Health at a Glance: Asia/Pacific 2022

MEASURING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE

OECD

World Health Organization

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Foreword

The COVID-19 pandemic has had a significant and lasting impact on health systems and economies in most countries around the world, including those in the Asia-Pacific region. Since January 2020, over 1 million people have died due to the COVID-19 pandemic in the Asia-Pacific region, and more than 80 million lost their jobs in 2020. Amid the recovery is under way, it is critical that stakeholders identify lessons learned, while at the same time leveraging heightened awareness of the importance of health resilience and preparedness to propel investment, commitment, and action towards building resilient health systems that are adequately prepared for the complex health challenges of the future.

Lessons learned across Asia-Pacific during the pandemic

In response to the pandemic, most Asia-Pacific countries introduced rapid and far-reaching measures to protect people's health and livelihoods, ranging from effective contact tracing strategies, to smart containment measures, and later to successful vaccination campaigns. However, the crisis has also exposed underlying health system shortcomings and social and economic inequities often further exacerbating them. As this report outlines, limited access to essential health care services, in particular for disadvantaged groups such as women living in low-income households or rural areas, and high levels of out-of-pocket and catastrophic health spending remain significant issues in Asia-Pacific.

To remedy these and other challenges, universal health coverage ensures that all people can access quality health services, without financial hardship. It is the foundation of a resilient health system, and ensures that when acute events occur, essential health services can be maintained. Building equitable and resilient health systems not only protects people's lives, especially in times of crisis, but also pave the way towards inclusive recovery, social justice and sustainable development.

How to prepare for the future

The COVID-19 pandemic has clearly demonstrated that when health is at risk, everything is at risk. This suggests that ensuring greater resilience and preparedness to shocks – and the required investment to achieve these goals – should be a key element of governments' overall commitment to sustainable social and economic development.

Only with significant and sustained financial investment and political commitment can countries mobilise the whole-of-government capacity needed to tackle the increasingly complex health challenges of our time. In the months, years and decades ahead, key priorities include investing in innovative health and social care service delivery models, including patient-centred and integrated primary health care; adopting digital health interventions; and creating healthy environments and lifestyles to promote healthy ageing.

Given that health is intricately linked to social, economic and cultural life, delivering this agenda and working towards more just and equitable societies and health systems requires a multidisciplinary, cross-sectorial and collaborative approach. Ultimately, investments to achieve quality and accessible health care for all, without financial hardship, are investments in overall economic and social development that will translate into healthier, more resilient and cohesive societies that are future-ready.

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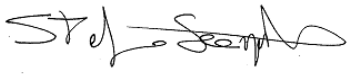

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Reader's guide

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

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Structure of the publication

Health at a Glance: Asia-Pacific 2022 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 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 health impact of COVID-19* provides an overview of the direct and indirect health impact of COVID-19. It discussed the direct impact of the pandemic in terms of number of COVID-19 cases, reported deaths and excess mortality. It then discusses the disruptions of health services during the pandemic and reviews how countries responded to the pandemic based on the epidemiological scenari and national capabilities and contexts.

Chapter 3 on *Health status* highlights the variations across countries and territories in life expectancy, neonatal, infant and childhood mortality and major causes of mortality and morbidity, including both communicable and non-communicable diseases.

Chapter 4 on *Determinants of health* focuses on determinants of health. It features the health of mothers and babies, through family planning issues, low birthweight and breastfeeding. It also includes lifestyle and behavioural indicators such as smoking and underweight and overweight, as well as water and sanitation.

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.

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.

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 seventh edition of *Health at a Glance: Asia/Pacific*, 27 regional 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, Korea, Lao People's Democratic Republic, Macau (China), Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam) and five in the Pacific region (Australia, Fiji, New Zealand, Papua New Guinea and Solomon Islands).

We follow OECD guidelines concerning the names of countries and territories, and those guidelines may differ from those of the WHO.

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 Offices for the Western Pacific and South-East Asia, as well as special country population surveys collecting demographic and health information.

The indicators are presented in the form of easy-to-read figures and explanatory narratives. Each of the topics covered in this publication is presented over two or three pages. The first page (s) defines the indicator and notes any methodological or contextual concerns which might affect data comparability. It also provides brief commentary highlighting the key findings from the data analyses. On the facing page is a set of figures. These typically show the latest levels of the indicator across countries and, where possible, trends over time. When appropriate, an additional figure describing the relationship between two comparable indicators variable is included.

The cut-off date for all the data reported in this publication was Friday 21 October 2022.

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 2021.

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 territories, and *Asia Pacific-LM/L* refers to the unweighted average for lower-middle and low-income reporting countries and territories.

“OECD” refers to the unweighted average for the 38 OECD member countries. It includes Australia, Japan, New Zealand and Korea. Data for OECD countries are generally extracted from OECD sources, unless stated otherwise. For some indicators where data is not available for all 38 OECD countries, averages were calculated based on information available and are denoted in figures using OECDXX, where XX represents the number of OECD countries included in the average.

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, GNI per capita and classification by income level

Country/territory name	Country/territory short name (used hereafter)	ISO code	GNI per capita in international $ (2020)	World Bank classification by income level	Classification used in this report
Australia	Australia	AUS	52 230	High	H
Bangladesh	Bangladesh	BGD	6 240	Lower-middle	LM/L
Brunei Darussalam	Brunei Darussalam	BRN	67 580	High	H
Cambodia	Cambodia	KHM	4 250	Lower-middle	LM/L
People's Republic of China	China	CHN	17 070	Upper-middle	UM
Democratic People's Republic of Korea	DPRK	PRK		Low	LM/L
Fiji	Fiji	FJI	11 420	Upper-middle	UM
Hong Kong (China)	Hong Kong (China)	HKG	62 420	High	H
India	India	IND	6 440	Lower-middle	LM/L
Indonesia	Indonesia	IDN	11 750	Lower-middle	LM/L
Japan	Japan	JPN	43 630	High	H
Korea	Korea	KOR	45 570	High	H
Lao People's Democratic Republic	Lao PDR	LAO	7 750	Lower-middle	LM/L
Macau (China)	Macau (China)	MAC	72 260	High	H
Malaysia	Malaysia	MYS	27 360	Upper-middle	UM
Mongolia	Mongolia	MNG	11 200	Lower-middle	LM/L
Myanmar	Myanmar	MMR	4 960	Lower-middle	LM/L
Nepal	Nepal	NPL	4 040	Lower-middle	LM/L
New Zealand	New Zealand	NZL	43 890	High	H
Pakistan	Pakistan	PAK	5 330	Lower-middle	LM/L
Papua New Guinea	Papua New Guinea	PNG	4 240	Lower-middle	LM/L
Philippines	Philippines	PHL	9 030	Lower-middle	LM/L
Singapore	Singapore	SGP	86 340	High	H
Solomon Islands	Solomon Islands	SLB	2 680	Lower-middle	LM/L
Sri Lanka	Sri Lanka	LKA	12 850	Lower-middle	LM/L
Thailand	Thailand	THA	17 780	Upper-middle	UM
Viet Nam	Viet Nam	VNM	10 410	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

Executive summary

Health at a Glance: Asia/Pacific 2022 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 differ. However, these indicators provide a concise overview of the progress of countries towards achieving universal health coverage for their population.

Life expectancy decreased by 1 year during the COVID-19 pandemic and maternal mortality ratio is still twice the Sustainable Development Goal target in lower-middle and low-income countries in the region

- During the COVID-19 pandemic, life expectancy has decreased by one year in lower-middle and low-income Asia-Pacific countries from 2019 to 2021, while it decreased by 0.4 years un upper-middle income countries and slightly increased in high-income countries during the same period.
- In 2020, the average neonatal mortality rate amongst lower-middle and low-income countries in Asia-Pacific was 15.8 deaths per 1 000 live births, almost halving the rate observed in 2000 but still above the SDG target of 12 deaths or less per 1 000 live births.
- Maternal mortality ratio averaged around 140 deaths per 100 000 live births in lower-middle and low-income Asia-Pacific countries and territories in 2019, still two times higher than the SDG target of less than 70 death per 100 000 live births.

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

- In 2019, lower-middle and low-income Asia-Pacific countries spend – after adjusting for differences in purchasing power across countries – USD 285 per person per year on health, against USD 822 and USD 3 891 in upper-middle income and high-income Asia-Pacific countries respectively.
- The share of public spending in total health spending increased – on average – in all Asia-Pacific country income groups from 2010 to 2019, but the increase was much smaller in lower-middle and low-income Asia-Pacific countries compared to upper-middle and high-income countries: 41.4% compared to 62.5% and 74.1%, respectively.
- On average, household out-of-pocket expenditure (that is, payments made directly by households for health services and goods) accounted for 49% of total health expenditure in lower-middle and low-income Asia-Pacific countries in 2019, a slight decrease in the percentage share of total health expenditure but an increase in level from 2010.

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 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 the availability of recent data for Asia-Pacific countries and territories is highest are therefore prioritised.

In order to assess the comparative performance across countries and territory, each country/territory is classified for every indicator based on how it compares against the median of the income group it categorised into. Therefore, countries and territories significantly - defined as one median absolute deviation - 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 (5) indicators used to compare health status are life expectancy at birth for females (2020), life expectancy at birth for males (2020), survival to age 65 for females (2020), survival to age 65 for males (2020), and under age 5 mortality rate per 1 000 live births (2020).

Table 1.1. Dashboard on health status

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

Country	Life expectancy (F) at birth		Life expectancy (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	**86.3**		**81.3**		**94.5**		**89.7**		**3.0**	
Australia	85.3	◉	81.2	◉	93.8	◉	89.9	◉	3.7	◉
Brunei Darussalam	77.3	▼	74.9	▼	84.8	▼	78.5	▼	11.5	▼
Hong Kong (China)	88.0	◉	82.9	▲	94.9	◉	90.3	◉	2.0	◉
Japan	87.7	◉	81.6	◉	94.7	◉	89.5	◉	2.5	◉
Korea	86.5	◉	80.5	◉	95.3	◉	88.4	◉	3.0	◉
Macau (China)	87.3	◉	81.4	◉	96.2	◉	90.7	◉		
New Zealand	84.1	▼	80.5	◉	92.5	▼	89.1	◉	4.7	◉
Singapore	86.1	◉	81.5	◉	94.4	◉	90.4	◉	2.2	◉
Upper-middle income	**78.9**		**74.0**		**87.5**		**76.1**		**8.6**	
China	79.4	◉	75.0	◉	89.4	◉	83.8	▲	7.3	◉
Fiji	69.5	▼	65.8	▼	73.6	▼	62.5	▼	27.4	▼
Malaysia	78.5	◉	74.4	◉	87.1	◉	77.2	◉	8.6	◉
Thailand	81.1	◉	73.7	◉	88.0	◉	75.0	◉	8.7	◉
Lower-middle and low income	**74.2**		**68.7**		**79.9**		**69.2**		**26.4**	
Bangladesh	74.9	◉	71.1	▲	80.4	◉	74.6	▲	29.1	◉
Cambodia	72.2	◉	67.7	◉	78.3	◉	68.7	◉	25.7	◉
DPRK	75.9	◉	68.8	◉	83.3	◉	71.4	◉	16.5	◉
India	71.2	▼	68.7	◉	75.4	▼	69.2	◉	32.6	◉
Indonesia	74.2	◉	69.8	◉	80.3	◉	72.0	◉	23.0	◉
Lao PDR	70.1	▼	66.4	▼	74.9	▼	67.2	◉	44.1	▼
Mongolia	74.3	◉	66.0	▼	80.0	◉	60.1	▼	15.4	▲
Myanmar	70.3	▼	64.3	▼	75.3	▼	62.2	▼	43.7	▼
Nepal	72.5	◉	69.5	◉	79.2	◉	72.9	◉	28.2	◉
Pakistan	68.5	▼	66.5	◉	73.4	▼	69.0	◉	65.2	▼
Papua New Guinea	66.1	▼	63.5	▼	69.3	▼	61.1	▼	43.9	▼
Philippines	75.6	◉	67.4	◉	79.9	◉	65.4	◉	26.4	◉
Solomon Islands	75.0	◉	71.4	▲	80.7	◉	74.3	▲	19.4	◉
Sri Lanka	80.4	▲	73.8	▲	90.9	▲	78.5	▲	6.9	▲
Viet Nam	79.6	▲	71.4	▲	87.0	▲	72.4	◉	20.9	◉

Note: F, females; M, males.
Source: Life expectancy at birth by sex, UN World Population Prospects 2022 edition. Survival to age 65, see Figure 3.3. Under age 5 mortality, see Figure 3.9.

Risk factors

The five (5) indicators used to compare risk factors are the age-standardised prevalence estimates for daily tobacco use among persons aged 15 and above for females (2020), the age-standardised prevalence estimates for daily tobacco use among persons aged 15 and above for males (2020), the share of population living in rural areas with access to basic sanitation (latest year available), the share of population living in rural areas with access to basic drinking water (latest year available) and the prevalence of overweight among children under age 5 (latest year available).

Table 1.2. Dashboard on risk factors for health

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

Country	Tobacco use (F)		Tobacco use (M)		Access to basic sanitation (rural areas)		Access to basic drinking water (rural areas)		Children under age 5 overweight	
	% of daily tobacco use		% of daily tobacco use		% population		% population		% population under age 5	
High income	**8.0**		**29.0**						**8.3**	
Australia	11.5	◉	15.6	▲					22.0	▼
Brunei Darussalam	2.3	▲	30.0	◉					8.3	◉
Japan	10.0	◉	30.1	◉						
Korea	5.9	◉	35.7	▼					7.3	◉
New Zealand	15.0	▼	15.0	▲						
Singapore	5.0	◉	28.0	◉						
Upper-middle income	**2.3**		**42.6**		**98.3**		**89.9**		**6.9**	
China	1.7	◉	49.4	▼	87.9	▼	89.7	◉	8.5	◉
Fiji	10.5	▼	35.6	▲	99.3	◉	89.1	◉	5.1	◉
Malaysia	1.1	◉	43.8	◉			90.2	◉	5.2	◉
Thailand	2.9	◉	41.3	◉	98.3	◉	100.0	▲	9.2	▼
Lower-middle and low income	**7.3**		**47.9**		**69.1**		**88.6**		**2.6**	
Bangladesh	17.1	▼	52.2	◉	55.0	◉	97.9	◉	2.4	◉
Cambodia	6.0	◉	36.1	▲	61.0	◉	65.1	▼	2.2	◉
DPRK	0.0	▲	34.8	▲	73.1	◉	88.8	◉	2.3	◉
India	13.0	◉	41.3	◉	67.0	◉	88.8	◉	1.6	◉
Indonesia	3.7	◉	71.4	▼	79.9	◉	85.7	◉	8.0	▼
Lao PDR	10.3	◉	53.3	◉	69.1	◉	78.5	◉	3.5	◉
Mongolia	7.1	◉	51.7	◉	50.6	▼	61.1	▼	10.5	▼
Myanmar	19.7	▼	68.5	▼	71.0	◉	78.4	◉	0.8	◉
Nepal	12.8	◉	47.9	◉	76.7	◉	90.2	◉	2.6	◉
Pakistan	7.3	◉	33	▲	60.2	◉	88.6	◉	2.5	◉
Papua New Guinea	25.1	▼	53.5	◉	14.7	▼	39.1	▼	13.7	▼
Philippines	6.5	◉	39.3	◉	82.2	◉	91.1	◉	4.0	◉
Solomon Islands	19.2	▼	53.8	◉	20.6	▼	59.4	▼	4.5	◉
Sri Lanka	2.6	◉	41.4	◉	93.9	▲	90.5	◉	2.0	◉
Viet Nam	2.2	◉	47.4	◉	85.2	▲	95.5	◉	5.9	▼

Note: F, females; M, males.
Source: Tobacco use, see Figure 4.11. Access to basic sanitation, see Figure 4.9. Access to drinking water, see Figure 4.10. Children overweight, see Figure 4.8.

Quality of care

The four (4) indicators used to compare quality of care are the age-standardised breast cancer mortality rate (2020), the age-standardised cervical cancer mortality rate (2020), and vaccination coverage for three doses of diphtheria tetanus toxoid and pertussis (DTP3) and for 1st dose of measles (MCV) among children (2021).

Table 1.3. Dashboard on quality of care

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

Country	Breast cancer mortality		Cervical cancer mortality		Vaccination for DTP3		Vaccination for measles, 1st dose	
	Age-standardised rates per 100 000 women		Age-standardised rates per 100 000 women		Coverage (%), children		Coverage (%), children	
High income	**12.1**		**2.5**		**96.0**		**96.5**	
Australia	11.7	◉	1.5	◉	95.0	◉	93.0	▼
Brunei Darussalam	12.5	◉	5.7	▼	99.0	▲	99.0	◉
Japan	9.9	◉	2.9	◉	96.0	◉	98.0	◉
Korea	6.4	▲	1.8	◉	98.0	◉	98.0	◉
New Zealand	14.1	◉	2.0	◉	90.0	▼	91.0	▼
Singapore	17.8	▼	3.3	◉	96.0	◉	95.0	◉
Upper-middle income	**16.7**		**6.6**		**98.0**		**96.0**	
China	10.0	◉	5.3	◉	99.0	◉	99.0	▲
Fiji	41.0	▼	20.7	▼	99.0	◉	96.0	◉
Malaysia	20.7	◉	5.8	◉	95.0	▼	96.0	◉
Thailand	12.7	◉	7.4	◉	97.0	◉	96.0	◉
Lower-middle and low income	**13.3**		**8.3**		**83.0**		**81.0**	
Bangladesh	9.3	◉	6.7	◉	98.0	◉	97.0	◉
Cambodia	10.3	◉	8.3	◉	92.0	◉	84.0	◉
DPRK	10.0	◉	6.5	◉	41.0	▼	42.0	▼
India	13.3	◉	11.4	◉	85.0	◉	89.0	◉
Indonesia	15.3	◉	14.4	▼	67.0	◉	72.0	◉
Lao PDR	15.8	◉	6.7	◉	75.0	◉	73.0	◉
Mongolia	3.9	▲	11.6	◉	95.0	◉	95.0	◉
Myanmar	9.6	◉	14.4	▼	37.0	▼	44.0	▼
Nepal	7.6	▲	11.1	◉	91.0	◉	90.0	◉
Pakistan	18.8	▼	4.0	▲	83.0	◉	81.0	◉
Papua New Guinea	27.7	▼	19.1	▼	31.0	▼	38.0	▼
Philippines	19.3	▼	7.9	◉	57.0	▼	57.0	▼
Solomon Islands	18.9	▼	16.4	▼	87.0	◉	67.0	◉
Sri Lanka	11.0	◉	4.9	◉	96.0	◉	97.0	◉
Viet Nam	13.8	◉	3.4	▲	83.0	◉	89.0	◉

Source: Breast cancer mortality, see Figure 7.9. Cervical cancer mortality, see Figure 7.12. Vaccination for DTP3, see Figure 7.10. Vaccination for measles, see Figure 7.1.

Health care resources

The five (5) indicators used to compare health care resources are health expenditure per capita in international dollars (USD PPPs) (2019), the share of out-of-pocket (OOP) spending in total current health spending (2019), 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, where a higher or lower value may not be indicative of better or worse performance, the arrows simply imply that the values are significantly higher or lower than the median using the same methodology.

Table 1.4. Dashboard on health care resources

▲ Higher than ◉ Close to ▼ Lower than central tendency

Country	Health spending		Out-of-pocket spending		Doctors per 1 000 population		Nurses per 1 000 population		Hospital beds per 1 000 population	
	International dollars (USD PPPs) per capita		Share of total health expenditure		Number		Number		Number	
High income	**4 271**		**14.5**		**2.5**		**7.1**		**3.4**	
Australia	5 294	▲	16.0	◉	3.8	▲	12.2	▲	3.8	◉
Brunei Darussalam	1 401	▼	5.7	▼	1.6	▼	5.8	◉	2.9	◉
Hong Kong (China)					2.0	◉	6.2	◉	4.1	◉
Japan	4 587	◉	12.9	◉	2.5	◉	11.8	▲	12.6	▲
Korea	3 521	◉	30.2	▲	2.5	◉	7.9	◉	12.7	▲
Macau (China)					2.6	◉	3.8	▼	2.5	◉
New Zealand	4 439	◉	12.2	◉	3.4	▲	10.6	▲	2.7	◉
Singapore	4 102	◉	30.2	▲	2.5	◉	6.2	◉	2.0	◉
Upper-middle income	**805**		**23.9**		**1.6**		**3.2**		**2.0**	
China	880	◉	35.2	◉	2.2	▲	3.1	◉	5.0	▲
Fiji	545	▼	13.2	◉	0.9	◉	3.5	▲	2.0	◉
Malaysia	1 133	▲	34.6	◉	2.3	▲	3.4	◉	1.3	◉
Thailand	730	◉	8.7	▼	1.0	◉	3.1	◉	2.1	◉
Lower-middle and low income	**227**		**48.6**		**0.7**		**1.7**		**1.1**	
Bangladesh	119	◉	72.7	▲	0.7	◉	0.4	▼	0.9	◉
Cambodia	316	◉	64.4	▲	0.2	◉	0.6	▼	0.9	◉
DPRK					3.7	▲	4.1	▲	14.3	▲
India	210	◉	54.8	◉	0.7	◉	1.7	◉	0.5	◉
Indonesia	358	▲	34.2	▼	0.6	◉	2.3	◉	1.0	◉
Lao PDR	212	◉	41.8	◉	0.4	◉	1.0	◉	1.5	◉
Mongolia	484	▲	34.8	▼	3.9	▲	3.9	▲	8.0	▲
Myanmar	227	◉	76.0	▲	0.7	◉	0.8	◉	1.0	◉
Nepal	177	◉	57.9	◉	0.9	◉	2.1	◉	1.2	◉
Pakistan	166	◉	53.8	◉	1.1	◉	0.4	▼	0.6	◉
Papua New Guinea	105	◉	9.9	▼	0.1	▼	0.4	▼		
Philippines	379	▲	48.6	◉	0.8	◉	4.6	▲	1.0	◉
Solomon Islands					0.2	◉	2.1	◉	1.4	◉
Sri Lanka	569	▲	45.6	◉	1.2	◉	2.1	◉	4.0	▲
Viet Nam	557	▲	43.0	◉	0.8	◉	1.1	◉	2.6	◉

Source: Health spending, see Figure 6.1. Out-of-pocket spending, see Figure 6.8. Doctors per 1 000 population, see Figure 5.1. Nurses per 1 000 population, see Figure 5.2. Hospital beds per 1 000 population, see Figure 5.11.

2 The health impact of COVID-19

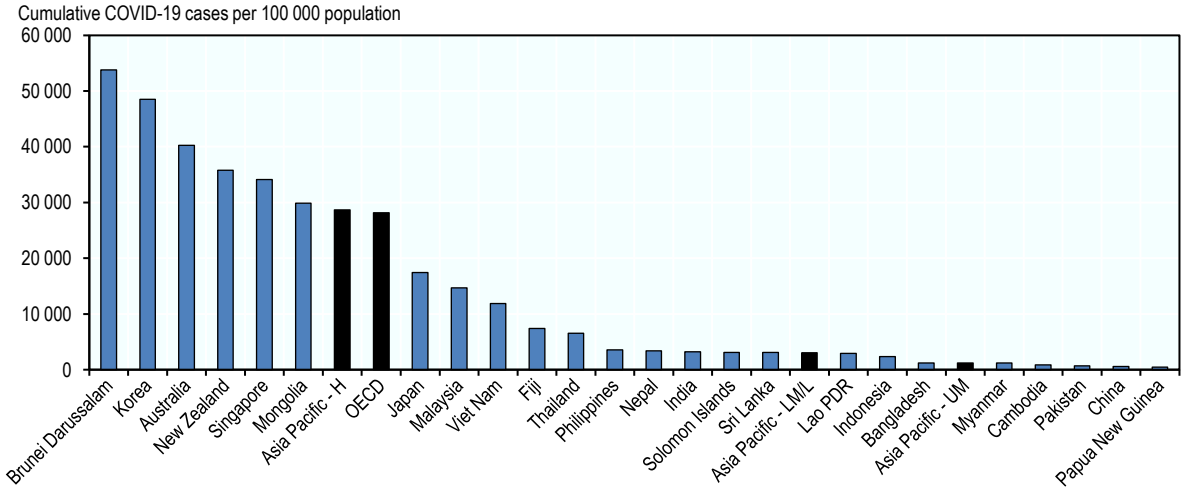
COVID-19 has had a huge impact across the Asia-Pacific region, testing the resilience of economies and health systems, and placing an immense pressure on health workers operating at the front line. This chapter analyses the direct impact of the pandemic on the health of the populations by looking at COVID-19 cases and deaths as well as its indirect impact by assessing the disruption to essential health services due to COVID-19. It also looks at country responses to the pandemic based on the pandemic situations and national capabilities and contexts. These analyses show that COVID-19 has had an unequal impact in the region between high-, middle- and low-income countries, in particular by amplifying inequities and inequalities.

The direct impact of COVID-19

The health impact of COVID-19 in Asia-Pacific countries has been tremendous. More than 144 million people tested positive for COVID-19, and more than 1 million deaths have been registered from the virus from 1 January 2020 to 18 October 2022. Comparing worldwide, the health impact might appear less significant than in other regions, as whilst the Asia-Pacific region makes up 37% of the global population, only 14% of cases and 4% of deaths globally were reported from the region. However, as many infected people are asymptomatic, and due to under-reporting, these figures might not reflect the true impact of COVID-19. This is confirmed by an increasing number of studies that suggest that the real magnitude of infections have been much larger than those officially reported in many regions (Byambasuren, 2021[1]; Ioannidis, 2021[2]).

In Asia-Pacific countries and territories, the average cumulative number of reported cases was 28 016 per 100 000 population in high-income countries, and 3 024 per 100 000 population in lower-middle- and low-income countries from 1 January 2020 to 18 October 2022. The average cumulative number of reported cases in upper-middle-income countries was much lower at 689 per 100 000 population mainly due to the low prevalence of COVID-19 in China (Figure 2.1). Among countries in the Asia-Pacific region, Brunei Darussalam – a country with a good surveillance system – reported the highest number of confirmed cases per 100 000 population of more than 50 000 per 100 000 population, followed by two OECD countries in the Asia-Pacific region, namely Korea, and Australia.

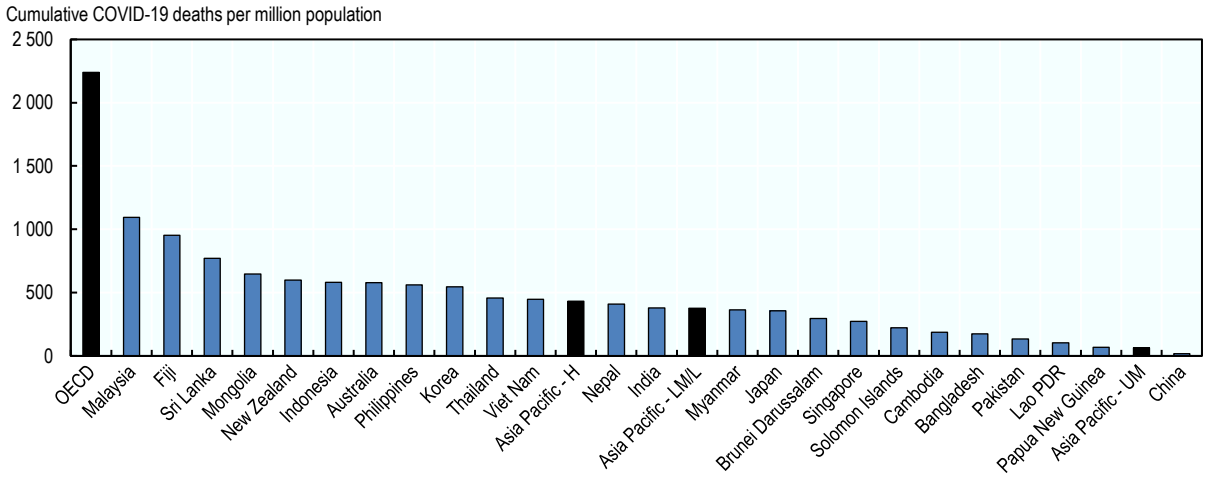
Figure 2.1. COVID-19 cumulative reported cases by country, from 1 January 2020 to 18 October 2022



Note: Data are affected by countries' capacity to detect COVID-19 infections – which was particularly limited in many countries at the onset of the crisis – and by the testing strategies applied. Asia Pacific-H, Asia-Pacific high-income countries; Asia Pacific-UM, Asia-Pacific upper-middle-income countries; Asia Pacific LM/L, Asia-Pacific lower-middle- and low-income countries. Population data refer to May 2020.
Source: WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

From 1 January 2020 to 18 October 2022, the average cumulative number of deaths per million population in the Asia-Pacific region were 371, 48 and 247 in high-income, upper-middle-income, and lower-middle- and low-income countries respectively, compared to 2 171 recorded deaths per million population across the OECD. Some countries, such as Malaysia, exceeded the mark of 1 000 deaths per million population, whereas China reported 4 deaths per million population (Figure 2.2). While most Asia-Pacific countries reported lower death ratios compared to OECD countries, this does not necessarily imply that they were less affected, given varying protocols, technical capacity and challenges in the attribution and reporting of the cause of death.

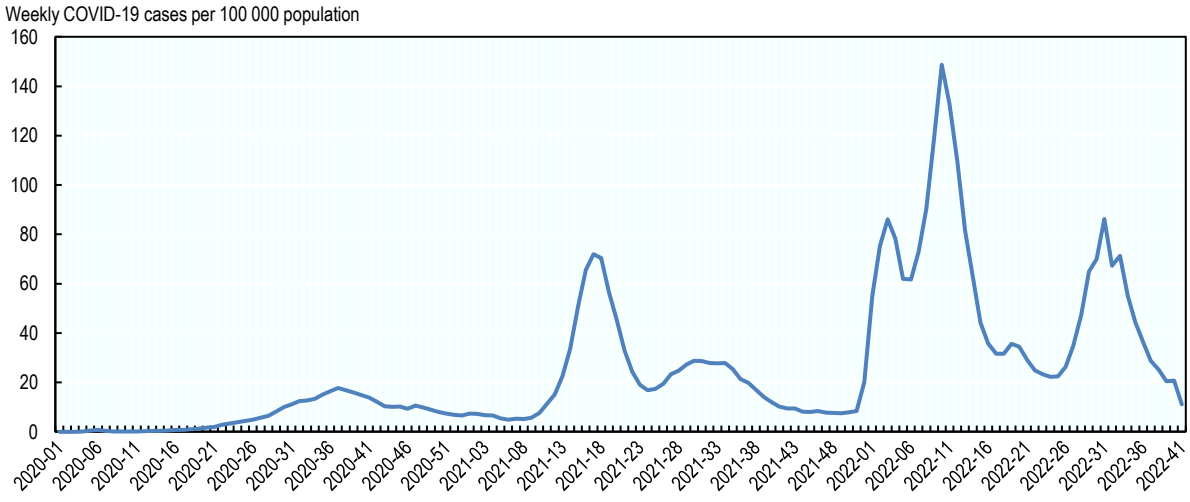
Figure 2.2. COVID-19 cumulative reported deaths by country, from 1 January 2020 to 18 October 2022



Note: Data are affected by countries' protocols and challenges in the attribution and reporting of cause of death. Asia Pacific-H, Asia-Pacific high-income countries; Asia Pacific-UM, Asia-Pacific upper-middle-income countries; Asia Pacific LM/L, Asia-Pacific lower-middle- and low-income countries. Population data refer to May 2020.
Source: WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

The number of new COVID-19 cases remained relatively low in 2020 in Asia and the Pacific. However, in mid-2021 the number of new cases spiked in India, Indonesia and Japan. The emergence of the highly contagious "Omicron variant" of concern contributed to the rapid increase in the number of cases in Australia around Christmas 2021 peaking in January 2022. "Omicron" also contributed to the case numbers reaching new heights in Japan, New Zealand and Korea in early and late March 2022, respectively. By comparison, the increase in reported case numbers in India, Indonesia in the first quarter of 2022 was limited.

