education levels. Disparity by household income is largest in Myanmar, almost 4-fold difference between mothers living in household at the highest and at the lowest income quintiles, and in the Philippines and Lao PDR, a 3-fold difference. In contrast, differences in access to skilled care at birth remain relatively small between urban and rural areas across countries (except in Myanmar and Lao PDR).

### Definition and comparability

The major source of information on care during pregnancy and birth are health interview surveys. Demographic and Health Surveys (DHS), for example, are nationally representative household surveys that provide data for a wide range of indicators in the areas of population, health, and nutrition. Standard DHS Surveys have large sample sizes (usually between 5 000 and 30 000 households) and typically are conducted every five years, to allow comparisons over time. Women who had a live birth in the five years preceding the survey are asked questions about the birth, including how many antenatal care visits they had, who provided assistance during delivery, and where the delivery took place.

Figure 5.15. **Provision of care during pregnancy and birth, 2018 or latest year available**




Source: WHO GHO 2020; UNICEF 2020.

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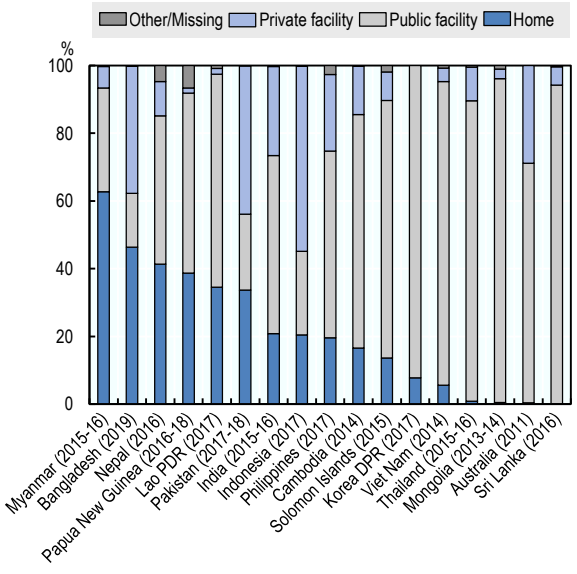
Figure 5.16. **Place of delivery, latest year available**




Source: DHS and MICS surveys, various years.

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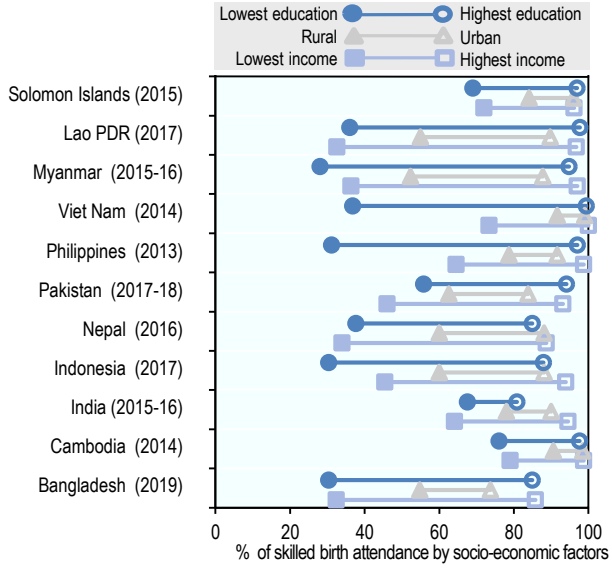
Figure 5.17. **Births attended by skilled health professionals, by socio-economic characteristic and geographical location, selected countries**




Note: Mongolia, Singapore, and Thailand are not shown as they have > 95% of births attended by skilled health professionals across all socio-economic and geographical groups.

Source: DHS and MICS surveys, various years.

StatLink https://stat.link/kqybms

Basic care for infants and children includes promoting and supporting early and exclusive breastfeeding (see indicator "Infant feeding" in Chapter 4), and identifying conditions requiring additional care and counselling on when to take an infant and young child to a health facility. There are several cost-effective preventive and curative services for leading causes of childhood morbidity and mortality. These comprise vitamin A supplementation, measles vaccination, oral rehydration therapy (ORT) for severe diarrhoea, and antibiotic treatment for acute respiratory infection (ARI) (Bhutta et al., 2013[14]).

As a safe and effective vaccine is available for measles, its coverage has been used to monitor the progress towards achieving the SDG target 3.2 to end preventable deaths of newborns and children under 5 years of age by 2030. This vaccine is also considered a marker of access of children to health services.

Access to preventive care varies across Asia-Pacific as shown by the intake of vitamin A supplements (Figure 5.18) and vaccination coverage (see indicator "Childhood vaccination" in Chapter 7). Access to vitamin A supplementation is markedly low in the Solomon Islands at 37%, whereas DPR Korea and Pakistan have nearly complete coverage.

Less than one child in four with diarrhoea in the Philippines, India, Nepal, Viet Nam, Lao PDR and Pakistan, and less than one child in ten with diarrhoea in Myanmar, Papua New Guinea, Mongolia, Cambodia and Solomon Islands received zinc supplement (Figure 5.19). Furthermore, less than half of children with diarrhoea received ORT in Papua New Guinea, the Philippines, India and Pakistan. The coverage was as high as 83% in Mongolia (Figure 5.20).

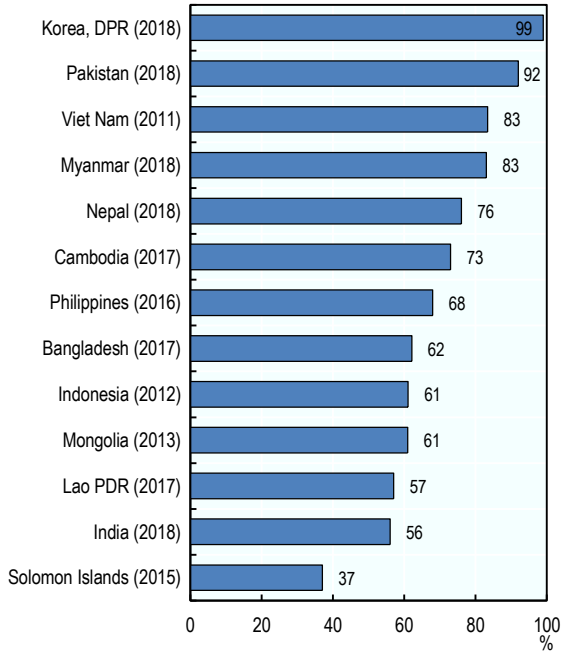
Access to appropriate medical care for children with ARI can also be improved in many countries in the region. Although almost three-quarters of children with symptoms are taken to a health facility, only less than two-thirds of them receive antibiotic treatment (Figure 5.21). There is a correlation between treatment coverage for diarrhoea and ARI. Antibiotic treatment for ARI is particularly low in Myanmar, the Philippines, and Pakistan, where the treatment for diarrhoea is also low. This suggests a need to expand access to care to treat leading causes of child mortality in these countries.

### Definition and comparability

Prevention and treatment coverage data are usually collected through household surveys. Accuracy of survey reporting varies and is likely to be subject to recall bias. Seasonal influences related to the prevalence of diarrhoeal disease and ARI may also affect cross-national data comparisons.

The prevalence of ARI is estimated by asking mothers whether their children under five had been ill with a cough accompanied by short, rapid breathing in the two weeks preceding a survey, as these symptoms are compatible with ARI.

Figure 5.18. **Children aged 6-59 months who received vitamin A supplementation, latest year available**




Source: DHS and MICS surveys, various years.

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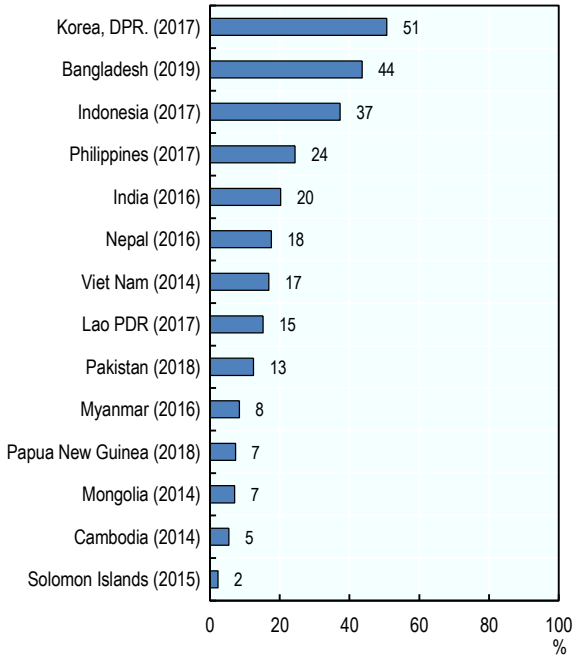
Figure 5.19. **Children aged under 5 years with diarrhoea receiving zinc supplements (percent), latest year available**




Source: UNICEF 2020.

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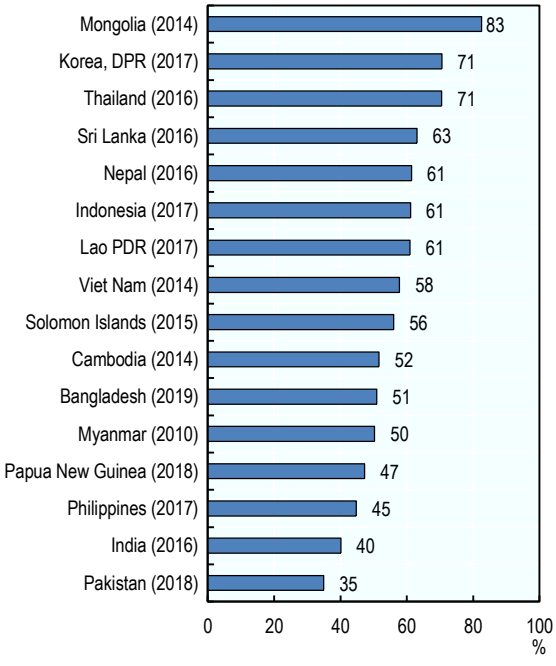
Figure 5.20. **Children aged under 5 years with diarrhoea receiving oral rehydration therapy (percent), latest year available**




Source: DHS and MICS surveys, various years.

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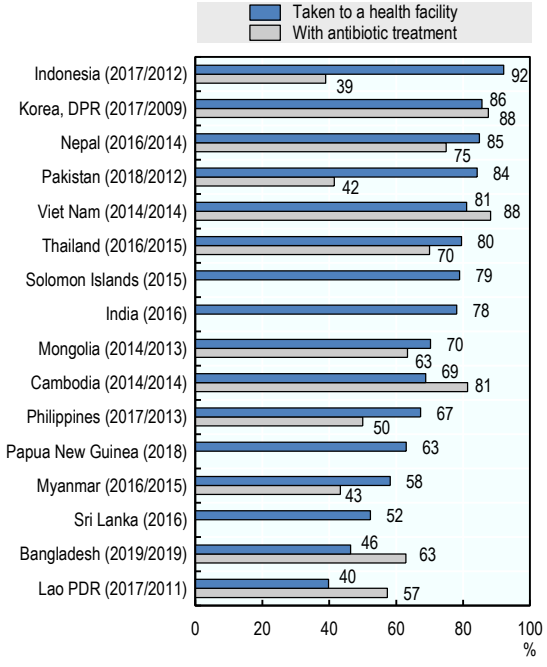
Figure 5.21. **Care seeking and antibiotic treatment among children aged under 5 years with acute respiratory infection**




Source: DHS and MICS surveys, various years.

StatLink https://stat.link/k0hblu

For the first time, world leaders have recognised the promotion of mental health and well-being, and the prevention and treatment of substance abuse, as health priorities within the global development agenda. The inclusion of mental health and substance abuse in the Sustainable Development Agenda, which was adopted at the United Nations General Assembly in September 2015, is likely to have a positive impact on communities and countries where millions of people will receive much needed help. A particular prevention priority in the area of mental health concerns suicide, which accounted for an estimated 793 000 deaths in 2016 (WHO, 2018[15]). Target 3.2 of the Mental Health Action Plan 2013-20, calls for a 10% reduction in the rate of suicide in countries by 2020. The United Nations Sustainable Development Goals include target 3.4 to address non-communicable diseases and mental health with an indicator to reduce suicide mortality by a third by 2030.

In many parts of the Asia-Pacific region, appropriate care may not be available and access to mental health care may be limited for people with mental health problems. Access to mental health care can be assessed by the supply of professionals and the availability of psychiatric beds in different settings such as general hospitals, mental health hospitals and community facilities.

Psychiatrists are generally responsible for the prevention, diagnosis and treatment of a variety of mental health problems, including schizophrenia, depression, learning disabilities, alcoholism and drug addiction, eating disorders and personality disorders. The number of psychiatrists is lower in all countries and territories in Asia-Pacific, except New Zealand, than the OECD average of 15.3 per 100 000 population (Figure 5.22). Developed OECD countries in the region such as New Zealand, Australia, Japan, and the Republic of Korea, report the highest number of psychiatrists, whereas in middle and low income Asia-Pacific countries there is fewer than one psychiatrist on average per 100 000 population. This suggests that many countries in the region may underinvest in mental health care. As is the case for many other medical specialties (see indicator "Doctors and nurses" in Chapter 5), psychiatrists are not distributed evenly across jurisdictions within each country. For example, in Australia, when considering time spent as a clinician, there were 11 clinical full-time equivalent psychiatrists per 100 000 population, with rates ranging from 6.6 in the Northern Territory to 12.3 in South Australia (Australian Institute of Health and Welfare, 2019[16]).

Mental health nurses play an important and increasing role in the delivery of mental health services in hospital, primary care or other settings, but in many Asia-Pacific countries and territories, their number is still very low (Figure 5.23). Australia has the highest rate with over 90 mental health nurses per 100 000 population, followed by Japan and New Zealand with more than 75 nurses per 100 000 population. However, there are fewer than five mental health nurses – on average – per 100 000 population in middle and low income Asia-Pacific countries, and less than one nurse per 100 000 population in Bangladesh, India, Nepal, Myanmar, and Cambodia, suggesting again the need for an appropriate supply of mental health care workforce to guarantee access.

Some countries, such as Australia, have introduced programmes to improve access to mental health care by extending the role of mental health nurses in primary care. Under the Mental Health Nurse Incentive Program launched in 2007, mental health nurses in Australia work with general practitioners, psychiatrists and other mental health professionals to treat people suffering from different mental health conditions. An evaluation of this programme found that mental health nurses have the potential to make a significant contribution to enhance access and quality of mental health care through flexible and innovative approaches (Australian Department of Health and Ageing, 2012[17]).

For the last decade, WHO flagship programme for mental health is the "mental health Gap Action programme (mhGAP)" (WHO, 2016[18]). The programme includes the scaling up of care for priority mental, neurological and substance use conditions in non-specialised care settings, such as PHC. The programme has produced WHO-Guidelines Review Committee (GRC) approved recommendations for the management of above mentioned priority conditions. The programme also produced the mhGAP Intervention Guide, which is a practical tool for non-specialist clinicians, and which comes with a relevant set of implementation tools as well as a further simplified version for humanitarian and health emergency settings. mhGAP is currently implemented in 90 countries.

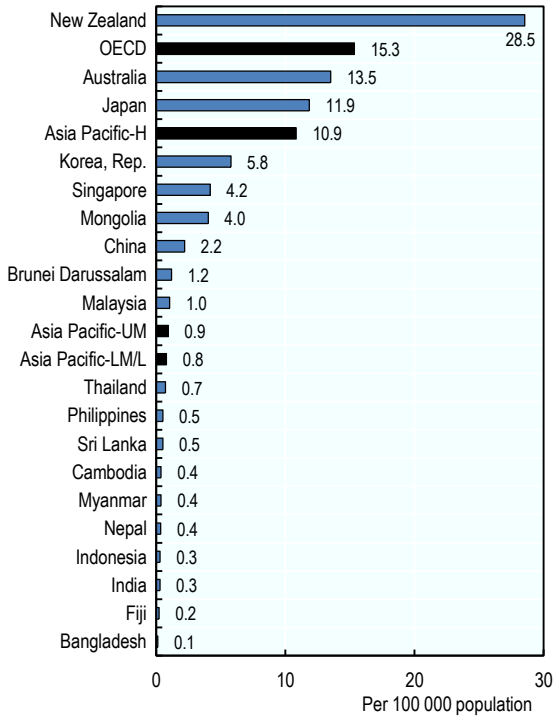
There are eight and 15 mental health beds per 10 000 population on average in lower-middle and low income, and upper middle income Asia-Pacific countries respectively, with Bangladesh and Nepal reporting less than three psychiatric bed (Figure 5.24). The large majority of beds in middle and low income countries are available in mental health hospitals.

### Definition and comparability

Psychiatrists have post-graduate training in psychiatry and may also have additional training in a psychiatric specialty, such as neuropsychiatry or child psychiatry. Psychiatrists can prescribe medication, which psychologists cannot do in most countries. Data include psychiatrists, neuropsychiatrists and child psychiatrists, but psychologists are excluded. Mental health nurses usually have formal training in nursing at a university level.

Data are based on head counts.

Figure 5.22. **Psychiatrists per 100 000 population, 2016 or latest year available**




Source: WHO GHO, 2020.

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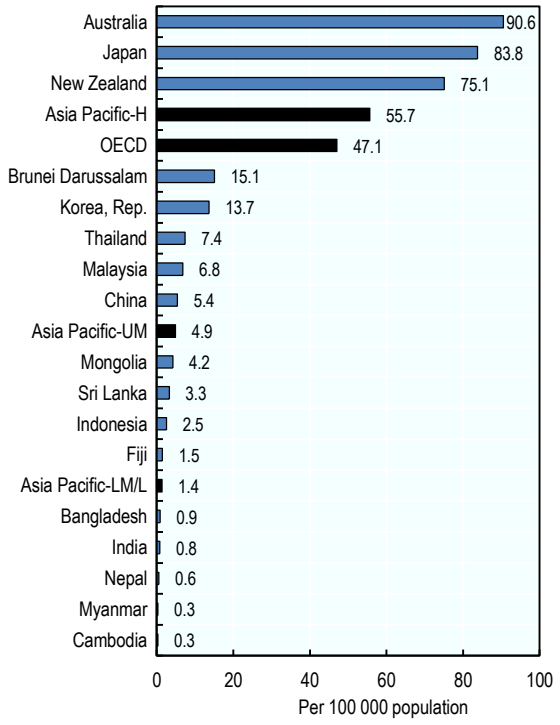
Figure 5.23. **Nurses working in mental health sector per 100 000 population, 2016 or latest year available**




Source: WHO GHO, 2020.

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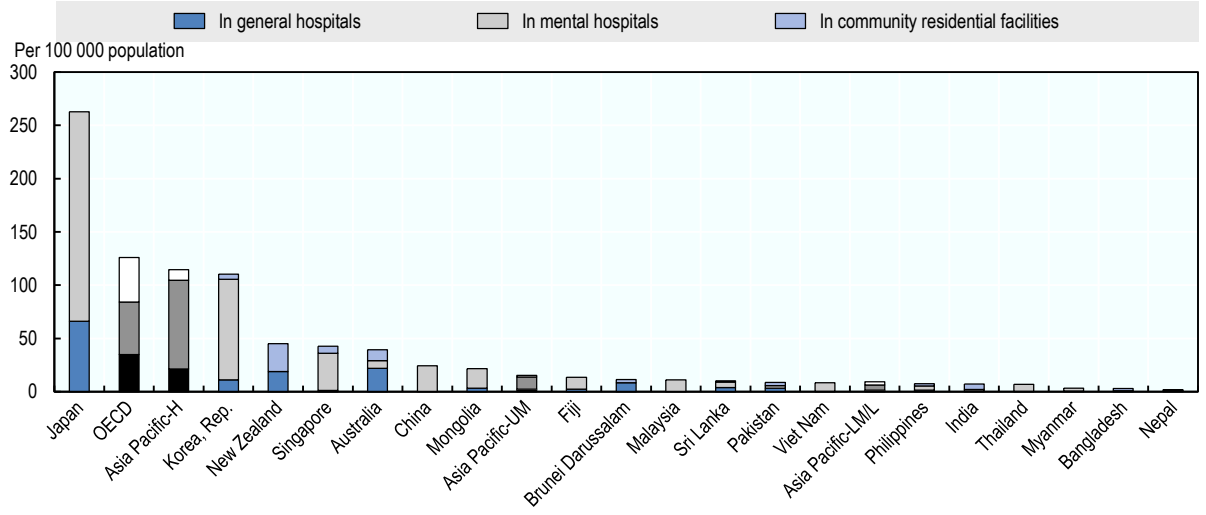
Figure 5.24. **Mental health beds per 100 000 population, 2016 or latest year available**




Source: WHO GHO, 2020.

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*Chapter 6*

# Health expenditure and financing

Across Asia-Pacific countries, per capita health spending continues to rise. Low and lower-middle income countries reported an increase from 173 to 247 international dollars (in constant 2017 USD PPP) between 2010 and 2017, whereas upper middle and high income countries spending grew from 466 to 689 and from 2 922 to 3 712 international dollars (in constant 2017 USD PPP) during the same period, respectively. However, large inequalities in per capita health care spending can be observed in Asia-Pacific countries in 2017 (Figure 6.1), ranging from only 94 international dollars (USD PPP) in Bangladesh to 4 816 international dollars (USD PPP) in Australia. The average OECD current health spending per capita in 2017 was around 16 times that of the low income countries in Asia-Pacific (3 996 versus USD PPP 247).

The health care sector continues to expand faster than the economy in Asia-Pacific. On average, between 2010 and 2017, the growth rate in per capita health spending in real terms was 4.7% per year, higher than the 3.6% observed for gross domestic product (GDP) (Figure 6.2). For both, health spending and overall economic activity, growth in China was even more rapid – more than twice the average rate for the region. Brunei Darussalam and Solomon Islands reported a decrease in per capita health spending in real terms between 2010 and 2017. Health spending growth in many Asia-Pacific countries has exceeded economic growth over the past seven years, resulting in an increasing share of the economy devoted to health. All countries below the diagonal line in Figure 6.2 report that health expenditure has grown faster than income. This means that the share of health care expenditure in total expenditure has continued to increase. In all countries above the line, the increase in health spending – on average – was lower than the increase in GDP. Hence, the share of health spending in total spending declined.

How much countries spend on health care over time can be ascribed to overall health spending growth and economic performance. Health expenditure accounted for 4% and 7% of GDP in low and middle income, and high income Asia-Pacific countries respectively in 2017, an increase of 0.3 and 0.8 percentage points compared to 2010. This indicator varied from 2.3% in Bangladesh and Brunei Darussalam to up to 10.8% in Japan (Figure 6.3). Generally, the richer a country is, the greater the share of their income devoted to health care. The percentage of GDP spent on health across OECD countries is – on average – twice that of the Asia-Pacific low and middle income countries (8.7% versus 4%). Between 2010 and 2017, the share of health in relation to GDP declined by more than 2 percentage points in Solomon Islands, whereas it increased in Myanmar, Singapore, the Republic of Korea and Japan[1] by more than one percentage point (Figure 6.3).

Although health systems remain a highly labour-intensive sector, capital has been an increasingly important factor of production of health services over recent decades, as reflected for example by the growing importance of diagnostic and therapeutic equipment or the expansion of information and communications technology (ICT) in health care. Capital investments in health tend to fluctuate more with economic cycles than current spending on health care. However, slowing down investments in health infrastructure and equipment will affect service delivery. As a proportion of GDP, Japan was the highest spender on capital investment in 2017 with more than 1% of its GDP going on construction, equipment and technology in the health and social sector (Figure 6.4). However, capital spending can be significantly lower. On average, it represented 0.3% of GDP across reporting non-OECD Asia-Pacific countries, and accounted for 0.1% or less in Bangladesh and Cambodia in 2017.

### Definition and comparability

Current health expenditure is defined by the sum of expenditure for all the core health care functions – that is total health care services, medical goods dispensed to outpatient, prevention and public health services, and health administration and health insurance. Expenditure on these functions is included as long as it is final consumption for residents in the country or abroad. For this reason, imports for final use are included and exports for final use are excluded.

Health care financing can be analysed from the point of view of financing schemes (financing arrangements through which health services are paid for and obtained by people, e.g. social health insurance), financing agents (organisations managing the financing schemes, e.g. social insurance agency), and types of revenues (e.g. social insurance contributions). Here "financing" is used in the sense of financing schemes as defined in the System of Health Accounts (OECD/WHO/Eurostat, 2011[1]) and includes government schemes, compulsory health insurance as well as voluntary health insurance and private funds such as households' out-of-pocket payments, NGOs and private corporations. Out-of-pocket payments are expenditures borne directly by patients and include cost-sharing arrangements and any informal payments to health care providers, but excludes prepayment to any insurance schemes.

The economy-wide (GDP) Purchasing Power Parities (PPPs) are used as the most available conversion rates. These are based on a broad basket of goods and services, chosen to be representative of all economic activity. The use of economy-wide PPPs means that the resulting variations in health expenditure across countries might reflect not only variations in the volume of health services, but also any variations in the prices of health services relative to prices in the rest of the economy.

To make useful comparisons of real growth rates over time, it is necessary to deflate (i.e. remove inflation from) nominal health expenditure using a suitable price index, and also to divide by the population, to derive real spending per capita. Due to the limited availability of reliable health price indices, an economy-wide (GDP) price index is used in this publication.

The annual average growth rate was computed using a geometric growth rate formula:

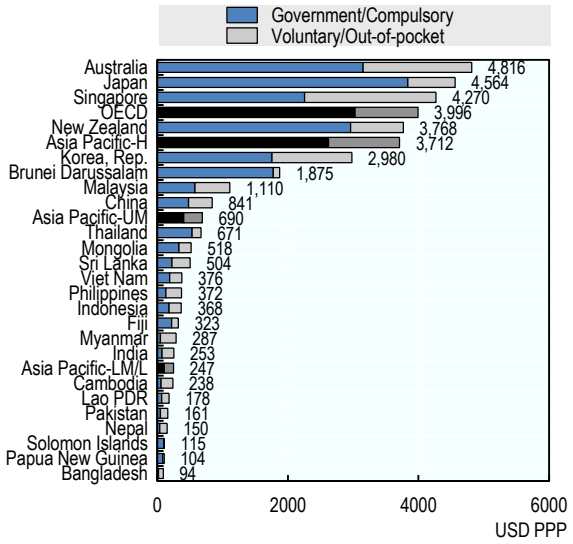
$$(\sqrt[7]{((2017\ \text{value})/(2010\ \text{value}))}-1)*100$$

Gross fixed capital formation in the health sector is measured by the total value of the fixed assets that health providers have acquired during the accounting period (less the value of the disposals of assets) and that are used repeatedly or continuously for more than one year in the production of health services. The breakdown by assets includes infrastructure (e.g. hospitals, clinics), machinery and equipment (including diagnostic and surgical machinery, ambulances, and ICT equipment), as well as software and databases. Gross fixed capital formation is reported by many countries under the System of Health Accounts. It is also reported under the National Accounts broken down by industrial sector according to the International Standard Industrial Classification (ISIC) Rev. 4 using Section Q: Human health and social work activities, Division 86: Human health activities.

### *Note*

1. A break in series for Japan in 2011 contributes to this result.

Figure 6.1. **Health expenditure per capita, 2017**




Source: WHO Global Health Expenditure Database.

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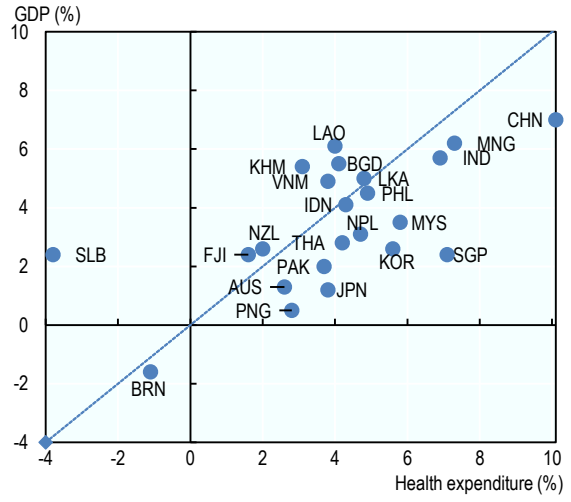
Figure 6.2. **Annual average growth rate in per capita health expenditure and GDP, real terms, 2010-17**




Source: WHO Global Health Expenditure Database.

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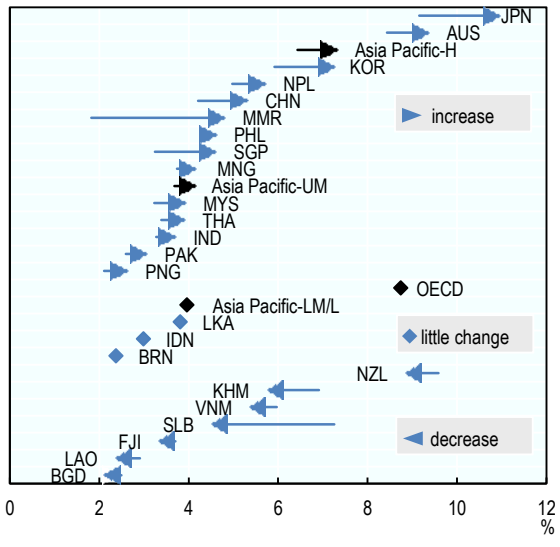
Figure 6.3. **Change in health expenditure as a share of GDP, 2010-17**




Source: WHO Global Health Expenditure Database; OECD Health Statistics 2020.

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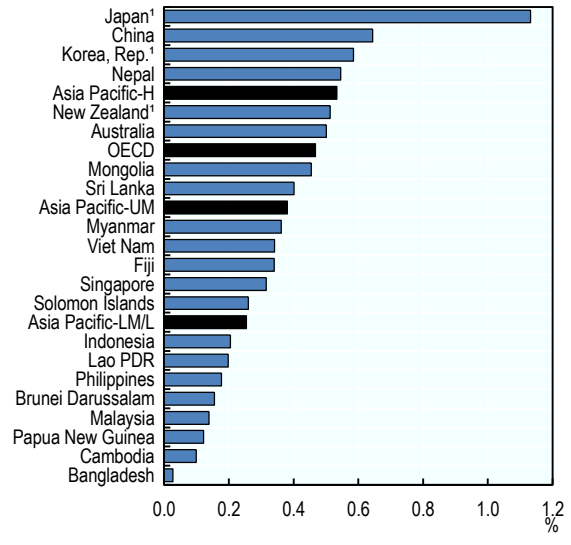
Figure 6.4. **Gross fixed capital formation in the health care sector as a share of GDP, 2017**




1. Refers to gross fixed capital formation in ISIC Q: Human health and social work activities (ISIC Rev. 4).

Source: WHO Global Health Expenditure Database; OECD Health Statistics 2020; OECD Annual National Accounts.

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Health care can be paid for through a variety of financing arrangements. In some countries, health care might be predominantly financed through government schemes by which individuals are automatically entitled to health care based on their residency. In other cases, compulsory health insurance schemes (either through public or private entities) linked to the payment of social contributions or health insurance premiums finance the bulk of health spending. In addition to these, a varying proportion of health care spending consists of households' out-of-pocket payments – either as standalone payments or as part of co-payment arrangements – as well as various forms of voluntary payment schemes such as voluntary health insurance.

The overall pattern of rising per capita health spending appears to be dominated by government and compulsory health insurance schemes sources especially in upper-middle and high income countries. On average, per capita spending from these sources increased from 610 to 797 international dollars (in constant 2017 USD PPP) in Asia-Pacific from 2010 to 2017. Figure 6.5 highlights the change in the government and compulsory health insurance schemes spending as a share of GDP between 2010-17. On average, there was a slight increase in upper-middle and high income countries in Asia-Pacific from 2.1% and 4.7% in 2010 to 2.4% and 5.2% of GDP in 2017 respectively, whereas the share for low and lower-middle income countries remained unchanged at 1.6% of GDP during the same period. Solomon Islands reported a decrease of around two percentage points in the period in study, whereas Japan[1] reported an increase of around two percentage points.

In 15 out of 24 Asia-Pacific countries, government schemes and compulsory health insurance constitute the main health care financing arrangements. The higher the income level the higher the share of health care spending financed through government and compulsory health insurance schemes in Asia-Pacific: 70.7% in high-income countries versus 42.3% in low and lower-middle income countries (Figure 6.6). In Thailand, New Zealand, Japan, Solomon Islands, Papua New Guinea and Brunei Darussalam more than 75% of all health expenditure was paid for through government schemes and compulsory health insurance in 2017. By contrast, in Myanmar, Bangladesh and Cambodia less than 25% of health spending was purchased by these schemes.