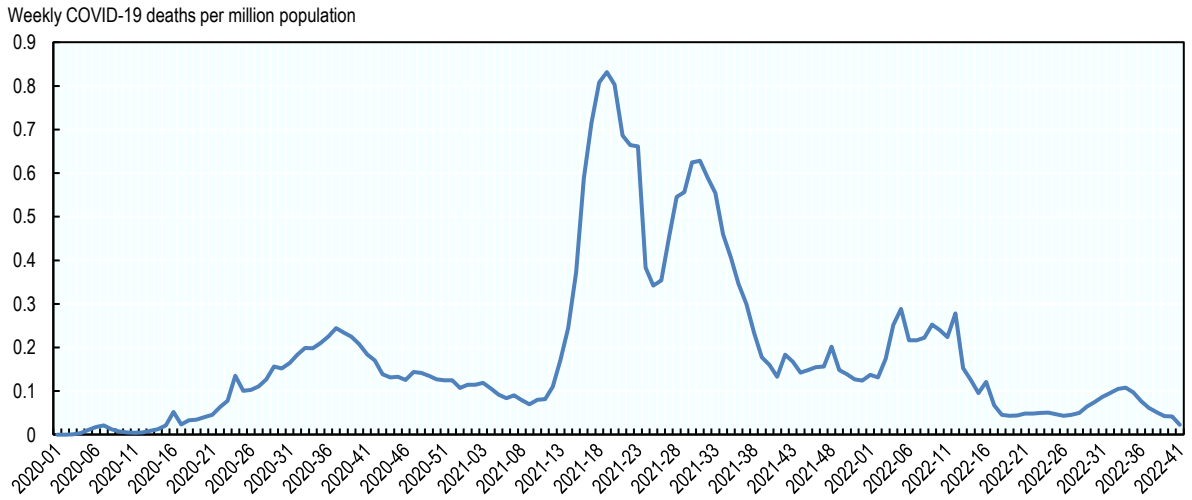
Figure 2.3. Newly reported weekly COVID-19 cases in Asia-Pacific, from 1 January 2020 to 18 October 2022



Note: Data are affected by countries' capacity to detect COVID-19 infections – which was particularly limited in many countries at the onset of the crisis – and by the testing strategies applied. Population data refer to May 2020. Week 2020-01: 3-9 January 2020; week 2022-41: 14-18 October 2022.
Source: WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

The number of reported COVID-19 deaths in Asia-Pacific countries peaked in mid-May 2021, when about 35 000 deaths – almost 1.2 per million population – were recorded (Figure 2.4).

Figure 2.4. Weekly reported COVID-19 deaths in Asia-Pacific, from 1 January 2020 to 18 October 2022

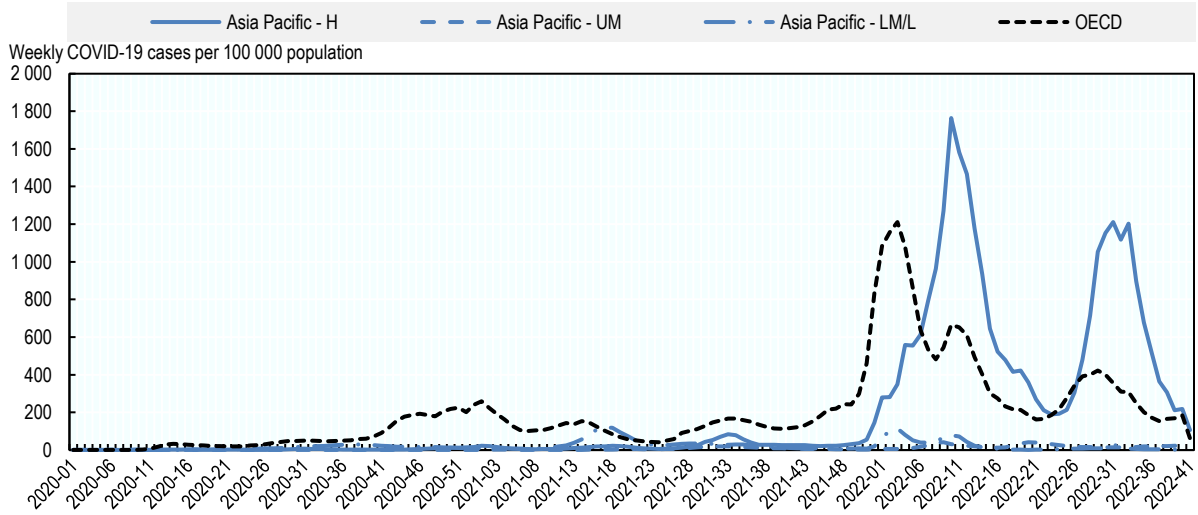


Note: Data are affected by countries' protocols and challenges in the attribution and reporting of cause of death. Population data refer to May 2020. Week 2020-01: 3-9 January 2020; week 2022-41: 14-18 October 2022.
Source: WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

Looking at the differences across countries' income groups, lower-middle- and low-income Asia-Pacific countries (such as Cambodia and Pakistan) showed significantly lower weekly COVID-19 cases and deaths compared to high-income Asia-Pacific countries (such as Brunei Darussalam) and OECD countries from 1 January 2020 to 18 October 2022 (Figure 2.5). Higher testing capacities, different testing requirements, surveillance systems and number of health care professionals to perform testing may be among the reasons for the observed differences.

Among the upper-middle-income Asia-Pacific countries, the low number of cases reported in China, where a dynamic zero COVID-19 approach is still enforced (as of October 2022), has had a significant impact on the average rate.

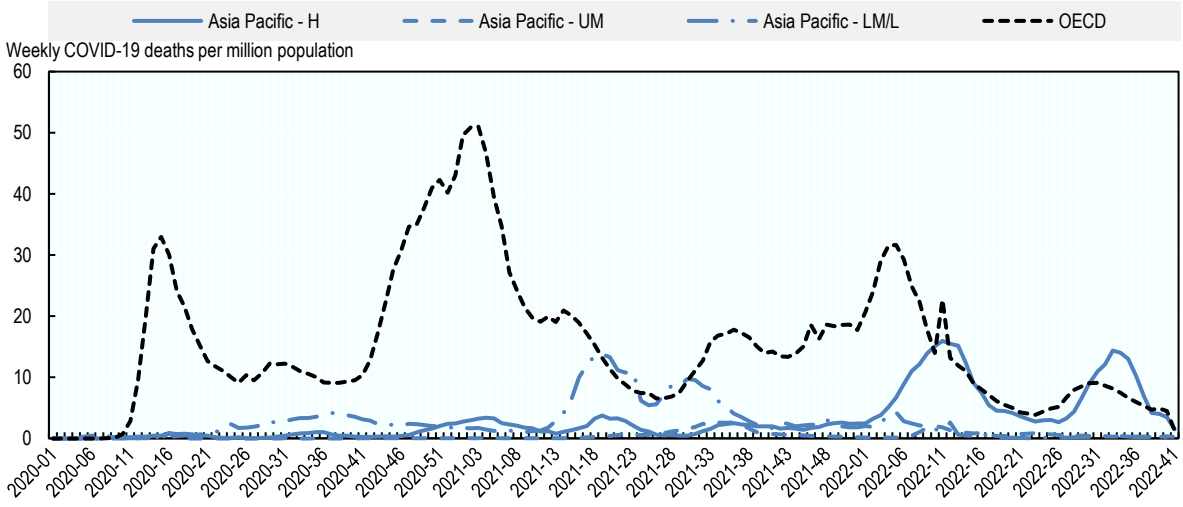
Figure 2.5. Weekly newly reported COVID-19 cases, Asia-Pacific countries by income level and OECD countries, from 1 January 2020 to 18 October 2022



Note: Data are affected by countries' capacity to detect COVID-19 infections – which was particularly limited in many countries at the onset of the crisis – and by the testing strategies applied. Population data refer to May 2020. Week 2020-01: 3-9 January 2020; week 2022-41: 14-18 October 2022.
Source: WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

The weekly death ratios in Asia-Pacific countries show a similar trend, with ratios generally lower compared to the OECD average (Figure 2.6). Lower-middle- and low-income Asia-Pacific countries had generally reported higher mortality ratios compared to high-income Asia-Pacific countries up until the end of 2021 when high-income Asia-Pacific countries started to report surging COVID-19 deaths.

Figure 2.6. Weekly reported COVID-19 deaths, Asia-Pacific countries by income level and OECD countries, from 1 January 2020 to 18 October 2022



Note: Data are affected by countries' protocols and challenges in the attribution and reporting of cause of death. Asia Pacific-H, Asia-Pacific high-income countries; Asia Pacific-UM, Asia-Pacific upper-middle-income countries; Asia Pacific LM/L, Asia-Pacific lower-middle- and low-income countries. Population data refer to May 2020. Week 2020-01: 3-9 January 2020; week 2022-41: 14-18 October 2022.
Source: WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

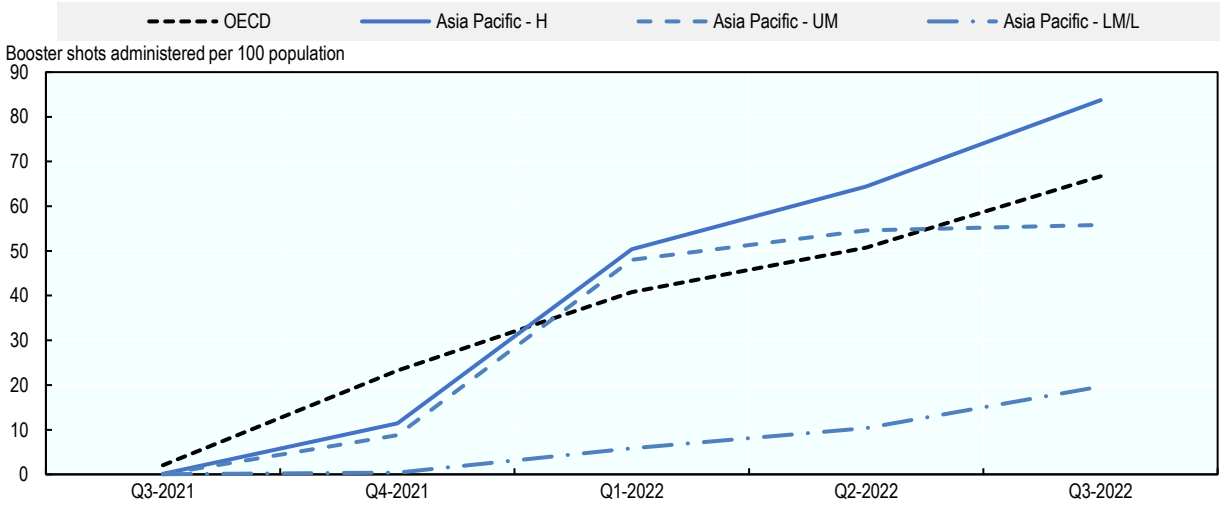
Differences in the evolution of new COVID-19 infections and deaths across countries reflect variations in containment and suppression/mitigation strategies and the timing of their implementation, as well as differences in the capacity of health systems to treat COVID-19 patients and to adapt to ongoing challenges. While case rates peaked in 2022, deaths peaked in 2021. Vaccination campaigns, along with better disease management and strengthened health system capacity have had a major impact in reducing case fatality rates and in decoupling case and death rates. Moreover, the differences of the characteristics (e.g. transmissibility, virulence and severity) in the variant of concern and its effects have also contributed to these trends. The death rates during the Delta variant dominant period were different to the death rates during the Omicron variant dominant period. Still, factors beyond the immediate control of policy makers – such as geographical characteristics, population demographics, and the prevalence of certain risk factors such as comorbidities – made some countries more susceptible than others to high rates of infection and mortality.

Vaccines have reduced the risk of severe illness and death from COVID-19

The rollout of COVID-19 vaccines in 2021 has been a milestone in global efforts to reduce COVID-19 hospitalisation, severe disease and death, and to protect health care systems. Although the vaccination programme started slightly later than in the United States and European countries, Asia-Pacific countries have steadily increased their vaccination rates, reaching 80% of total Asia-Pacific population vaccinated with a second dose at the end of 2021. However, procurement of vaccines and implementation of mass vaccination has been challenging. In most high-income Asia-Pacific countries, vaccines are mainly sourced through national procurement or self-produced, while most low-income Asia-Pacific countries rely on international support by COVAX and bilateral donations to secure necessary doses.

The vaccine deployment in Asia-Pacific countries has further faced challenges such as issues affecting delivery strategies (e.g. human resource capacity, logistical issues, and cold chain management), and issues related to demand generation (e.g. vaccine hesitancy). Asia-Pacific countries started the booster vaccination programme in late 2021. The launch of the third dose/booster vaccination programme was initially delayed compared to OECD countries. However, the roll out of booster vaccination programmes in the Asia-Pacific region was quick and by early 2022 the average number of people with a booster dose in high- and upper-middle-income countries in the Asia-Pacific region exceeded the OECD average (Figure 2.7). As of the end of September 2022 across the region, the percentage of the population who received a booster dose amounts to almost 84% in high-income countries, whereas that of lower-middle- and low-income countries is slightly below 20%. This proves that there is significant inequality and inequity when it comes to vaccine access between high- and low-income countries in the Asia-Pacific region.

Figure 2.7. Booster vaccination progress, Asia-Pacific countries by income level and OECD countries



Note: Asia Pacific-H, Asia-Pacific high-income countries; Asia Pacific-UM, Asia-Pacific upper-middle-income countries; Asia Pacific LM/L, Asia-Pacific lower-middle- and low-income countries.
Source: https://ourworldindata.org/coronavirus (accessed on 29 July 2022).

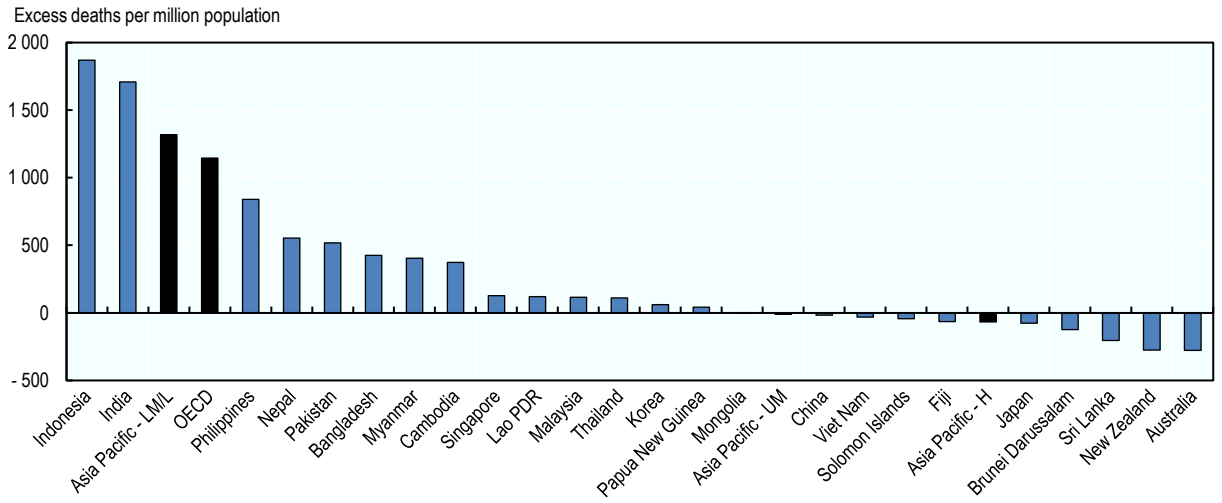
A high number of excess deaths was estimated for India and Indonesia

Whilst reported COVID-19 deaths are a critical measure to monitor the health impact of the pandemic, international comparability of this indicator is limited due to differences in recording, registration and coding practices across countries. Moreover, factors such as the low availability of diagnostic tests at the start of the pandemic are likely to have impacted accurate attribution of the causes of death. Therefore, the reported count of COVID-19 deaths is likely underestimated to varying degrees across countries.

An analysis of mortality from all causes – and particularly excess mortality, a measure of the total number of deaths over and above what would have normally been expected based on death rates in previous years at a given time of the year – provides a measure of overall mortality that is less affected by the factors mentioned above.

In only two Asia-Pacific countries, Indonesia and India, does the number of cumulative excess deaths until the end of 2021 exceed the OECD average, reaching 1 871 and 1 709 excess deaths per 1 million population, respectively. Australia and New Zealand reported the highest number of negative excess deaths (Figure 2.8).

Figure 2.8. Cumulative excess mortality by country, from 1 January 2020 to 31 December 2021

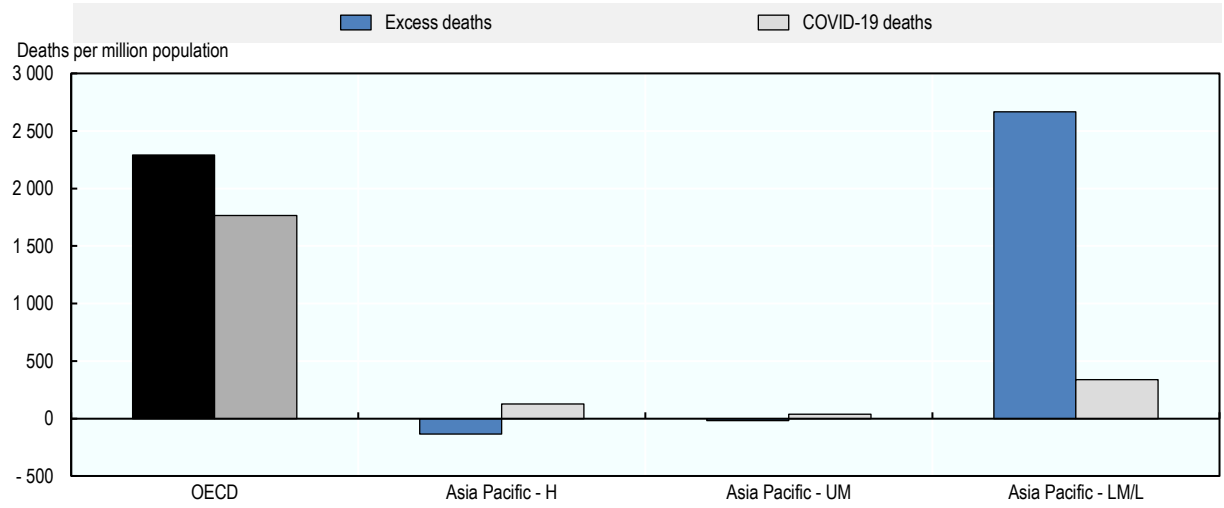


Note: Asia Pacific-H, Asia-Pacific high-income countries; Asia Pacific-UM, Asia-Pacific upper-middle-income countries; Asia Pacific LM/L, Asia-Pacific lower-middle- and low-income countries.
Source: WHO, https://www.who.int/data/sets/global-excess-deaths-associated-with-COVID-19-modelled-estimates (accessed on 4 October 2022).

In 2020 and 2021, the overall number of excess deaths in the Asia-Pacific region was more than six times higher than the reported number of cumulative COVID-19 deaths. The lowest number of excess deaths in the Asia-Pacific region was recorded during the initial phase of the pandemic (negative 40 000 excess deaths in April 2020), while the highest rate of excess deaths was recorded in May 2021 (135 000 excess deaths).

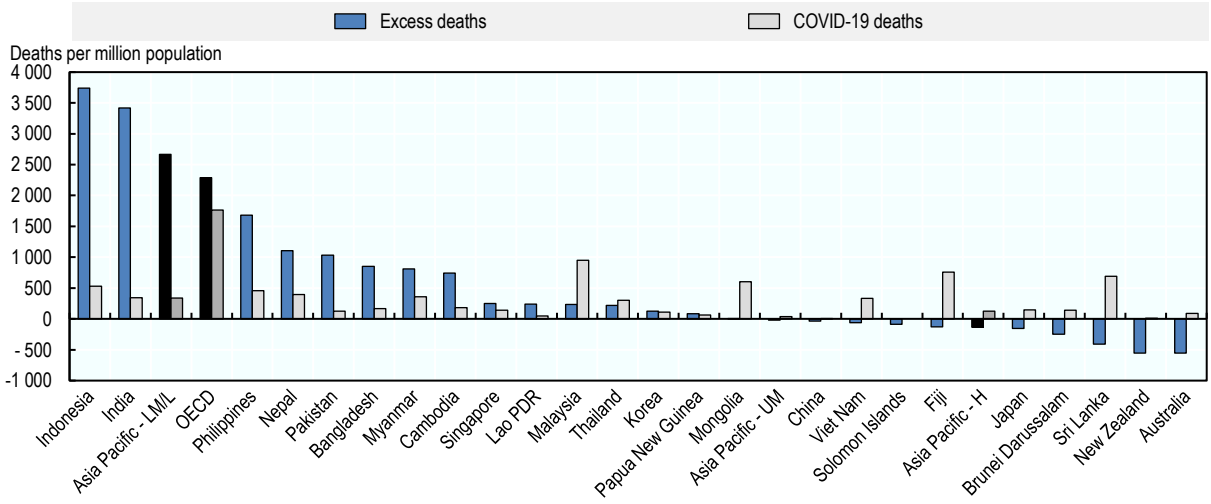
Lower-middle- and low-income Asia-Pacific countries show a significant gap between excess deaths and COVID-19 reported deaths, with excess deaths approximately 8 times higher than COVID-19 deaths (Figure 2.9). This gap is mainly driven by India and Indonesia (Figure 2.10).

Figure 2.9. Comparison of cumulative excess mortality to reported COVID-19 deaths, Asia-Pacific countries by income level and OECD countries, from 1 January 2020 to 31 December 2021



Note: Asia Pacific-H, Asia-Pacific high-income countries; Asia Pacific-UM, Asia-Pacific upper-middle-income countries; Asia Pacific LM/L, Asia-Pacific lower-middle- and low-income countries.
Source: WHO, https://www.who.int/data/sets/global-excess-deaths-associated-with-COVID-19-modelled-estimates (accessed on 4 October 2022); WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

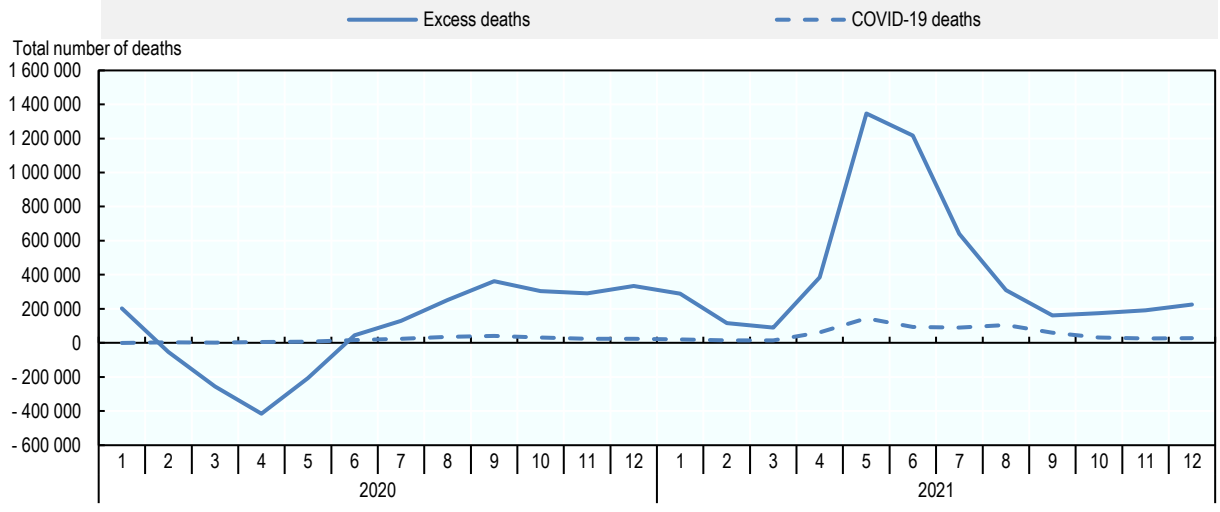
Figure 2.10. Comparison of cumulative excess mortality to cumulative reported COVID-19 deaths, by country, from 1 January 2020 to 31 December 2021



Note: Asia Pacific-H, Asia-Pacific high-income countries; Asia Pacific-UM, Asia-Pacific upper-middle-income countries; Asia Pacific LM/L, Asia-Pacific lower-middle- and low-income countries.
Source: WHO, https://www.who.int/data/sets/global-excess-deaths-associated-with-COVID-19-modelled-estimates (accessed on 4 October 2022); WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

When comparing monthly reported COVID-19 deaths and excess deaths, the number of excess deaths exceeds that of COVID-19 deaths except for the early pandemic from February until May 2020 (Figure 2.11). In May 2021, the peak in excess deaths observed is mainly due to India.

Figure 2.11. Comparison of monthly COVID-19 deaths to monthly excess deaths in Asia-Pacific, from 1 January 2020 to 31 December 2021

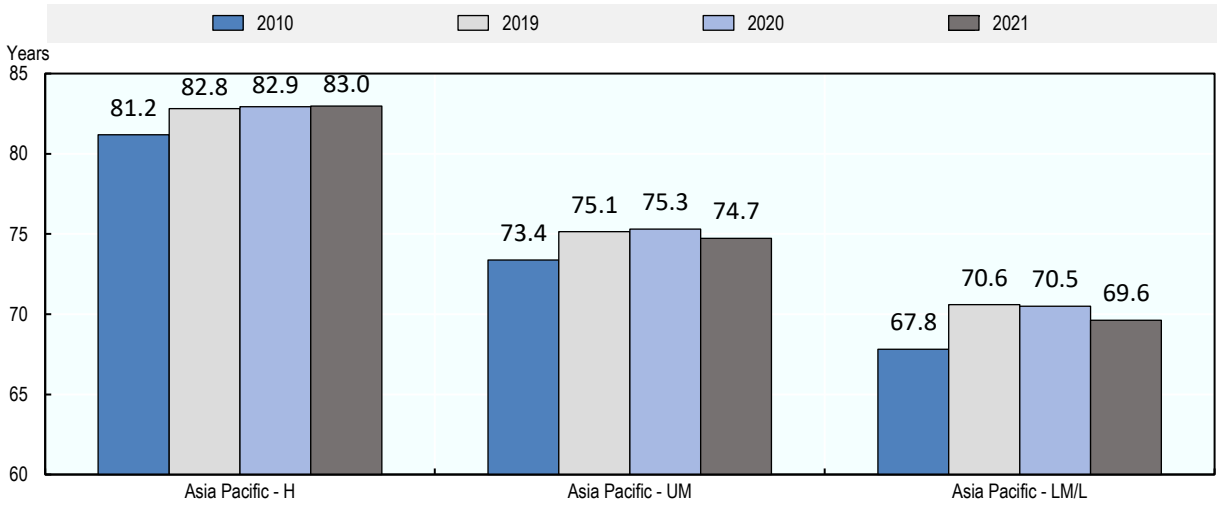


Source: WHO, https://www.who.int/data/sets/global-excess-deaths-associated-with-COVID-19-modelled-estimates (accessed on 4 October 2022); WHO, https://covid19.who.int/data/ (accessed on 21 October 2022).

Life expectancy remained stable in all Asian Pacific countries between 2019 and in 2020, while it decreased by almost one year in lower-middle- and low-income countries between 2020 and 2021

Life expectancy at birth has remained stable – on average – for all country income groups in Asia-Pacific between 2019 and 2020 despite the COVID-19 pandemic (Figure 2.12), while 80% of OECD member countries reported a decrease. However, between 2020 and 2021, life expectancy has decreased by almost one year in lower-middle- and low-income countries, while it has decreased by 0.6 years in upper-middle-income countries and has remained stable in high-income countries. Even if interpreting these trends in life expectancy is not entirely straightforward, evidence suggests that the life expectancy gap by income level increased during the pandemic (Schwandt H, 2022[3]).

Figure 2.12. Comparison of life expectancy at birth in 2010, 2019, 2020, and 2021, Asia-Pacific countries by income level



Note: Asia Pacific-H, Asia-Pacific high-income countries; Asia Pacific-UM, Asia-Pacific upper-middle-income countries; Asia Pacific LM/L, Asia-Pacific lower-middle- and low-income countries.
Source: United Nations World Population Prospects (accessed on 29 September 2022).

COVID-19 has disproportionately hit vulnerable populations

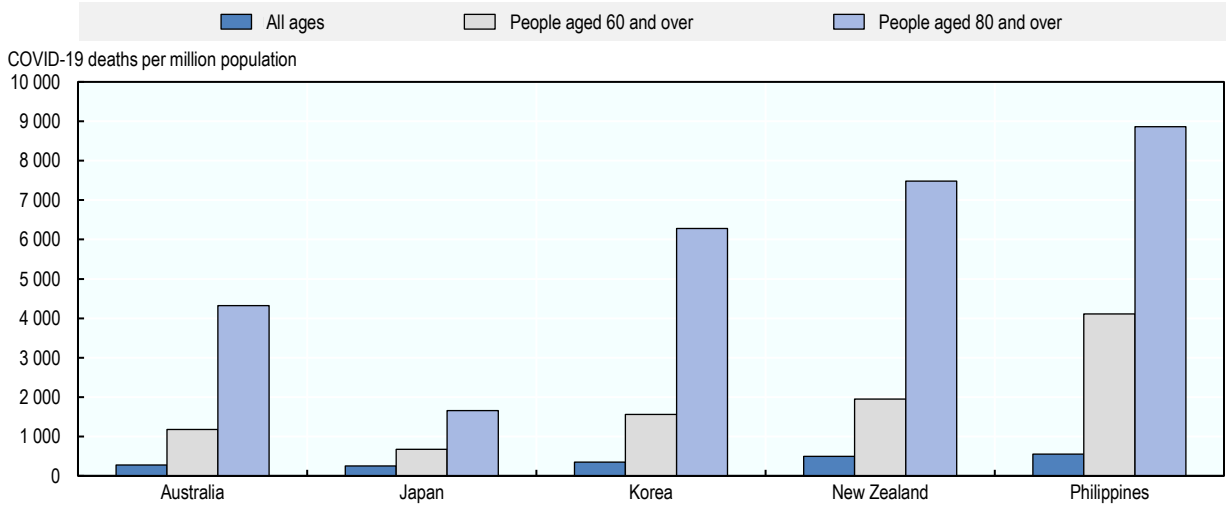
While COVID-19 poses a threat to the entire population, not all population groups are similarly at risk of adverse health outcomes of COVID-19. Vulnerable groups include those at a higher risk of susceptibility to contracting, transmitting and recovering from the virus, such as essential workers in health and long-term care settings with repeated exposure to the virus, and high-risk population for infections. Further, biological based factors such as age and pre-existing health conditions increase the risk of severe health outcomes. While age remains the largest risk factor for severe illness or death, people of all ages with certain underlying health conditions – including obesity, cancer, hypertension, diabetes, and chronic obstructive pulmonary disorder – face an elevated risk (ECDC, 2022[4]). Smoking and harmful alcohol use also increases the likelihood of developing severe illness, experiencing worse health outcomes or dying from COVID-19. The risks of adverse health outcome of COVID-19 are not equally distributed when it comes to the vulnerable groups like refugees, migrants, indigenous peoples, ethnic minorities, people living in slums or informal settlements or experiencing homelessness, persons with disabilities, remote or rural locations, gender and sexual minorities, and people living in closed facilities.

The vast majority of deaths from COVID-19 have occurred in older populations. Statistics from four OECD countries in the Asia-Pacific region show that death rates among older age groups are higher compared to that of all ages in all countries. For example, Korea has 497 deaths per million among all aged population, whereas the over aged 60 group showed 1953 deaths (4 times), and over 80 aged group marked 7 479 deaths (15 times).

Comparing within countries, death rates among people over 80 were significantly higher than in the general population (Figure 2.13). Even for Japan, where the gap in death rates between the total population and the senior population is the lowest, the population over 60 has a 2.7 times and that aged over 80 has a 6.5 times higher death ratio compared to the whole population.

Further, there are additional factors that create inequities and influence the level of vulnerability of specific groups and the access they have to health and social services. This was demonstrated during the pandemic, where the risks of adverse health outcome of COVID-19 were not equally distributed. Many social determinants of health – income, employment, housing, physical environment, gender, disability, indigeneity, social inclusion, education, food security and working conditions – influence COVID-19 outcomes. This includes but are not limited to refugees, migrants, indigenous peoples, ethnic minorities, people living in slums or informal settlements or experiencing homelessness, persons with disabilities, remote or rural locations, gender and sexual minorities, and people living in closed facilities.

Figure 2.13. Reported COVID-19 deaths by population age groups (through August 2022), selected Asia-Pacific countries



Note: Data for Australia include all COVID-19 deaths (both doctor and coroner certified) that occurred and were registered by 30 June 2022. Data for Japan are from 30 April 2020 to 9 August 2022. Data for New Zealand and Korea are up to 17 August 2022. Data for the Philippines are up to July 2021.

Source: Australia: https://www.abs.gov.au/statistics/health/causes-death/provisional-mortality-statistics/jan-apr-2022; Japan: https://covid19.mhlw.go.jp/en/; New Zealand: https://www.health.govt.nz/covid-19-novel-coronavirus/covid-19-data-and-statistics/covid-19-case-demographics; Korea: http://ncov.mohw.go.kr/en/bdBoardList.do?brdId=16&brdGubun=161&dataGubun=&ncvContSeq=&contSeq=&board_id=; Philippines: Department of Health, Government of the Philippines.