Governments provide a multitude of goods and services out of their overall budgets. Hence, setting priorities for health in budget allocations is a choice by governments and society as health care is competing with many other sectors such as education, defence and poverty alleviation programmes. A number of factors including, among others, the general government revenue, nondiscretionary obligations such as debt servicing, and the capacity of health ministers to influence the overall budgetary allocation to the health sector determines the size of public funds allocated to health. Relative budget priorities may also shift from year to year because of political decision-making and economic effects. In 2017, health spending by government schemes and compulsory insurance stood at around 6.4% of total government expenditure across low and lower-middle income countries, whereas it represented 10% of total government expenditure in upper-middle income countries in Asia-Pacific (Figure 6.7). In Japan, Australia, New Zealand and Thailand more than 15% of public spending was dedicated to health care. On the other hand, less than 4% of government expenditure was allocated to health care in Lao PDR, India, Pakistan, Myanmar and Bangladesh. The level of public spending on health care is also linked to the capacity of spending by government as measured by the share of government spending on GDP. Government spending accounted for around one fourth of GDP in low and middle-income countries, whereas it represented one third of GDP in high-income Asia-Pacific countries in 2017.

### Definition and comparability

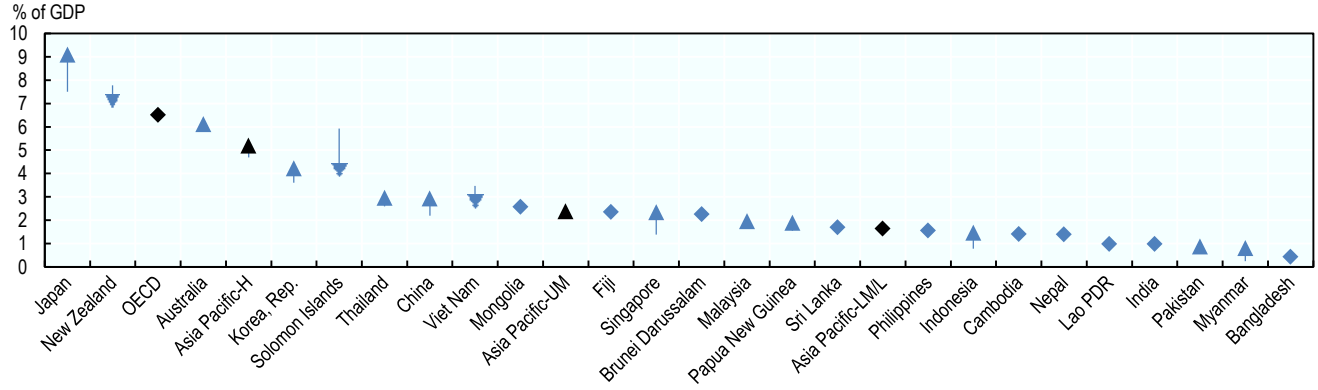
The financing classification used in the System of Health Accounts enables a complete breakdown of health expenditure into public and private units incurring expenditure on health. Public financing includes general government expenditure and social security funds.

Relating spending from government and compulsory insurance schemes to total government expenditure can lead to an overestimation in countries where private insurers provide compulsory insurance.

### *Note*

1. A break in series in 2011 contributes to this result.

Figure 6.5. **Change in health expenditure by government scheme and compulsory insurance scheme as a share of GDP, 2010-17**




Source: WHO Global Health Expenditure Database; OECD Health Statistics 2020.

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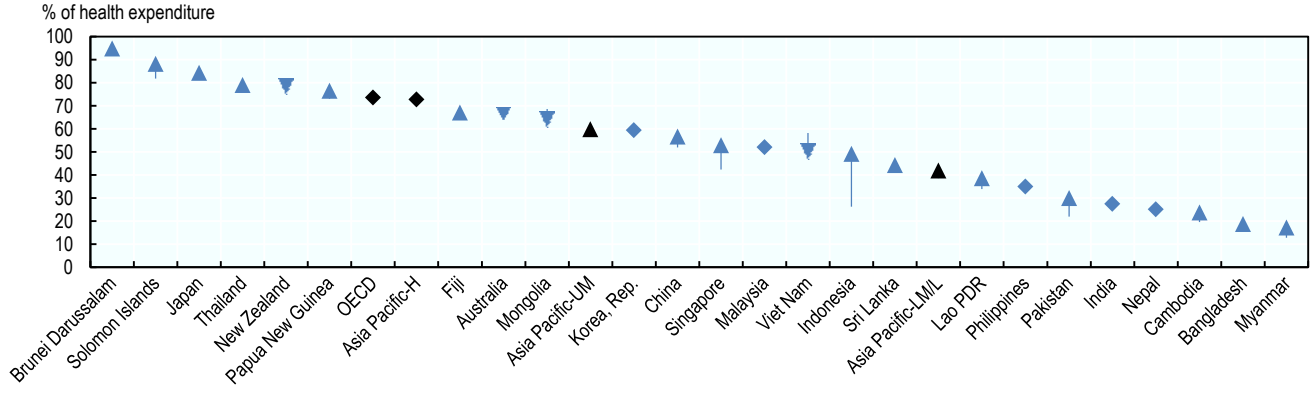
Figure 6.6. **Change in health expenditure by government scheme and compulsory insurance scheme as a share of health expenditure, 2010-17**




Source: WHO Global Health Expenditure Database; OECD Health Statistics 2020.

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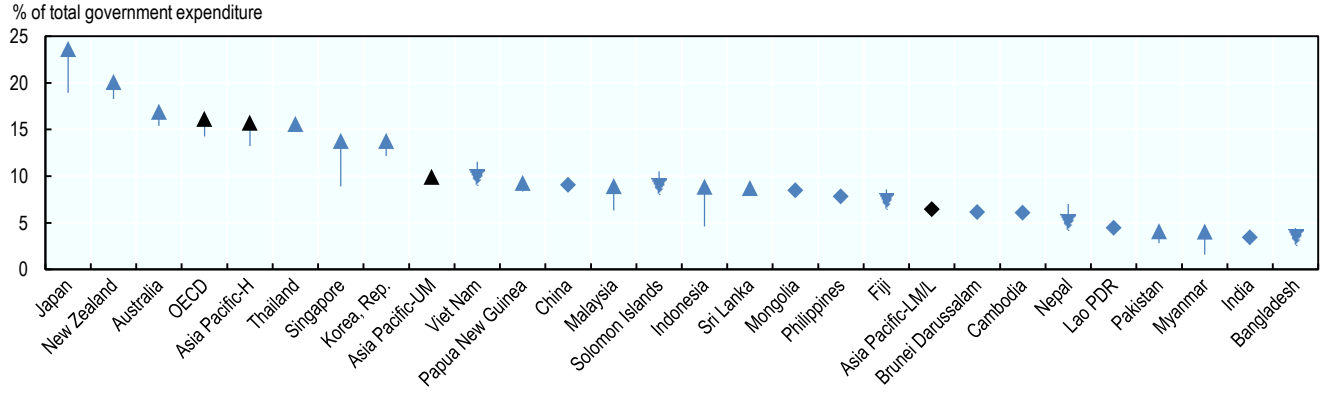
Figure 6.7. **Change in health expenditure by government and compulsory health insurance schemes as a share of total government expenditure, 2010-17**




Source: WHO Global Health Expenditure Database.

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Alongside economic growth, out-of-pocket spending for health care increased – on average – from 227 to 293 international dollars (USD PPP) per capita in Asia-Pacific between 2010 and 2017. However, the increase was slower than that of government spending, so the share of out-of-pocket expenditure in overall health spending has been declining across all country income groups since 2010. On average, the share of health spending paid out-of-pocket has fallen by around 3 percentage points to 19% and 29.4% in high and upper-middle income Asia-Pacific countries between 2010 and 2017, respectively, whereas it has slightly decreased to 47.4% in low and lower-middle income Asia-Pacific countries during the same period (Figure 6.8). The pattern is quite diverse across the countries in the region. However, more than two thirds of the Asia-Pacific countries reported a decrease in the share of out-of-pocket spending, including more than 10 and 20 percentage points for Pakistan and Indonesia, respectively, while Lao PDR reported a growth of around 10 percentage points in the same period. For each dollar spent on health, more than 60 cents were "out-of-pocket" in Cambodia, Bangladesh, Pakistan, India and Myanmar in 2017.

Research has suggested that the main driver of households' out-of-pocket expenditure is medicines, composing more than 60% of total out-of-pocket in countries of the WHO South-East Asia Regional Office. In Bangladesh and India, the percentage could be as high as 80%. Furthermore, the share of medicines was even higher among the poorer population, suggesting a disproportionally higher financial burden (Wang, Torres and Travis, 2018[2]). In line with these findings, WHO and The World Bank has reported that Asia had the highest percentage of the population in the world facing catastrophic health spending in 2015, pushing more people below the poverty line (WHO and World Bank, 2019[3]).

Figure 6.9 shows that health expenditure by voluntary payment schemes represented – on average – around 10% of current expenditure on health in countries of all income groups in Asia-Pacific. This share increased by more than 2 percentage points in upper-middle income countries, whereas it increased by more than 1 percentage point in high income and low and lower-middle income Asia-Pacific countries from 2010 to 2017. Less than 5% of current health expenditure was from voluntary payment schemes in Viet Nam, Mongolia, Japan and Bangladesh in 2017, while it represented 15% or more in Singapore, Lao PDR, Cambodia, Australia, Indonesia, Fiji and Nepal in the same year. Fiji reported an increase of 9.4 percentage points between 2010 and 2017, whereas Nepal and Lao PDR reported an increase of almost 5 percentage points.

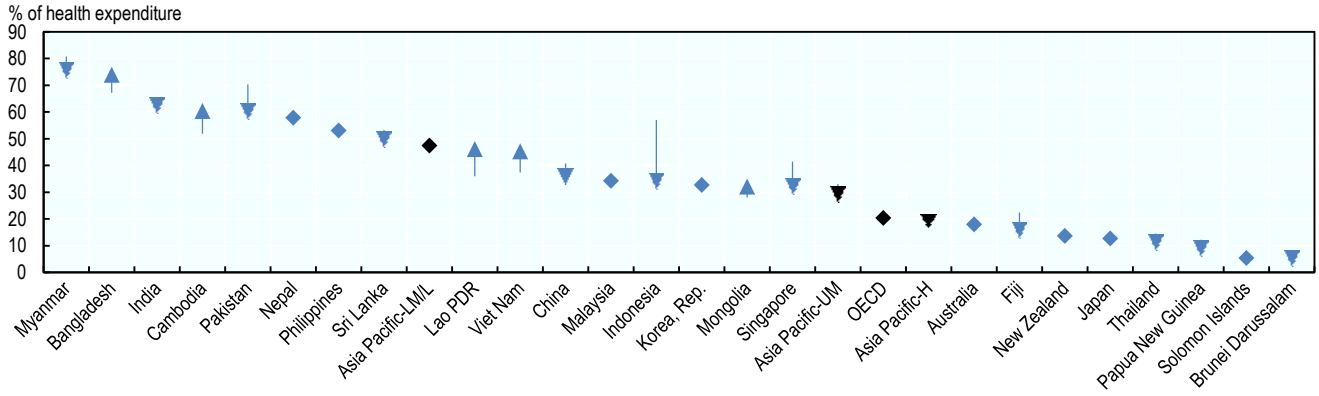
External funding for health care is quite relevant in many developing countries in Asia-Pacific, but increasingly less so over the period of observation. In Solomon Islands around one fourth of funds spent on health were from external resources in 2017 (Figure 6.10), whereas external resources accounted for between 15 and 25% of total health expenditure in Lao PDR, Cambodia, Nepal and Papua New Guinea. A decrease of more than 10 percentage points in external funding for health as a share of current health expenditure was reported for Papua New Guinea and Solomon Island between 2010 and 2017.

### Definition and comparability

The financing classification used in the System of Health Accounts provides a complete breakdown of health expenditure into public and private units incurring expenditure on health. Private sector comprises pre-paid and risk pooling plans, household out-of-pocket expenditure and non-profit institutions serving households and corporations. Out-of-pocket payments are expenditures borne directly by the patient. They include cost sharing and, in certain countries, estimations of informal payments to health care providers. Voluntary health care payments schemes include voluntary health insurance, NPISH and enterprises financing schemes.

External funding for health is measured as Official Development Assistance disbursements for health from all donors. Disbursements represent the actual international transfer of financial resources. Disbursements for health are identified by using the classification of sector of destination codes 121 (health, general except 12181, medical education/training and 12182, medical research), 122 (basic health) and 130 (population policies/programmes and reproductive health except 13010 Population policy and administrative management), and 510 (general budget support) (http://www.oecd.org/dac/stats/aidtohealth.htm). General budget support to health is estimated by applying the share of government expenditure on health over total general government expenditures to the value reported in ODA. Given that disbursement money is spent over several years by countries, funds disbursed at year t are compared to total health expenditure in year t+1.

Figure 6.8. **Change in health expenditure by households' out-of-pocket as a share of health expenditure, 2010-17**




Source: WHO Global Health Expenditure Database; OECD Health Statistics 2020.

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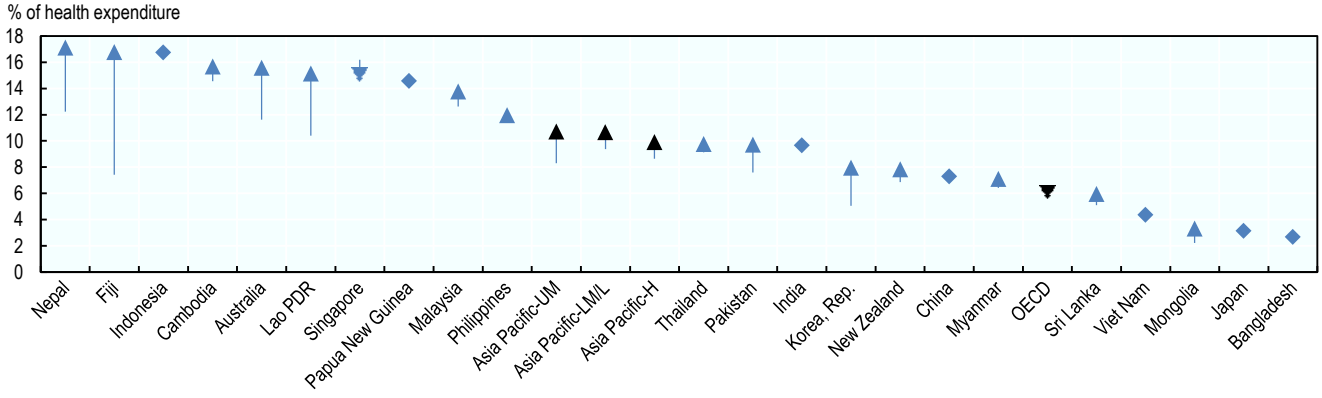
Figure 6.9. **Change in health expenditure by voluntary health care payment schemes as a share of health expenditure, 2010-17**




Source: WHO Global Health Expenditure Database; OECD Health Statistics 2020.

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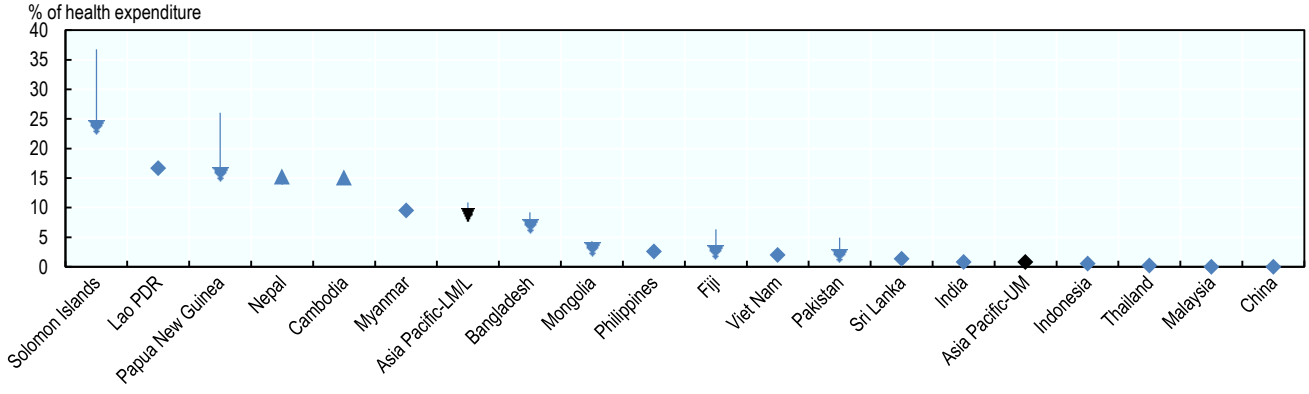
Figure 6.10. **Change in external resources as a share of health expenditure, 2010-17**




Source: WHO Global Health Expenditure Database.

StatLink https://stat.link/rs6pf0

Factors such as how care is organised and prioritised across providers, what the population needs are, and the various input costs, all affect the level of health spending across different services. Curative and rehabilitative care services comprise the greatest share – typically accounting for around 60% of all health spending across Asia-Pacific reporting countries (Figure 6.11). Medical goods (mostly retail pharmaceuticals) take up a further 17%, followed by a growing share on preventive care, which in 2017 averaged around 8% of health spending. Administration and overall governance of the health system, together with ancillary services and long-term care covered the remainder. Across OECD countries, long-term care and pharmaceuticals accounted for a higher share of health care spending as compared to Asia-Pacific reporting countries.

The structure of spending across the various types of care can vary considerably by country. More than 70% of health spending in Sri Lanka can be accounted for by curative and rehabilitative care services. At the other end of the scale, the Philippines and Nepal saw curative and rehabilitative services account for less than half of all spending.

Spending on medical goods comprises the second largest category. As such, medical goods accounted for more than a fourth of all health spending in Pakistan, India and the Philippines. By contrast, in Cambodia this share was much lower at 8%. Of note that spending on pharmaceuticals consumed in the hospital settings is not included in these figures.

Spending on preventive care accounted for 8% of total spending across Asia-Pacific countries. More than one fifth of the total spending can be attributed to preventive care in Fiji, whereas preventive care accounts for only 2% of spending in Australia and Pakistan.

When only analysing the composition of spending by government schemes and compulsory insurance schemes, curative and rehabilitative care services comprise the greatest share – typically accounting for 62% of all health spending across Asia-Pacific reporting countries (Figure 6.12). Preventive care takes up a further 10%. Administration and overall governance of the health system covered one fifth of the remainder spending. Across OECD countries, long-term care and pharmaceuticals accounted for a higher share of health care spending as compared to Asia-Pacific reporting countries. The low share of pharmaceuticals spending in government health spending flags the limitations of the benefit baskets in most Asia Pacific countries.

The structure of government and compulsory insurance spending across the various types of care can vary considerably by country. Around 90% of health spending in Sri Lanka can be attributed to curative and rehabilitative care services. At the other end of the scale, Lao PDR and Nepal saw curative and rehabilitative services account for less than half of all government spending. In Lao PDR and Cambodia, the higher share of government spending was attributed to administration and other services.

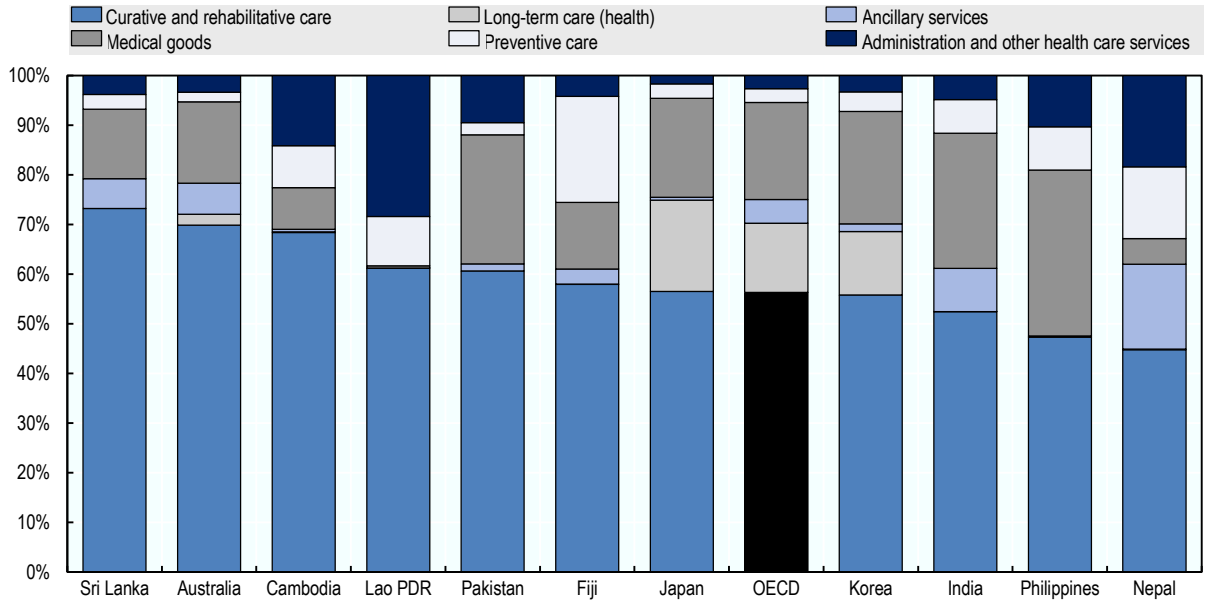
Around 30% of government total spending is attributed to preventive care in Fiji, whereas preventive care accounts for less than 2% of spending in Lao PDR and Cambodia.

### Definition and comparability

The System of Health Accounts defines the boundaries of the health care system from a functional perspective, with health care functions referring to the different types of health care services and goods. Current health expenditure comprises personal health care (curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (prevention and public health services as well as administration – referring to governance and administration of the overall health system rather than at the health provider level).

The category of “medical goods” refers to retail pharmaceuticals, delivered to patients via pharmacies and other retail outlets. Pharmaceuticals are also consumed in other care settings – primarily the hospital inpatient sector – where by convention the pharmaceuticals used are considered as an input to the overall service treatment and not separately accounted.

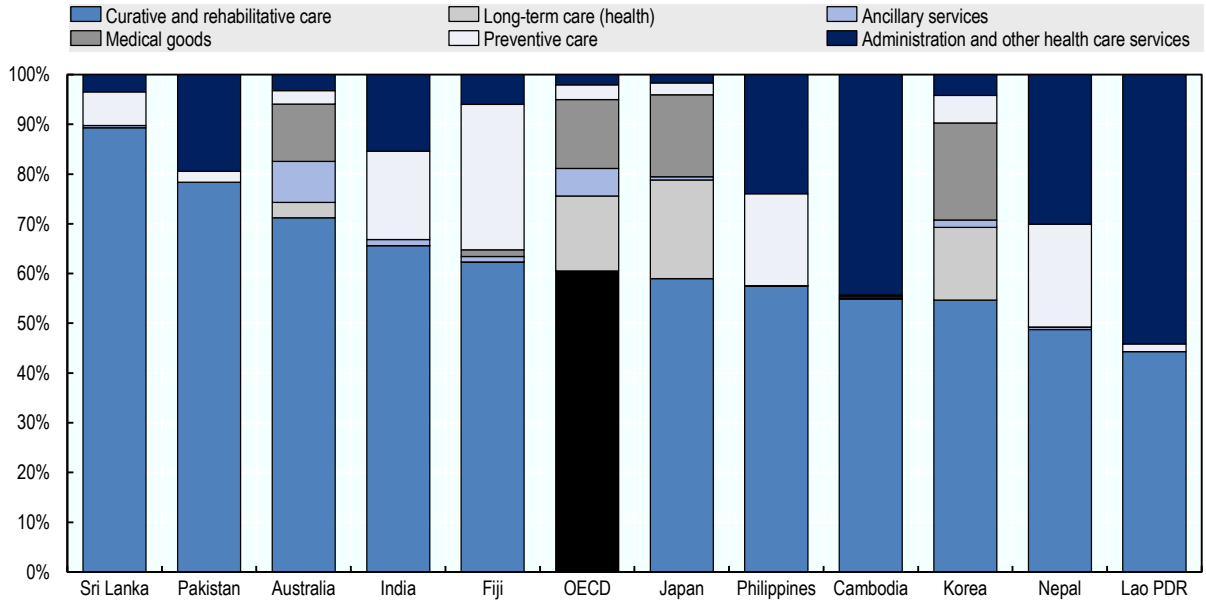
Figure 6.11. **Health expenditure by type of service, 2017**




Source: WHO Global Health Expenditure Database; OECD Health Statistics 2020.

StatLink https://stat.link/02kcge

Figure 6.12. **Government and compulsory insurance schemes health expenditure by type of service, 2017**




Source: WHO Global Health Expenditure Database; OECD Health Statistics 2020.

StatLink https://stat.link/bsypc1

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*Chapter 7*

# Quality of care

Childhood vaccination continues to be one of the most cost-effective health policy interventions, preventing around 3 million deaths every year (UNICEF, 2019[1]). Nevertheless, while 86% of children globally receiving vaccines, more than 13 million children have never been vaccinated (WHO, 2020[2]).

All countries and territories in Asia-Pacific have established vaccination programmes including a minimum number of routine vaccines (i.e. against polio, diphtheria, tetanus, pertussis, measles); additional vaccines (i.e. against pneumococcus, rotavirus and human papilloma virus) are included at national or subnational level based on local morbidity, mortality and cost-effectiveness analysis.

Diphteria tetanus toxoid and pertussis, measles and hepatitis B are taken here as examples as they represent, in timing and frequency of vaccination, the full spectrum of organisational challenges related to routine vaccination. Pertussis, known as whooping cough, is a respiratory infection caused by bacteria. Immunisation is the most effective way of preventing infection. Three doses of pertussis, together with diphtheria and tetanus toxoid reduces the risk of severe pertussis among infants. WHO recommends the administration of the first dose at 6 weeks of age and subsequent doses given 4-8 weeks apart, during 10-14 weeks and 14-18 weeks (WHO, 2020[3]). Measles is a highly contagious viral disease. The measles vaccine is not only safe and effective but also inexpensive. Although vaccination has substantially reduced global measles deaths by 73% between 2000 and 2018, measles is still common in many developing countries, including those in Asia. WHO recommends measles immunisation to all susceptible children, adolescents and adults if not contraindicated. Two doses of measles vaccine, either alone, or combined with rubella, mumps, or varicella, should be the standard for national childhood immunisation programmes (WHO, 2020[4]). Vaccination for hepatitis B is considered effective in preventing infection and its chronic consequences, such as cirrhosis and liver cancer. Yet, in 2015, hepatitis B resulted in 887 000 deaths, mostly from cirrhosis and hepatocellular carcinoma. Globally, WHO Western Pacific is the region with most infections in the world, amounting to more than 6% of the population (WHO, 2019[5]). Hepatitis B vaccination is recommended for all children, and at least three doses of hepatitis B vaccine should be the standard for national immunisation programmes (WHO, 2019[5]).

Reviews of the evidence supporting the efficacy of vaccines included in routine immunisation programmes have concluded that they are safe and highly effective against mortality and morbidity caused by diseases they are treating. Hence, high coverage of these programmes illustrates effective delivery of high quality health care. The COVID-19 pandemic, however, is impeding access to childhood vaccinations in many countries as these services have been scaled down or closed, or people are concerned about risks of COVID-19 infection (WHO, 2020[2]).

In 2019, the overall vaccination of children against pertussis (provided through combined vaccines containing diphtheria and tetanus), measles and hepatitis B was high in most Asia-Pacific countries. Almost all children aged around one year received the recommended measles, DTP3 and Hepatitis B vaccination in high income Asia-Pacific countries, with a coverage higher than 95% – the WHO's minimum threshold to avoid vaccine-preventable diseases outbreaks. Conversely, the average vaccination rate in lower-middle and low income Asia-Pacific countries for these diseases was around 85%, which is still high but is insufficient to ensure interruption of disease transmission and protection of the whole population (Figures 7.1, 7.2 and 7.3).

Against DTP3, measles and hepatitis B, vaccination coverage was similar for each Asia-Pacific country. Brunei Darussalam, China, Mongolia and Sri Lanka had the highest rate in Asia-Pacific at 99% against all of them. However, in Lao PDR and the Philippines only two in three children were vaccinated against all three (Figures 7.1, 7.2 and 7.3).

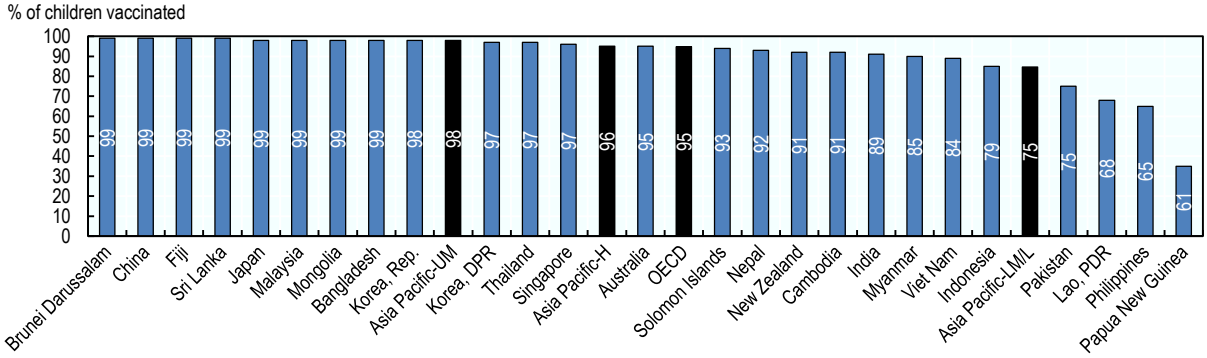
While vaccination rates have plateaued at a high level in many countries and territories in Asia-Pacific, some countries with historically low rates have made substantial progress in recent years. For example, in 2007, hepatitis B immunisation in India was only 6%, and measles immunisation in the Lao PDR was only 40% of the target population (WHO, 2019[6]; WHO, 2019[7]), but following international recommendations and subsequent national interventions, their respective vaccine coverage increased to 91% and 69% in 2019 (Figures 7.1 and 7.2). In Western Pacific countries, hepatitis B vaccination rate increased from 76% in 2005 to 93% in 2017. Consequently, the region has lowered hepatitis B infections to less than 1% of children by 2017, and prevented 7 million deaths (WHO, 2019[8]).

Even though vaccines are designed to be both safe and effective, adverse events following immunisation do occur and need to be reported in order to identify problems and take appropriate corrective actions. Vaccine safety surveillance is progressing globally and in the WHO regions of South East Asia and Western Pacific, 73% and 63% of countries respectively, report adverse events following immunisation (Lei et al., 2018[9]).

### Definition and comparability

Vaccination rates reflect the percentage of children at either age one or two that receives the last dose of primary immunisation series by the respective vaccination in the recommended timeframe. Childhood vaccination policies differ slightly across countries. Thus, these indicators are based on the actual policy in a given country. Some countries administer combination vaccines (e.g. MR for measles and rubella) while others administer the vaccinations separately. Some countries ascertain vaccinations based on surveys and others based on administrative data, which may influence the results.

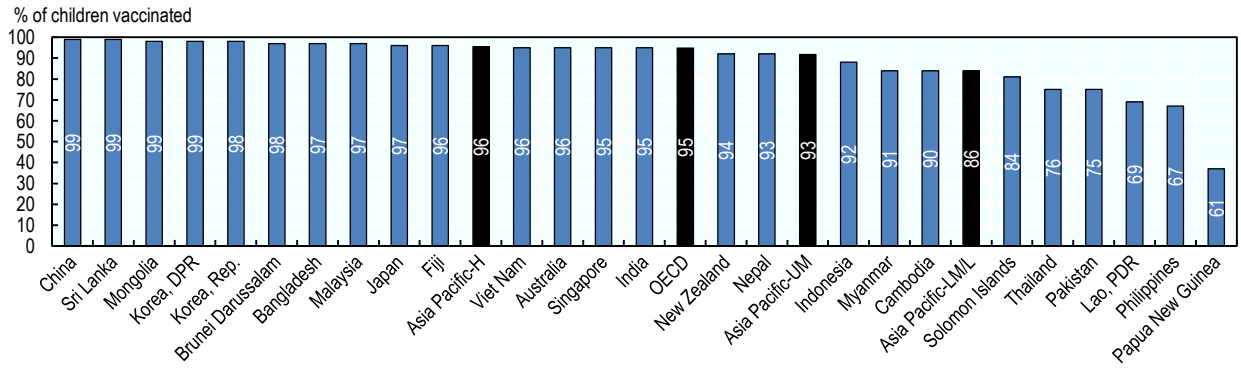
Figure 7.1. **Vaccination rates for diphteria tetanus toxoid and pertussis (DTP3), children aged around 1, 2019**




Source: WHO GHO 2020.