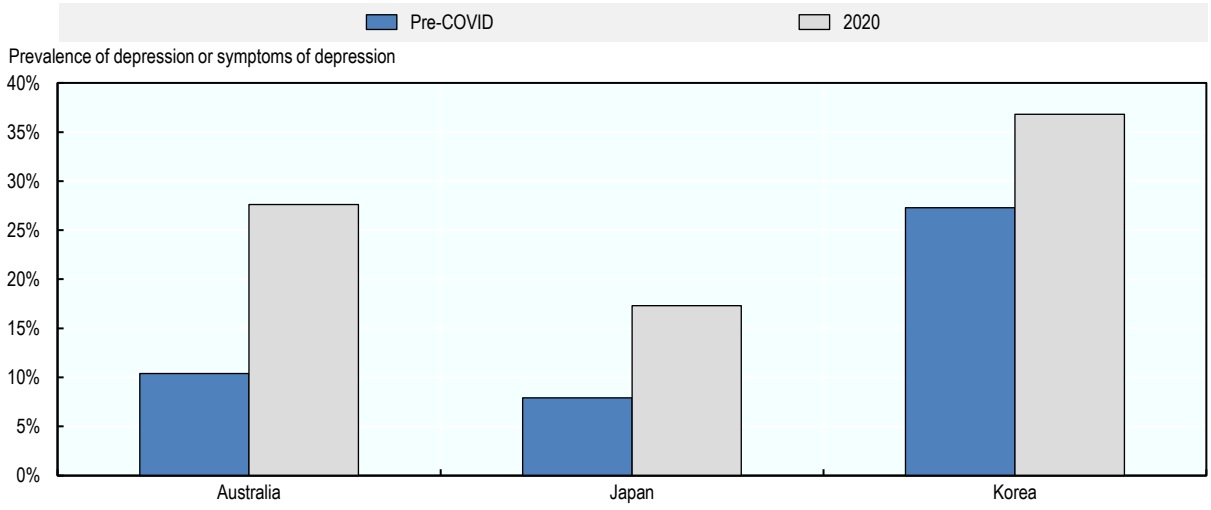
The mental health impact of the pandemic has been enormous

The COVID-19 crisis has had a significant negative impact on population mental health. Social isolation due to restricted mobility during the pandemic was a major driver of the increased prevalence of common mental disorders. Such conditions and disorders, and their associated vulnerabilities may also have a linkage with the consumption of alcohol, tobacco or illicit drugs during a pandemic. Loneliness, fear of infection, personal suffering, grief after bereavement, and financial worries were also contributing factors (WHO, 2022[5]; Loades et al., 2020[6]). Younger age, female gender and pre-existing health conditions were often reported risk factors.

It is estimated that the global prevalence of anxiety and depression increased by more than 25% in the first year of the pandemic, with young people and women particularly affected (WHO, 2022[5]). Figure 2.14 compares the prevalence of depression before and during the COVID-19 pandemic for a few countries that have data. For example, in Australia, the prevalence of depression increased by more than 17 percentage points. Unfortunately, at a time when so many people required support, the pandemic also disrupted the provision of mental health and social services. According to a global rapid assessment conducted from June to August 2020, essential psychosocial support was lacking in many places, with community-based activities and services for vulnerable groups particularly affected. On the other hand, telemedicine was the most frequently reported strategy to overcome these service disruptions (WHO, 2020[7]).

As the full impact of the pandemic on mental health and well-being is likely to take a number of years to fully emerge, there is a need for monitoring and measuring long-term health impacts of the pandemic. As an example, a series of surveys in Australia has collected information from the same group of individuals from just prior to COVID-19 and then 11 times since COVID-19 started to assess changes over time in life satisfaction/well-being; psychological distress and mental health; loneliness; social cohesion; and financial stress (Australian National University. Center for Social Research and Methods, 2022[8]).

Figure 2.14. National estimates of prevalence of depression or symptoms of depression amongst adults, pre-COVID-19 and in 2020, selected Asia-Pacific countries



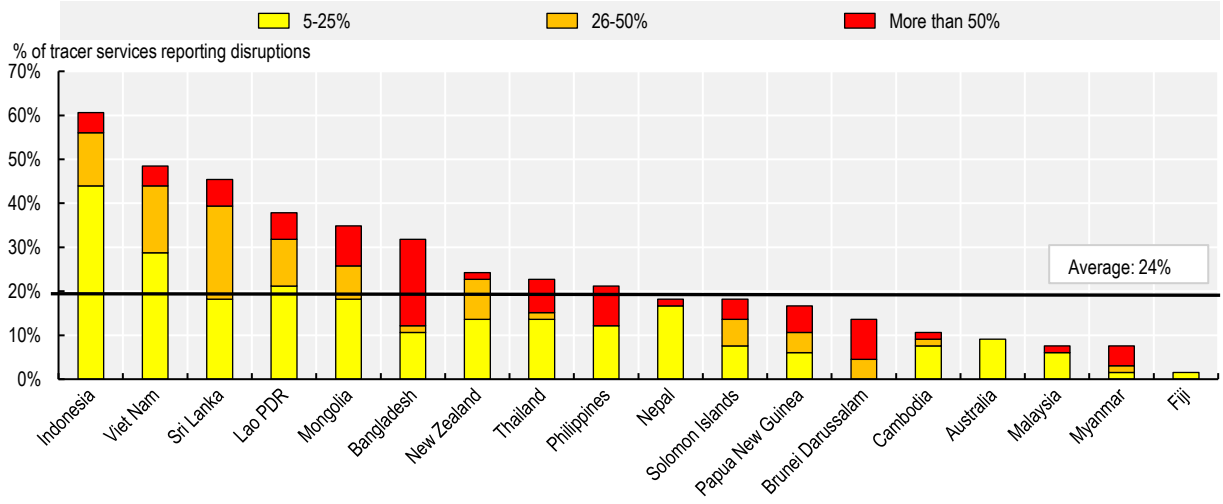
Note: Pre-COVID refers to 2017-18 for Australia, 2014 for Japan, 2011 for Korea. The survey instruments used to measure depression differ between countries and between time points within countries (e.g. Australia), and therefore are not directly comparable, and some surveys may have small sample sizes or not use nationally representative samples.
Source: Korean 2011 data: Park et al. (2012[9]), "A nationwide survey on the prevalence and risk factors of late life depression in South Korea", https://doi.org/10.1016/j.jad.2011.12.038; other data: OECD (2021[10]), "Tackling the mental health impact of the COVID-19 crisis: An integrated, whole-of-society response", https://doi.org/10.1787/0ccafa0b-en.

Disruptions of health services during the pandemic

In the early stages of the pandemic, non-COVID-19 outpatient care and hospital care was suspended or slowed down to reduce the risk of transmission and release capacity to avoid the risk of critical care being overwhelmed by COVID-19 patients or having the health care workforce infected and affected and not having staff capacity. This led to major disruptions in the normal flow of patients through the health care system. Prevention activities, primary care and chronic care for patients with non-communicable diseases (NCDs) were paused, disrupted and transformed, to divert resources to urgent pandemic activities and to protect staff and patients from infection, notably through the use of telemedicine and other digital tools. As many interventions were postponed during the peak cycles of the pandemic, waiting times for elective surgery and cancer care increased significantly in many countries.

According to the WHO's Pulse survey on continuity of essential health services during the COVID-19 pandemic, COVID-19 continues to challenge health systems and disrupt essential health services in Asia-Pacific. On average, one-quarter of 66 essential (tracer) services used to assess continuity of care (e.g. elective surgeries and procedures; antenatal care; cancer treatments) were disrupted during the pandemic (Figure 2.15). The average level of disruption reported in the Asia-Pacific is, however, half of the level observed in the world at 45%. These findings should be interpreted with caution given the various response rates across WHO regions. As an example, in the WHO Western Pacific region out of the 35 countries that received the 3rd round pulse survey only four countries submitted a complete survey. Data availability was a factor here, and re-running the survey 12 months later might have improved response rates.

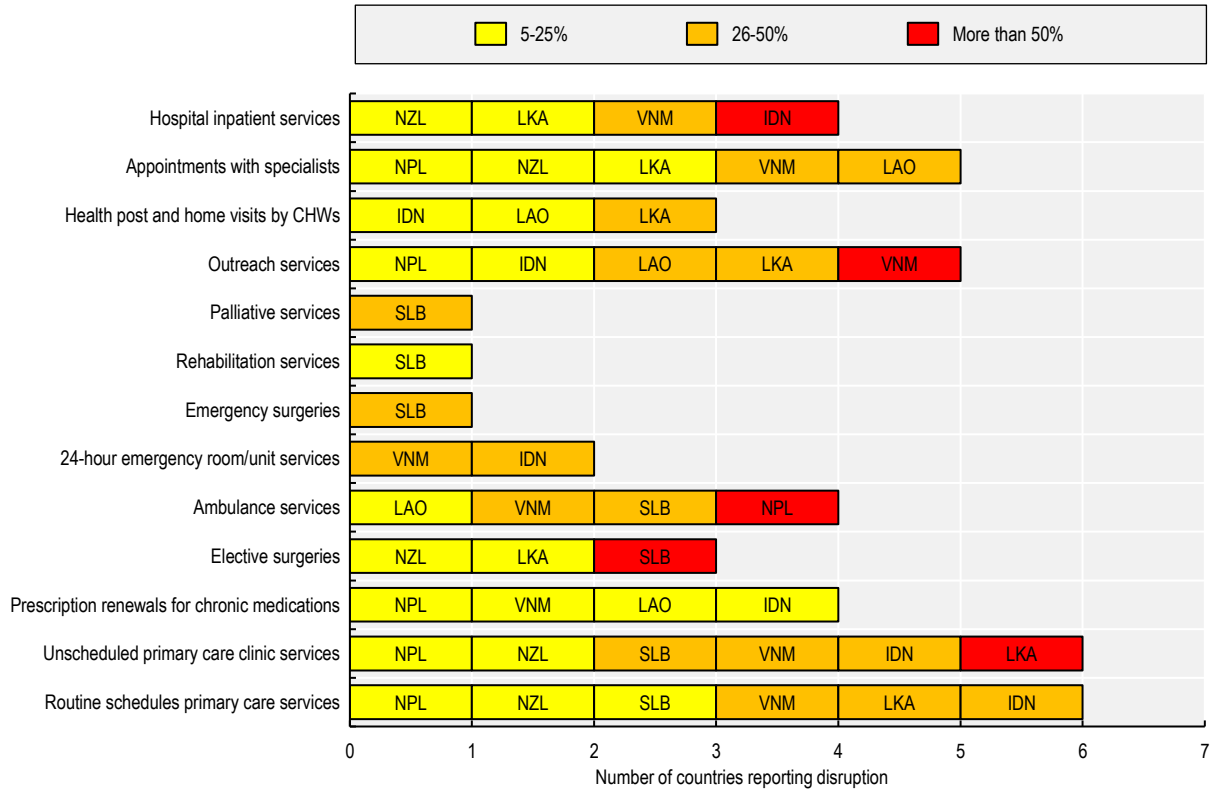
Figure 2.15. Percentage and level of disruption for 66 tracer services by country, fourth quarter 2021



Source: WHO PULSE survey (Round 3), 2022.

Outreach services and primary care services were reported to be the most disrupted across Asia-Pacific reporting countries (Figure 2.16).

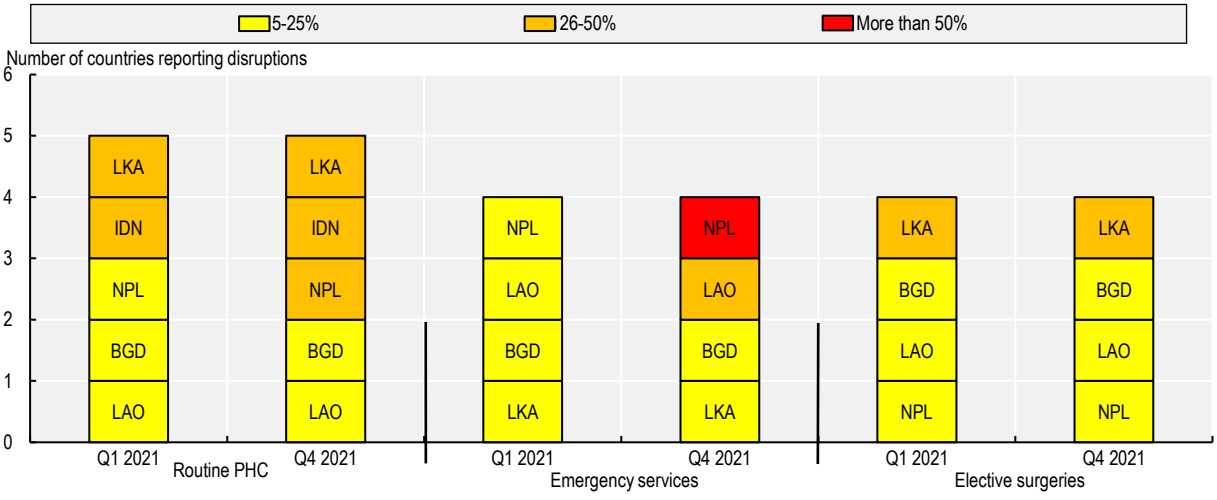
Figure 2.16. Level of disruption to service availability, fourth quarter 2021



Source: WHO PULSE survey (Round 3) 2022.

Emergency services in Lao PDR and Nepal and primary health care service in Nepal showed an increase of disruption over time during the pandemic (Figure 2.17).

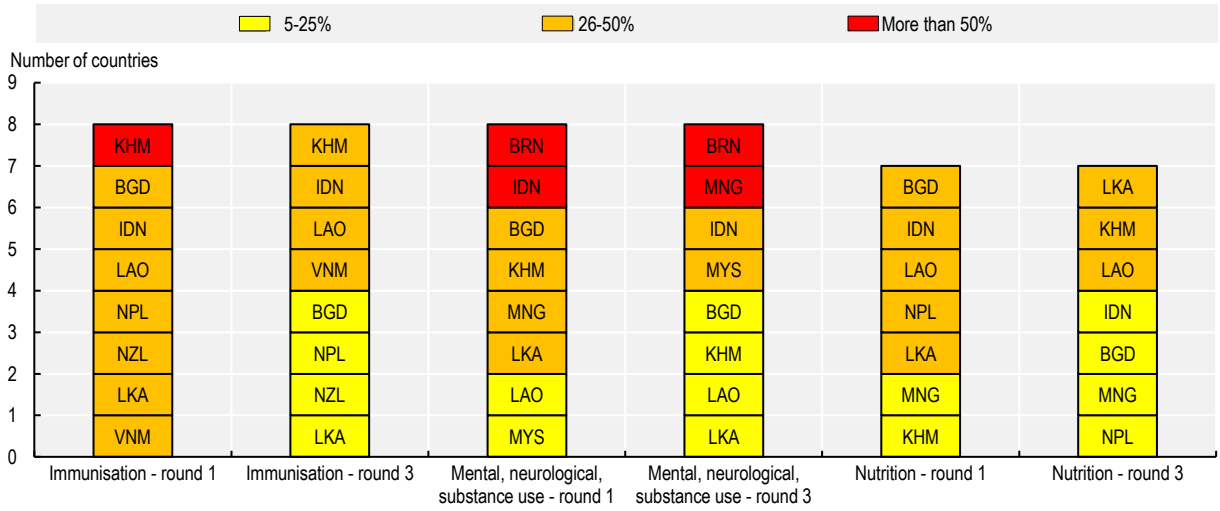
Figure 2.17. Comparison of the disruption to service availability, first quarter 2021 and fourth quarter 2021



Note: Only countries reporting some or zero level of disruption in both rounds of the PULSE survey were included in this chart.
Source: WHO PULSE surveys, 2021 and 2022.

At service type level, a decrease in the level of disruption between the third quarter of 2020 and the fourth quarter of 2021 was observed (Figure 2.18).

Figure 2.18. Comparison of the disruption to selected tracer services, second quarter 2020 and fourth quarter 2021



Source: WHO PULSE surveys (rounds 1 and 3), 2021 and 2022.

Disruption is due to a mix of supply and demand side factors. The most commonly reported factor on the supply side was the cancellation of elective services and the redeployment of staff to provide COVID-19 relief, unavailability of services due to closings, and interruptions in the supply of medical equipment and health products. On the demand side, decreased care seeking decisions due to a fear of infections are the most common cause of disruption of essential services (Table 2.1).

Table 2.1. Reported cause of disruption by type of service, Q4 2021

Type of service	Indonesia	Lao PDR	Nepal	New Zealand	Sri Lanka	Viet Nam
Routine schedules PHC care clinic services	Intentional service delivery modifications		Decreased care-seeking	Decreased care-seeking	Decreased care-seeking	Decreased care-seeking
Unscheduled PHC services	Decreased care-seeking		Decreased care-seeking	Decreased care-seeking	Intentional service delivery modifications	Unintended disruptions due to lack of health care resources
Prescription renewals for chronic medications	Intentional service delivery modifications	Decreased care-seeking	Decreased care-seeking			Intentional service delivery modifications
24-hour emergency room/unit services	Unintended disruptions due to lack of health care resources					Unintended disruptions due to lack of health care resources
Ambulance services		Unintended disruptions due to lack of health care resources	Decreased care-seeking			Unintended disruptions due to lack of health care resources

Type of service	Indonesia	Lao PDR	Nepal	New Zealand	Sri Lanka	Viet Nam
Elective surgeries				Unintended disruptions due to lack of health care resources	Decreased care-seeking	
Health post and home visits by CHWs	Intentional service delivery modifications	Decreased care-seeking			Decreased care-seeking	
Outreach services	Unintended disruptions due to lack of health care resources	Decreased care-seeking	Decreased care-seeking		Decreased care-seeking	Unintended disruptions due to lack of health care resources
Hospital inpatient services	Decreased care-seeking			Unintended disruptions due to lack of health care resources	Decreased care-seeking	Decreased care-seeking
Appointment with specialists		Decreased care-seeking	Decreased care-seeking		Decreased care-seeking	Decreased care-seeking

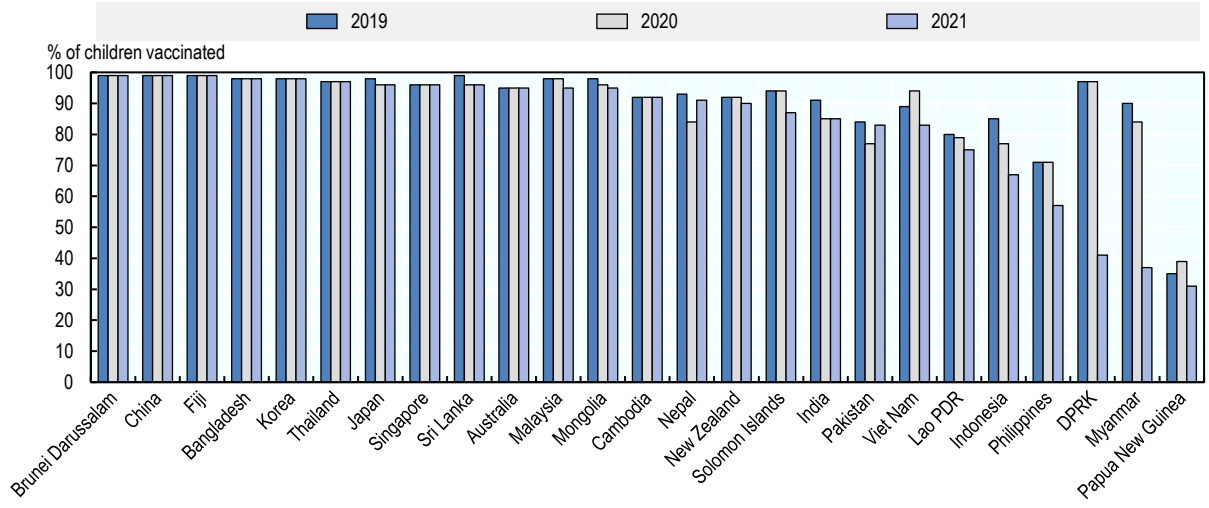
Source: WHO PULSE survey (round 3), 2022.

Generally decreased routine vaccination rates

Routine vaccination is a backbone of individual and public health, and a prerequisite for resilient health systems. The COVID-19 pandemic, however, has challenged the continuation of routine vaccination programmes, and induced disruptions in infancy and childhood vaccination programmes covering children aged 9 weeks to 6 years in Asia-Pacific countries, due to patients' fear of infection, restrictions on movement/travel, and limited access to health care (Harris et al., 2021[11]).

In about one-third of countries in the Asia Pacific, childhood vaccination rates decreased in 2020 (Figure 2.19). Between March and April 2020, vaccination coverage decreased by 23% for measles and 22% for bacille Calmette-Guérin (BCG) (GAVI, 2020[12]). In Pakistan, for example, all mass vaccination programmes were suspended between April and June 2020 and 40 million children missed their polio vaccination during this period (Haqqi et al., 2020[13]). In Korea, however, vaccination rate increased 1% for Hep B and BCG for infant and measles and pneumococcus for children in 2020, compared to the rate in 2019.

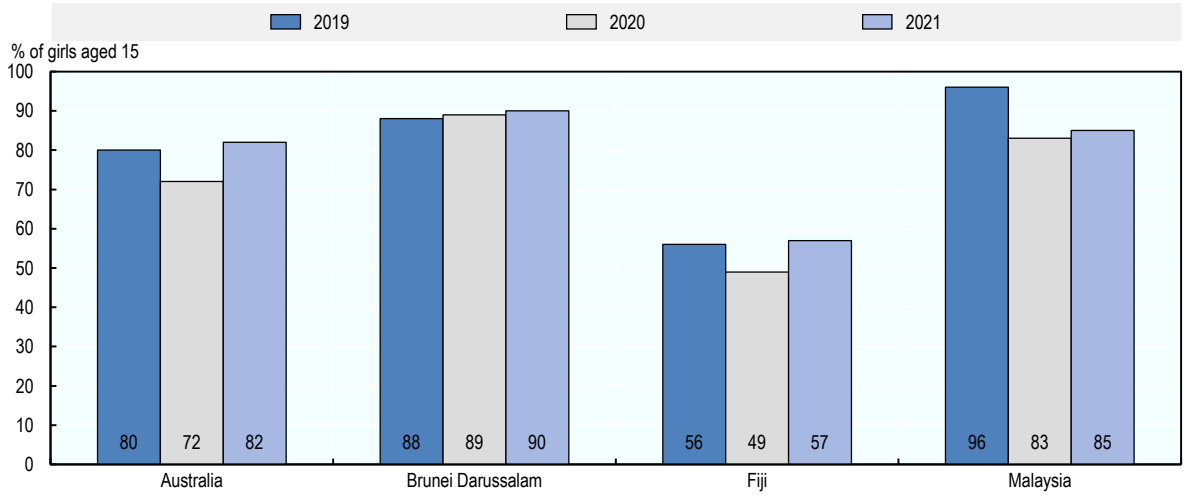
Figure 2.19. DPT vaccination rate decreased in about one-third of countries in Asia Pacific in 2020



Source: WHO/UNICEF estimates of national immunisation coverage (WUENIC) 2022.

The HPV vaccination rate decreased in Australia, Fiji and Malaysia in 2020 (Figure 2.20), to then increase to reach the 2019 levels in 2021.

Figure 2.20. HPV vaccination rate decreased in some countries in 2020

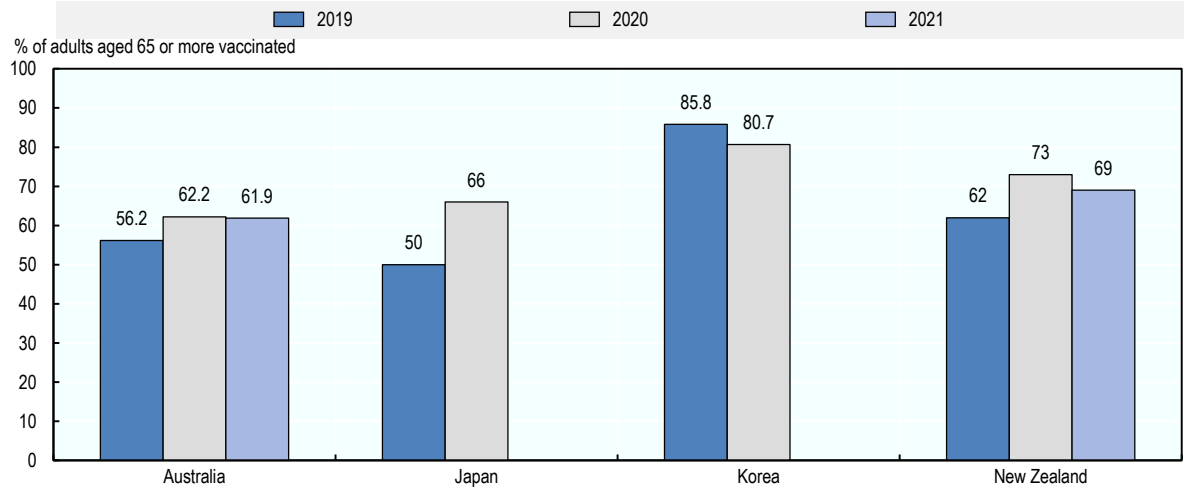


Source: WHO/UNICEF estimates of national immunisation coverage (WUENIC) 2022.

The vaccination rate of influenza among the elderly increased between 2019 and 2020 in Australia, Japan and New Zealand, whereas it decreased in Korea (Figure 2.21).

A study found that the major reasons for vaccination reluctancy among Asian general populations were doubts about the safety and efficacy of the vaccine. Many people did not regard themselves to be vulnerable to the flu and regarded vaccination as unnecessary. Looking at an individual country, a Chinese study on parent-reported vaccination behaviours showed that children and adolescents from larger families whose parents had lower levels of education were less likely to improve prevention behaviours (Hou et al., 2021[14]). As socio-economic status also affects vaccination behaviours, improvements in health literacy and promotion of vaccine safety might be a key to achieve higher flu vaccine coverage.

Figure 2.21. Influenza vaccination rate among the elderly generally increased in 2020



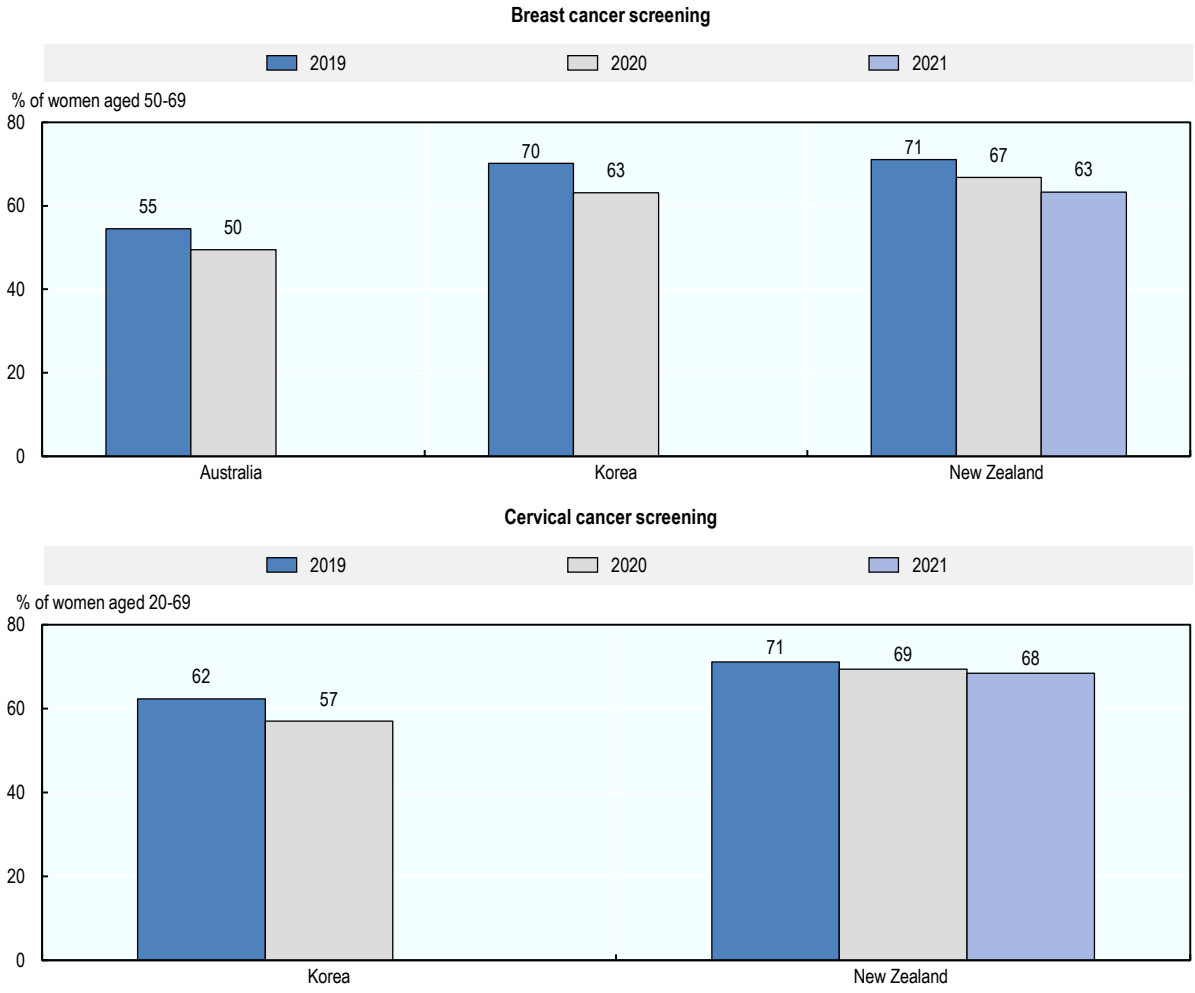
Source: OECD Health Statistics 2022, https://doi.org/10.1787/health-data-en.

Cancer screening was disrupted in some countries in the Asia-Pacific region

During the early period of the pandemic, cancer screening was substantially disrupted (Fujisawa, 2022[15]). Cancer screenings were halted in countries including Australia, Japan, New Zealand and Singapore. In Japan, local governments and health care providers suspended cancer screening programmes in accordance with the recommendation issued by the Ministry of Health, Labour and Welfare based on the first declaration of a state of emergency on 7 April 2020. Countries also faced additional indirect challenges in relation to cancer screening. In Australia, for instance, the drop in cancer incidence could be explained by the need to confirm any diagnosis with pathological tests in laboratories that are already under pressure from CVOID-19 testing (IJzerman et al, 2020[16]).

The challenges in providing and accessing cancer screening resulted in lower breast cancer screening uptake during the initial phase of the pandemic, and the screening rate for 2020 was also lower than the rate for 2019 (Figure 2.22). In Australia, screening for breast cancer among women aged 50-69 fell by 20% between January and September 2020, compared to the same period in 2018, with the decline particularly pronounced between March and May 2020, when breast screening services were paused (Australian Institute of Health and Welfare, 2021[17]). A decline was also observed at the early stage of the pandemic in 2020 in other countries including Japan (Toyoda et al., 2021[18]). In New Zealand, mammography screening rates continued to decrease in 2021. Similar trends are reported for screening of cervical cancer. A decline in cervical cancer screening was seen in Australia (Australia Government Department of Health, 2020[19]) and Japan (Japan Times, 2020[20]). The number of Cervical Screening Tests conducted was expected to be lower in 2020 than in 2019, irrespective of the COVID-19 pandemic and subsequent restrictions. This is largely due to the programme changing from 2-yearly Pap tests to 5-yearly Cervical Screening Tests from December 2017, as most screening people were due for their first HPV test 2 years after their last Pap test (during the years 2018 and 2019), with screening in 2020 mainly comprised of people overdue for their first HPV test and those newly-screening (Australian Institute of Health and Welfare, 2021[17]).

Figure 2.22. Cancer screening rates decreased across countries



Note: Programme data.
Source: OECD Health Statistics 2022, https://doi.org/10.1787/health-data-en.

Colorectal cancer screening was also suspended in several countries, including New Zealand and Singapore during early stage of outbreak in 2020 (Chiu et al., 2021[21]; OECD, 2021[22]). In Korea, beside breast, cervical and colorectal cancer, the uptake for gastric, liver and lung cancer screenings also declined in 2020 compared to 2019 (Kim, 2021[23]). Another Korean study also found that metropolitan areas faced a larger decrease in stomach, colorectal, breast and cervical cancer screening compared to rural areas. Consequently, newly diagnosed cancer cases declined in countries with available data including Australia, Japan, Korea, and Hong Kong (China).

Hong Kong (China)'s public laboratory faced a drastic decrease in the number of pathologic specimens received (Vardhanabhuti and Ng, 2021[24]). As a result, the reduction in the diagnosis of malignant lesions was observed compared to the expected number from past three years. Large declines were observed especially for colorectal (–10.0%) and prostate (–19.7%) cancers.

A Japanese study reveals the number of newly diagnosed cancer in 2020 was 5.8% lower compared to the previous year. Especially, May 2020 when the country was under the state of emergency showed the most significant decrease of 22%. Gastric cancer saw the most substantial decrease of 39.1% compared to the last four years.

Delayed cancer screening is expected to increase the future burden of cancer. An Australian study estimated that a one-year pause in screening reduces 5-year breast cancer survival from 91.4% to 89.5% (Feletto et al., 2020[25]). In New Zealand, cancer registrations – as recorded in a nationally-mandated register of all new diagnoses of primary malignant cancers diagnosed – declined by 40% during its national lockdown in 2020, compared to the previous year (Gurney et al., 2021[26]). While it took few months to go back to its pre-COVID level, the cumulative of cancer registrations finally surpassed that of 2019 in September 2020.