StatLink https://stat.link/5bsrqc

Figure 7.2. **Vaccination rates for measles (MCV), children aged around 1, 2019**




Source: WHO GHO 2020.

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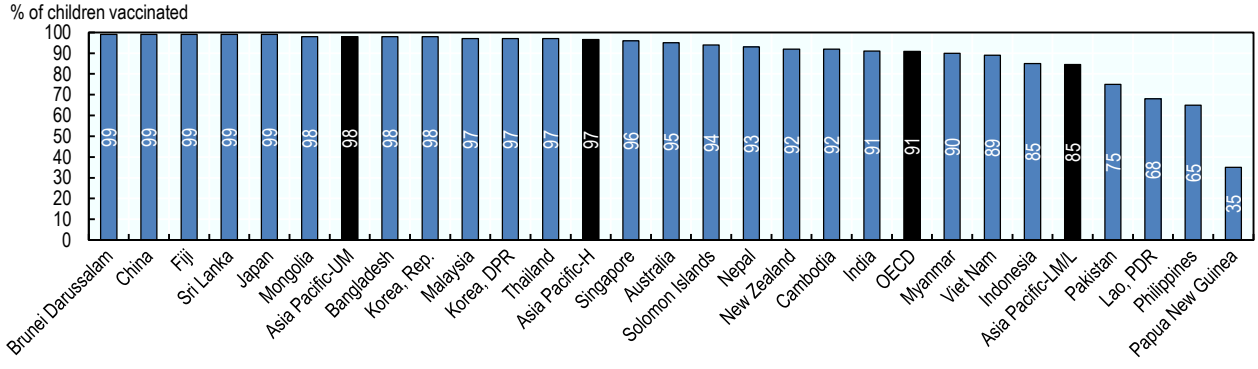
Figure 7.3. **Vaccination rates for hepatitis B (Hep3), children aged around 1, 2019**




Source: WHO GHO 2020.

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Ischaemic heart diseases and stroke were the two major causes of death in Asia-Pacific in 2016, accounting for 34.8% of total deaths in South East Asia and 25.2% of all deaths in the Western Pacific region (WHO, 2018[10])]; (see indicator "Mortality from cardiovascular diseases" in Chapter 3). Additionally, both are associated with significant health, social and non-financial costs, because of the persistent disabilities suffered by many survivors. Treatment following acute myocardial infarction (AMI) and stroke has advanced greatly over the past decades. Until the 1990s, treatment focused on prevention of complications and rehabilitation but since then great improvements in AMI survival rates were achieved with thrombolysis (Gil et al., 1999[11]). Treatment for ischaemic stroke has also advanced dramatically over the last decade, through early identification of suspected ischaemic stroke patients and timely acute reperfusion therapy. Dedicated cardiac care and stroke units offering timely and proactive therapy achieve better survival than conservative care (Seenan, Long and Langhorne, 2007[12]), although studies have shown that a considerable number of patients fail to receive high-quality, evidence-based care (Eagle et al., 2005[13]). Moreover, due to COVID-19, access to high-quality care was hampered in some cases. In Hong Kong, China, for instance, there was an increase in the delayed access to high-quality care among patients suffered from AMIs because of hospitals following additional precautionary measures to prevent infection and/or patients fearing from infection (Tam et al., 2020[14]).

For both AMI and stroke, the case-fatality rate is a useful measure of acute care quality. It reflects the processes of care, such as effective medical interventions, including early thrombolysis or treatment with aspirin when appropriate, and catherterisation as well as co-ordinated and timely transport of patients. For AMI, crude and age-sex standardised in-hospital case-fatality rates within 30 days of admission vary widely, with the lowest rates reported in Australia (3.8%) and New Zealand (4.7%) (Figure 7.4). Singapore had the highest reported case-fatality rate at 10.5%. Beyond the quality of care provided in hospitals, differences in hospital transfers, average length of stay, emergency retrieval times and average severity of AMI and stroke may influence reported 30 day-case fatality as this indicator captures the functioning of the entire cardio-vascular care pathway.

For ischemic stroke, the lowest case-fatality rates were reported in Japan (3.0%) and the Republic of Korea (3.2%), while New Zealand reported the highest rate of 7.7% (Figure 7.5). Fatality rates for haemorrhagic stroke are significantly higher than for ischemic stroke, and countries that achieve better survival for one type of stroke also tend to do well for the other. Again, the lowest case-fatality rates for haemorrhagic stroke were reported in Japan (11.9%) and the Republic of Korea (16.9%), with New Zealand reporting the highest rate of 23.6% (Figure 7.6). Given the initial steps of care for stroke patients are similar, this suggests that system-based factors play a role in explaining the differences across countries. Low rates in Japan are due in part to recent efforts dedicated to improving the treatment of stroke patients, through systematic blood pressure monitoring, major material investment in hospitals and establishment of stroke units (OECD, 2015[15]).

Data presented here do not take account of patients that are transferred to other hospitals during their care or reflect patients dying out of hospitals within 30 days. Through the use of a unique patient identifier (UPI) patient, data can be linked across hospitals and with death registers to generate more robust indicators for national monitoring and international comparison. Although 14 Asia-Pacific countries (Australia, Bangladesh, Brunei Darussalam, China, Japan, Malaysia, Mongolia, Myanmar, New Zealand, the Philippines, the Republic of Korea, Singapore, Thailand and Viet Nam) have a UPI number in hospital inpatient datasets and in mortality datasets (OECD/WHO, 2015[16]), only a few of them such as New Zealand and the Republic of Korea are able to track patients in this way.

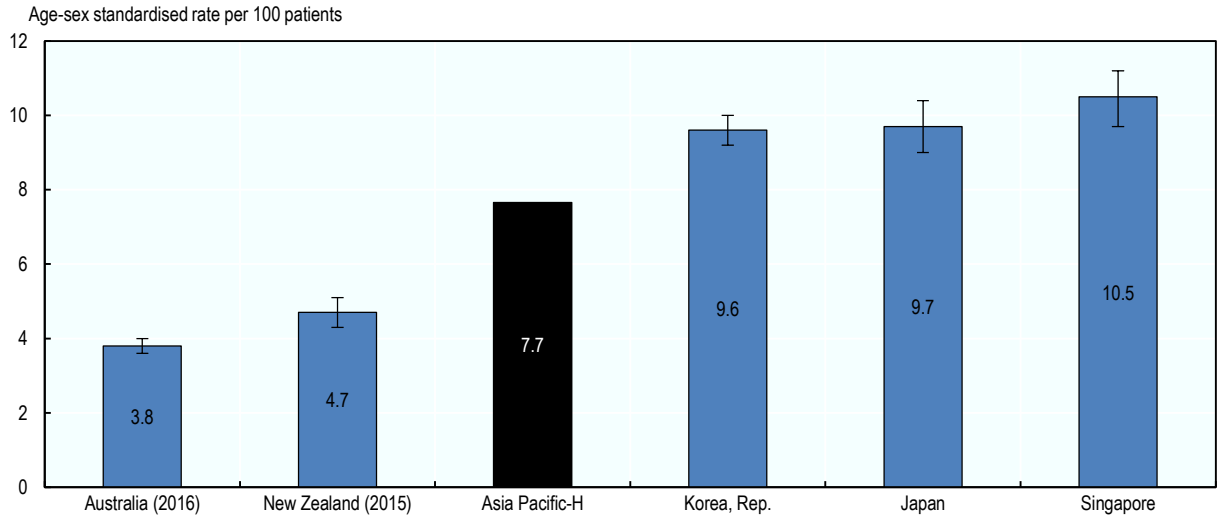
National measures for AMIs and stroke are affected by within-country variations in performance at the hospital level. Reducing this variation is key to providing equitable care and reducing overall mortality rates. Although monitoring and reporting of hospital-level performance is becoming increasingly important in Asia-Pacific, only the Republic of Korea is regularly reporting hospital-level performance (OECD, 2019[17]). Multiple factors contribute to variations in outcomes of acute care, including hospital structure, processes of care and organisational culture. Recent research points to higher total numbers of hospital patients as being significantly related to higher performance; this may support national movements towards concentration of care services (Lalloué et al., 2019[18]).

### Definition and comparability

The in-hospital case-fatality rate following AMI, ischemic and haemorrhagic stroke is defined as the number of people who die within 30 days of being admitted (including same day admissions) to hospital. Ideally, rates would be based on individual patients, however not all countries have the ability to track patients in and out of hospital, across hospitals or even within the same hospital because they do not currently use a unique patient identifier. Therefore, this indicator is based on unique hospital admissions and restricted to mortality within the same hospital, and hence, differences in practices in discharging and transferring patients may influence the findings.

Standardised rates adjust for differences in age (45+ years) and sex of the OECD population with AMI or ischaemic stroke, and facilitate more meaningful international comparisons. Lower and upper bounds of 95% confidence intervals are presented.

Figure 7.4. **In-hospital case-fatality rates within 30 days after admission for AMI, patients 45 years old and over, 2017 (or latest year available)**




Source: OECD Health Statistics 2020, https://doi.org/10.1787/health-data-en.

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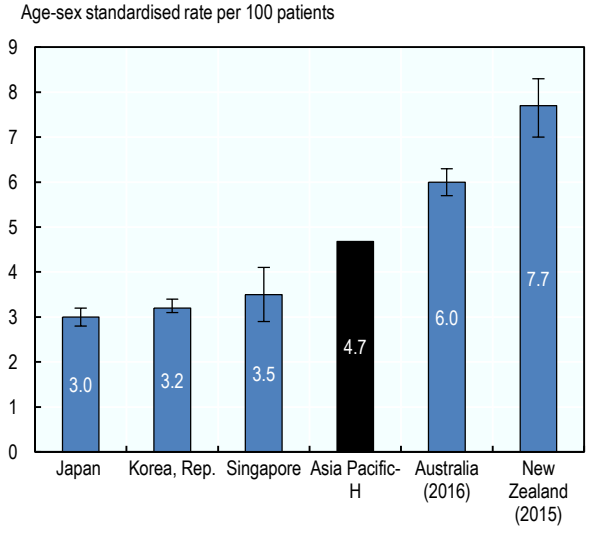
Figure 7.5. **In-hospital case-fatality rates within 30 days after admission for ischemic stroke, patients 45 years old and over, 2017 (or latest year available)**




Source: OECD Health Statistics 2020.

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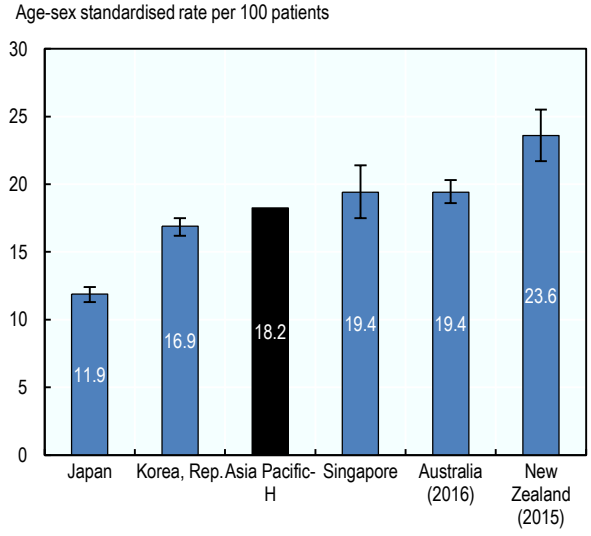
Figure 7.6. **In-hospital case-fatality rates within 30 days after admission for haemorrhagic stroke, patients 45 years old and over, 2017 (or latest year available)**




Source: OECD Health Statistics 2020.

StatLink https://stat.link/rz6pk8

The burden of breast cancer among women is significant in the Asia-Pacific region, where it is the cancer with the highest incidence and mortality rates. In 2018, approximately 839 000 women were diagnosed with breast cancer and over 286 000 died of the disease in the region (IARC, 2020[1]; see indicator "Mortality from cancer" in Chapter 3). Several factors are known to increase the risk of breast cancer, such as increasing age, genetic predisposition, oestrogen replacement therapy and lifestyle factors including obesity, physical inactivity, nutrition habits and alcohol consumption (World Cancer Research Fund/American Institute for Cancer Research, 2018[19]; González-Jiménez et al., 2014[20]).

In Asia-Pacific, the incidence rate of breast cancer varies remarkably between countries and territories, ranging from below 20 per 100 000 women in Bangladesh, Mongolia and Nepal to over 90 per 100 000 women in Australia and New Zealand in 2018 (Figure 7.7). In many Asia-Pacific countries, the incidence of breast cancer has increased over recent decades (IARC, 2020[21]). Age-standardised annual incidence rates per 100 000 women have risen quickly in countries and territories such as Hong Kong, China, Japan and the Republic of Korea, and the rates now approach 60 per 100 000 women in Japan and the Republic of Korea. Incidence rates were already high in Australia and New Zealand, where they have increased more slowly (IARC, 2020[22]).

In the 1990s, Australia, Japan and New Zealand introduced national breast cancer screening programmes to detect the disease early and reduce mortality (OECD, 2013[23]; IARC, 2016[24]). This has contributed to higher proportions of women being diagnosed at an early stage, and in those countries, over 50% of women with breast cancer were diagnosed at an early stage of disease during 2010-14 (OECD, 2019[17]). The Republic of Korea and Singapore also introduced a national screening programme around 2000, while China introduced screening programmes at the community level in the late 2000s (IARC, 2016[6]). In 2015, Indonesia rolled out its screening programme nationally and the roll-out of breast cancer programmes is ongoing in Brunei Darussalam and Viet Nam (Wahidin, 2018[25]; Pham et al., 2019[26]; Ministry of Health Brunei Darussalam, 2020[27]).

The wide range in age-standardised five-year net survival in Asia-Pacific countries and territories (Figure 7.8; Allemani et al., 2018[31]) suggests that the quality of breast cancer care varies widely in the region. For women diagnosed during 2010-14, age-standardised five-year net survival was highest in high-income countries such as Australia and Japan (89.5% and 89.4%, respectively), whereas in India, Malaysia and Thailand the probability that breast cancer patients survive their cancer for at least five years was less than 70% (Allemani et al., 2018[31]; see indicator definition below). In most Asia-Pacific countries and territories, five-year net survival for women with breast cancer has improved in recent years, reflecting overall improvement in the quality of cancer care. China, India, the Republic of Korea and Thailand in particular have seen a large improvement in five-year net survival since 2000-04.

In 2018, mortality rates from breast cancer varied over nine-fold between countries in the Asia-Pacific region. The rate was lowest in Mongolia at four per 100 000 women and the highest in Fiji at 37 per 100 000 women. The average age-standardised mortality rate was higher in upper-middle, lower-middle and low income countries than in high-income countries (Figure 7.9), although the pattern of incidence rates in the region was opposite.

In recent years, motivated providers and patients in Australia are increasingly using patient-reported outcome measures (PROMs) to help inform difficult clinical decisions based on patients' own assessment of their health status and quality of life during or after treatment, and in order to provide patient-centred care. For instance, outcomes of breast cancer care are measured using the relevant post-operative breast satisfaction scales from the BREAST-Q tool, an internationally validated instrument used to measure breast surgery outcomes reported by patients (Pusic et al., 2009[12]; OECD, 2019[7]). Australia is scaling up efforts to measure and monitor breast cancer PROMs as their value becomes more fully appreciated, and contributes to improved delivery of patient-centred breast cancer care.

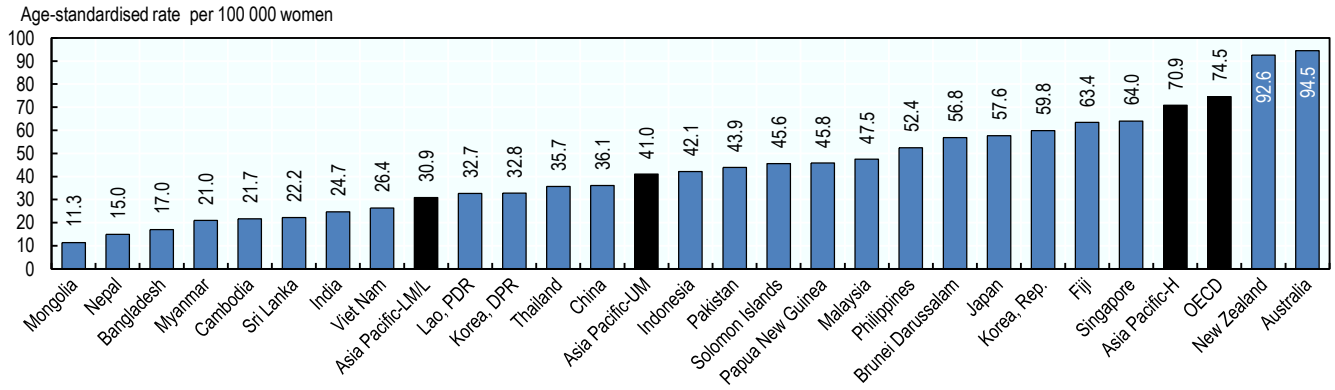
### Definition and comparability

Incidence rates are from the Global Cancer Observatory 2020 at the International Agency of Research for Cancer (IARC). The estimation methods are specific to countries and the comparability of national estimates is affected by differences in the coverage, accuracy and timeliness of the data recorded in each country.