After the initial phase of the pandemic, cancer screening uptake started increasing across countries, although to a varying degree. In Australia, for example, screening uptake between mid-July and mid-September 2020 exceeded the corresponding period in 2018 (Cancer Australia, 2020[27]). To increase the uptake of cancer screening, Japan ran public awareness campaigns.

Delayed and missed care for chronic conditions has been associated with worse health outcomes

Patients with chronic health conditions have high health care needs and are at risk of complications if their conditions are not well managed. Evidence shows how delays or missing regular care for a range of chronic conditions, such as diabetes, exacerbates health complications and leads to severe health consequences.

In Korea, chronic respiratory disease such as COPD and asthma all saw a substantial decrease in hospitalisations during COVID-19 (Huh et al., 2021[28]). The cumulative incidence of admissions was 58% (COPD) and 48% (asthma) of the average rate during the four preceding years.

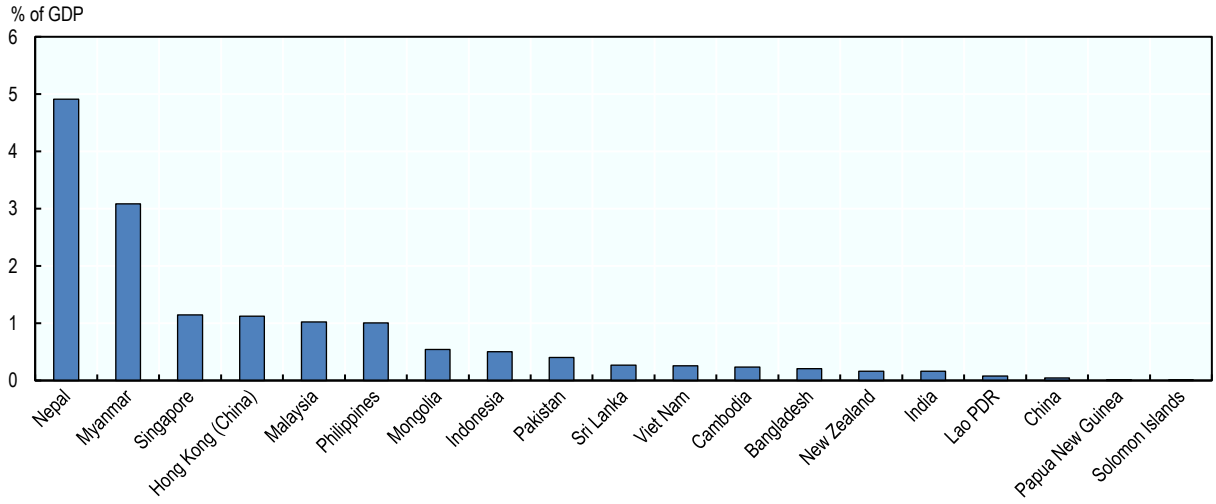
Early evidence shows that rates of diabetes-related complications have increased in several countries during the pandemic due to decreased access to diabetes care and services (Khader, Jabeen and Namoju, 2020[29]; Ghosal et al., 2020[30]). For example, in Indonesia, 69.8% of patients with diabetes experienced difficulties in managing their diabetes during the pandemic (Kshanti et al., 2021[31]). The difficulties included attending diabetes consultation (30.1%), access to diabetes medication (12.4%), and checking blood glucose levels (9.5%). Complications related to diabetes occurred in 24.6% of patients, with those who had diabetes management difficulties 1.4 times more likely to have diabetes complications than those who did not. In addition, a study on central India found that glycaemic control deviated during the lockdown period, with a 0.51% increase in mean haemoglobin (HBA1c) for diabetes patients immediately after lockdown, which may lead to a considerable increase in the annual incidence of complications associated with diabetes (Khare and Jindal, 2021[32]).

In Japan, the severity of myocardial infarction also increased (Yasuda et al., 2021[33]).

Countries responded differently to the pandemic based on the pandemic situations and national capabilities and contexts

Governments within the Asia-Pacific region and beyond put together substantial response packages to combat COVID-19. 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 between April 2020 and mid-November 2021 ranged from around 5% of GDP in Nepal to around 0.1% in Lao PDR (Figure 2.23). However, for some countries this may not represent the full picture of mobilisation of resources in response to COVID-19 as funds granted by international agencies, foreign government or NGOs are not included.

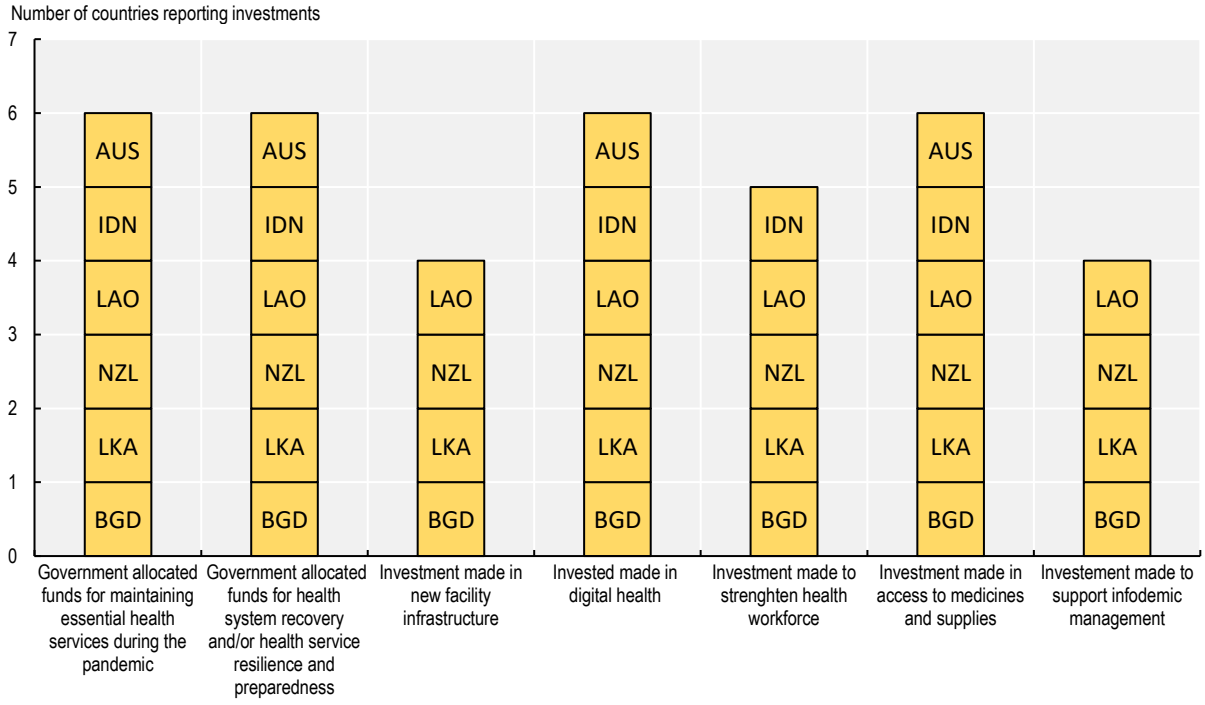
Figure 2.23. Government financial commitments to health from April 2020 to November 2021



Note: Reported as a percentage of the 2020 GDP. The Asian Development Bank Policy Database displays the monetary amounts announced or estimated by the 68 members of the Asian Development Bank, two institutions, and nine other economies (i.e. a total of 79 entries) to fight the COVID-19 pandemic.
Source: Asian Development Bank COVID-19 Policy Database (accessed on 27 September 2022).

In addition to allocating funds for maintaining essential health services improving resilience, governments invested in digital health and in access to medicines and supplies (Figure 2.24).

Figure 2.24. Countries reporting investments for long-term health system recovery and/or resilience for future health pandemics in selected areas, Q4 2021



Source: WHO PULSE survey (round 3), 2022.

The rapid development of remote consultations has offset at least partly the reduction of in-person encounters with GPs and specialists

Examples of regulatory and policy interventions in the Asia-Pacific region include India's Telemedicine Practice Guidelines 2020 and interim guidance on use of telemedicine by Indonesia permitting doctors and dentists to provide telemedicine services through mobile apps and Information and Communication Technologies (ICT) systems. This latter was further supported by the Indonesian Medical council issuing a regulation regarding the Clinical Authority and Medical Practice through Telemedicine during COVID-19.

Australia expanded the range of telehealth services subsidised on a fee-for-service basis to enable GPs, specialists and other providers to maintain care for patients and temporarily doubled the incentive fee payable for GPs to see certain categories of patients without any upfront cost. Furthermore, there were two additional temporary incentive payments established to provide further incentive for GPs to see patients at risk of COVID-19 without any upfront cost. Some telehealth items that were temporarily added have now been permanently included in the MBS schedule (Australian Government - Department of Health and Aged Care, 2022[34]). In Australia, telemedicine was also utilised to maintain health care support for diabetes patients, with 80.8% of patients having a telehealth consultation during the pandemic[1] (Imai et al., 2022[35]; Olson et al., 2021[36]). Six-monthly HbA1c testing and HbA1c levels had no significant difference between those patients who had telehealth services and those who had face-to-face consultations. In the quarter ending September 2020, 13.3% of all Medicare Benefits Schedule services processed, 15.5 million, were telehealth consultations, indicating the importance of such services in maintaining access to care throughout the pandemic (AIHW, 2021[37]). Remote consultations were also widely used to provide mental health related services and between 16 March 2020 and 27 September 2020, 2.5 million Medicare-subsidised mental health related services were delivered via telehealth nationally, which accounts for more than a third of all mental health related services delivered in that period (AIHW, 2022[38]). The positive impact of telehealth was particularly pronounced in antenatal care, where a 10% drop in in-person care between January and September 2020, compared to 2019, was almost entirely offset by an uptake of 91 000 telehealth services (AIHW, 2021[39]). Australia further implemented e-prescribing from May 2020 onwards, allowing health care providers to send electronics prescription to individuals via SMS or email (Australian Digital Health Agency, n.d.[40]). Moreover, pharmacists were allowed to dispense essential medicines without a prescription from a physician in the event that it was not practicable for a patient to receive a new prescription to allow continuity of care to a patient that had been previously prescribed the medicine (Australian Government. Department of Health and Aged Care, 2022[41]).

While in New Zealand telehealth services were used even before the pandemic, after March 2020 some restrictions were relaxed, which, for instance, enabled the provision of telehealth services also to patients who had not consulted a provider in-person before (OECD, forthcoming[42]). In New Zealand, remote technologies were further used to facilitate repeated medication prescriptions (Al-Busaidi IS, 2020[43]).

Japan and Korea also temporarily allowed the use of telehealth services to ensure access and continuity of care during the pandemic and made the legal and policy changes required to do so (OECD, forthcoming[42]). In Korea as in many other countries, such legislative or regulatory changes were introduced for a limited amount of time only to respond to the unprecedented effects of the COVID-19 pandemic, even though some countries are considering a permanent integration of telehealth into their health care systems (OECD, forthcoming[42]).

While the widespread use of telehealth during the pandemic is remarkable, there is an urgent need for more evidence about quality and cost-effectiveness of telehealth services in improving outcomes for those living with chronic diseases, which is still rather limited (Al-Busaidi IS, 2020[43]). At the same time, many obstacles to care still exist, including equal access to technology and new digital tools, and appropriate digital health literacy (Hinchman et al., 2020[44]).

An expanded role of community health workers and general practitioners

Community health workers (CHWs) in the South-East Asian countries responded to the COVID-19 pandemic by expanding their routine work in different ways (Bezbaruah et al., 2021[45]). In Bangladesh, community health volunteers (CHVs) in refugee camps performed multiple roles such as visiting the camps' residents, providing COVID-19 information on hygiene and symptoms, and looking for suspicious cases and advising on patient care (Rahman and Yeasmine, 2020[46]). They also provided mental health support where necessary, while maintaining their routine health care support. India's most crowded slum's COVID-19 response was achieved by relying on CHWs who knew the local area and gained trust by the community (Singh, 2020[47]; Shaikh, 2020[48]). CHWs in slums provided necessary information on COVID-19 and delivered essential groceries and medicine, while supporting screening with thermal scanner and pulse oximeter.

Thailand utilised pre-existing village health volunteers (VHV) to address the nation-wide COVID-19 pandemic. VHVs were given new roles in the primary health care system, supported local epidemiological surveillance, helped to distribute the necessary medications for patients with chronic disease, and promoted the COVID-19 prevention scheme.

General practices in Australia and New Zealand, which experienced several disasters between 2009 and 2016, undertook a range of critical roles in providing responsive health care. These included providing primary health care in alternative health care facilities, adapting existing health facilities for the purposes of providing disaster health care, and maintaining care continuity for management of chronic diseases. As such, primary health care is key for effective health emergency management both for absorbing and recovering from a shock.

Singapore's Public Health Preparedness Clinics, which are pre-existing community-based facilities, provided increased access to primary care during the COVID-19 pandemic (Lim and Wong, 2020[49]). These facilities helped to distribute PPEs, provide patients with necessary care, and thereby helped reduce local transmission (Sim et al., 2021[50]).

Conclusions

COVID-19 has had a huge impact across the Asia-Pacific region, testing the resilience of economies and health systems, and placing an immense pressure on health workers operating at the front line. However, COVID-19 has had an unequal impact in the region between high-, middle- and low-income countries, in particular by amplifying inequities and inequalities.

In terms of the overall health impact, India and Indonesia were the most affected, based on data on COVID-19 reported deaths. 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 the timing, use and intensity of public health and social measures, 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 (International Monetary Fund, 2020[51]).

As of September 2022, the percentage of the population who received a booster shot amounts to almost 84% in high-income countries, whereas that of lower-income countries is slightly below 20%. This confirms that there is significant Inequity when it comes to vaccine access between high- and low-income countries in the Asia-Pacific region.

A WHO rapid situation assessment survey also illustrates that essential services 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.

While the widespread use of telehealth during the pandemic is remarkable, there is an urgent need for more evidence about the cost-effectiveness of telehealth in improving outcomes for those living with chronic diseases.

COVID-19 has had major effects on countries' economies, social and health systems. It is critical to ensure that economic pressures do not divert already limited resources away from essential health services in low- and middle-income countries.

References

AIHW (2022), *COVID-19: looking back on health in 2020*, Australian Institute of Health and Welfare, Canberra, https://www.aihw.gov.au/reports-data/australias-health-performance/covid-19-and-looking-back-on-health-in-2020 (accessed on 5 May 2022). [38]

AIHW (2021), *Impacts of COVID-19 on Medicare Benefits Scheme and Pharmaceutical Benefits Scheme: quarterly data, Impact on MBS service utilisation*, Australian Institute of Health and Welfare, Canberra, https://www.aihw.gov.au/reports/health-care-quality-performance/impacts-of-covid19-mbs-pbs-quarterly-data/contents/impact-on-mbs-service-utilisation (accessed on 5 May 2022). [37]

AIHW (2021), *New report looks at uptake of telehealth in antenatal care during COVID-19 lockdowns*, Australian Institute of Health and Welfare, Canberra, https://www.aihw.gov.au/news-media/media-releases/2021-1/february/new-report-looks-at-uptake-of-telehealth-in-antena (accessed on 5 May 2022). [39]

Al-Busaidi IS, M. (2020), "The transition to a "virtual practice" in primary care during the COVID-19 pandemic: experience from one medical centre in New Zealand", *N Z Med J*, Vol. 133/1520, pp. 91-98. [43]

Australia Government Department of Health (2020), *Modelled analysis of hypothetical impacts of COVID-19 related disruptions to the National Cervical Screening Program*, https://www.health.gov.au/resources/publications/modelled-analysis-of-hypothetical-impacts-of-covid-19-related-disruptions-to-the-national-cervical-screening-program. [19]

Australian Digital Health Agency (n.d.), *Electronic prescriptions*, https://www.digitalhealth.gov.au/initiatives-and-programs/electronic-prescriptions (accessed on 2 September 2022). [40]

Australian Government - Department of Health and Aged Care (2022), *Providing health care remotely during the COVID-19 pandemic*, https://www.health.gov.au/health-alerts/covid-19/coronavirus-covid-19-advice-for-the-health-and-disability-sector/providing-health-care-remotely-during-the-covid-19-pandemic (accessed on 28 September 2022). [34]

Australian Government. Department of Health and Aged Care (2022), *The Pharmaceutical Benefits Scheme*, https://www.pbs.gov.au/pbs/home. [41]

Australian Institute of Health and Welfare (2021), *Cancer screening and COVID-19 in Australia*, https://www.aihw.gov.au/reports/cancer-screening/cancer-screening-and-covid-19-in-australia-inbrief/contents/what-was-the-impact-of-covid-19-in-australia. [17]

Australian National University. Center for Social Research and Methods (2022), *Mental health and wellbeing during the COVID-19 period in Australia*, https://csrm.cass.anu.edu.au/research/publications/mental-health-and-wellbeing-during-covid-19-period-australia. [8]

Bezbaruah, S. et al. (2021), "Roles of community health workers in advancing health security and resilient health systems: emerging lessons from the COVID-19 response in the South-East Asia Region", *WHO South-East Asia Journal of Public Health*, Vol. 10, https://www.who.int/publications/m/item/weekly-epidemiological-update-8-december-2020 (accessed on 2 September 2022). [45]

Byambasuren, O. (2021), "Comparison of seroprevalence of SARS-CoV-2 infections with cumulative and imputed COVID-19 cases: Systematic review", *PLoS ONE*, Vol. 16/4, https://doi.org/10.1371/journal.pone.0248946. [1]

Cancer Australia (2020), *Review of the impact of COVID-19 on medical services and procedures in Australia utilising MBS data: Skin, breast and colorectal cancers, and telehealth services*, https://www.canceraustralia.gov.au/publications-and-resources/cancer-australia-publications/review-impact-covid-19-medical-services-and-procedures-australia-utilising-mbs-data-skin-breast-and. [27]

Chiu, H. et al. (2021), "Mitigating the impact of COVID-19 on colorectal cancer screening: Organized service screening perspectives from the Asia-Pacific region", *Preventive Medicine*, Vol. 151, p. 106622, https://doi.org/10.1016/J.YPMED.2021.106622. [21]

ECDC (2022), *Infectious disease topics - Risk factors and risk groups*, https://www.ecdc.europa.eu/en/covid-19/latest-evidence/risk-factors-risk-groups (accessed on 28 September 2022). [4]

Feletto, E. et al. (2020), "How has COVID-19 impacted cancer screening? Adaptation of services and the future outlook in Australia", *Public Health Research & Practice*, Vol. 30/4, https://doi.org/10.17061/phrp3042026. [25]

Fujisawa, R. (2022), "Impact of the COVID-19 pandemic on cancer care in OECD countries", *OECD Health Working Papers*, No. 141, OECD Publishing, Paris, https://doi.org/10.1787/c74a5899-en. [15]

GAVI (2020), *COVID-19 Situation Report #14*, https://www.gavi.org/sites/default/files/covid/Gavi-COVID-19-Situation-Report-14-20200728-1.pdf. [12]

Ghosal, S. et al. (2020), "Increase in the risk of type 2 diabetes during lockdown for the COVID19 pandemic in India: A cohort analysis", *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, Vol. 14/5, pp. 949-952, https://doi.org/10.1016/J.DSX.2020.06.020. [30]

Gurney, J. et al. (2021), "The impact of the COVID-19 pandemic on cancer diagnosis and service access in New Zealand–a country pursuing COVID-19 elimination", *The Lancet Regional Health - Western Pacific*, Vol. 10, p. 100127, https://doi.org/10.1016/j.lanwpc.2021.100127. [26]

Haqqi, A. et al. (2020), "COVID-19 in Pakistan: Impact on global polio eradication initiative", *Journal of Medical Virology*, Vol. 93/1, pp. 141-143, https://doi.org/10.1002/jmv.26240. [13]

Harris, R. et al. (2021), "Impact of COVID-19 on routine immunisation in South-East Asia and Western Pacific: Disruptions and solutions", *The Lancet Regional Health - Western Pacific*, Vol. 10, p. 100140, https://doi.org/10.1016/j.lanwpc.2021.100140. [11]

Hinchman, A. et al. (2020), "Global health is local health: A multidisciplinary perspective of COVID-19", *Ochsner Journal*, Vol. 20/2, pp. 123-133, https://doi.org/10.31486/TOJ.20.0059. [44]

Hou, Z. et al. (2021), "The Influence of the COVID-19 Epidemic on Prevention and Vaccination Behaviors Among Chinese Children and Adolescents: Cross-sectional Online Survey Study", *JMIR public health and surveillance*, Vol. 7/5, https://doi.org/10.2196/26372. [14]

Huh, K. et al. (2021), "Decrease in hospital admissions for respiratory diseases during the COVID-19 pandemic: a nationwide claims study", *Thorax*, Vol. 76/9, pp. 939-941, https://doi.org/10.1136/THORAXJNL-2020-216526. [28]

IJzerman et al (2020), *Is a delayed cancer diagnosis a consequence of COVID-19?*, https://pursuit.unimelb.edu.au/articles/is-a-delayed-cancer-diagnosis-a-consequence-of-covid-19 (accessed on 20 August 2021). [16]

Imai, C. et al. (2022), "Telehealth use in patients with type 2 diabetes in Australian general practice during the COVID-19 pandemic: a retrospective cohort study", *BJGP Open*, p. BJGPO.2021.0200, https://doi.org/10.3399/BJGPO.2021.0200. [35]

International Monetary Fund (2020), *Regional economic outlook update. Asia and Pacific : navigating the pandemic : a multispeed recovery in Asia*. [51]

Ioannidis, J. (2021), "Infection fatality rate of COVID-19 inferred from seroprevalence data", *Bulletin of the World Health Organization*, Vol. 99, pp. 19-33, https://doi.org/10.2471/BLT.20.265892. [2]

Japan Times (2020), *Japan Cancer Society urges people to get screened after testing dived 30% in 2020*, https://www.japantimes.co.jp/news/2021/04/18/national/science-health/cancer-screenings-pandemic/ (accessed on 20 August 2021). [20]

Khader, M., T. Jabeen and R. Namoju (2020), "A cross sectional study reveals severe disruption in glycemic control in people with diabetes during and after lockdown in India", *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, Vol. 14/6, pp. 1579-1584, https://doi.org/10.1016/J.DSX.2020.08.011. [29]

Khare, J. and S. Jindal (2021), "Observational study on effect of lock down due to COVID 19 on HBA1c levels in patients with diabetes: Experience from Central India", *Primary Care Diabetes*, https://doi.org/10.1016/J.PCD.2020.12.003. [32]

Kim (2021), *Delayed cancer diagnosis amid pandemic could raise cancer deaths: study*, https://www.koreabiomed.com/news/articleView.html?idxno=11658. [23]

Kshanti, I. et al. (2021), "The Impact of COVID-19 Lockdown on Diabetes Complication and Diabetes Management in People With Diabetes in Indonesia:", *https://doi.org/10.1177/21501327211044888*, Vol. 12, https://doi.org/10.1177/21501327211044888. [31]

Lim, W. and W. Wong (2020), "COVID-19: Notes From the Front Line, Singapore's Primary Health Care Perspective", *Annals of Family Medicine*, Vol. 18/3, p. 259, https://doi.org/10.1370/AFM.2539. [49]

Loades, M. et al. (2020), "Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19", *Journal of the American Academy of Child and Adolescent Psychiatry*, Vol. 59/11, p. 1218, https://doi.org/10.1016/J.JAAC.2020.05.009. [6]

OECD (2021), *OECD Health Statistics*, https://stats.oecd.org/Index.aspx?ThemeTreeId=9. [22]

OECD (2021), "Tackling the mental health impact of the COVID-19 crisis: An integrated, whole-of-society response", *OECD Policy Responses to Coronavirus (COVID-19)*, OECD Publishing, Paris, https://doi.org/10.1787/0ccafa0b-en. [10]

OECD (forthcoming), *The COVID-19 Pandemic and the Future of Telemedicine*, OECD Health Policy Series, OECD Publishing, Paris. [42]

Olson, J. et al. (2021), "COVID-19 concerns, health services utilisation and social support among Western Australians with diabetes during the pandemic", *Evaluation Journal of Australasia*, Vol. 21/4, pp. 206-225, https://doi.org/10.1177/1035719x211040857. [36]

Park, J. et al. (2012), "A nationwide survey on the prevalence and risk factors of late life depression in South Korea", *Journal of Affective Disorders*, Vol. 138/1-2, pp. 34-40, https://doi.org/10.1016/j.jad.2011.12.038. [9]

Rahman, A. and I. Yeasmine (2020), "Refugee health workers lead COVID-19 battle in Bangladesh camps", *UNHCR*, https://www.unhcr.org/en-au/news/stories/2020/7/5f198f1f4/refugee-health-workers-lead-covid-19-battle-bangladesh-camps.html (accessed on 2 September 2022). [46]

Schwandt H, C. (2022), "Changes in the Relationship Between Income and Life Expectancy Before and During the COVID-19 Pandemic, California, 2015-2021", *JAMA*, Vol. 328/4, pp. 360-366, https://doi.org/10.1001/jama.2022.10952. [3]

Shaikh, M. (2020), "Coronavirus: What is the Dharavi model being praised by WHO chief Tedros Adhanom", *India Today*, https://www.indiatoday.in/india/story/what-is-the-dharavi-model-being-praised-by-who-chief-tedros-adhanom-1699388-2020-07-11 (accessed on 2 September 2022). [48]

Sim, S. et al. (2021), "COVID-19 in Singapore - a case series from primary care", *Singapore medical journal*, Vol. 62/1, pp. 48-51, https://doi.org/10.11622/SMEDJ.2020082. [50]

Singh, L. (2020), "BMC's Community Health Volunteers: In the frontline of Covid fight, but poorly paid, exposed to risk", *The Indian Express*, https://indianexpress.com/article/cities/mumbai/bmcs-community-health-volunteers-in-the-frontline-of-covid-fight-but-poorly-paid-exposed-to-risk-6382159/ (accessed on 2 September 2022). [47]

Toyoda, Y. et al. (2021), "Negative impact of the COVID-19 state of emergency on breast cancer screening participation in Japan", *Breast Cancer*, https://doi.org/10.1007/s12282-021-01272-7. [18]

Vardhanabhuti, V. and K. Ng (2021), "Differential Impact of COVID-19 on Cancer Diagnostic Services Based on Body Regions: A Public Facility-Based Study in Hong Kong", *International Journal of Radiation Oncology, Biology, Physics*, Vol. 111/2, p. 331, https://doi.org/10.1016/J.IJROBP.2021.05.010. [24]

WHO (2022), *Mental Health and COVID-19: Early evidence of the pandemic's impact: Scientific brief*, World Health Organization, https://apps.who.int/iris/handle/10665/352189. [5]

WHO (2020), *The impact of COVID-19 on mental, neurological and substance use services: results of a rapid assessment*, World Health Organization, Geneva, https://apps.who.int/iris/handle/10665/335838. [7]

Yasuda, Y. et al. (2021), "Incidence and Demographic Trends for Acute Coronary Syndrome in a Non-Epidemic Area During the Coronavirus Disease Pandemic in Japan - A 2-Institutional Observational Study", *Circ Rep*, Vol. 3/2, https://doi.org/10.1253/circrep.CR-20-0141. [33]

Note

[1] These statistics were compiled using data supplied from practice management systems of approximately 800 general practices, so isn't comparable with statistics derived from Medicare service data.

3 Health status

Life expectancy at birth and survival rate to age 65

Life expectancy at birth had continued to increase remarkably in Asia-Pacific up until 2019, reflecting sharp reductions in mortality rates at all ages, particularly amongst infants and children (see indicators "Infant mortality" and "Under age 5 mortality" in Chapter 3). These gains in longevity can be attributed to several 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 (National Institute on Ageing, National Institutes of Health and WHO, 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-income Asia-Pacific countries reached 70.6 years on average in 2019, a gain of almost 3 years since 2010, whereas it reached 75.1 years in upper-middle-income Asia-Pacific countries and territories, a gain of almost 2 years since 2010, similar to the trend observed across OECD countries gained (Figure 3.1). Nonetheless, a very large regional divide persists as, on average, a newborn in Hong Kong (China) is expected to live approximately 20 years more than a newborn in Papua New Guinea. Hong Kong (China), Japan, Macau (China), Singapore, Korea, Australia and New Zealand reported a life expectancy of more than 80 years in 2019. In contrast, Papua New Guinea, Myanmar, Pakistan, Fiji, Lao PDR, India and Nepal had a life expectancy at birth of less than 70 years.

During the COVID-19 pandemic, life expectancy has decreased by one year in lower-middle- and low-income Asia-Pacific countries from 2019 to 2021 (Figure 3.2), while it decreased by 0.4 years un upper-middle-income countries and slightly increased in high-income countries during the same period. In Indonesia, life expectancy at birth decreased by four years from 2019 to 2021, whereas it decreased by 2.5 years in India and the Philippines.

Women have greater percentage of cohort surviving to age 65 (Figure 3.3), regardless of the income level of the country. On average, 79.2% and 84.5% of a cohort of female newborns would survive to age 65 in low- and lower-middle-, and upper-middle-income Asia-Pacific countries and territories, respectively, while only 69.3% and 74.6% of male newborns will survive to age 65 in low- and lower-middle-, and upper-middle-income Asia-Pacific countries and territories, respectively. In Macau (China), Korea, Hong Kong (China), Japan and Singapore more than 94% of female newborns will survive to age 65, whereas in Papua New Guinea, Mongolia, Myanmar, and Fiji, less than 2 out of 3 male newborns 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 amongst females (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 females. On one side, females born in 2019 in Japan, Singapore and Korea are expected to live around 75 years of good health, whereas on the other side, males from the same cohort in Papua New Guinea, Solomon Islands, Pakistan, Mongolia, Fiji, Myanmar, Lao PDR and Cambodia have a healthy life expectancy of less than 60 years (Figure 3.4).

The difference of healthy life years for females born in 2019 between low- and lower-middle-, and upper-middle-income countries and territories across Asia-Pacific is of four years, with 62.9 and 67.1 healthy life years, respectively. This difference is increased to five years when comparing upper-middle-income to high-income countries and territories, which exhibit an average of 72.3 healthy life years for females. Gender gaps amount to 2.8; 3.0; and 2.0 healthy life years for low- and lower-middle-, upper-middle-, and high-income countries and territories across Asia-Pacific, respectively. Men born in 2019 in high-income countries and territories across Asia-Pacific are expected to have ten more years of healthy life than those born in low- and lower-middle-income countries and territories, with an average of 70.2 and 60.2 healthy life years, respectively.

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 newborns 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 and territories use to calculate life expectancy can vary somewhat, and these can lead to differences of fractions of a year. Some countries and territories 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 in full health that a newborn can expect.

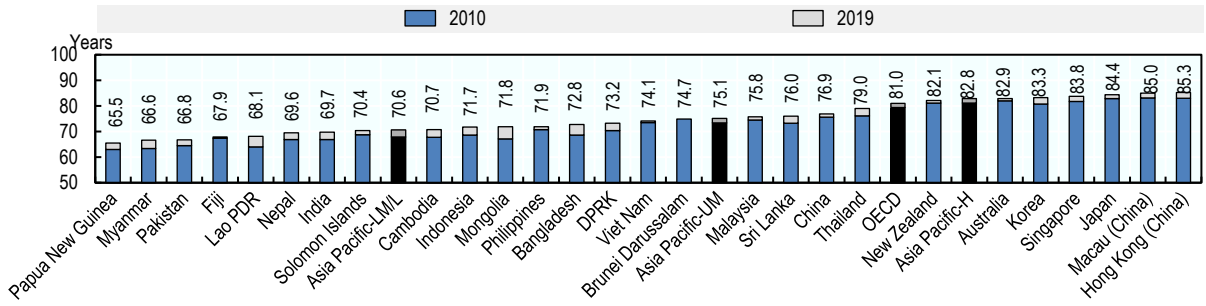
References

Dicker, D. et al. (2018), "Global, regional, and national age-sex-specific mortality and life expectancy, 1950–2017: a systematic analysis for the Global Burden of Disease Study 2017", *The Lancet*, Vol. 392/10159, pp. 1684-1735, https://doi.org/10.1016/S0140-6736(18)31891-9. [2]

National Institute on Ageing, National Institutes of Health and WHO (2011), *Global Health and Ageing*. [1]

UNESCAP (2017), *Inequality in Asia and the Pacific in the era of the 2030 agenda for sustainable development*. [3]

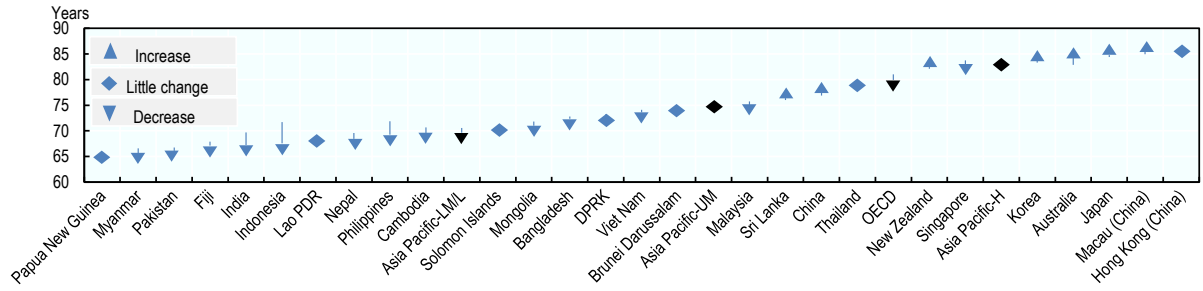
Figure 3.1. Life expectancy at birth, 2000 and 2019



Source: OECD Health Statistics 2022; United Nations World Population Prospects 2022.