Five-year net survival refers to the cumulative probability that cancer patients survive for at least 5 years after diagnosis, after controlling for the risk of death from other causes. Five-year net survival for patients diagnosed during 2000-04 is based on a cohort approach, since all patients have been followed up for at least 5 years. For patients diagnosed during 2010-14, a period approach is used, which allows estimation of 5-year survival although 5 years of follow-up are not available for all patients. Cancer survival estimates are age-standardised with the International Cancer Survival Standard (ICSS) weights. Cancer patient data were provided by national or regional cancer registries. Data collection, quality control and analysis for age-standardised five-year net survival were performed centrally as part of the CONCORD programme for the global surveillance of cancer survival, led by the London School of Hygiene and Tropical Medicine (Allemani et al., 2018[28]). Survival estimates for breast cancer are based on the International Classification of Diseases for Oncology (ICD-O-3 C50.0–C50.6 and C50.8–C50.9).

See indicator "Mortality from cancer" in Chapter 3 for the definition of cancer mortality rates. Incidence and mortality from breast cancer is based on ICD-10 code C50.

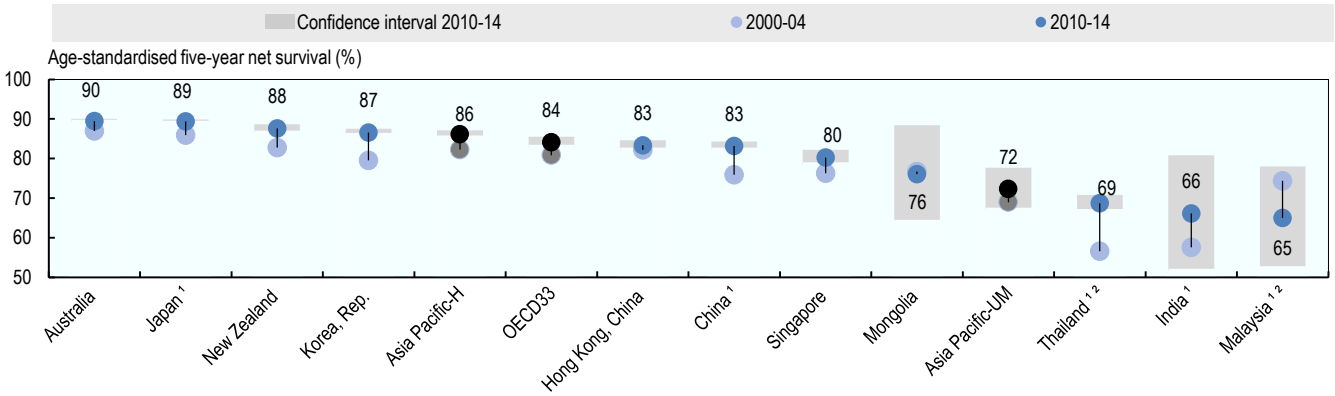
Figure 7.7. **Breast cancer incidence, 2018**




Source: IARC Global Cancer Observatory 2020.

StatLink https://stat.link/hmatkr

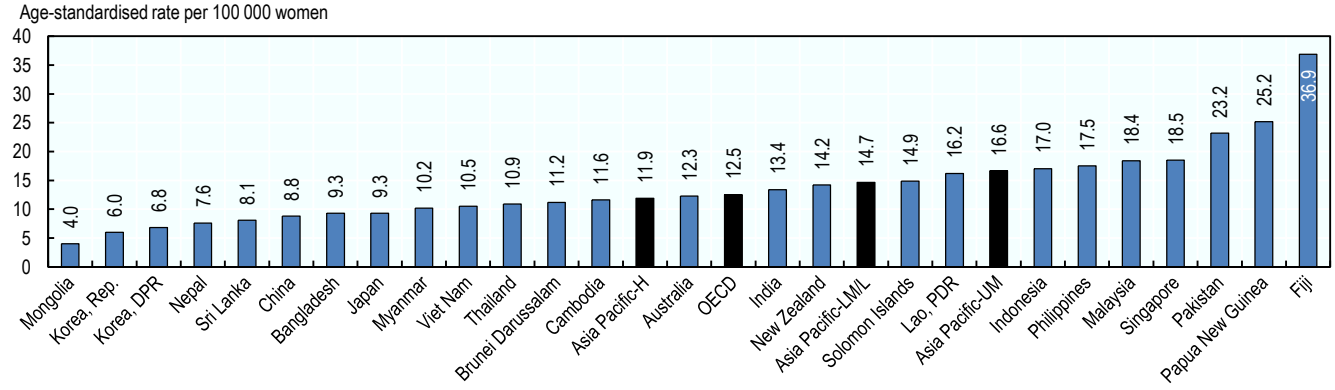
Figure 7.8. **Breast cancer five-year net survival, women diagnosed during 2000-04 and 2010-14**




Note: For all countries, 95% confidence intervals for women diagnosed during 2010-14 are represented by grey areas. For Hong Kong, China; Mongolia; and Malaysia the estimate in light blue is for 2005-09. 1. Data represent coverage of less than 100% of the national population. 2. Survival estimates are considered less reliable. See Allemani et al. (2018) for more information.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/ik2695

Figure 7.9. **Breast cancer mortality, 2018**




Source: IARC Global Cancer Observatory 2020.

StatLink https://stat.link/9dq8en

Lung cancer is the most commonly diagnosed cancer among men in the Asia-Pacific region, and the second most common cancer among women, after breast cancer. In 2018, 1.2 million people were diagnosed with lung cancer and it was the commonest cause of death from cancer (slightly over 1 million deaths) in the region (IARC, 2020[22]). The main risk factors for lung cancer include tobacco smoking and environmental factors (such as air pollution). Other factors include passive smoking, occupational or residential exposure to radon, arsenic, asbestos, beryllium, cadmium, coal and coke fumes, silica or nickel, and a family history of lung cancer.

In 2018, the average incidence rate of lung cancer for men and women was higher in high income countries than in other countries. Incidence rate of lung cancer was high at over 40 per 100 000 men in China; Japan; Korea, DPR; the Republic of Korea and Singapore, and higher than 20 per 100 000 women in Australia; Brunei Darussalam; China; Korea, DPR and New Zealand. Incidence rates were lowest in Fiji and India at below eight per 100 000 men and in Pakistan and Sri Lanka at three per 100 000 women (Figure 7.10).

Current incidence rates reflect patterns of tobacco use two or three decades earlier (see indicator "Tobacco" in Chapter 4). Following the different historical trends in smoking between males and females, the incidence rate of lung cancer has been higher among men than among women in the Asia-Pacific region. Based on the time-series data available for a limited number of countries, after a declining trend of male smoking rates, the incidence rate of lung cancer for men fell in countries and territories such as Australia; New Zealand; Hong Kong, China; and the Philippines over the past few decades. For women, however, new cases of lung cancer increased in countries including Australia, India, Japan and New Zealand where female smoking had increased (IARC, 2020[21]).

Compared to other cancers such as breast and colorectal cancers (see indicators "Incidence, survival and mortality for breast cancer" and "Incidence, survival and mortality for colorectal cancer"), lung cancer continues to be associated with very poor survival. Even in high-income Asia-Pacific countries and territories, for patients diagnosed with lung cancer during 2010-14, the cumulative probability to survive their cancer for at least five years was on average 22%.

Nonetheless, there is wide international variation in five-year survival from lung cancer, and this suggests differences in timely diagnosis and access to high-quality care between Asia-Pacific countries and territories. Age-standardised five-year net survival for lung cancer patients diagnosed during 2010-14 was highest in Japan (32.9%), followed by Korea (25.1%) but lowest in India (3.7%) (Figure 7.11). Mass screening for lung cancer is not common, but in Japan, an annual chest X-ray is recommended for people aged 40 and over, and sputum cytology is also recommended for smokers aged 50 and over who have smoked more than 600 cigarettes over their lifetime, possibly leading to earlier detection (OECD, 2019[29]). Various drugs have been approved and covered by public payers for lung cancer treatment in Asia-Pacific countries and territories, but the availability varies between countries. Comparable data are available only for Japan and Korea: the availability of new lung cancer drugs appears slightly better in Japan than in Korea (OECD, 2020[30]).

Age-standardised five-year net survival has increased in most countries and territories in the Asia-Pacific region, suggesting that access and quality of care have improved for lung cancer patients. Between 2000-04 and 2010-14, the largest progress in net survival for lung cancer was seen in Korea and Singapore.

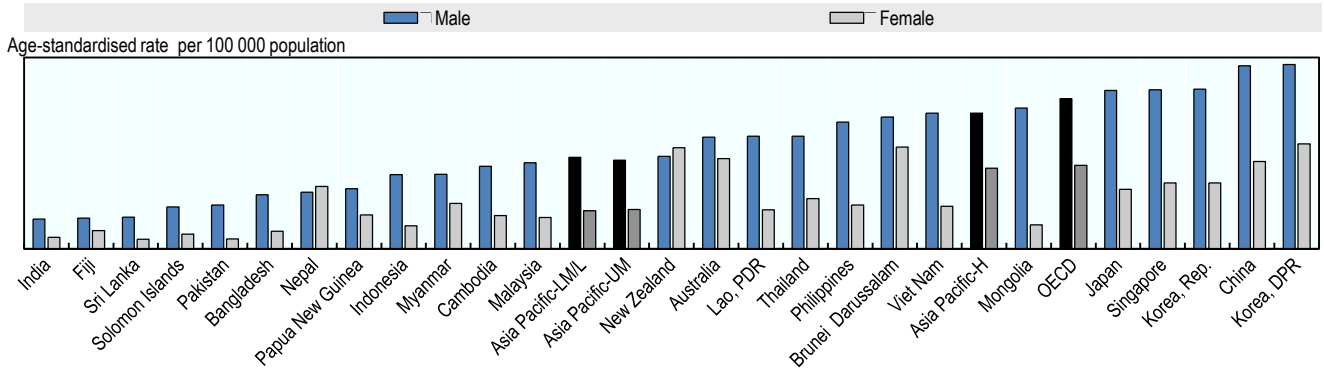
In 2018, age-standardised mortality rates from lung cancer varied eight-fold between Asia-Pacific countries and territories. The mortality rate was high at over 30 per 100 000 population in China and Korea, DPR but low at less than seven per 100 000 population in Fiji, India, Pakistan and Sri Lanka (Figure 7.12). As seen in incidence rates, mortality rates were higher in high-income countries.

In general, trends in age-standardised mortality rates for lung cancer follow corresponding trends in the incidence rates with a time lag, because net survival has remained uniformly poor in all countries. Given current difficulties in treating lung cancer effectively, countries need to focus on primary prevention of lung cancer, principally through tobacco control, in order to reduce mortality rates. This is a long-term strategy, because of the long latency between starting to smoke and the highest lung cancer risks, but it is particularly critical in the Asia-Pacific region, where the prevalence of tobacco smoking is generally high.

### Definition and comparability

See the indicator "Incidence, survival and mortality for breast cancer" for incidence data and the definition of net survival. See the indicator "Mortality from cancer" in Chapter 3 for the definition of cancer mortality rates. Incidence and mortality rates from lung cancer are based on ICD-10 codes C33-C34 (trachea, bronchus, and lung). Survival estimates for lung cancer are based on the International Classification of Diseases for Oncology (ICD-O-3 C34.0–C34.3 and C34.8–C34.9).

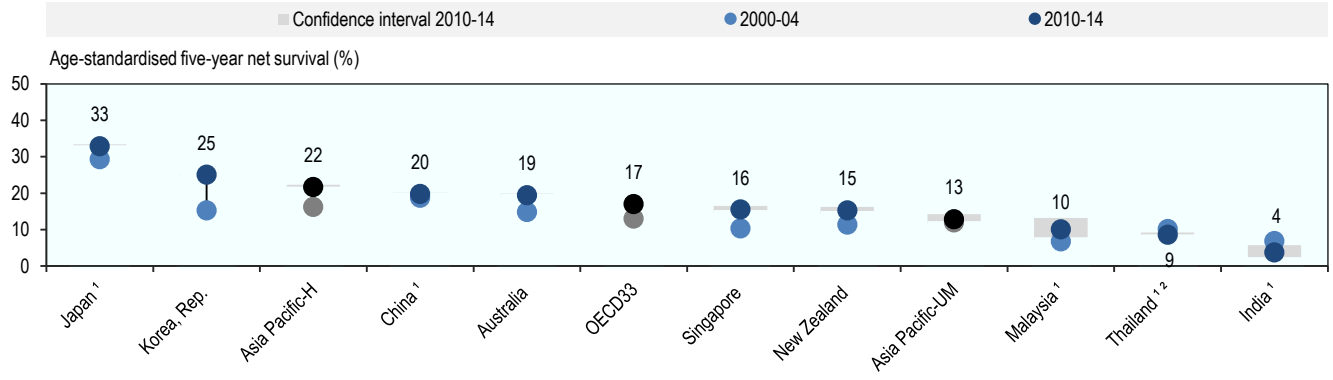
Figure 7.10. **Lung cancer incidence, by sex, 2018**




Source: IARC Global Cancer Observatory 2020.

StatLink https://stat.link/gc07yo

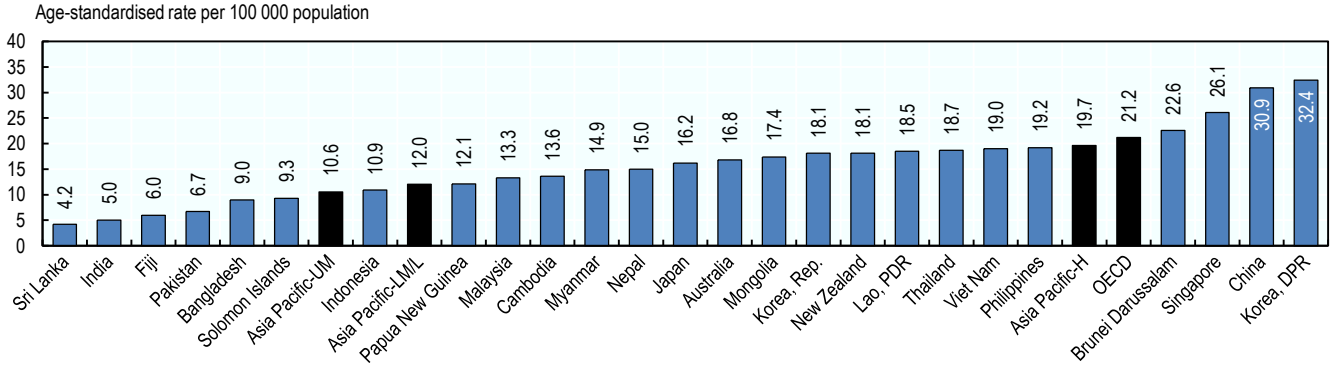
Figure 7.11. **Lung cancer five-year net survival, patients diagnosed during 2000-04 and 2010-14**




Note: For all countries, 95% confidence intervals for 2010-14 are represented by grey areas. For Malaysia, the estimate in light blue is for 2005-09. 1. Data represent coverage of less than 100% of the national population. 2. The estimate for 2000-04 is less reliable. See Allemani et al. (2018) for more information.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/joxq41

Figure 7.12. **Lung cancer mortality, 2018**




Source: IARC Global Cancer Observatory 2020.

StatLink https://stat.link/t4ogn1

Colorectal cancer is the second most commonly diagnosed cancer after lung cancer, for men, and the third most common cancer after breast and lung cancers, for women, in the Asia-Pacific region. In 2018, about 908 000 people were diagnosed with colorectal cancer in the region. Colorectal cancer is the fourth most common cause of death from cancer, with approximately 434 000 deaths (IARC, 2020[22]).

The main risk factors for colorectal cancer include increasing age, ulcerative colitis, a personal or family history of colorectal cancer or polyps, and lifestyle factors such as a diet high in fat and low in fiber, physical inactivity, obesity, tobacco and alcohol consumption. Colorectal cancer incidence is much higher among men. Colorectal cancer incidence and mortality rates increase as countries undergo socio-economic transition, such as in China and the Philippines (Arnold et al., 2017[31]). Generally, rectal cancer is more difficult to treat than colon cancer, due to a higher probability of early spread to adjacent tissue, recurrence and postoperative complications.

Within the Asia-Pacific region, on average, countries in the WHO Western Pacific region had higher annual incidence rates for colorectal cancer than those in the South-East Asia region in 2018 (25.9 compared to 19.7 new cases per 100 000 population). Australia, Brunei Darussalam, Japan, the Republic of Korea and Singapore had over 35 new cases per 100 000 population while India, Mongolia, Myanmar, Nepal, Pakistan and Sri Lanka had below 10 new cases per 100 000 population (IARC, 2020[22]). According to the time series data available for a limited number of countries, the incidence rate of colorectal cancer decreased in New Zealand, stabilised in Australia; Hong Kong, China; and Japan, and increased in India (Chennai), Philippines, the Republic of Korea, Singapore and Thailand over the past few decades (IARC, 2020[21]; Arnold et al., 2017[31]).

Following screening programmes for breast and cervical cancers, a growing number of countries have introduced population-based colorectal cancer screening programmes, targeting mostly people in their 50s and 60s (OECD, 2013[23]). Countries and territories with relatively high incidence of colorectal cancer in the region such as Australia, Brunei Darussalam, Japan, New Zealand, the Republic of Korea and Singapore have introduced national population-based screening programmes with various methods (e.g. faecal immunochemical test (FIT), flexible sigmoidoscopy, guaiac faecal occult blood test) over the past 15 years. China; Hong Kong, China; Macau, China; and Thailand have also implemented regional pilot programmes since the late 2000s (IARC, 2019[32]; Lim et al., 2019[33]; Health Bureau of Macau, 2020[34]).

Five-year net survival for colon and rectal cancer is high in countries such as Australia, Japan, New Zealand, the Republic of Korea and Singapore, where nationwide population-based screening programmes for colorectal cancer have been implemented. By contrast, India and Thailand have the lowest net survival for both cancers in Asia-Pacific (Figure 7.13 and Figure 7.14; Allemani et al., 2018[31]). Between-country differences in net survival following a diagnosis for colon and rectal cancer are wide. This indicates that there is still large room for improvements in early detection and treatment in countries that are lagging behind.

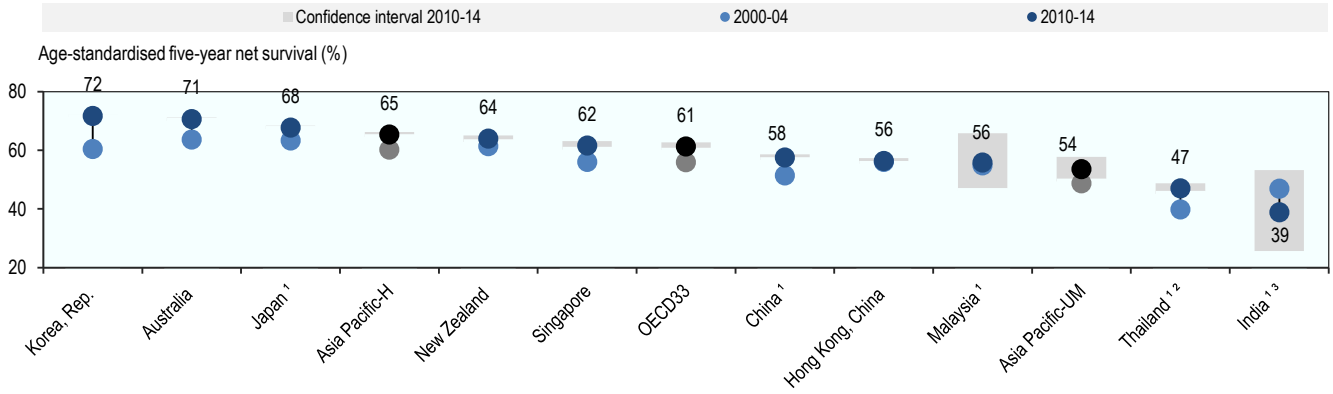
Advances in diagnosis and treatment of colorectal cancer, including improved surgical techniques, radiation therapy and combined chemotherapy, and wider and timelier access, have contributed to increased survival over the last decade. In most Asia-Pacific countries and territories, five-year net survival for colon and rectal cancers improved between 2000-04 and 2010-14. During this period, the Republic of Korea showed a large increase in net survival for both cancers and attained the highest five-year survival in the region for patients diagnosed during 2010-14. This was achieved through an increased coverage of colorectal cancer screening (from 7.3% in 2004 to 25% in 2012) (Suh et al., 2017[35]) and advanced treatment (Hur et al., 2018[36]).

Mortality rates from colorectal cancer varied between the low of 3 per 100 000 population in Bangladesh and the high of 17.3 per 100 000 population in Singapore in 2018 (Figure 7.15). Despite the high mortality rate, Singapore made progress in recent years. Based on a population-based screening programme introduced in 2011 and treatment advancement such as pre-operative radiotherapy and total mesorectal excision (Teo and Soo, 2013[37]), net survival for colorectal cancer improved, and the mortality rate declined since its peak around the year 1990. Similarly, mortality rates declined in Australia; Hong Kong, China; Japan; New Zealand and the Republic of Korea over the past decades. Mortality rates have, however, increased in the Philippines and Thailand with still relatively low mortality rate for colorectal cancer (IARC, 2019[38]). Together with early diagnosis and access to high quality care, public awareness on the importance of healthy lifestyles needs to be promoted to reduce the burden of colorectal cancer. For example, the month of March is designated as Colorectal Cancer Awareness Month in Singapore and forums for public education are organised and free FIT kits are provided to eligible population at community levels (Teo and Soo, 2013[37]).

### Definition and comparability

Net survival is defined in the indicator "Incidence, survival and mortality for breast cancer". Survival estimates for colon and rectal cancers are based on the International Classification of Diseases for Oncology (ICD-O-3 C18.0–C18.9 and C19.9 for colon and C20.9, C21.0-C21.2 and C21.8 for rectal cancer). See the indicator "Mortality from cancer" in Chapter 3 for the definition of cancer mortality rates. Mortality rates from colorectal cancer are based on ICD-10 codes C18-C21 (colon, rectosigmoid junction, rectum, and anus).

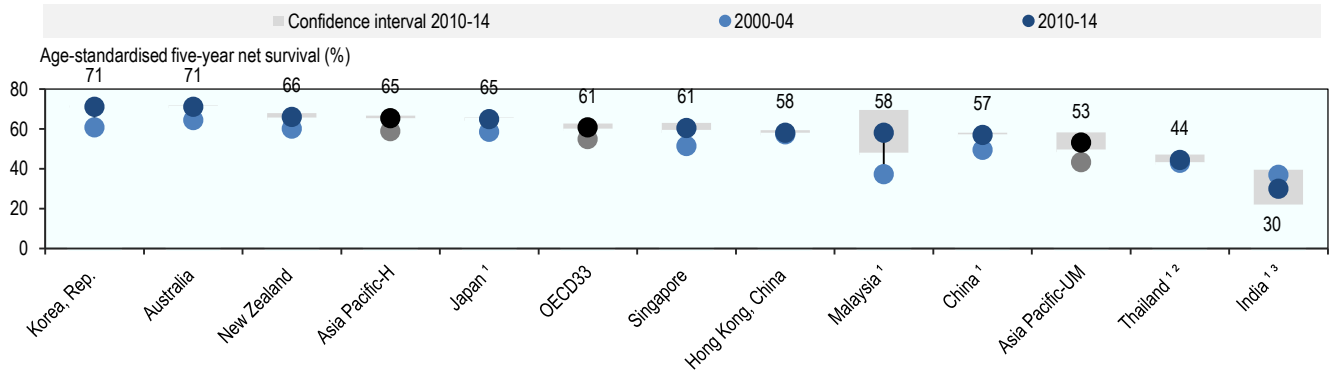
Figure 7.13. **Colon cancer five-year net survival, patients diagnosed during 2000-04 and 2010-14**




Note: For all countries, 95% confidence intervals for 2010-14 are represented by grey areas. For Hong Kong, China; and Malaysia, the estimate in light blue is for 2005-09. 1. Data represent coverage of less than 100% of the national population. 2. The estimate for 2000-04 is less reliable. 3. Survival estimates are not age-standardised. See Allemani et al. (2018) for more information.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/lpojv4

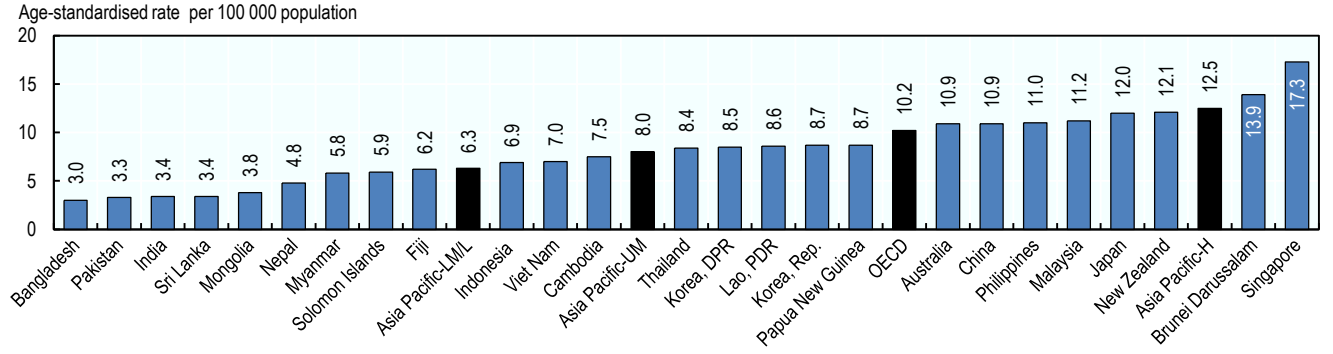
Figure 7.14. **Rectal cancer five-year net survival, patients diagnosed during 2000-04 and 2010-14**




Note: For all countries, 95% confidence intervals for 2010-14 are represented by grey areas. For Hong Kong, China; and Malaysia, the estimate in light blue is for 2005-09. 1. Data represent coverage of less than 100% of the national population. 2. The estimate for 2000-04 is less reliable. 3. Survival estimates are not age-standardised. See Allemani et al. (2018) for more information.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/324gdz

Figure 7.15. **Colorectal cancer mortality, 2018**




Source: IARC Global Cancer Observatory 2020.

StatLink https://stat.link/wohime

Stomach cancer is the fourth most commonly diagnosed cancer after lung, colorectal and breast cancers, and the second most common cause of death from cancer after lung cancer, for the population in the Asia- Pacific region. In 2018, stomach cancer was diagnosed among over 728 000 people and caused approximately 549 000 deaths (IARC, 2020[22]). The main risk factors for stomach cancer include increasing age, tobacco smoking, *H. pylori* infection, diet, family history, genetic predisposition, having another type of cancer, pernicious anaemia, and stomach surgery. Stomach cancer is more common among men (NHS, 2020[43]).

Age-standardised incidence rates are high in Mongolia and the Republic of Korea, with over 30 cases per 100 000 population per year, followed by China and Japan with over 20 new cases per 100 000 population in 2018 (Figure 7.16). However, incidence rates are low in many countries in the Asia-Pacific region. Indonesia, Pakistan and Solomon Islands had the lowest rates, at less than three per 100 000 population. According to the time-series data, incidence rates have declined in Asia-Pacific countries for which data are available (IARC, 2020[21]).

Nationwide population-based screening programmes are available in only a few countries with high incidence rates in the Asia-Pacific region. In Korea, nationwide stomach cancer screening using either upper gastrointestinal series or endoscopy is available every two years for men and women aged 40 or over (Choi et al., 2015[39]). In Japan, stomach cancer screening focuses on biennial screening either by photofluorography or endoscopy to people aged 50 and over, while therapeutic regimens for the eradication of *H. pylori* are covered by health insurance for patients with gastric or duodenal ulcer who are infected (OECD, 2019[29]). IARC recommends countries with high burden of stomach cancer to explore the introduction of population-based *H. pylori* screening and treatment while considering local contexts such as health priorities and cost-effectiveness (IARC Helicobacter pylori Working Group, 2014[40])).

Five-year net survival for stomach cancer varies widely between Asia-Pacific countries. For patients diagnosed during 2010-14, five-year survival was the highest in the region in the Republic of Korea (69%) and Japan (60%), but very low in India (9%) and Thailand (13%) (Figure 7.17; Allemani et al., 2018[31]). Incidence is very high in Japan and the Republic of Korea, and early detection through population-based screening programme and advances in treatment have contributed to the much better prognosis (Suh et al., 2020[41]). Recently, surgical techniques have been further developed in these countries, and progress has been made with chemotherapy, adjuvant chemotherapy, radiotherapy, and molecular-targeted therapy (Lee et al., 2015[42]; Sasako, 2020[43]).

In most countries in the Asia-Pacific region, advances in diagnosis and treatment of stomach cancer and wider and more timely access to effective treatment have contributed to an increase in survival over the last decade. Survival for stomach cancer increased rapidly particularly in the Republic of Korea. Nonetheless, there is still very wide international variation in survival following a diagnosis of stomach cancer, suggesting that further progress is needed for early detection and treatment in countries with low net survival.

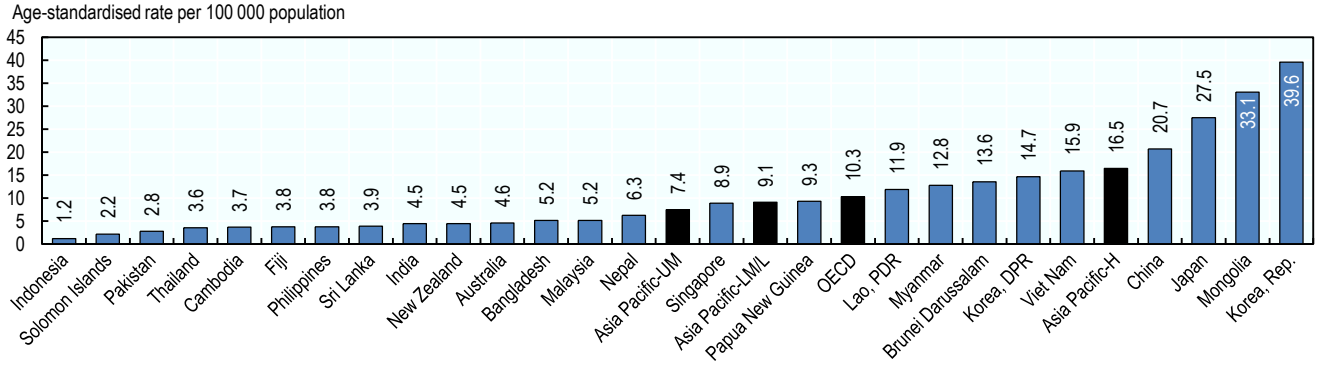
The mortality rate from stomach cancer ranges widely across countries in the Asia-Pacific region. It is high in Mongolia with 25 per 100 000 population, followed by China (17 per 100 000 population), and low in Indonesia and Australia (one and two per 100 000 population, respectively). Stomach cancer mortality rate trends tend to track the incidence rates in almost all Asia-Pacific countries, except in Japan and the Republic of Korea, where net survival is high (Figure 7.18). In order to reduce mortality, continued efforts to reduce incidence and improve survival are needed particularly in countries with high incidence, such as China and Mongolia. Based on the time-series data available for a limited number of countries, over the recent decades, mortality rates decreased in most countries in the region except in Thailand, (IARC, 2019[38]).

### Definition and comparability

Net survival is defined in the indicator “Incidence, survival and mortality for breast cancer”. Survival estimates for stomach cancer are based on the International Classification of Diseases for Oncology (ICD-O-3 C16.0–C16.6 and C16.8–C16.9).

See the indicator “Mortality from cancer” in Chapter 3 for the definition of cancer mortality rates. Mortality rates from stomach cancer are based on ICD-10 codes C16 (stomach).