StatLink https://stat.link/d3g4lw

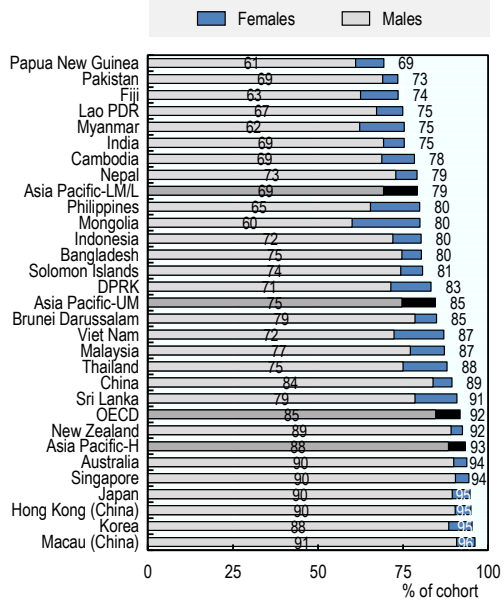
Figure 3.2. Changes in life expectancy at birth, 2019 and 2021



Source: OECD Health Statistics 2022; United Nations World Population Prospects 2022.

StatLink https://stat.link/zpt2l1

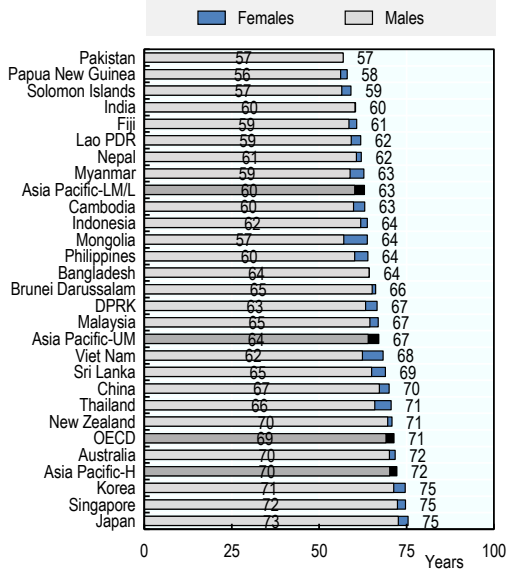
Figure 3.3. Survival to age 65 (% of cohort), by sex, 2020



Source: The World Bank World Development Indicators Online.

StatLink https://stat.link/xhgk2s

Figure 3.4. Healthy life expectancy at birth by sex, 2019



Source: WHO GHO 2022.

StatLink https://stat.link/codsbx

Neonatal mortality

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

Indicators such as the education of the mother, quality of antenatal and childbirth care, preterm birth and birthweight, Early Essential Newborn Care (EENC), and feeding practices are important determinants of neonatal mortality (see section "Family planning" in Chapter 4). Early Essential Newborn Care (EENC) is evidence-based, cost-effective, and comprises feasible interventions provided during childbirth and in the postnatal period. The First Embrace is the core of EENC, defined as a life-saving practice that promotes skin-to-skin contact immediately after birth between mother and child for no less than 90 minutes. Other EENC interventions include: (1) ensuring the presence of a birth companion; (2) adopting a position of choice; (3) providing adequate food and fluids; (4) using evidence-based criteria for episiotomy, and other procedures; (5) eliminating harmful or unnecessary practices such as fundal pressure, forced pushing, and enema; (6) administering oxytocin within one minute of birth. EENC has been introduced and scaled up across countries and territories in Asia-Pacific (WHO, 2022[1]).

For instance, in India, three causes accounted for three out of every four neonatal deaths in 2015: prematurity and low birthweight; neonatal infections; and birth asphyxia and birth trauma. However, even if neonatal infections and birth asphyxia and birth trauma have steadily decreased since 2000, neonatal mortality due to prematurity and low birthweight increased, rising from 342 000 deaths in 2000 to around 370 000 in 2015 (Fadel et al., 2017[2]). 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 amongst the leading causes of death in both mothers and newborns [see section "Child malnutrition (including undernutrition and overweight)" in Chapter 4]. In the Asia-Pacific region, 72% of the deaths in the first year of life occurred during the neonatal period in 2020 (IGME, 2021[3]).

Sustainable Developing Goals set a target of reducing neonatal mortality to 12 deaths or less per 1 000 live births by 2030. In 2020, the average amongst lower-middle- and low-income countries and territories in Asia-Pacific was 15.8 deaths per 1 000 live births, almost halving the rate observed in 2000 but still above the SDG target (Figure 3.5). Upper-middle-income Asia-Pacific countries almost reached the SDG target already in 2000 reporting a rate – on average – of 12.2 deaths per 1 000 live births, which then decreased to 6.2 in 2020. High-income Asia-Pacific countries and territories reported neonatal mortality rates similar to those of the OECD, with an average of 2.1 deaths per 1 000 live births in 2020.

In general, high-income countries and territories in Asia-Pacific experienced lower neonatal mortality rates than lower-middle- and low-income countries and territories in the region. Singapore, Japan, Hong Kong (China), Macau (China) and Korea reported two deaths or less per 1 000 live births in 2020, whereas neonatal mortality rates were higher than 20 per 1 000 live births in Myanmar, Lao PDR, Papua New Guinea and India, and higher than 40 per 1 000 live births in Pakistan.

Between 2000 and 2020, the neonatal mortality rate has fallen in almost all Asia-Pacific countries and territories (Figure 3.5). The rate in 2020 was one-third of the rate in 2000 in DPRK and Mongolia, while in China the rate reported in 2020 was one-sixth of the one reported in 2000. Both Brunei Darussalam and Fiji reported an increase in neonatal mortality rates between 2000 and 2020.

Amongst the main determinants of neonatal mortality rates across countries and territories, we find income status, geographical location, and mother education. For instance, in Pakistan, neonatal mortality is almost three times higher in the poorest households compared to richest ones, and 50% higher when mothers have no formal education rather than secondary or tertiary education. Geographical location is another determinant of differences reported in neonatal mortality in the region, though relatively less impactful in comparison to households' income. For example, neonatal mortality rate in rural areas of Lao PDR and Pakistan was one-third higher than the rate reported for urban areas, and a quarter higher in the case of Mongolia (Figure 3.6).

Neonatal mortality rates recede through cost-effective and appropriate interventions. These include neonatal resuscitation training, prevention, and management of neonatal sepsis, reducing mortality from prematurity, and prioritising the roles of breastfeeding and antenatal corticosteroids (Conroy, Morrissey and Wolman, 2014[4]).

Reductions in neonatal mortality will require not only the aforementioned strategies, but also ensuring that all segments of the population benefit from these (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.

Mortality data are estimated using the UN IGME model, except for Hong Kong (China) and Macau (China), for which data are gathered from local sources.

References

Conroy, N., B. Morrissey and Y. Wolman (2014), "Reducing Neonatal Mortality in Resource-poor Settings: What works?", *Journal of Neonatal Biology*, Vol. 03/03, https://doi.org/10.4172/2167-0897.1000139. [4]

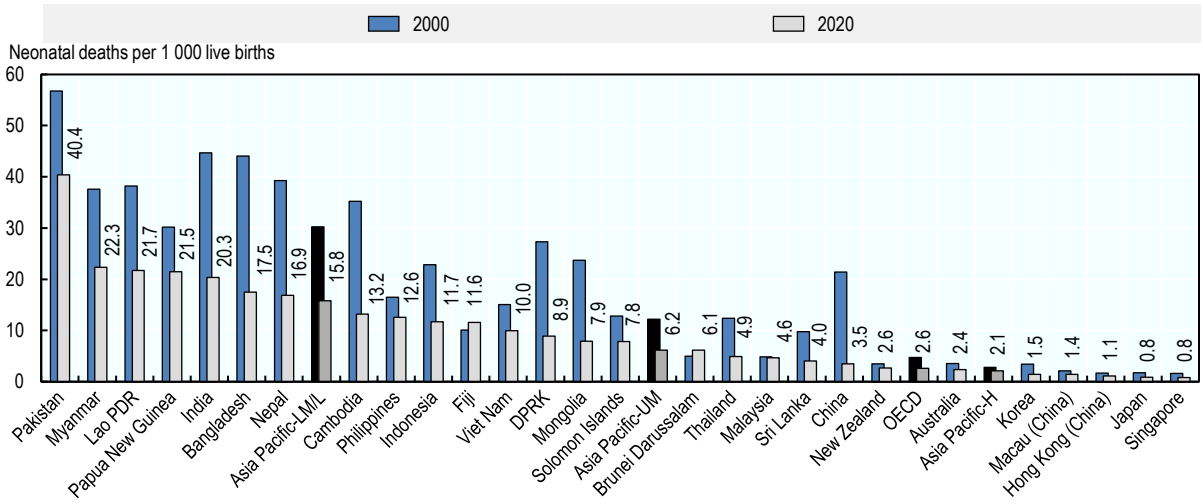
Fadel, S. et al. (2017), "Changes in cause-specific neonatal and 1–59-month child mortality in India from 2000 to 2015: a nationally representative survey", *The Lancet*, Vol. 390/10106, pp. 1972-1980, https://doi.org/10.1016/S0140-6736(17)32162-1. [2]

Gordillo-Tobar, A., M. Quinlan-Davidson and S. Lantei Mills (2017), "Maternal and Child Health: The World Bank Group's Response to Sustainable Development Goal 3: Target 3.1 & 3.2". [5]

IGME, U. (2021), *Levels and trends in child mortality*, United Nations Inter-agency Group for Child Mortality Estimation, https://cdn.who.int/media/docs/default-source/mca-documents/rmncah/unicef-2021-child-mortality-report.pdf. [3]

WHO (2022), *Scaling up Early Essential Newborn Care*, World Health Organization Western Pacific Regional Office, https://www.who.int/westernpacific/activities/scaling-up-early-essential-newborn-care. [1]

Figure 3.5. Neonatal mortality rates, 2000 and 2020



Source: UN Inter-agency Group for Child Mortality Estimation (IGME) 2021; Hong Kong annual digest of statistics 2021; Macau yearbook of Statistics, 2021.

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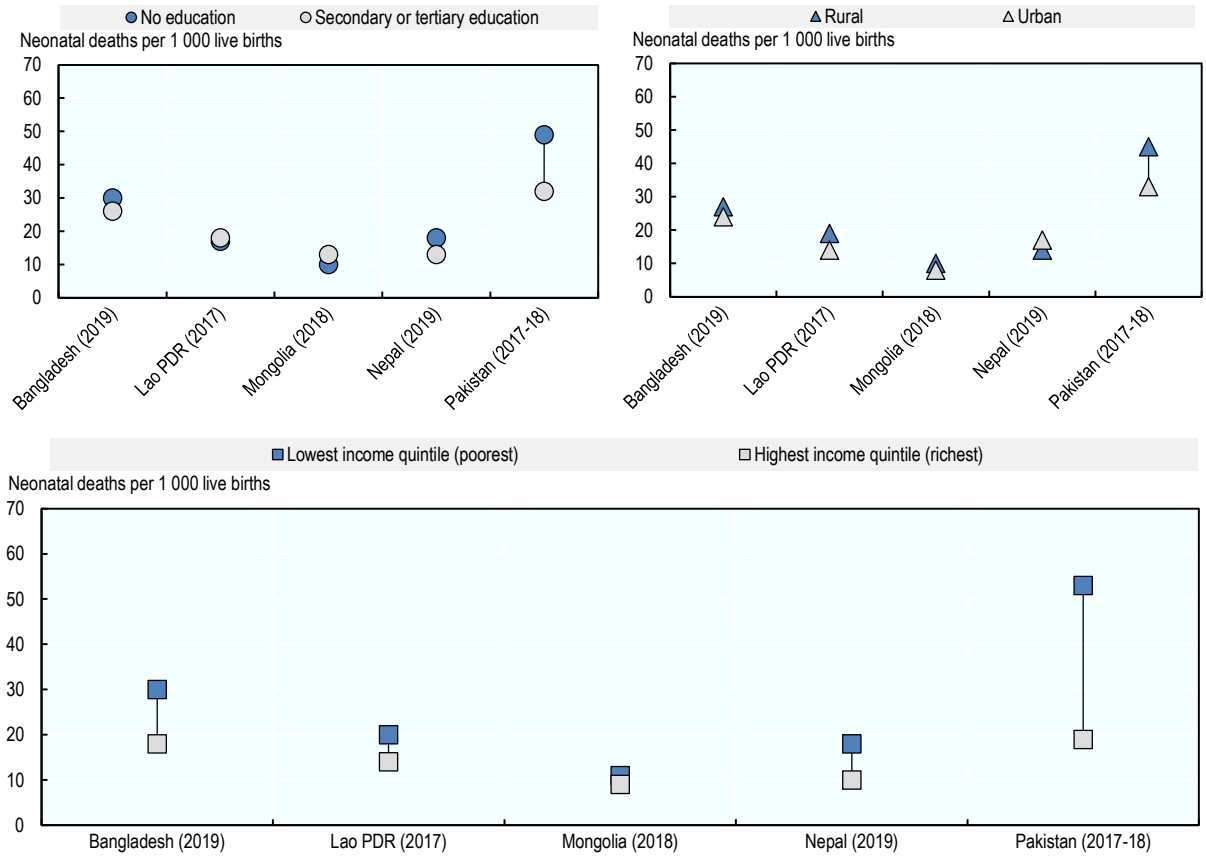
Figure 3.6. Neonatal mortality rates by socio-economic characteristic, selected countries and territories, nearest year



Source: DHS and MICS surveys, various years.

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Infant mortality

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

Pneumonia, diarrhoea, and malaria continue to be amongst the leading causes of death in infants. Cost-effective and simple interventions as those comprised in the EENC are key to reduce infant mortality (see section "Neonatal mortality"). 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.

Infant mortality can be reduced through cost-effective and appropriate interventions -akin to the EENC interventions for newborns. These interventions include proper infant nutrition; provision of supportive health services such as home visits and health check-ups; immunisation and controlling the influence of environmental factors such as air pollution; and access to safely managed water and sanitation services. Management and treatment of neonatal infections, pneumonia, diarrhoea, and malaria is also critical (UNICEF, 2013[1]).

In 2020, amongst lower-middle- and low-income Asia-Pacific countries and territories, the infant mortality rate was 24.1 deaths per 1 000 live births, less than half the rate observed in 2000 (Figure 3.7). Upper-middle-income Asia-Pacific countries and territories reported a rate of 10.8 deaths per 1 000 live births, down from 19.1 in 2000. Geographically, infant mortality was lower in eastern Asian countries and territories, and higher in South and Southeast Asia. Hong Kong (China), Japan, Singapore, Macau (China) and Korea had less than three deaths per 1 000 live births in 2020, whereas in Pakistan more than five 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 and territories experiencing significant declines (Figure 3.7). In China, DPRK, Mongolia and Cambodia, rates have declined in 2020 to one-third or less of the value reported in 2000, whereas rates in Fiji and Brunei Darussalam have increased in recent years.

Across countries and territories, important inequities persist in infant mortality rates largely related to income status and mother's education level (Figure 3.8). In Pakistan, Lao PDR and Nepal infant mortality rates are two to three times higher in poorest households compared to richest ones. Similarly, in Lao PDR children born to mothers with no education had a 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 the Lao PDR, where infant mortality in rural areas is more than twice as high as in urban settings (Figure 3.8). 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 each year, expressed per 1 000 live births.

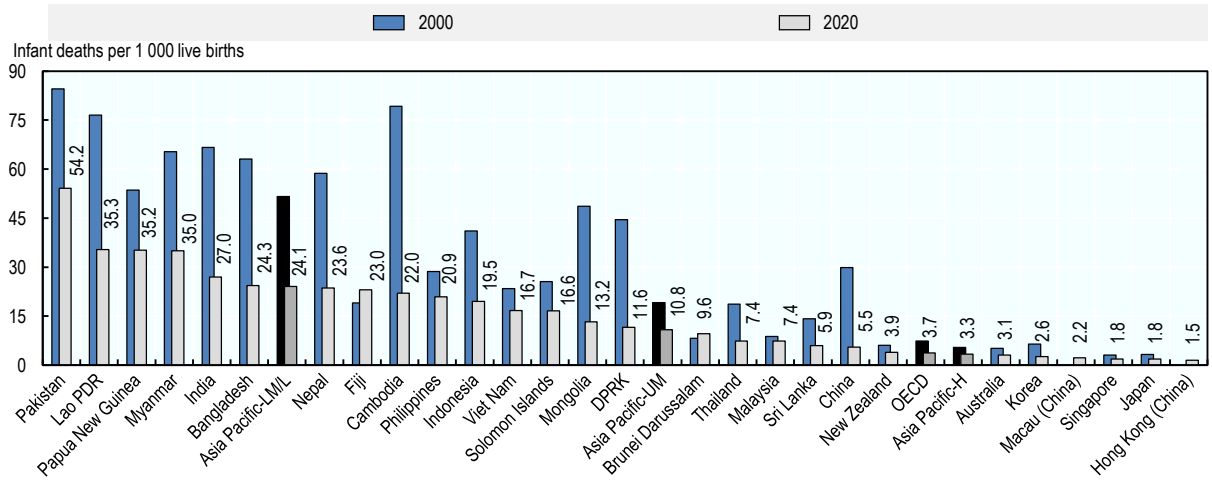
Some countries and territories base their infant mortality rates on estimates derived from censuses, surveys, and sample registration systems, and not on accurate and complete registration of births and deaths. Differences amongst countries and territories in registering practices for premature infants 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.

Mortality data are estimated using the UN IGME model, except for Hong Kong (China) and Macau (China), for which data are gathered from local sources.

References

UNICEF (2013), *Sustainable Development starts with Safe, Healthy and Well-educated Children*, http://www.unicef.org/parmo/files/Post_2015_UNICEF_Key_Messages.pdf. [1]

Figure 3.7. Infant mortality rates, 2000 and 2020 (or nearest year)



Source: UN Inter-agency Group for Child Mortality Estimation (IGME) 2021; Hong Kong annual digest of statistics 2021; Macau yearbook of Statistics, 2021.

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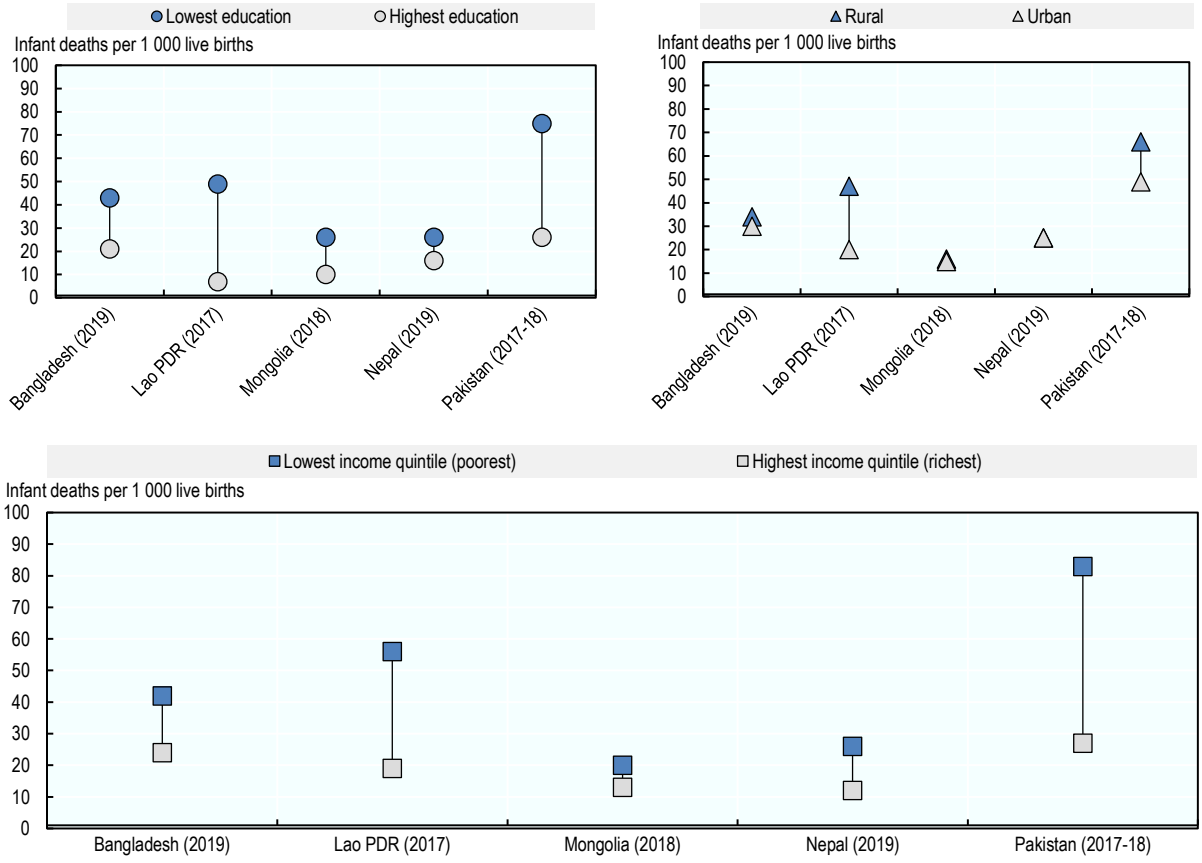
Figure 3.8. Infant mortality rates by socio-economic characteristic, selected countries and territories, nearest year



Source: DHS and MICS surveys, various years.

StatLink https://stat.link/cpqnka

Under age 5 mortality

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[1]).

The main causes of death amongst children under age 5 are those occurring in the newborn period (31.6%), lower respiratory infections (13.9%), and diarrhoea (9.1%). Communicable and infectious diseases are continuously some of the leading causes of under age 5 mortality, contribute to about 49% of deaths in children belonging to this age group (Perin et al., 2022[2]; IGME, 2021[3]). Malnutrition, as the underlying cause of some of these childhood diseases, 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 (2016-25). Oral rehydration therapy is a cheap and effective means to offset the debilitating effects of diarrhoea (WHO/UNICEF, 2006[4]), and countries and territories 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 2020, 5 million children died worldwide before their fifth birthday and almost one out of ten of these deaths (0.4 million) occurred in the Eastern and South-Eastern Asia regions (IGME, 2021[3]). The average under age 5 mortality rate across lower-middle- and low-, and upper-middle-income Asia-Pacific countries and territories was 29.4 and 13.0 deaths per 1 000 live births respectively (Figure 3.8). Hong Kong (China), Singapore, Japan, 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, Lao PDR, Papua New Guinea, and Myanmar were high at more than 40 deaths per 1 000 live births Due to its population, India alone accounted for more than 15% (0.78 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 and territories, progress varies amongst countries and territories. In China, Cambodia and Mongolia, mortality rate in 2020 was less than one-quarter of the rate reported in 2000 (Figure 3.9). Evidence (WHO, 2015[5]) 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 and territories 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 3.10). Across countries and territories, under age five mortality rates consistently vary based on household income and mother's education level, and to a certain extent by geographical location. For example, in Lao PDR under age five mortality was more than five times higher amongst children whose mother had no education compared to those whose mother had at least completed secondary education. In Pakistan, Lao PDR and Nepal disparities in under age five mortality according to household income were also large with children in the poorest 20% of the population around three 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 considerable in Lao PDR (Figure 3.10). Accelerating reductions in under age 5 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.

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

Mortality data are estimated using the UN IGME model, except for Hong Kong (China), for which data are gathered from local sources.

References

IGME, U. (2021), *Levels and trends in child mortality*, United Nations Inter-agency Group for Child Mortality Estimation, https://cdn.who.int/media/docs/default-source/mca-documents/rmncah/unicef-2021-child-mortality-report.pdf. [3]

Perin, J. et al. (2022), "Global, regional, and national causes of under-5 mortality in 2000–19: an updated systematic analysis with implications for the Sustainable Development Goals", *The Lancet Child & Adolescent Health*, Vol. 6/2, pp. 106-115, https://doi.org/10.1016/s2352-4642(21)00311-4. [2]

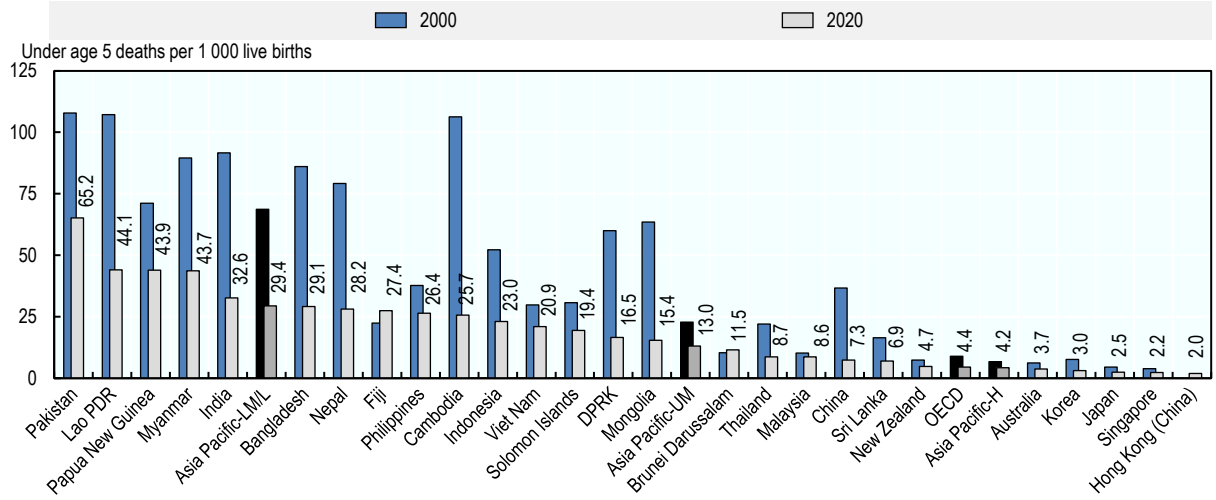
UNICEF (2013), *Sustainable Development starts with Safe, Healthy and Well-educated Children*, http://www.unicef.org/parmo/files/Post_2015_UNICEF_Key_Messages.pdf. [6]

United Nations (2015), *Transforming our world: the 2030 Agenda for Sustainable Development*, United Nations, https://sdgs.un.org/2030agenda. [1]

WHO (2015), *Success Factors for Women's and Children's Health: Cambodia*, World Health Organization, https://apps.who.int/iris/handle/10665/254481. [5]

WHO/UNICEF (2006), *Oral rehydration salts: production of the new ORS*, https://apps.who.int/iris/handle/10665/69227. [4]

Figure 3.9. Under age 5 mortality rates, 2000 and 2020 (or nearest year)



Source: UN Inter-agency Group for Child Mortality Estimation (IGME) 2021; Hong Kong annual digest of statistics 2021.

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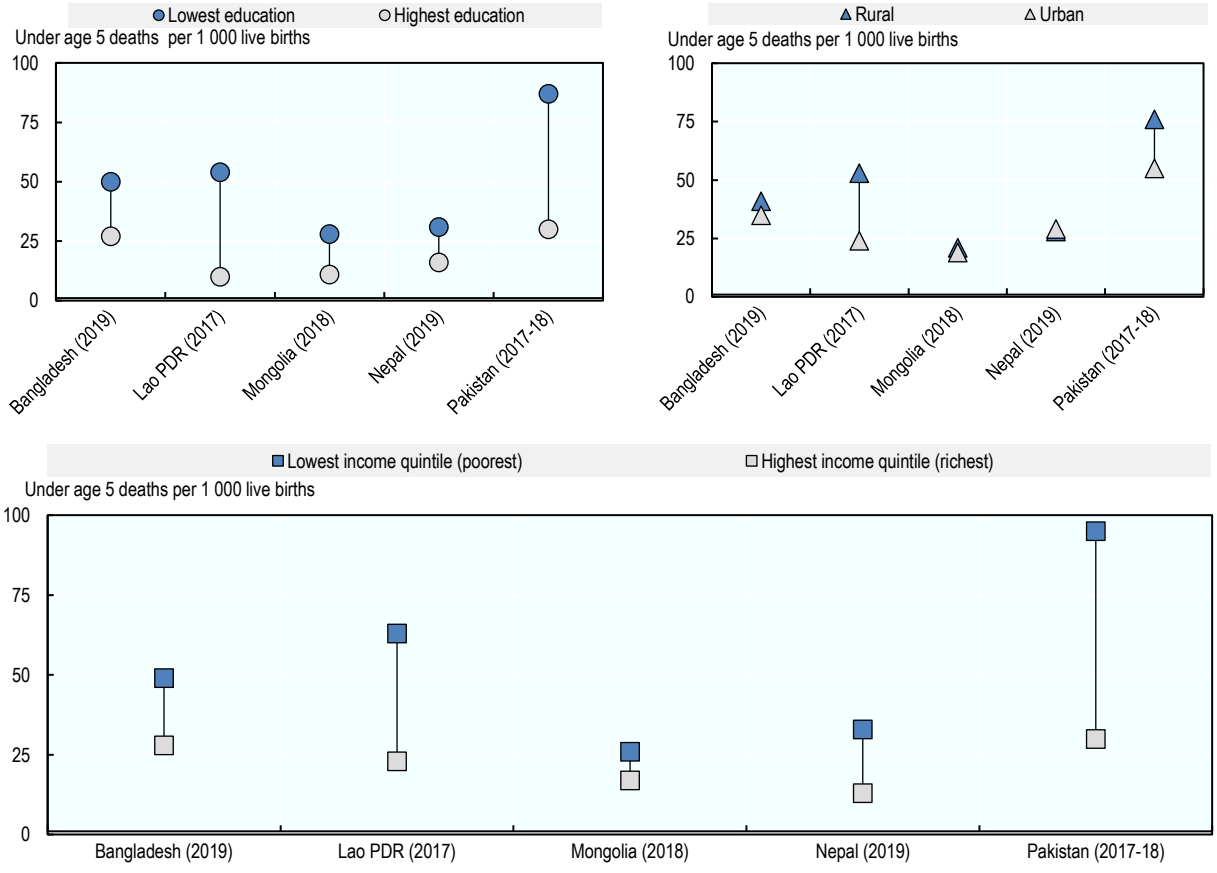
Figure 3.10. Under age 5 mortality rates by socio-economic and geographic factor, selected countries and territories, nearest year



Source: DHS and MICS surveys, various years.

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Mortality from all causes

The burden from non-communicable diseases amongst 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[1]). 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 mortality in the region. For males in 2019, age-standardised all-cause mortality ranged from less than 400 per 100 000 population in Japan, Australia, and Singapore, to 1 400 or more per 100 000 in Mongolia and the Solomon Islands (Figure 3.11). Amongst females, age-standardised all-cause mortality ranged from less than 250 per 100 000 population in Japan, Korea and Singapore, to over 900 per 100 000 population in the Solomon Islands, Papua New Guinea and Pakistan. All-cause mortality was higher amongst men than women across countries and territories in 2019, while in Viet Nam, Korea, Mongolia and Japan, rates for men were almost twice as high as those for females. Across lower-middle- and low-income Asia-Pacific countries and territories, all-cause mortality, on average, was 1 058 per 100 000 population for adult men and 749 per 100 000 population for adult women. Figures still much higher than the average mortality in OECD member countries (511 per 100 000 population for men and 317 per 100 000 population for women), and higher than the average mortality in upper-middle-income Asia-Pacific countries and territories (846 per 100 000 population for men and 565 per 100 000 population for women).

Age-standardised all-cause mortality for the entire population ranged from less than 320 per 100 000 population in Japan, Korea and Singapore, to over 1 000 in Solomon Islands, Papua New Guinea, Mongolia, Fiji and Pakistan (Figure 3.12). The average rate in lower-middle- and low-income Asia-Pacific countries and territories was 877 per 100 000 population, more than twice that of the OECD. Nonetheless, mortality for the entire population has declined in all reporting Asia-Pacific countries and territories (except for the Philippines) between 2000 and 2019, and the gap with OECD countries has 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 81% of all deaths, on average, across high- and upper-middle-income Asia-Pacific countries and territories, respectively (Figure 3.13; 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 amongst lower-middle- and low-income countries and territories in Asia-Pacific accounting for 17% of all deaths.

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[2]).

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.