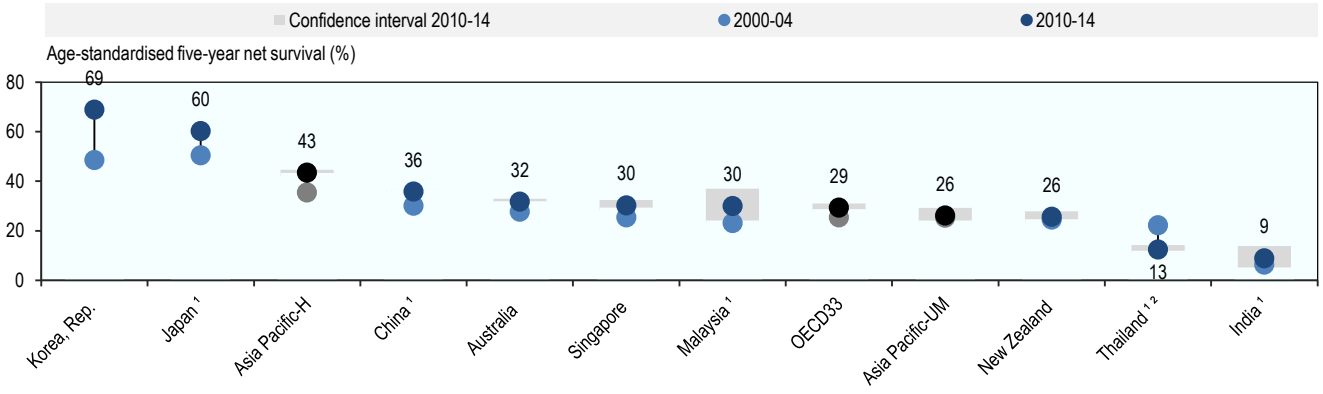
Figure 7.16. **Stomach cancer incidence, 2018**




Source: IARC Global Cancer Observatory 2020.

StatLink https://stat.link/0rsiz3

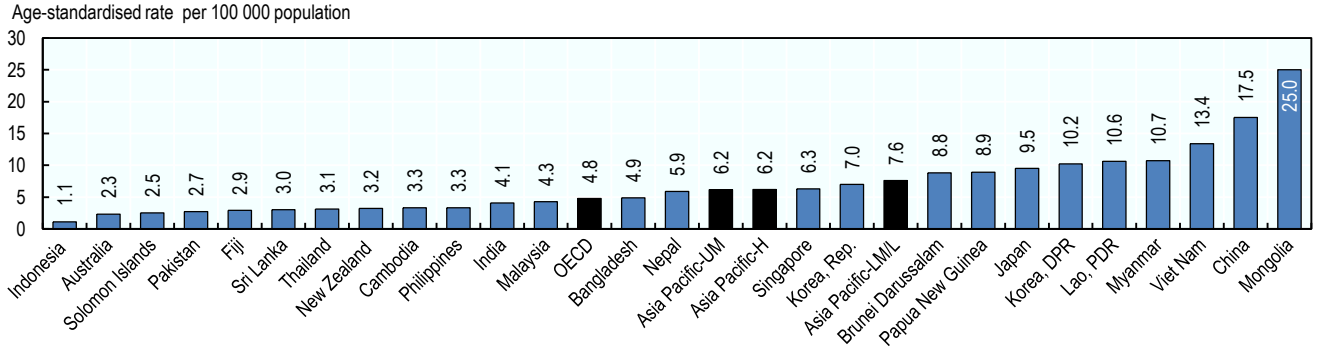
Figure 7.17. **Stomach cancer five-year net survival, patients diagnosed during 2000-04 and 2010-14**




Note: In all countries, 95% confidence intervals for 2010-14 are represented by grey areas. 1. Data represent coverage of less than 100% of the national population. 2. The estimate for 2000-04 is less reliable. See Allemani et al. (2018) for more information.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/58uksa

Figure 7.18. **Stomach cancer mortality, 2018**




Source: IARC Global Cancer Observatory 2020.

StatLink https://stat.link/i8p09b

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ANNEX A

# *National data sources*

## Bangladesh

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# ANNEX B

# *Additional information on demographic and economic context*

Table A B.1. **Total mid-year population, thousands, 1970 to 2020**

| | 1970 | 1980 | 1990 | 2000 | 2010 | 2020 |
|---|---|---|---|---|---|---|
| Australia | 12 843 | 14 649 | 17 041 | 19 066 | 22 120 | 25 500 |
| Bangladesh | 65 048 | 81 471 | 106 189 | 131 581 | 152 149 | 164 689 |
| Brunei Darussalam | 130 | 194 | 259 | 333 | 389 | 437 |
| Cambodia | 6 995 | 6 692 | 8 973 | 12 152 | 14 309 | 16 719 |
| China | 824 788 | 993 877 | 1 172 445 | 1 283 199 | 1 359 755 | 1 439 324 |
| Fiji | 521 | 635 | 729 | 811 | 860 | 896 |
| Hong Kong, China | 3 873 | 4 915 | 5 781 | 6 664 | 7 025 | 7 497 |
| India | 553 579 | 696 784 | 870 133 | 1 053 051 | 1 230 981 | 1 380 004 |
| Indonesia | 114 835 | 147 490 | 181 437 | 211 540 | 242 524 | 273 524 |
| Japan | 104 926 | 117 827 | 124 516 | 127 534 | 128 552 | 126 476 |
| Korea, DPR | 14 410 | 17 472 | 20 293 | 22 929 | 24 592 | 25 779 |
| Korea, Republic | 32 209 | 38 050 | 42 923 | 47 386 | 49 553 | 51 269 |
| Lao PDR | 2 688 | 3 258 | 4 258 | 5 329 | 6 246 | 7 276 |
| Macau, China | 246 | 238 | 344 | 428 | 537 | 649 |
| Malaysia | 10 804 | 13 798 | 18 038 | 23 186 | 28 112 | 32 366 |
| Mongolia | 1 279 | 1 690 | 2 184 | 2 397 | 2 713 | 3 278 |
| Myanmar | 26 381 | 33 370 | 40 626 | 46 095 | 50 156 | 54 410 |
| Nepal | 11 998 | 14 902 | 18 749 | 23 741 | 27 023 | 29 137 |
| New Zealand | 2 818 | 3 147 | 3 398 | 3 859 | 4 370 | 4 822 |
| Pakistan | 58 091 | 78 068 | 107 679 | 138 523 | 170 560 | 220 892 |
| Papua New Guinea | 2 528 | 3 304 | 4 313 | 5 572 | 7 108 | 8 947 |
| Philippines | 35 805 | 47 397 | 61 947 | 77 992 | 93 727 | 109 581 |
| Singapore | 2 072 | 2 412 | 3 013 | 3 914 | 5 074 | 5 850 |
| Solomon Islands | 160 | 231 | 312 | 413 | 528 | 687 |
| Sri Lanka | 12 486 | 15 036 | 17 330 | 18 782 | 20 198 | 21 413 |
| Thailand | 36 885 | 47 385 | 56 583 | 62 958 | 67 209 | 69 800 |
| Viet Nam | 43 407 | 54 373 | 68 210 | 80 286 | 88 473 | 97 339 |

Source: UNDESA, World Population Prospects: The 2019 Revision.

Table A B.2. **Share of the population aged 65 years and over, 1970 to 2020**

| | 1970 | 1980 | 1990 | 2000 | 2010 | 2020 |
|---|---|---|---|---|---|---|
| Australia | 8.2 | 9.6 | 11.1 | 12.3 | 13.4 | 16.2 |
| Bangladesh | 2.7 | 3.1 | 3.1 | 3.8 | 4.7 | 5.2 |
| Brunei Darussalam | 3.6 | 2.9 | 2.6 | 2.4 | 3.4 | 5.6 |
| Cambodia | 2.6 | 2.7 | 2.9 | 3.1 | 3.7 | 4.9 |
| China | 3.8 | 4.7 | 5.7 | 6.9 | 8.4 | 12.0 |
| Fiji | 2.2 | 2.6 | 2.9 | 3.4 | 4.8 | 5.8 |
| Hong Kong, China | 4.1 | 6.4 | 8.8 | 11.0 | 13.0 | 18.2 |
| India | 3.3 | 3.6 | 3.8 | 4.4 | 5.1 | 6.6 |
| Indonesia | 3.3 | 3.6 | 3.8 | 4.7 | 4.9 | 6.3 |
| Japan | 6.9 | 8.9 | 11.9 | 17.0 | 22.5 | 28.4 |
| Korea, DPR | 3.2 | 3.6 | 4.3 | 5.9 | 8.7 | 9.3 |
| Korea, Rep. | 3.5 | 4.1 | 5.2 | 7.2 | 10.7 | 15.8 |
| Lao PDR | 3.1 | 3.5 | 3.5 | 3.6 | 3.7 | 4.3 |
| Macau, China | 4.7 | 7.6 | 6.5 | 7.4 | 6.8 | 12.0 |
| Malaysia | 3.3 | 3.6 | 3.6 | 3.8 | 4.9 | 7.2 |
| Mongolia | 4.8 | 4.5 | 4.1 | 3.7 | 3.8 | 4.3 |
| Myanmar | 3.8 | 4.0 | 4.0 | 4.8 | 4.9 | 6.2 |
| Nepal | 2.9 | 3.3 | 3.5 | 3.8 | 4.9 | 5.8 |
| New Zealand | 8.5 | 9.8 | 11.1 | 11.8 | 13.1 | 16.4 |
| Pakistan | 3.8 | 3.8 | 3.9 | 4.1 | 4.4 | 4.3 |
| Papua New Guinea | 2.6 | 2.7 | 2.9 | 3.2 | 3.4 | 3.6 |
| Philippines | 3.0 | 3.2 | 3.1 | 3.3 | 4.1 | 5.5 |
| Singapore | 3.3 | 4.7 | 5.6 | 7.3 | 9.0 | 13.4 |
| Solomon Islands | 3.5 | 3.1 | 2.8 | 2.8 | 3.3 | 3.7 |
| Sri Lanka | 3.7 | 4.4 | 5.5 | 6.2 | 7.3 | 11.2 |
| Thailand | 3.5 | 3.7 | 4.5 | 6.5 | 8.9 | 13.0 |
| Viet Nam | 5.4 | 5.3 | 5.7 | 6.4 | 6.6 | 7.9 |

Source: UNDESA, World Population Prospects: The 2019 Revision.

Table A B.3. **Crude birth rate, per 1 000 population, 1980-85 to 2015-20**

| | 1980-85 | 1990-95 | 2000-05 | 2010-15 | 2015-20 |
|---|---|---|---|---|---|
| Australia | 15.6 | 14.7 | 12.8 | 13.3 | 12.9 |
| Bangladesh | 42.2 | 33.0 | 26.0 | 20.2 | 18.4 |
| Brunei Darussalam | 30.7 | 28.3 | 19.2 | 16.7 | 15.0 |
| Cambodia | 50.6 | 38.0 | 26.5 | 24.5 | 22.7 |
| China | 21.6 | 17.9 | 12.5 | 12.6 | 11.9 |
| Fiji | 33.1 | 28.1 | 24.0 | 20.7 | 21.5 |
| Hong Kong, China | 15.3 | 12.4 | 8.4 | 10.5 | 11.1 |
| India | 35.5 | 30.0 | 25.3 | 20.0 | 18.0 |
| Indonesia | 31.7 | 24.4 | 22.0 | 20.2 | 18.2 |
| Japan | 12.8 | 9.8 | 8.9 | 8.4 | 7.5 |
| Korea, DPR | 21.7 | 20.7 | 16.8 | 14.0 | 13.9 |
| Korea, Republic | 20.1 | 16.0 | 10.5 | 8.9 | 7.4 |
| Lao PDR | 42.9 | 41.5 | 29.7 | 25.5 | 23.8 |
| Macau, China | 21.2 | 15.1 | 7.5 | 11.3 | 11.0 |
| Malaysia | 31.1 | 27.2 | 19.4 | 17.2 | 16.8 |
| Mongolia | 38.2 | 27.5 | 18.9 | 26.0 | 24.4 |
| Myanmar | 34.4 | 25.7 | 24.3 | 18.7 | 17.7 |
| Nepal | 41.2 | 37.2 | 29.7 | 20.9 | 20.0 |
| New Zealand | 15.8 | 16.6 | 14.2 | 13.7 | 12.6 |
| Pakistan | 42.1 | 38.2 | 30.3 | 29.7 | 28.5 |
| Papua New Guinea | 38.3 | 34.5 | 33 | 28.8 | 27.2 |
| Philippines | 35.7 | 31.9 | 28.8 | 24.1 | 20.6 |
| Singapore | 17.0 | 17.6 | 11.3 | 9.3 | 8.8 |
| Solomon Islands | 42.4 | 38.8 | 35.1 | 30.8 | 32.7 |
| Sri Lanka | 25.8 | 19.8 | 18.6 | 16.4 | 16.0 |
| Thailand | 24.2 | 18.2 | 13.6 | 11.3 | 10.5 |
| Viet Nam | 31.4 | 26.7 | 16.9 | 17.4 | 16.9 |

Source: UNDESA, World Population Prospects: The 2019 Revision.

Table A B.4. **Fertility rate, live births per woman aged 15-49, 1980-85 to 2015-20**

| | 1980-85 | 1990-95 | 2000-05 | 2010-15 | 2015-20 |
|---|---|---|---|---|---|
| Australia | 1.9 | 1.9 | 1.8 | 1.9 | 1.8 |
| Bangladesh | 6.0 | 4.1 | 2.9 | 2.2 | 2.1 |
| Brunei Darussalam | 3.8 | 3.1 | 2.0 | 1.9 | 1.8 |
| Cambodia | 6.4 | 5.1 | 3.4 | 2.7 | 2.5 |
| China | 2.6 | 2.0 | 1.6 | 1.6 | 1.7 |
| Fiji | 3.8 | 3.4 | 3.0 | 2.6 | 2.8 |
| Hong Kong, China | 1.7 | 1.2 | 1.0 | 1.2 | 1.3 |
| India | 4.7 | 3.8 | 3.1 | 2.4 | 2.2 |
| Indonesia | 4.1 | 2.9 | 2.5 | 2.5 | 2.3 |
| Japan | 1.8 | 1.5 | 1.3 | 1.4 | 1.4 |
| Korea, DPR | 2.8 | 2.3 | 2.0 | 2.0 | 1.9 |
| Korea, Republic | 2.2 | 1.7 | 1.2 | 1.2 | 1.1 |
| Lao PDR | 6.4 | 5.9 | 3.9 | 2.9 | 2.7 |
| Macau, China | 2.1 | 1.4 | 0.8 | 1.2 | 1.2 |
| Malaysia | 4.0 | 3.4 | 2.5 | 2.1 | 2.0 |
| Mongolia | 5.8 | 3.3 | 2.1 | 2.8 | 2.9 |
| Myanmar | 4.7 | 3.2 | 2.9 | 2.3 | 2.2 |
| Nepal | 5.6 | 5.0 | 3.6 | 2.3 | 1.9 |
| New Zealand | 2.0 | 2.1 | 1.9 | 2.0 | 1.9 |
| Pakistan | 6.4 | 5.7 | 4.2 | 3.7 | 3.6 |
| Papua New Guinea | 5.5 | 4.7 | 4.4 | 3.8 | 3.6 |
| Philippines | 4.9 | 4.1 | 3.7 | 3.1 | 2.6 |
| Singapore | 1.7 | 1.7 | 1.3 | 1.2 | 1.2 |
| Solomon Islands | 6.4 | 5.5 | 4.6 | 4.1 | 4.4 |
| Sri Lanka | 3.2 | 2.4 | 2.3 | 2.1 | 2.2 |
| Thailand | 2.9 | 2.0 | 1.6 | 1.5 | 1.5 |
| Viet Nam | 4.6 | 3.2 | 1.9 | 2.0 | 2.1 |

Source: UNDESA, World Population Prospects: The 2019 Revision.

# Health at a Glance: Asia/Pacific 2020

## MEASURING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE

This sixth edition of *Health at a Glance Asia/Pacific* presents a set of key indicators of health status, the determinants of health, health care resources and utilisation, health care expenditure and financing and quality of care across 27 Asia-Pacific countries and territories. It also provides a series of dashboards to compare performance across countries and territories, and a thematic analysis on the impact of the COVID-19 outbreak on Asia/Pacific health systems. Drawing on a wide range of data sources, it builds on the format used in previous editions of *Health at a Glance*, and gives readers a better understanding of the factors that affect the health of populations and the performance of health systems in these countries and territories. Each of the indicators is presented in a user-friendly format, consisting of charts illustrating variations across countries and territories and over time, brief descriptive analyses highlighting the major findings conveyed by the data, and a methodological box on the definition of the indicators and any limitations in data comparability. An annex provides additional information on the demographic and economic context in which health systems operate.

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