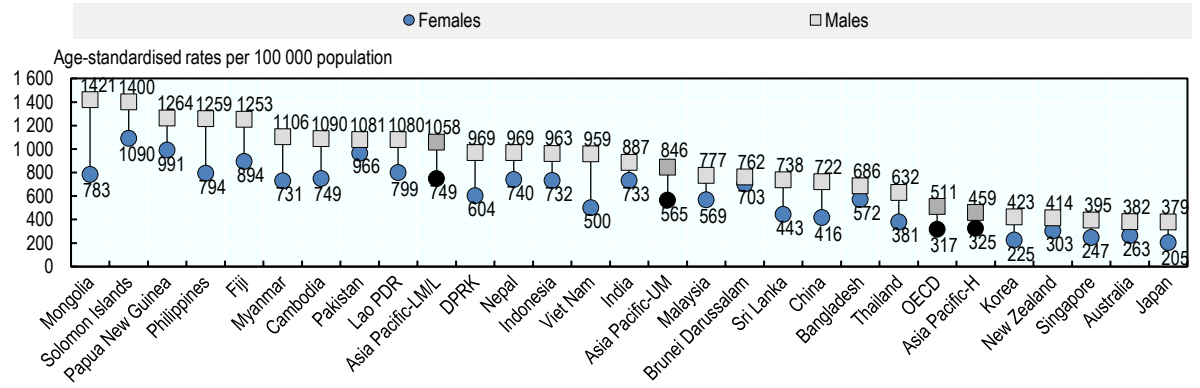
OECD averages are calculated as simple averages using WHO data for all 38 member countries, to improve comparability with Asia-Pacific countries and territories by using the same standardisation process.

References

Mathers, C. et al. (2005), "Counting the dead and what they died from: an assessment of the global status of cause of death data", *Bulletin of the World Health Organization*, No. 83(3), World Health Organization, https://apps.who.int/iris/handle/10665/269355. [2]

Omran AR (2005), "The Epidemiologic Transition: A Theory of the Epidemiology of Population Change", *The Milbank Quarterly*, Vol. 83/4, pp. 731-757. [1]

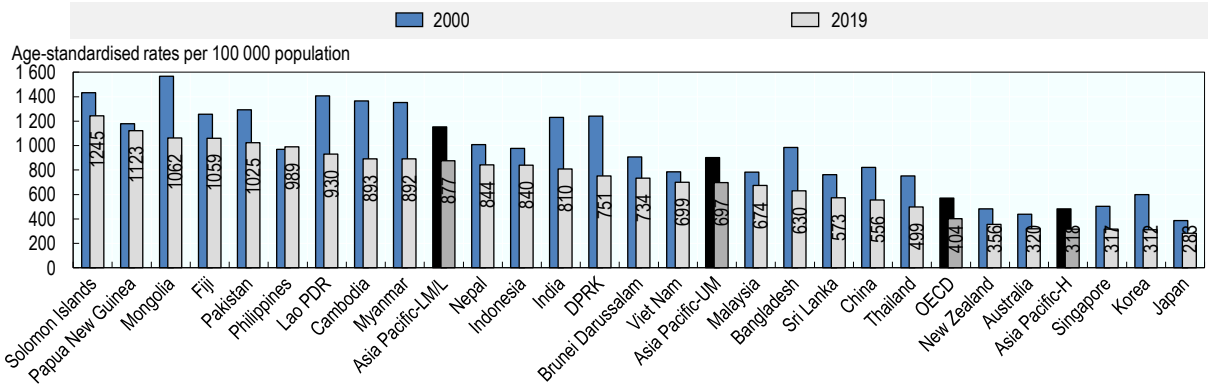
Figure 3.11. All-cause mortality for all population by sex, age-standardised, per 100 000 population, 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

StatLink https://stat.link/h84b0u

Figure 3.12. All-cause mortality rates for all populations, age-standardised, 2000 and 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

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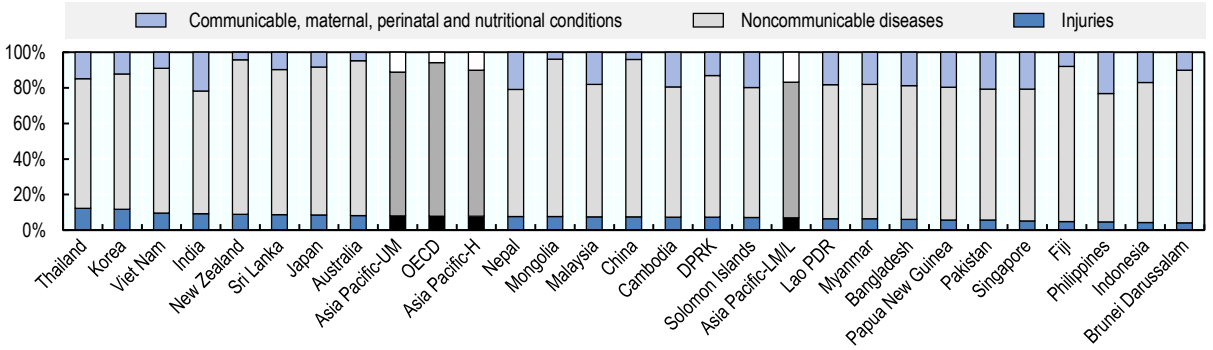
Figure 3.13. Proportions of age-standardised all-cause mortality rate by causes of deaths, 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

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Mortality from cardiovascular disease

Cardiovascular disease (CVD) is the leading cause of death in Asia-Pacific, although highly preventable. CVD was the cause of an estimated 9.85 million deaths in SEARO and WPRO and accounted for 45% of all NCD deaths in 2019 in these regions.

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, lack of physical activity, tobacco use (see indicator "Tobacco" in Chapter 4) and excessive alcohol consumption.

Age-standardised mortality from cardiovascular disease varied across countries and territories with a notably high level, exceeding 545 deaths per 100 000 population in Solomon Islands in 2019 (Figure 3.14). This contrasted with Lao PDR, Indonesia, Australia, Pakistan and Singapore 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 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 more than twice the one in OECD member countries (282 versus 122 deaths per 100 000 population). While most Asia-Pacific countries and territories had decreased mortality from CVD, the rate increased in Solomon Islands, Korea, India, and New Zealand from 2000 to 2019.

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[1]). 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[2]).

The types of CVD that are fatal differ across countries and territories in the region. In Nepal, Viet Nam, Japan, India, Cambodia, Bangladesh, China and Malaysia mortality from cerebrovascular disease was greater than IHD (Figure 3.15). In all other Asia-Pacific countries and territories, the trend was similar to European and North American countries and mortality from IHD was greater than for stroke (Ueshima et al., 2008[3]).

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 control the CVD epidemic. In addition to efforts to improve lifestyles, primary care needs to be strengthened and accessible, and quality of acute care needs to improve through better emergency care and improved professional skills and training capacity (OECD, 2015[1]).

Definition and comparability

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

OECD averages are calculated as simple averages using WHO data for all 38 member countries, to improve comparability with Asia-Pacific countries and territories by using the same standardisation process.

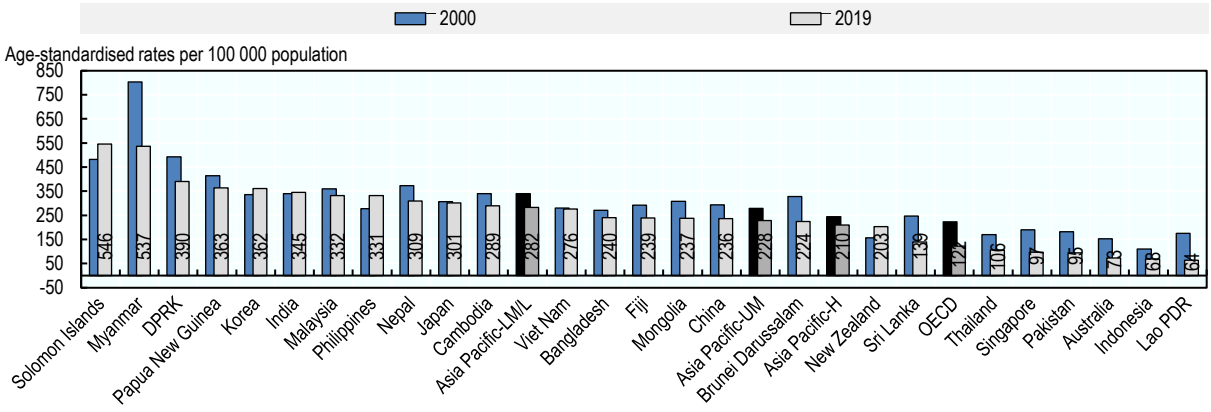
References

Ikeda, N. et al. (2011), "What has made the population of Japan healthy?", *The Lancet*, Vol. 378, pp. 1094-1105, https://doi.org/10.1016/S0140. [2]

OECD (2015), *Cardiovascular Disease and Diabetes: Policies for Better Health and Quality of Care*, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264233010-en. [1]

Ueshima, H. et al. (2008), "Cardiovascular disease and risk factors in Asia: A selected review", *Circulation*, Vol. 118/25, pp. 2702-2709, https://doi.org/10.1161/CIRCULATIONAHA.108.790048. [3]

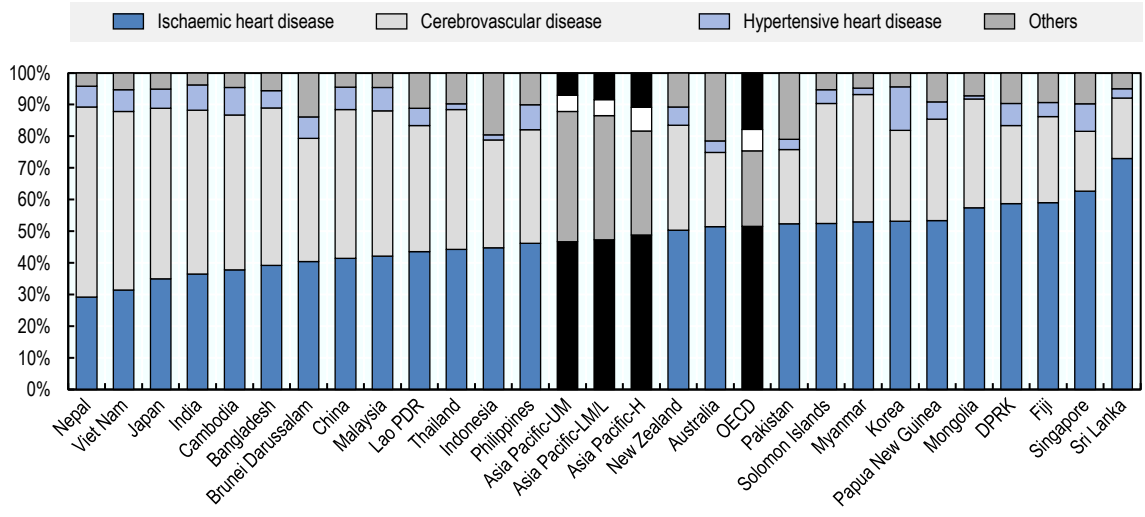
Figure 3.14. Cardiovascular disease, estimated mortality rates, 2000 and 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

StatLink https://stat.link/eigpuv

Figure 3.15. Proportions of cardiovascular disease deaths, 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

StatLink https://stat.link/0n9wem

Mortality from cancer

Cancer is the second leading cause of death after CVD in the Asia-Pacific region. Cancer was the cause of an estimated 5 million deaths (or 24% of total NCD deaths) in Asia-Pacific in 2019.

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[1]; Wilson et al., 2018[2]; Whiteman and Wilson, 2016[3]). 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 early treatment (OECD, 2013[4]).

Myanmar had the highest cancer age-standardised mortality rate with almost 200 deaths per 100 000 population in 2019 (Figure 3.16). Cancer deaths were less common in Sri Lanka, Fiji, Solomon Islands, Bangladesh, Papua New Guinea, and Korea, with less than 90 deaths per 100 000 population.

The average rates of death in lower-middle- and low-, as well as in high-income countries and territories in Asia-Pacific were lower than that of OECD countries -108 and 104, respectively, versus 114 deaths per 100 000 population in 2019-, whereas upper-middle-income countries and territories in the region had comparatively higher rates at 115 deaths per 100 000 population in 2019. While cancer mortality had decreased in most Asia-Pacific countries and territories and territories, New Zealand and DPRK reported an increase from 2000 to 2019 of 15.2% and 12.1%, respectively, while Sri Lanka, the Philippines, India, Cambodia and Fiji reported increases from 2000 to 2019 of less than 5%.

Lung cancer was the leading type of cancer in across Asia-Pacific countries and territories (Figure 3.17), accounting for 20.7%, 17.9%, and 13.5% of all cancer deaths – on average – in high, upper-middle, and lower-middle- and low-income countries and territories in 2019, respectively. Liver cancer mortality is also high in lower-middle- and low-income countries and territories in the region, accounting for 12.2% of all cancer deaths on average in 2019. Myanmar had the highest cancer mortalities in the region; the large proportion of deaths was due to liver cancer. Besides Myanmar, liver cancer deaths occurred frequently in Cambodia, 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 types of cancer deaths were stomach, colorectal and breast cancer. Mortality from stomach cancer accounted for 5.8% and 9.1% of all cancer deaths in high-income and upper-middle-income countries and territories respectively, linked to *Helicobacter pylori* infection, with a high prevalence in China, Myanmar, Viet Nam, Indonesia and Nepal. The prevalence of colorectal cancer deaths was amongst the highest in the region in Brunei Darussalam and Singapore. Breast cancer deaths, the most common cause amongst women, were responsible for over 20% of all cancer deaths in DPRK, and the prevalence was also high in Papua New Guinea, Korea and Mongolia.

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[4]).

Definition and comparability

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

OECD averages are calculated as simple averages using WHO data for all 38 member countries, to improve comparability with Asia-Pacific countries and territories by using the same standardisation process.

References

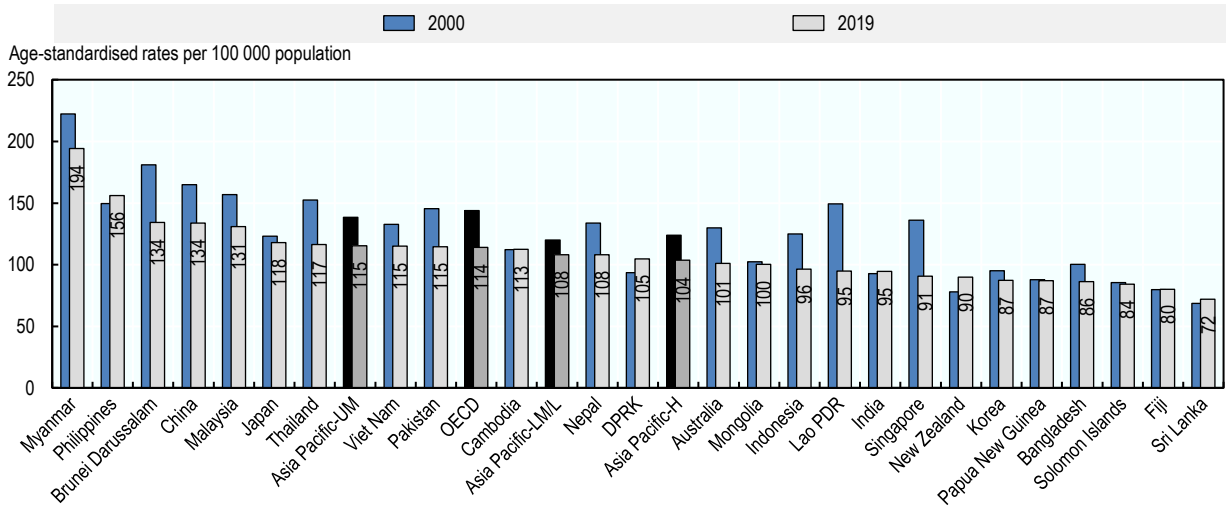
Islami, F. et al. (2017), "Cancer deaths and cases attributable to lifestyle factors and infections in China, 2013", *Annals of Oncology*, Vol. 28/10, pp. 2567-2574, https://doi.org/10.1093/annonc/mdx342. [1]

OECD (2013), *Cancer Care: Assuring Quality to Improve Survival*, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264181052-en. [4]

Whiteman, D. and L. Wilson (2016), *The fractions of cancer attributable to modifiable factors: A global review*, Elsevier Ltd, https://doi.org/10.1016/j.canep.2016.06.013. [3]

Wilson, L. et al. (2018), "How many cancer cases and deaths are potentially preventable? Estimates for Australia in 2013", *International Journal of Cancer*, Vol. 142/4, pp. 691-701, https://doi.org/10.1002/ijc.31088. [2]

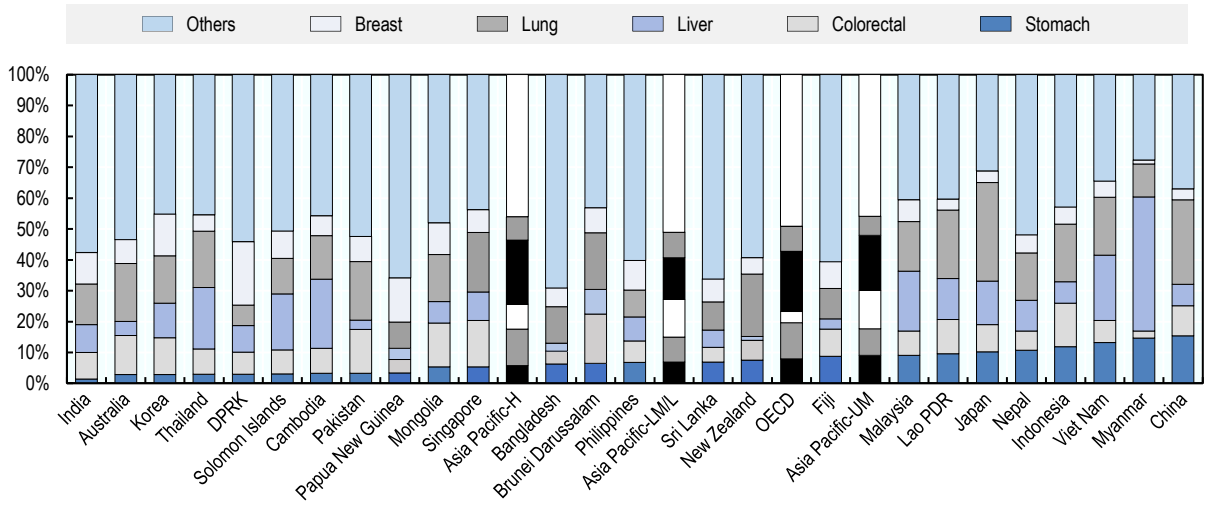
Figure 3.16. All cancers, estimated mortality rates, 2000 and 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

StatLink https://stat.link/ne1roi

Figure 3.17. Proportions of cancer deaths, 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

StatLink https://stat.link/f4ba5i

Mortality from injuries

Injuries are a leading cause of death and disability for all age groups and took 2.1 million lives in 2019 in WPRO and SEARO, accounting for 7.8% of all deaths in these regions (https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death). 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.

Age-standardised mortality from injuries was highest in Solomon Islands, Myanmar, and Fiji with greater than 70 deaths per 100 000 populations, while the rate was lowest in Singapore and Indonesia with less than 25 deaths per 100 000 population in 2019 (Figure 3.18). Upper-middle-income Asia-Pacific countries and territories had almost twice the injury mortality rate than OECD countries (60 versus 32 deaths per 100 000 population).

Injury deaths have declined in all Asia-Pacific countries and territories between 2000 and 2019. 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 35.1% and 30.1% of all injuries-related deaths in upper-middle-, lower-middle- and low-income Asia-Pacific countries and territories respectively in 2019. 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, 2015a). 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[1]). 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 strengthened by SDG 3.6, which targets halving the number of global deaths and injuries from road traffic accidents by 2030.

The main causes of injury deaths are different across countries and territories in the region (Figure 3.19). In Thailand, Mongolia, Viet Nam, and Bangladesh, 44% or more of all injury deaths were due to road traffic crashes, with Japan having one of the highest mortality rates for road traffic injuries amongst high-income countries and territories at 40.6% of all injury deaths. In Singapore, Lao PDR and Indonesia, 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[2]), but mental disorders are still under-treated or ineffectively treated (Hewlett and Moran, 2014[3]). Interpersonal violence is the main cause of injury deaths for men in the Philippines.

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[4]).

OECD averages are calculated as simple averages using WHO data for all 38 member countries, to improve comparability with Asia-Pacific countries and territories by using the same standardisation process.

References

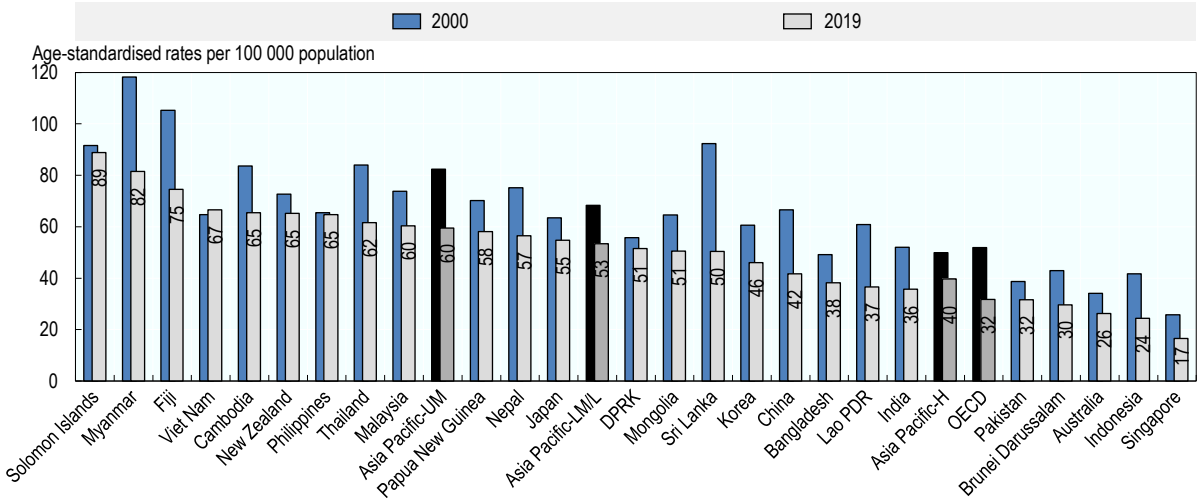
Hewlett, E. and V. Moran (2014), *Making Mental Health Count: The Social and Economic Costs of Neglecting Mental Health Care*, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264208445-en. [3]

Peden, M. (2010), "Road safety in 10 countries", *Injury Prevention*, Vol. 16/6, p. 433, https://doi.org/10.1136/ip.2010.030155. [1]

Turecki, G. and D. Brent (2016), "Suicide and suicidal behaviour", *The Lancet*, Vol. 387/10024, pp. 1227-1239, https://doi.org/10.1016/s0140-6736(15)00234-2. [2]

WHO (2018), *Global status report on road safety 2018*, World Health Organization, https://apps.who.int/iris/handle/10665/277370. [4]

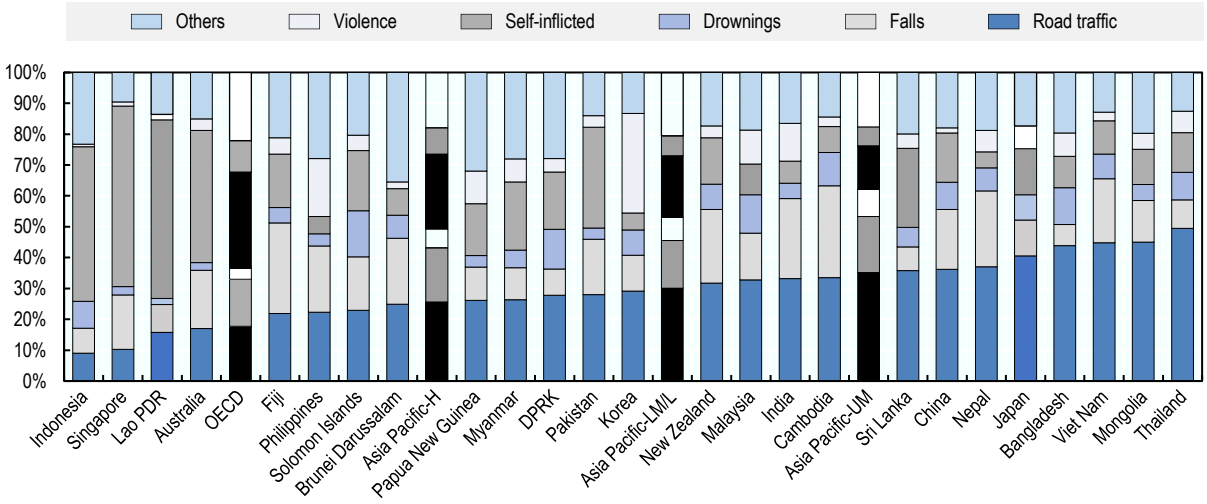
Figure 3.18. Injuries, estimated mortality rates, 2000 and 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

StatLink https://stat.link/lv4s93

Figure 3.19. Proportions of injury deaths, 2019



Note: OECD is a simple average calculated with data from WHO 2019 GHE.
Source: WHO 2019 Global Health Estimates.

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Maternal mortality

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, 2019[1]).

The leading causes of deaths are post-partum haemorrhage (PPH), infections, high blood pressure during pregnancy, and unsafe abortion. Many of these deaths are preventable and occur in resource-poor settings (WHO, 2019[1]). 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 and territories in 2019, almost three times the upper-middle-income and more than 15 times the high-income Asia-Pacific countries and territories average, respectively (Figure 3.20, left panel). Estimates for 2019 show a small group of countries and territories – Singapore, Australia, Japan and New Zealand – with very low ratios (less than 1 per 10 000 live births), whereas Solomon Islands, Nepal and Papua New Guinea had high MMRs at 200 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 and territories, significant reductions in maternal mortality have been achieved in Asia-Pacific over the last 19 years (Figure 3.20, right panel). The MMR declined by 44% between 2000 and 2019 across lower-middle- and low-income Asia-Pacific countries and territories. Cambodia, Lao PDR and Indonesia showed the largest reductions amongst countries and territories reporting ratios higher than the low- and lower-middle-income countries and territories average in 2019. According to a study (WHO, 2015[2]), 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. The national scale-up of the Early Essential Newborn Care (EENC) programme – comprising simple and cost-effective interventions that benefit mothers and newborns – is a key achievement of Cambodian Government with support from WHO.

Across Asia-Pacific countries and territories, maternal mortality is inversely related to the coverage of skilled birth attendance (Figure 3.21). Papua New Guinea and Bangladesh reported that less than 60% of live births are attended by skilled health professionals (see indicator "Pregnancy and birth" in Chapter 5) and present relatively high MMRs -above 160 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 3.22). 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 and territories. 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 and territories in WPRO (Cambodia, China, Fiji, Lao 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, 2019[1]).

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 period per 100 000 live births during the same period.

There are difficulties in identifying maternal deaths precisely. Many countries and territories 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.

References

UNESCAP (2017), *Inequality in Asia and the Pacific in the era of the 2030 agenda for sustainable development*. [3]

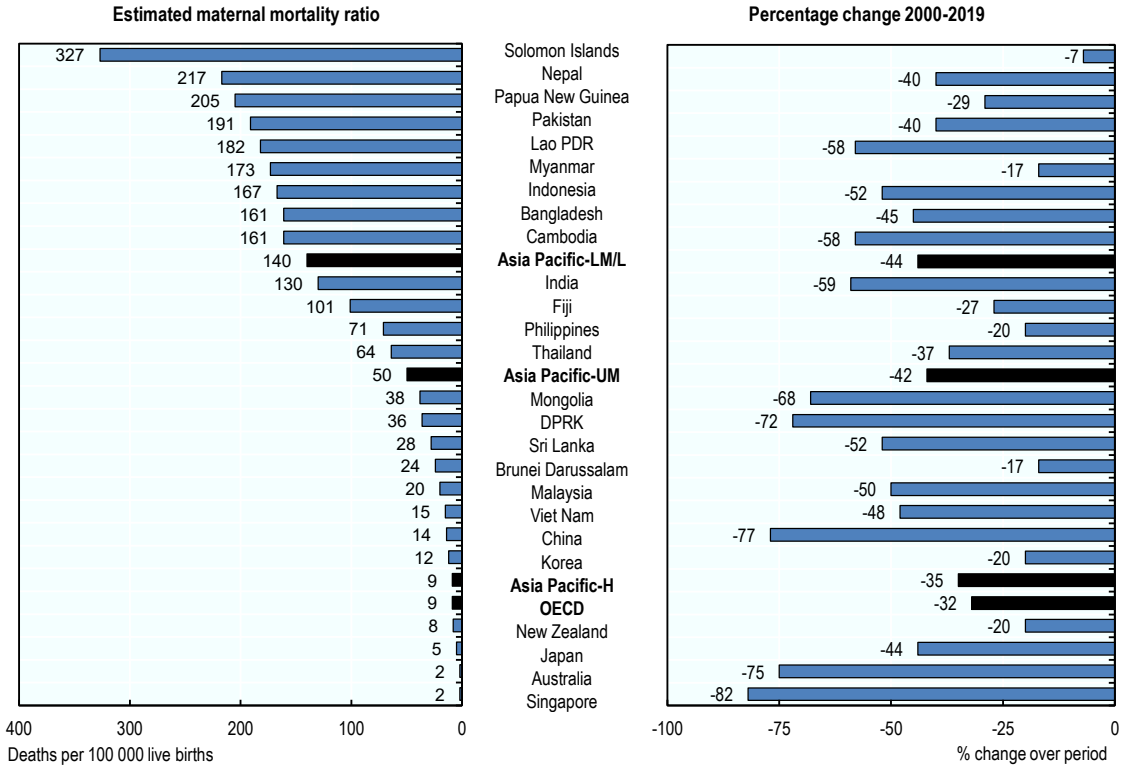
WHO (2019), *Trends in maternal mortality 2000 to 2017*, World Health Organization, https://apps.who.int/iris/handle/10665/327595. [1]

WHO (2015), *Success Factors for Women's and Children's Health: Cambodia*, World Health Organization, https://apps.who.int/iris/handle/10665/254481. [2]

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.

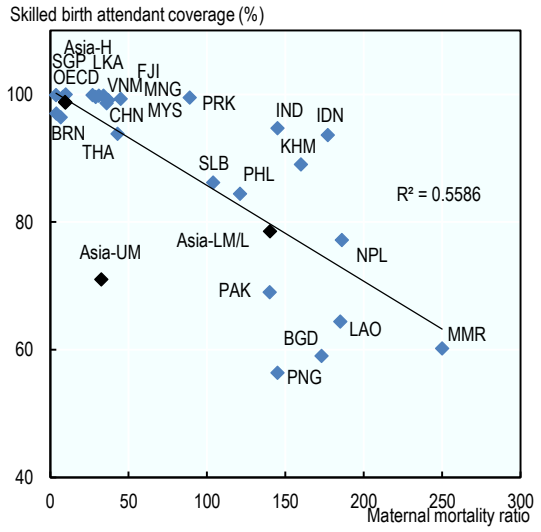
Figure 3.20. Estimated maternal mortality ratio, 2019 and percentage change since 2000



Note: OECD average is based on data from OECD Health Statistics 2022.
Source: OECD Health Statistics 2022; Bill and Melinda Gates Foundation.

StatLink https://stat.link/nskejc

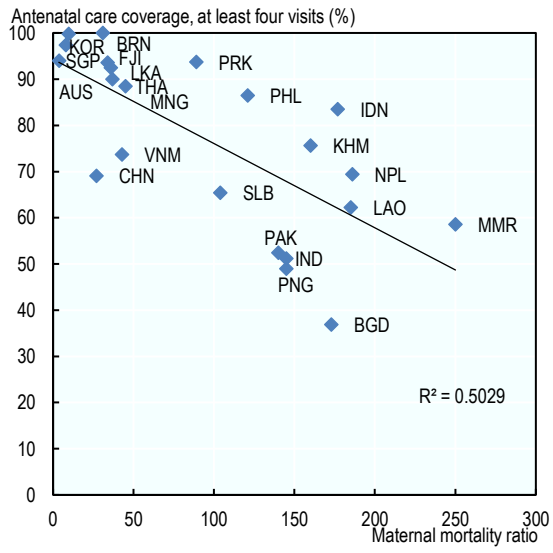
Figure 3.21. Skilled birth attendant coverage and maternal mortality ratio, latest year available



Source: OECD Health Statistics 2022; WHO (2021); WHO GHO 2021.

StatLink https://stat.link/x3ukr0

Figure 3.22. Antenatal care coverage and maternal mortality ratio, latest year available



Sources: WHO GHO 2021.

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Tuberculosis

Tuberculosis (TB) is one of the leading causes of death from an infectious disease in Asia-Pacific. In 2020, there were 5.8 million incident (new and relapsed) TB cases worldwide – a reduction from 7.1 million reported cases in 2019 due to the COVID-19 pandemic indirect impact-, an estimated 1.3 million deaths amongst HIV-negative people globally (WHO, 2021[1]). TB cases and deaths occur disproportionately amongst men, but the burden of disease amongst women is also high as it remains amongst the top three killers for them in the world. Most cases of TB are curable if diagnosed early and the appropriate treatment is provided, therefore curtailing onward transmission of infection.

TB was declared a global health emergency by the WHO in 1993, and the WHO-co-ordinated 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 (Sharma, 2017[2]). In 2018, the UN General Assembly High-Level Meeting on the fight against TB endorsed a political declaration to emphasise an importance of accelerating progress towards End TB targets (UNGA, 2018[3]).

In Asia-Pacific, TB mortality rates were high in Nepal and Papua New Guinea with over 50 deaths of people without HIV per 100 000 population (Figure 3.23, left panel).

South-East Asia accounted for 43% of the estimated TB cases globally in 2020, more than any other WHO region. India (26.0% of TB cases globally), China (8.5%), Indonesia (8.4%), the Philippines (6.0%), Pakistan (5.8%), and Bangladesh (3.6%) were amongst the most affected countries and territories in 2020 – keeping in mind that these countries and territories also had important reductions in the reporting of cases due to the COVID-19 pandemic – (WHO, 2021[1]). The case notification rate is particularly high in DPRK and Papua New Guinea, 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 DPRK, while for Australia and New Zealand less than 10 incident cases per 100 000 population were estimated (Figure 3.23, 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 85% in many Asia-Pacific countries and territories in 2019 (Figure 3.24). Nevertheless, Fiji reports a low treatment success rate at 30%. In countries and territories where TB predominantly affects older people -such as Japan and Hong Kong (China)-, treatment success rate was lower than 75%.

The Asia-Pacific region is rising to the challenges presented by TB. In a large part of the countries and territories, case notification rates have declined from 2015 to 2020 (Figure 3.25). However, countries and territories like Lao PDR, Thailand, Fiji, Indonesia, Bangladesh, 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 case notification rates. 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[4]; WHO, 2019[5]). 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.

References

Sharma, D. (2017), "New plan to end tuberculosis in south and southeast Asia", *The Lancet*, Vol. 389/10075, p. 1183, https://doi.org/10.1016/S0140-6736(17)30817-6. [2]

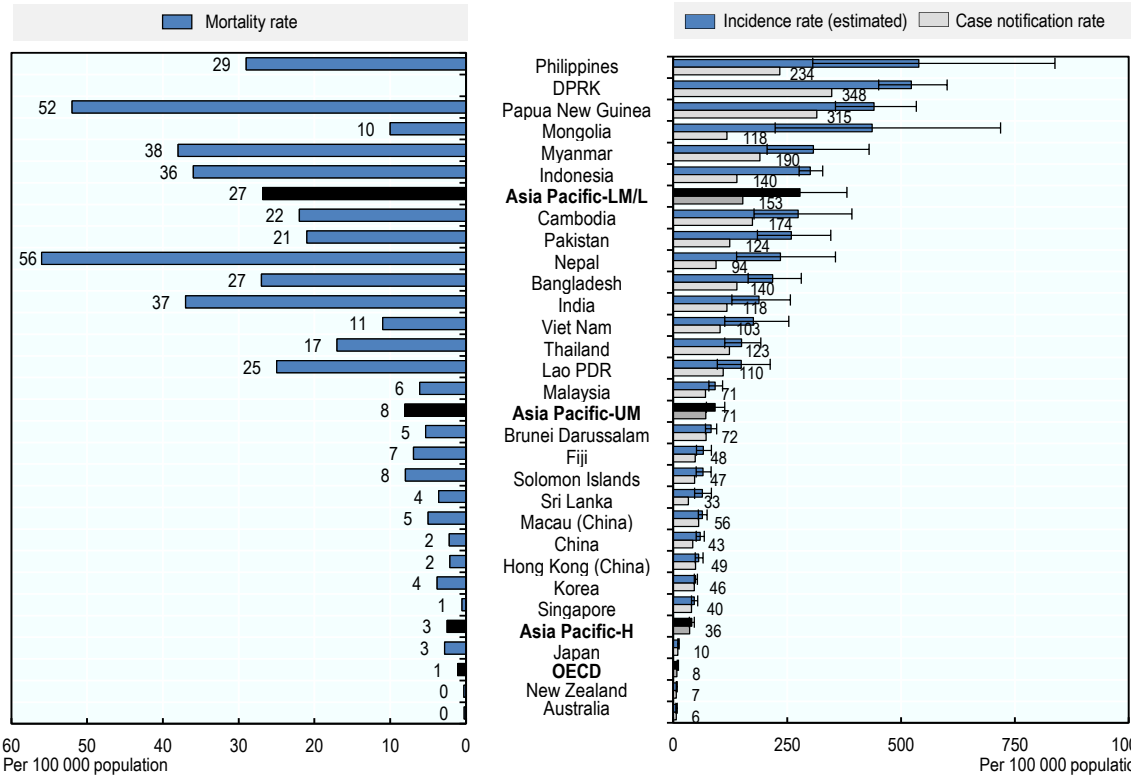
UNGA (2018), *UN General Assembly High-Level Meeting on the fight against tuberculosis*, https://www.who.int/news-room/events/un-general-assembly-high-level-meeting-on-ending-tb. [3]

WHO (2021), *Global Tuberculosis Report 2021*, World Health Organization, https://apps.who.int/iris/handle/10665/346387. [1]

WHO (2019), *Global tuberculosis report 2019*, https://apps.who.int/iris/handle/10665/329368. [5]

WHO (2016), *Ending TB in the South-East Asia Region : regional strategic plan 2016-2020*, WHO Regional Office for South-East Asia, https://apps.who.int/iris/handle/10665/250292. [4]

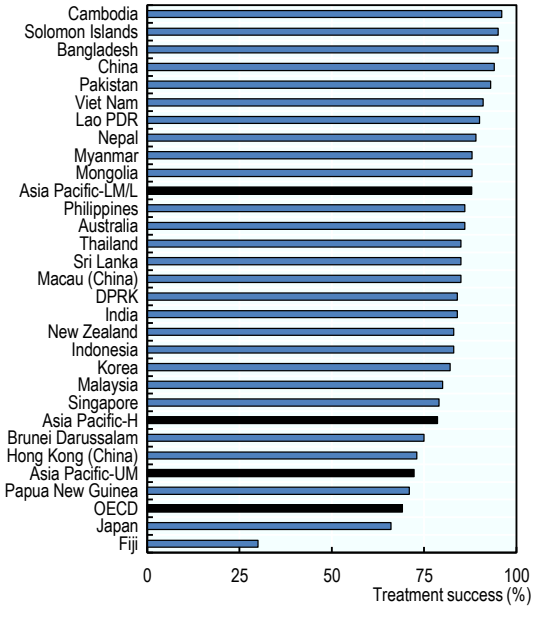
Figure 3.23. Estimate of the burden of disease caused by tuberculosis, 2020



H represents lower and upper bounds.
Source: Global Tuberculosis Report 2021.

StatLink https://stat.link/8u4k9o

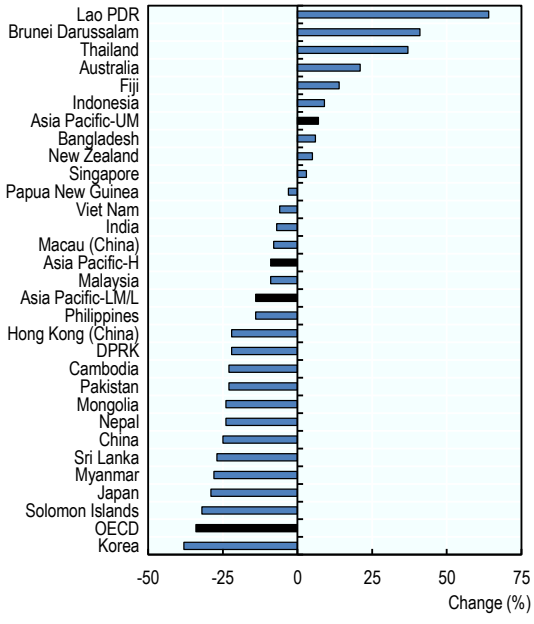
Figure 3.24. Tuberculosis treatment success for new and relapse TB cases, 2019



Source: Global Tuberculosis Report 2021.

StatLink https://stat.link/pi4d0t

Figure 3.25. Change in tuberculosis case notification rate, 2015-20



Source: Global Tuberculosis Report 2021.

StatLink https://stat.link/8x20sr

HIV/AIDS

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[1]; UNAIDS, 2013[2]). Asia is second only to sub-Saharan Africa as the region with the greatest number of people with HIV. The UN set an 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 less than 0.1% of adults aged 15 to 49 in Bangladesh, Mongolia, New Zealand and Sri Lanka to 1% of adults aged 15 to 49 in Thailand in 2020 (Figure 3.26, left panel). Although HIV prevalence is low, the absolute number of people living with HIV was high at more than 2.2 million in reporting countries and territories in 2021, because of Asia-Pacific's large population (Figure 3.26, right panel).

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[3]). The estimated ART coverage amongst persons living with HIV in 2021 was less than half in Pakistan, Indonesia, Bangladesh, Mongolia, the Philippines and Fiji, whereas more than three-quarters had access to ART in Thailand, Cambodia and New Zealand (Figure 3.27).

Over past years, many countries in Asia-Pacific responded to HIV/AIDS successfully and incidence rates have declined. Bangladesh, Singapore and Sri Lanka had less than 0.01 new case of HIV infection per 1 000 uninfected population in 2021. However, almost 0.4 new cases of HIV infections per 1 000 uninfected population were reported in Papua New Guinea in 2021 (Figure 3.28). Moreover, the Philippines more than tripled the new cases of HIV infection between 2000 and 2018 (UNAIDS, 2019[4]).

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 improve 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 amongst key affected populations, as most of Asia's epidemics occur amongst 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 amongst 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.

References

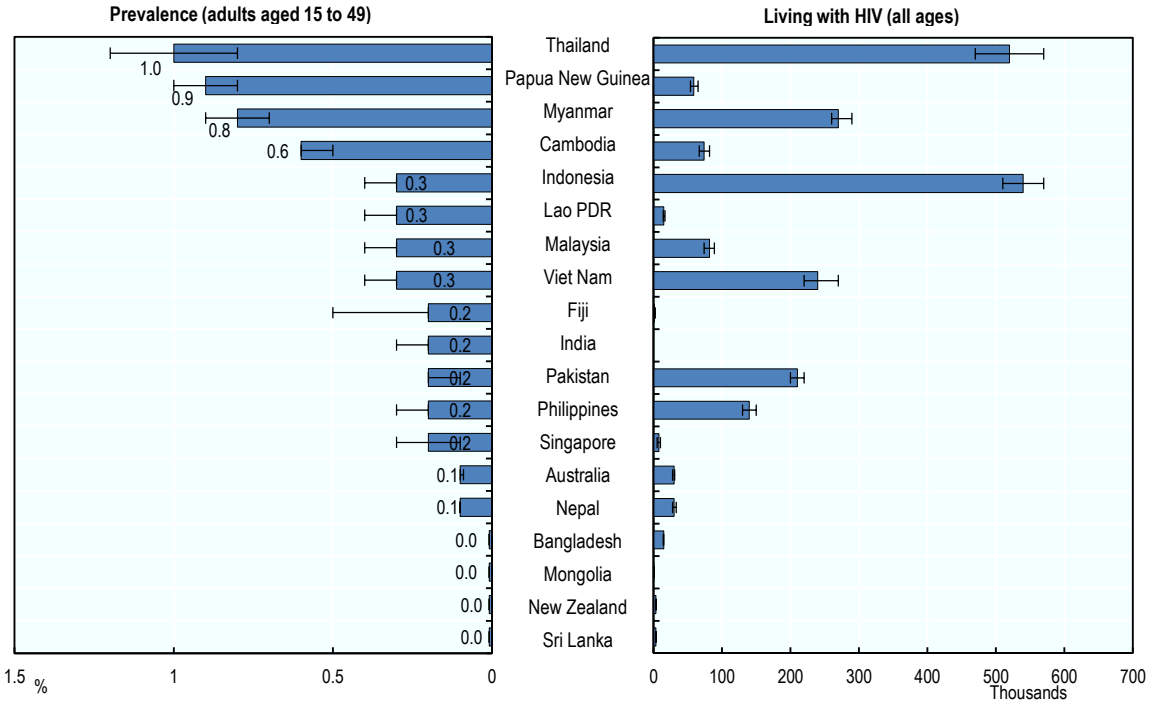
Ruxrungtham, K., T. Brown and P. Phanuphak (2004), "HIV/AIDS in Asia", *The Lancet*, Vol. 364/9428, pp. 69-82, https://doi.org/10.1016/S0140-6736(04)16593-8. [1]

UNAIDS (2019), *Communities at the centre. Global AIDS update 2019*. [4]

UNAIDS (2018), *Miles to go. Global AIDS update 2018*. [3]

UNAIDS (2013), *HIV in Asia and the Pacific*. [2]

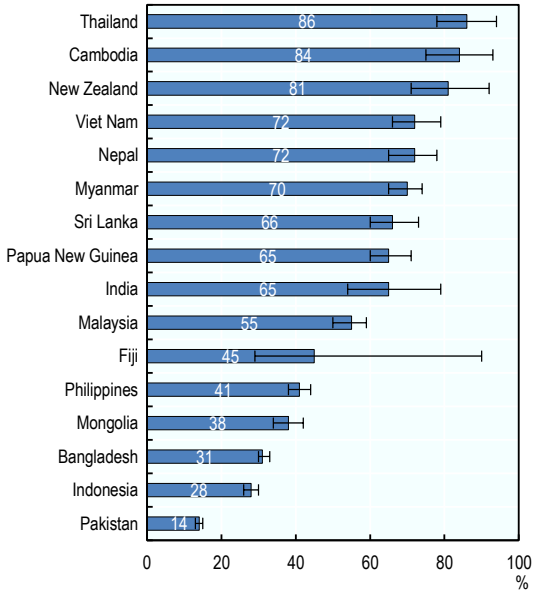
Figure 3.26. Estimated number of people living with HIV, 2021



H represents lower and upper bounds.
Source: WHO GHO 2022.

StatLink https://stat.link/48i7ud

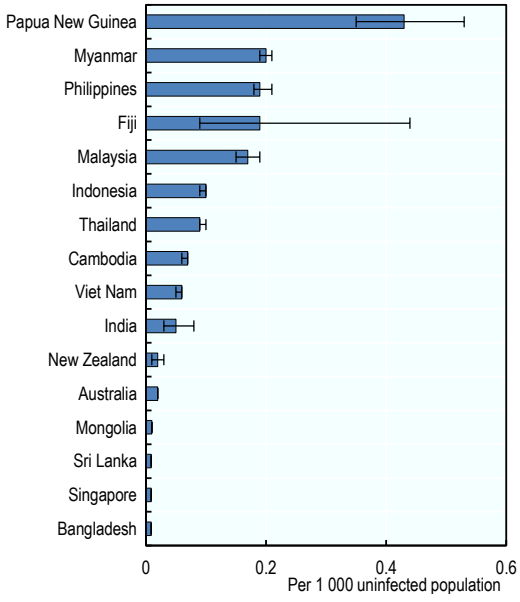
Figure 3.27. Estimated antiretroviral therapy coverage amongst people living with HIV, 2021



H represents lower and upper bounds.
Source: WHO GHO 2022.

StatLink https://stat.link/cj10ig

Figure 3.28. New HIV infections per 1 000 uninfected population, 2021



H represents lower and upper bounds.
Source: WHO GHO 2022.

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Malaria

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 and recently WHO recommended a ground-breaking malaria vaccine for children at risk (WHO, 2021[1]). Still, 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. In 2021, WHO certified China malaria free, a significant accomplishment for China and a major milestone for malaria elimination in the Western Pacific region. Malaysia reported zero malaria cases and is part of the WHO E-2025 Initiative to eliminate malaria by 2025, together with Korea and Vanuatu. Meanwhile, DPRK and Thailand were selected to participate in the E-2025 initiative towards the elimination of malaria by 2025 (WHO, 2021[2]).

About 2.31 billion people are at high risk in Asia-Pacific. Malaria-endemic countries and territories in the region are Papua New Guinea, Solomon Islands, Pakistan, India, Nepal, the Philippines, Indonesia, Myanmar, Lao PDR, Cambodia, Thailand, DPRK, China, Viet Nam, Bangladesh, 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 2020, South-East Asia accounted for 2% (5 million) of the estimated 241 million malaria cases globally. Presumed and confirmed cases were concentrated in Papua New Guinea, Myanmar and Pakistan (Figure 3.29, left panel). Death were estimated to be 9 000 in 2020, with the highest mortality rates in Papua New Guinea and the Solomon Islands (Figure 3.29, right panel) (WHO, 2021[2]).

For a balanced understanding, changes in the number of malaria cases should be viewed in parallel with changes in malaria incidence. The number of estimated cases per 1 000 population at risk showed a decline in all reporting Asia-Pacific countries and territories from 2010 to 2020, except for Papua New Guinea (Figure 3.30). 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 amongst at-risk population and improved access to artemisinin-based combination treatment (Mu et al., 2016[3]; Linn et al., 2018[4]).

The number of malaria cases not treated increased to around three out of ten in Papua New Guinea and the Philippines, whereas it decreased significantly to less than one in six in Nepal and Bangladesh from 2000 to 2020 (Figure 3.31). During the same period, the number of malaria cases not treated doubled to one in five in Myanmar, while they decreased by two-thirds in Cambodia and went down to almost zero in Viet Nam.

Definition and comparability

Underreporting of malaria cases and deaths remain a major challenge in countries and territories 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, Korea, Sri Lanka, Malaysia, DPRK, and Thailand, it is assumed that all cases are identified and treated. For the other countries and territories, 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.

References

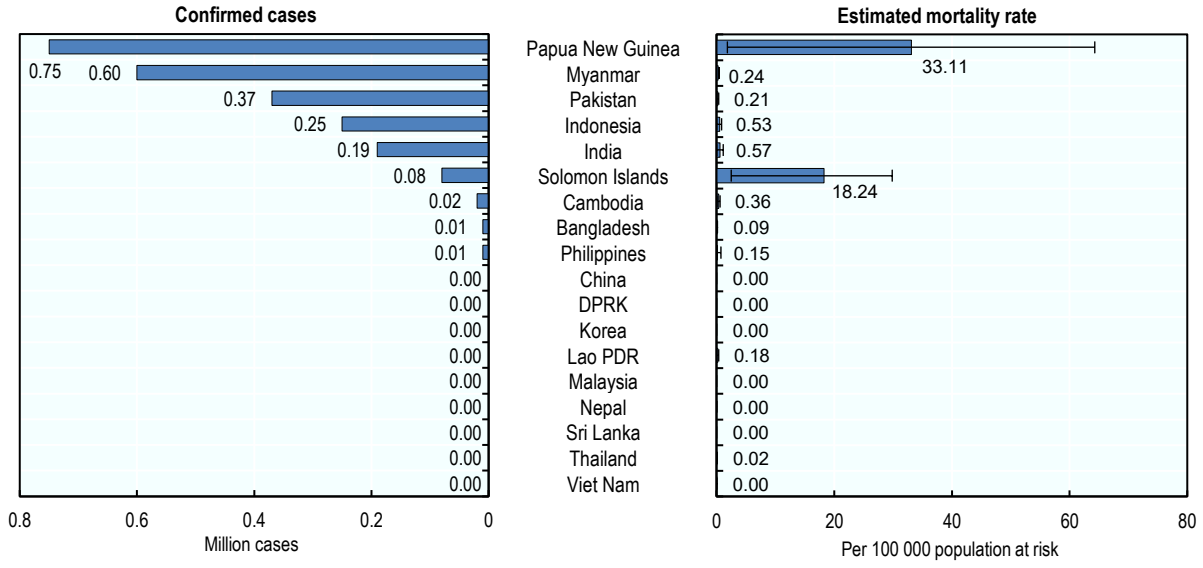
Linn, N. et al. (2018), "Are village health volunteers as good as basic health staffs in providing malaria care? A country wide analysis from Myanmar, 2015", *Malaria Journal*, Vol. 17/1, https://doi.org/10.1186/s12936-018-2384-4. [4]

Mu, T. et al. (2016), "Malaria incidence in Myanmar 2005-2014: Steady but fragile progress towards elimination", *Malaria Journal*, Vol. 15/1, https://doi.org/10.1186/s12936-016-1567-0. [3]

WHO (2021), *WHO recommends groundbreaking malaria vaccine for children at risk*, https://www.who.int/news/item/06-10-2021-who-recommends-groundbreaking-malaria-vaccine-for-children-at-risk. [1]

WHO (2021), *World Malaria Report 2021*, https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2021. [2]

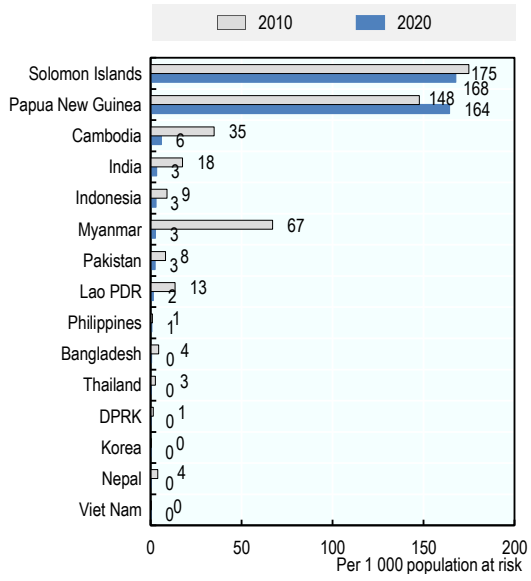
Figure 3.29. Confirmed malaria cases and estimated mortality rates, 2020



H represents lower and upper bounds.
Source: World Malaria Report 2021.

StatLink https://stat.link/mthsaw

Figure 3.30. Changes in malaria incidence rate, 2010-20



Source: World Malaria Report 2021.

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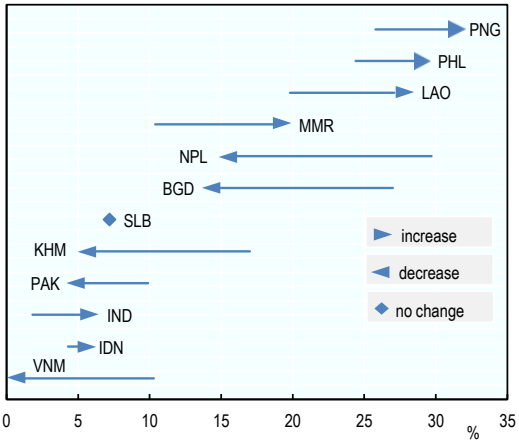
Figure 3.31. Change in the proportion of malaria cases not treated, 2000-20



Source: World Malaria Report 2021.

StatLink https://stat.link/abzksd

Diabetes

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% amongst the male and female adult population (18 years or older) respectively (NCD Risk Factor Collaboration, 2016[1]). 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[2]).

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 on “Child malnutrition (including undernutrition and overweight)” 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.

Amongst the 27 Asia-Pacific countries 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 3.32, right panel), while the prevalence for males ranged from 5.5% in Viet Nam to 15.9% in Fiji (Figure 3.32, left panel). In all countries and territories in this report (except Singapore), the prevalence of diabetes amongst males increased from 2000-14, whereas the prevalence of diabetes amongst women increases in all countries and territories but Japan, Korea, Brunei Darussalam, Hong Kong China and Singapore.

Amongst lower-middle- and low-income Asia-Pacific countries and territories, deaths attributable to high blood glucose increased by 14% between 2000 and 2019 (Figure 3.33). More than 260 deaths per 100 000 population were caused by high blood glucose in adults in Fiji in 2019. This mortality rate increased by 58% in Nepal between 2000 and 2019 and increased by more than 40% in Pakistan and Sri Lanka.

Definition and comparability

Country data used in Figure 3.32 were downloaded from the NCD Risk Factor Collaboration website at: http://ncdrisc.org/.

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

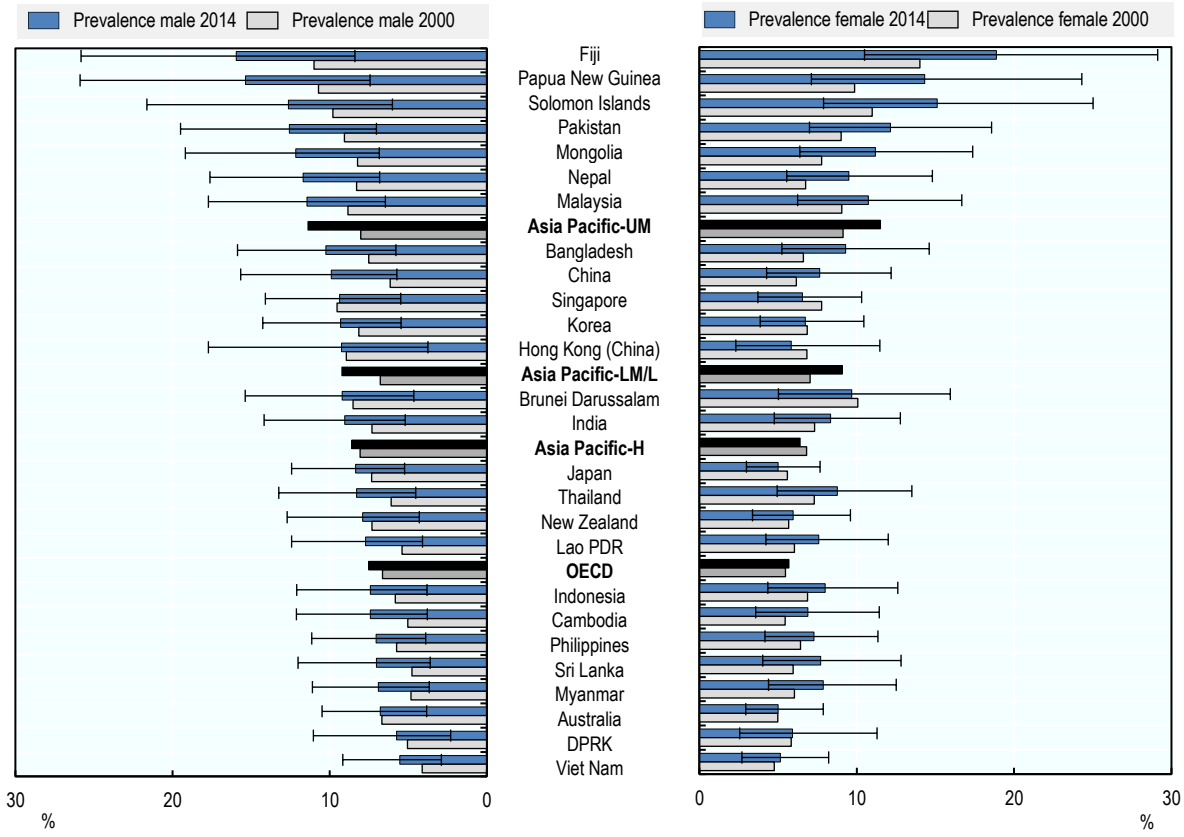
OECD averages are calculated as simple averages using WHO data for all 38 member countries, to improve comparability with Asia-Pacific countries and territories by using the same standardisation process.

References

NCD Risk Factor Collaboration (2016), “Worldwide trends in diabetes since 1980: a pooled analysis of 751 population-based studies with 4·4 million participants”, *The Lancet*, Vol. 387/10027, pp. 1513-1530, https://doi.org/10.1016/s0140-6736(16)00618-8. [1]

WHO (2016), *Global report on diabetes*, World Health Organization, https://apps.who.int/iris/handle/10665/204871. [2]

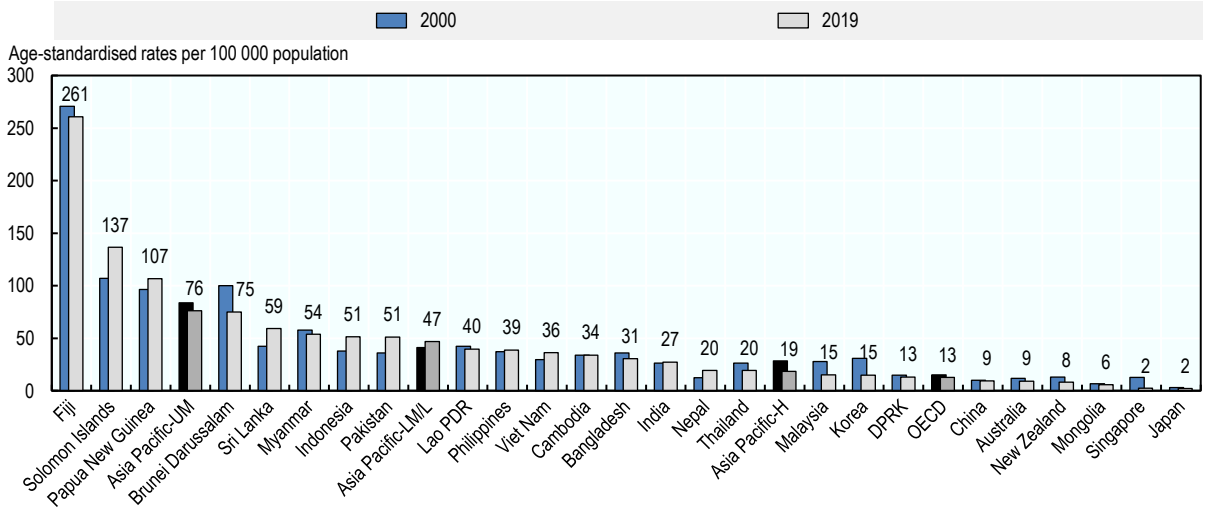
Figure 3.32. Diabetes prevalence amongst adults, 2010 and 2014



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

StatLink https://stat.link/12u79b

Figure 3.33. Deaths attributable to high blood glucose for adults, estimated mortality rates, 2000 and 2019



Source: WHO GHO 2022.

StatLink https://stat.link/c5gi9x

Ageing

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. 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 double in lower-middle- and low-income Asia-Pacific countries and territories in the next decades to reach 13.4% in 2050. This is still lower than the high-income and upper-middle-income countries and territories average in 2050 of 31.1% and 22.3%, respectively (Figure 3.34). The share of older people will be particularly large in Korea and Hong Kong (China) where around 40% of the population will be aged 65 and over in 2050.

Globally, the speed of ageing in the region will be unprecedented. In 2050, seven Asia-Pacific countries and territories will be qualified as "ageing society" (as compared to 14 countries and territories in 2021), eight as "aged society" (four countries and territories in 2021) 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 14 countries and territories fulfilled this criterion in 2020. The speed of ageing is particularly fast in Papua New Guinea and Mongolia, where the share of the population over 65 is expected to increase by more than five and four times, respectively, between 2021 and 2050. Many low- and middle-income countries and territories 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 3.34). On average across lower-middle- and low-income Asia-Pacific countries and territories, the share of the population aged 80 years and over is expected to almost triple between 2021 and 2050, to reach 2.9% of the population. This proportion is expected to triple and quadruple in high-income and upper-middle-income countries and territories to reach 12.1% and 7.2% during the same period, respectively. The proportion of the population aged 80 years and over is expected to grow by six times in Singapore and Brunei Darussalam 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. As the number of older people increases, 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 and territories in the region will urgently need to address drastic changes in demographic structures and subsequent changes in health care needs, especially the 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, 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 and territories in Asia-Pacific (Figure 3.35). In 2050, the ratio of people aged 15-64 to people aged over 65 years will be two-fifths of the 2021 value in upper-middle-income Asia-Pacific countries and territories (2.6 in 2050 vs 6.5 in 2021), whereas it will be slightly less than half the 2021 value in high (3.6 vs 7.9) and lower-middle- and low-income (5.1 vs 10.6) Asia-Pacific countries and territories. In Macau (China), Japan, India, Singapore, Thailand and China, there will be two or less persons aged 15-64 for each person aged over 65 years in 2050. 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, and 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 (OECD, 2017[1]). 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, 2022[2]).

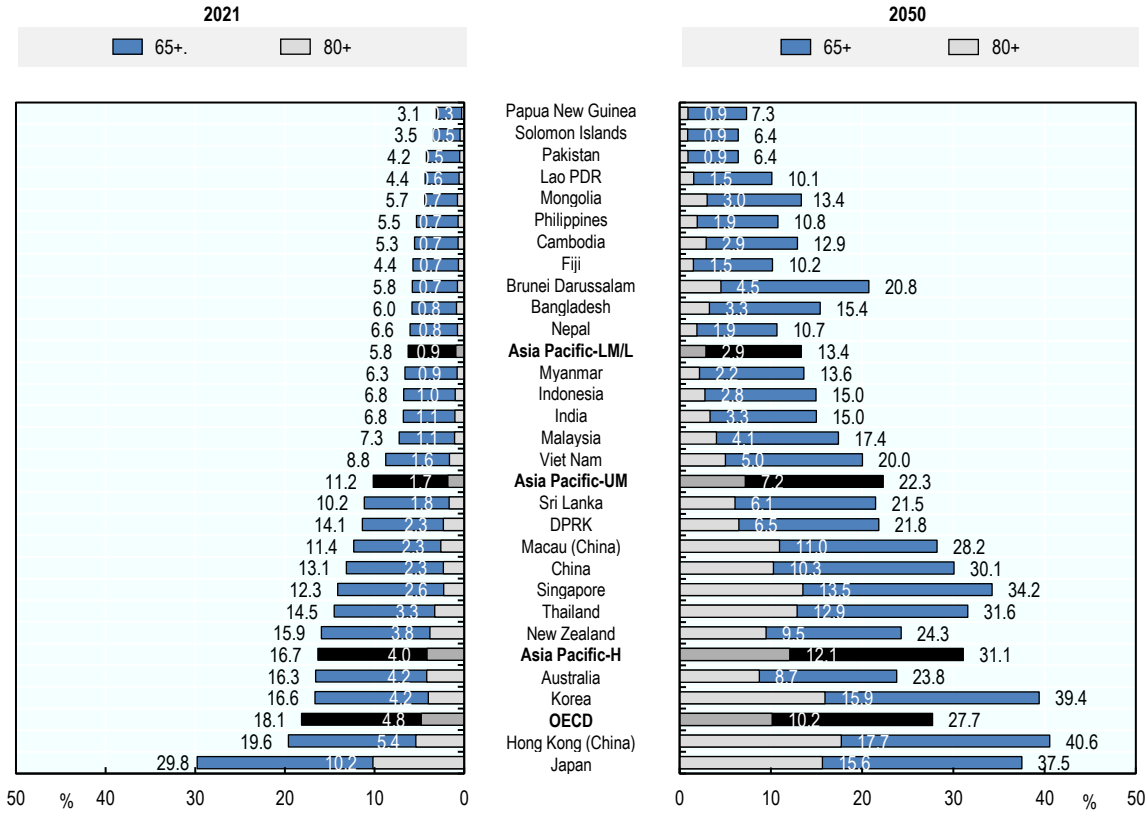
In this report, we qualify a country as "ageing society" if the share of people aged 65 years or more is between 7% and 14% of the total population, as "aged society" if this share is between 15% and 20% and as "super-aged society" if this share is 21% or higher.

References

OECD (2017), *Preventing Ageing Unequally*, https://dx.doi.org/10.1787/9789264279087-en. [1]

United Nations (2022), *World Population Prospects 2022: Methodology of the United Nations population estimates and projections*, United Nations, https://population.un.org/wpp/Publications/Files/WPP2022_Methodology.pdf. [2]

Figure 3.34. Share of the population aged over 65 and 80 years, 2021 and 2050



Source: UN World Population Prospects, 2022.

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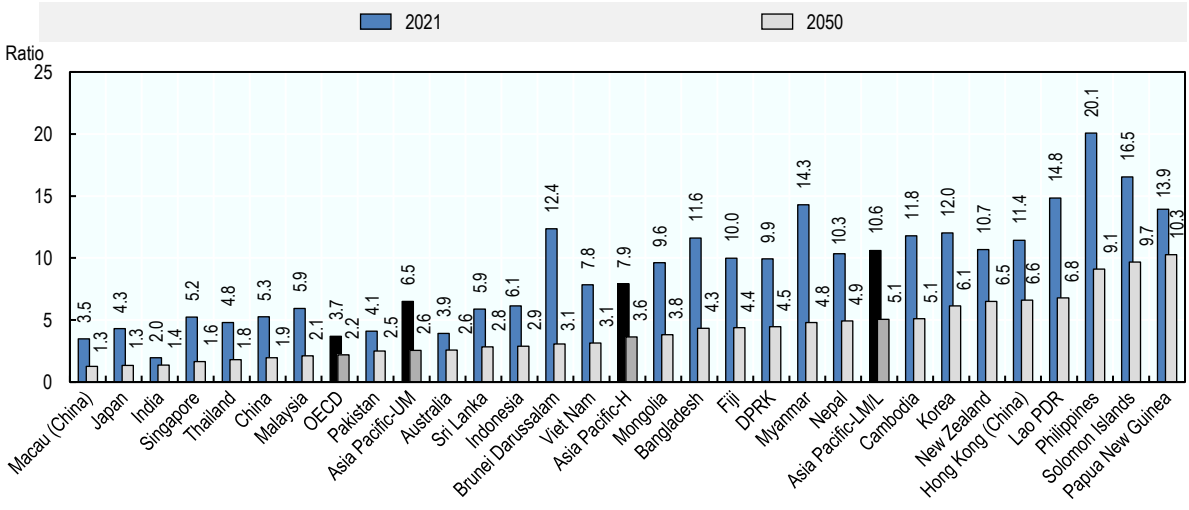
Figure 3.35. Ratio of people aged 15-64 to people aged over 65 years, 2021 and 2050



Source: UN World Population Prospects, 2022.

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4 Determinants of health

Family planning

The UN 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, 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 are more effective than traditional ones (WHO/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 (59.2% and 62.0%, respectively). In a few of these countries and territories including China (80.5%), New Zealand (74.7%), Thailand (71.3%), and DPRK (68.8%), at least two-thirds 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 (47%). In the Solomon Islands, Pakistan, and Papua New Guinea, less than one out of three married or in-union women reported using any modern method.

Based on population sizes, fertility rates, social welfare policies and regulations and service availability, differences in demand for family planning satisfied with modern methods exist in all reporting Asia-Pacific countries. In Nepal, demand satisfied is 34 percentage points higher amongst women with lowest education than amongst women with highest education, with a similar pattern observed in other reporting countries. (Figure 4.2). In Mongolia, demand satisfied is 13 percentage points higher amongst women living in rural areas than amongst those living in urban areas (72% versus 59%), while the proportion of women living in urban areas reporting demand for family planning satisfied is slightly higher than the proportion of women living in rural areas in Bangladesh (79% versus 77%), Pakistan (59% versus 56%) and Viet Nam (74% versus 71%). Based on income levels, the demand satisfied is 15 percentage points higher amongst women from households in the lowest income quintile than amongst women in the highest quintile in Mongolia (75% versus 60%), while the proportion of women in the highest income quintile reporting demand for family planning satisfied is higher than the proportion of women in the lowest income quintile in Pakistan (59% versus 54%) and Viet Nam (77% versus 75%) (Figure 4.2). Evidence suggests that demand for family planning not satisfied is high amongst 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 more children. 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.

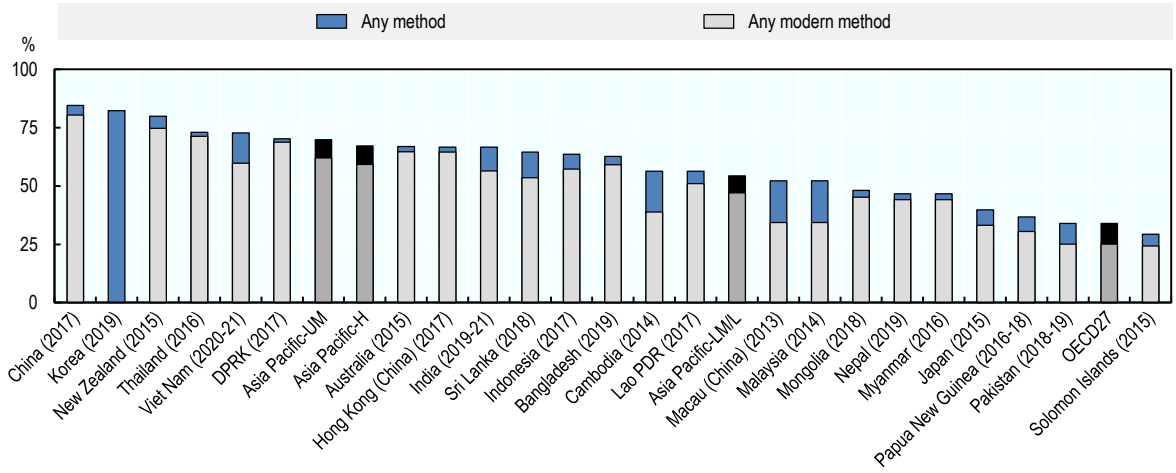
References

UNESCAP (2018), *Inequality in Asia and the Pacific in the era of the 2030 Agenda for Sustainable Development*, United Nations Economic and Social Commission for Asia and the Pacific, Bangkok, http://www.unescap.org/publications/inequality-asia-and-pacific-era-2030-agenda-sustainable-development. [3]

UNFPA (2019), *State of World Population 2019: Unfinished business*, United Nations Population Fund, New York, https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA_PUB_2019_EN_State_of_World_Population.pdf. [1]

WHO/Johns Hopkins Bloomberg School of Public Health (2018), *Family planning: a global handbook for providers: evidence-based guidance developed through worldwide collaboration*, https://apps.who.int/iris/handle/10665/260156. [2]

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



Source: UN World Contraceptive Use 2021; DHS and MICS surveys, various years; and Bureau of Health, Macau (China), 2014.

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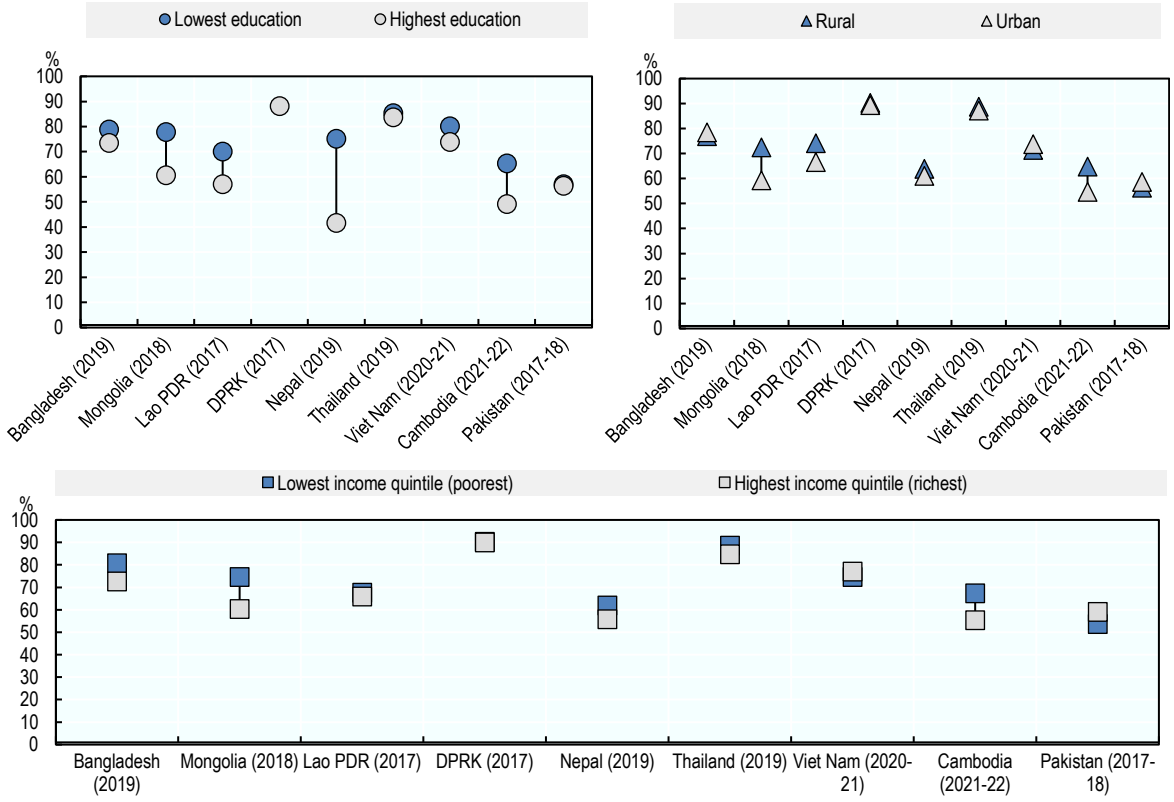
Figure 4.2. Demand for family planning satisfied by modern methods by socio-economic characteristics, selected countries, latest year available



Note: Lowest education may refer to no education.
Source: DHS and MICS surveys, various years.

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Infant and young child feeding

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[1]).

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 under-five 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 (Horta, Cesar and WHO, 2013[2]; Horta, Loret de Mola and Victora, 2015[3]; Victora et al., 2016[4]). Breastfeeding also improves school attendance and is associated with higher income in adult life. More than 800 000 deaths amongst 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[1])

The WHO Baby-Friendly Hospital Initiative outlines detailed recommendations on protecting, promoting, and supporting breastfeeding in facilities providing maternal and newborn services (WHO, 2017[5]). WHO and UNICEF recommend early initiation of breastfeeding within 1 hour of birth**,** exclusive breastfeeding for the first 6 months of life, and introduction of nutritionally-adequate and safe complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or 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 44% of children under six months being exclusively breastfed in 2021 (UNICEF, 2021[6]). However, in the Asia-Pacific region, Sri Lanka, the Solomon Islands, DPRK, Cambodia, India, Bangladesh, Nepal, Papua New Guinea, Mongolia, the Philippines, Myanmar and Indonesia have already achieved this target (Figure 4.3). The proportion of infants exclusively breastfed for the first six months of life in lower-middle- and low-income Asia-Pacific countries was two times the proportion reported in upper-middle-income countries. Policies and regulations on marketing of breast-milk substitutes and workplace support to breastfeeding as well as breastfeeding counselling in health facilities and societal beliefs favouring mixed feeding contribute to variations in exclusive breastfeeding rates across countries (Local Burden of Disease Exclusive Breastfeeding Collaborators, 2021[7]).

However, several Asia-Pacific countries and territories are lagging as less than one in four infants was exclusively breastfed in Thailand, China, and Viet Nam (Figure 4.3). 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[1]). Several countries and territories which increased exclusive breastfeeding practice have implemented these policies. For example, the Bangladesh Breastmilk Substitutes (BMS) Act was developed in 2013 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[8]). Since, the rate of exclusive breastfeeding in Bangladesh increased from 55.3% in 2014 to 62.6% in 2019 (OECD/WHO, 2018[9]). Another example is Cambodia, where the government implemented several diverse activities starting in 2004, including the establishment of breastfeeding practices in hospitals and community-based volunteers advocating the benefit of breastfeeding to expecting and new mothers. Consequently, the exclusive breastfeeding rates for babies under six months in Cambodia rose from 7% in 2000 to 65% in 2014. However, after considerable progress, there was a subsequent decline to 51% in 2020/21. This latter example demonstrates that it remains difficult to achieve sustained improvements in exclusive breastfeeding practice even if countries see initial improvements – therefore sustained and broad-based support is essential.

In Nepal, Bangladesh, Mongolia, Lao PDR and Pakistan, the rate of exclusive breastfeeding was higher amongst women living in households in the poorest income quintile as compared to women living in the richest households (Figure 4.5). 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 Bangladesh and Mongolia 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 Lao PDR and Pakistan. In Mongolia, women living in rural areas are almost 50% more 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 around half of the children between 6-8 months in India, whereas complementary foods were introduced to more than nine out of ten infants in Sri Lanka, Thailand and Viet Nam (Figure 4.4).

Considering persisting high levels of childhood malnutrition (see indicator "Child malnutrition and overweight" in Chapter 4), infant feeding practices must be further improved (UNICEF, 2019[1]).

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[1]). Thereafter, to meet their evolving nutritional requirements, infants should receive adequate and safe complementary foods (complementary feeding) 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.

References

Horta, B., V. Cesar and WHO (2013), *Long-term effect of breastfeeding: a systemic review*, World Health Organization, Geneva, https://apps.who.int/iris/handle/10665/79198. [2]

Horta, B., C. Loret de Mola and C. Victora (2015), "Long-term consequences of breastfeeding on cholesterol, obesity, systolic blood pressure and type 2 diabetes: a systematic review and meta-analysis", *Acta Paediatrica*, Vol. 104, pp. 30-37, https://doi.org/10.1111/apa.13133. [3]

Local Burden of Disease Exclusive Breastfeeding Collaborators (2021), "Mapping inequalities in exclusive breastfeeding in low- and middle-income countries, 2000–2018", *Nature Human Behaviour*, Vol. 5/8, pp. 1027-1045, https://doi.org/10.1038/s41562-021-01108-6. [7]

OECD/WHO (2018), *Health at a Glance: Asia/Pacific 2018: Measuring Progress towards Universal Health Coverage*, OECD Publishing, Paris, https://doi.org/10.1787/health_glance_ap-2018-en. [9]

Toolkits (2019), *Bangladesh Breastmilk Substitutes (BMS) Act: Protecting, promoting, and supporting breastfeeding by ending the unethical marketing of BMS*, https://toolkits.knowledgesuccess.org/toolkits/breastfeeding-advocacy-toolkit/bangladesh-breastmilk-substitutes-bms-act-protecting-promoting-and-supporting-breastfeeding-ending. [8]

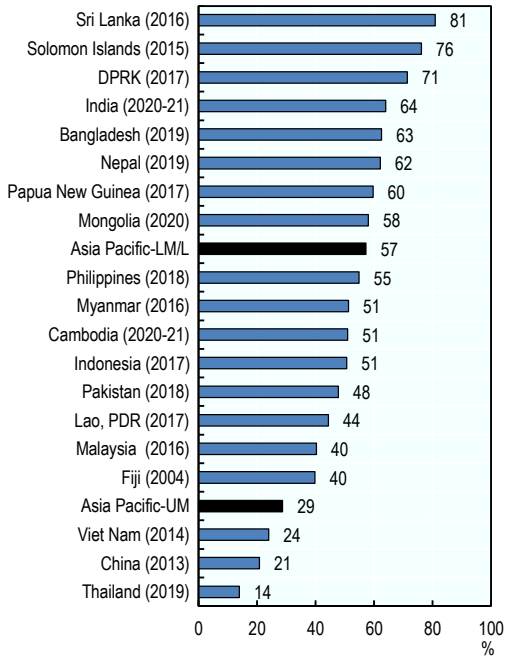
UNICEF (2021), *United Nations Children's Fund, The State of the World's Children 2021: On My Mind – Promoting, protecting and caring for children's mental health*, UNICEF, New York, https://www.unicef.org/media/114636/file/SOWC-2021-full-report-English.pdf. [6]

UNICEF (2019), *The State of the World's Children. Children, Food and Nutrition: Growing well in a changing world.*, United Nations International Children's Emergency Fund, New York, http://www.unicef.org/media/63016/file/SOWC-2019.pdf. [1]

Victora, C. et al. (2016), "Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect", *The Lancet*, Vol. 387/10017, pp. 475-490, https://doi.org/10.1016/s0140-6736(15)01024-7. [4]

WHO (2017), *Guideline: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services*, World Health Organization, https://apps.who.int/iris/handle/10665/259386. [5]

Figure 4.3. Infants exclusively breastfed, first 6 months of life, latest available year



Source: UNICEF State of the world children 2021; India NHFS 2020-21.

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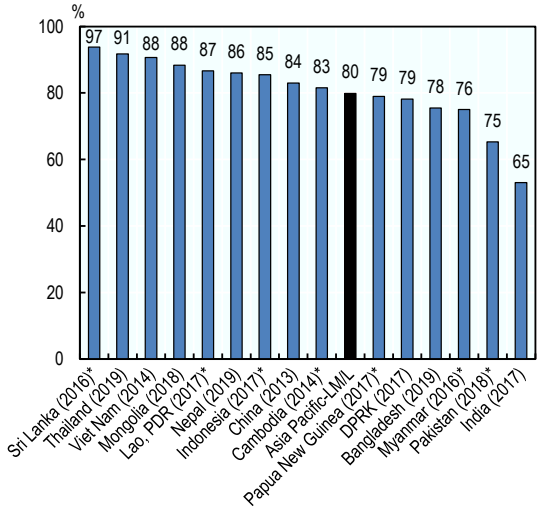
Figure 4.4. Infants aged 6-8 months with solid, semi-solid and soft-foods, selected countries and territories, latest year available



* DHS surveys measure introduction of any solid and semi-solid foods.

Source: UNICEF World Children Report 2022, DHS and MICS surveys, various years.

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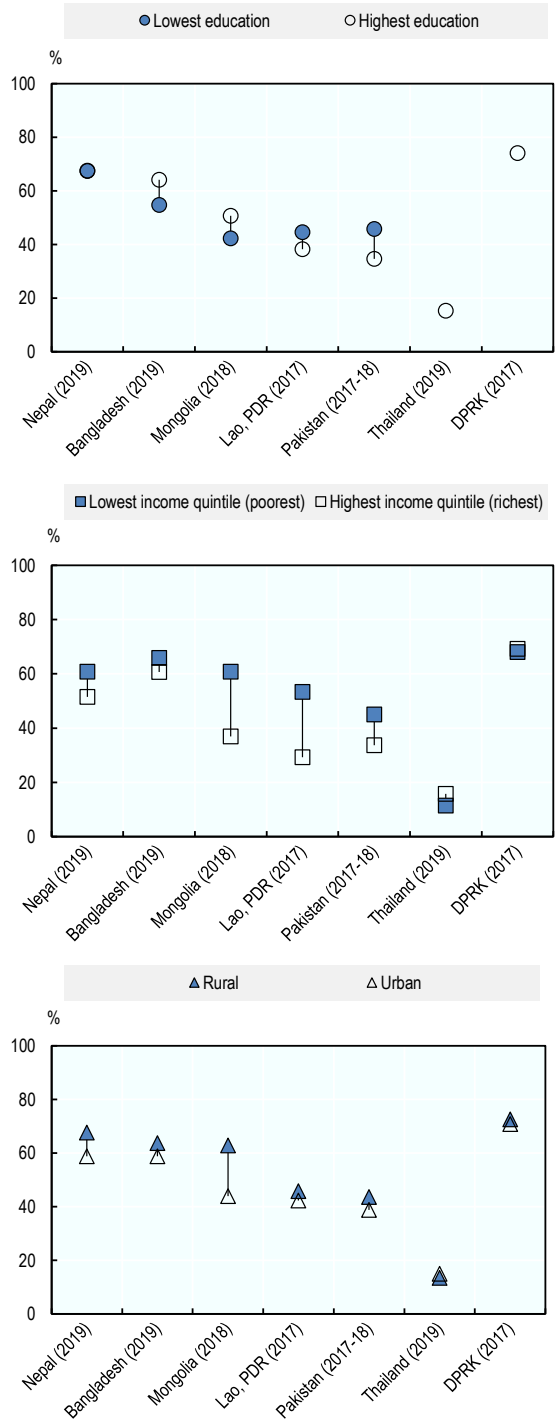
Figure 4.5. Infants exclusively breastfed in the first 6 months of life, by selected socio-economic and geographic factors



Source: DHS and MICS surveys, various years.

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Child malnutrition (including undernutrition and overweight)

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[1]). Malnutrition amongst children in low-and middle-income countries and territories encompass 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. A double burden of malnutrition exists at the population, household and individual levels in all countries. This includes overweight mothers and stunted children and children who are both stunted and overweight. For example, one in two overweight children are stunted in Bangladesh, and 6% of stunted children have overweight mothers in Myanmar (WHO, 2020[2]). 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[3]). This will contribute to achieving target 2.2 of the Sustainable Development Goals: "By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age".

Undernutrition is an important determinant of poor health amongst young children and is estimated to explain around 45% of all under 5 child deaths worldwide (Development Initiatives, 2018[4]). 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[1]).

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[5]). In 2015, the UN SDG also set targets referring to stunting, wasting and overweight amongst 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[1]).

In Asia-Pacific, many countries and territories had a high prevalence of stunting amongst 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 Pakistan and India. On the other hand, stunting prevalence was below 5% in Australia, Korea, Singapore and China (Figure 4.6). 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. However, most South-East Asia countries are unlikely to achieve the global target or national targets set for stunting and wasting (WHO, 2020[2]).

Countries and territories with high stunting prevalence had a high under age 5 mortality rate (Figure 4.7), also reflecting the fact that about 45% of under age 5 deaths were attributable to undernutrition (Development Initiatives, 2018[4]).

As to wasting, if there is no severe food shortage or an infectious disease (such as diarrhoea) that has caused children to lose weight, the prevalence is usually below 5% even in low-income countries and territories (https://www.who.int/nutgrowthdb/about/introduction/en/index2.html), but it was higher than 10% in India, Sri Lanka, Papua New Guinea, Nepal, and Indonesia. So far, Australia, Mongolia, Korea, China, Japan, DPRK, Brunei Darussalam, and Singapore have attained the Global Nutrition Target of reducing and maintaining childhood wasting to less than 5% (Figure 4.6).

In 2018, almost 20 million overweight or obese children under age 5 lived in Asia (UNICEF, 2019[1]), and a high prevalence of overweight (5.2%) was reported for Pacific Island countries (UNICEF/WHO/WB, 2021[6]). However, the prevalence of childhood overweight varied across Asia-Pacific countries and territories. More than one child out of ten was overweight in Australia, Papua New Guinea and Mongolia, whereas less than 2% of children under age 5 were overweight in Myanmar, Japan, and India (Figure 4.8). Nepal, Pakistan and Thailand reduced under 5 overweight rates since 2012, so they meet the Global Nutrition Target 2025 of no increase in childhood overweight prevalence (WHO, 2020[7]). A low prevalence of overweight, however, did not always mean a proper nutrition intake amongst 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[1]).

Definition and comparability

Stunting (low height-for-age) reflects failure to reach linear growth potential as a result of long-term suboptimal health and/or nutritional conditions. According to the WHO definition, stunting is a height-for-age lower than 2 standard deviations below the WHO Child Growth Standards median. 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, wasting is weight-for-height lower that 2 standard deviations below the WHO Child Growth Standards median.

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

References

Development Initiatives (2018), *Global Nutrition Report 2018: Shining a light to spur action on nutrition*, Development Initiatives, Britsol, http://www.globalnutritionreport.org/reports/global-nutrition-report-2018/. [4]

UNICEF (2019), *The State of the World's Children. Children, Food and Nutrition: Growing well in a changing world.*, United Nations International Children's Emergency Fund, New York, http://www.unicef.org/media/63016/file/SOWC-2019.pdf. [1]

UNICEF/WHO/WB (2021), *Joint child malnutrition estimates*, https://www.who.int/news/item/06-05-2021-the-unicef-who-wb-joint-child-malnutrition-estimates-group-released-new-data-for-2021. [6]

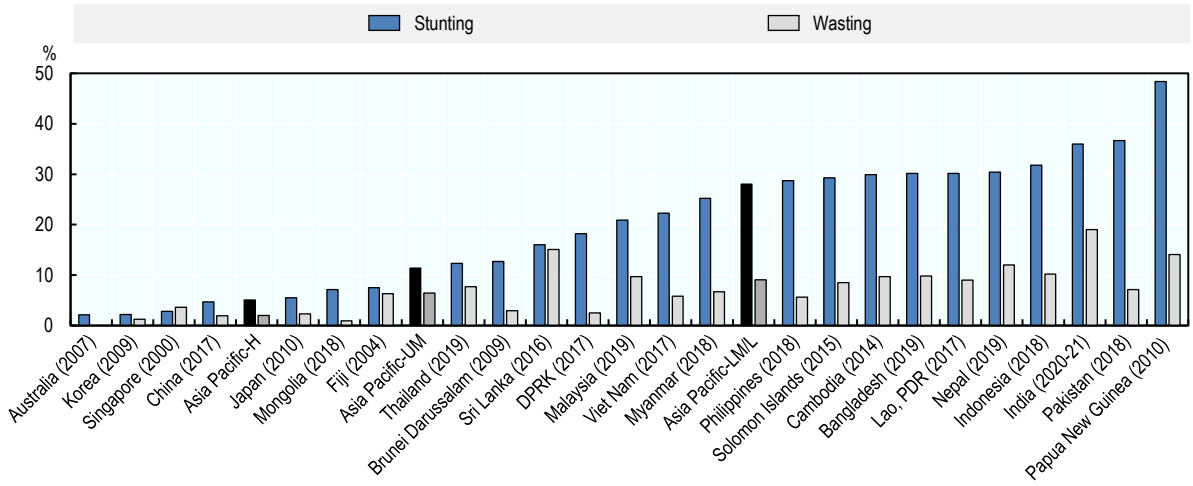
WHO (2020), *Prevalence of overweight among children under 5 years of age (% weight-for-height >+2 SD)*, https://www.who.int/data/gho/data/indicators/indicator-details/GHO/children-aged-5-years-overweight-(-weight-for-height-2-sd). [7]

WHO (2020), *The double burden of malnutrition: priority actions on ending childhood obesity*, World Health Organization, Regional Office for South-East Asia., https://apps.who.int/iris/handle/10665/336266. [2]

WHO (2017), *Work programme of the United Nations Decade of Action on Nutrition (2016-2025)*, World Health Organization, https://apps.who.int/iris/handle/10665/259386. [3]

WHO (2014), *Global Nutrition Targets 2025: Childhood overweight policy brief*, World Health Organization, https://apps.who.int/iris/handle/10665/149021. [5]

Figure 4.6. Prevalence of stunting and wasting amongst children under age 5, latest year available



Source: WHO GHO 2022; UNICEF 2021; DHS, MICS, and NHFS surveys, various years.

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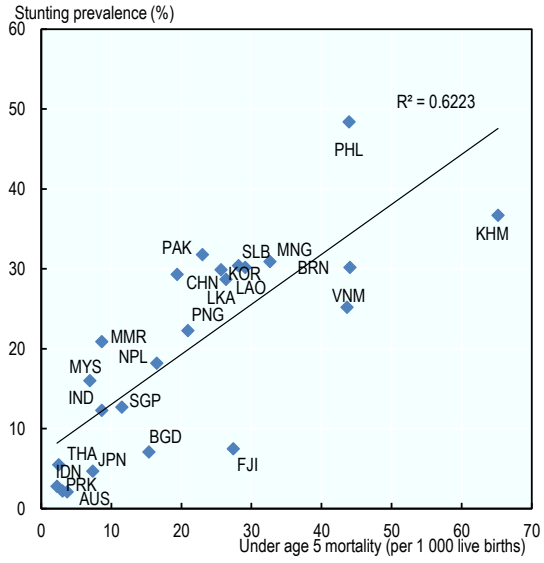
Figure 4.7. Under-5 mortality and stunting prevalence, latest year available



Source: DHS and MICS surveys, various years; WHO GHO 2022; UNICEF 2020; UN IGME; Childinfo 2019.

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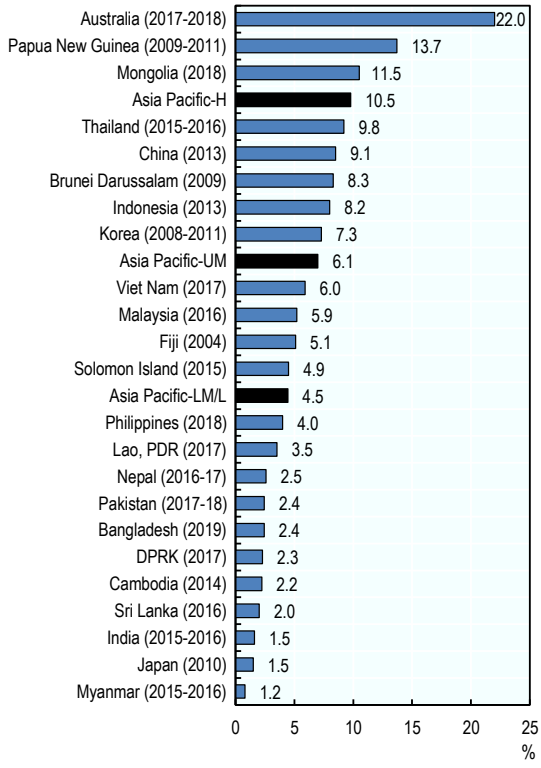
Figure 4.8. Prevalence of overweight amongst children under age 5, latest year available



Source: UNICEF database; DHS and MICS surveys, various years.

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Water and sanitation

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[1]). Improving access to water and sanitation 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[2]).

In 2020, 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 two out of three people living in rural areas and about four in five people living in urban areas had access to basic sanitation for adequate excreta disposal (Figure 4.8, left panel). Access was low in rural areas at around 15% in Papua New Guinea and 20% in the Solomon Islands, where open defecation was still common amongst most of the population. In urban areas, only about half of the population had access to basic sanitation in Papua New Guinea and Bangladesh in 2020.

Over recent years, the proportion of the population with access to basic sanitation facilities has grown in most Asia-Pacific countries and territories, and faster improvement was observed in rural areas (Figure 4.8, right panel). The progress was particularly rapid in rural areas in Nepal, India, Cambodia and Indonesia, where the proportion of population with access to basic sanitation increased by more than 30 percentage points between 2010 and 2020. In urban areas, Nepal and Cambodia reported a large increase of more than 20 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 in urban areas from 2010 to 2020.

In almost all Asia-Pacific countries and territories in 2020, 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, slightly more than 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 the Solomon Islands (59%) and Mongolia (61%) (Figure 4.9, left panel).

During the period of 2010-20, 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 more than 10 percentage points in Myanmar and Lao PDR, while decreased by more than 1 percentage point in Pakistan, Nepal and DPRK. In rural areas, Myanmar, Lao PDR and Mongolia reported an increase in the population living in rural areas having access to basic drinking water of more than 15 percentage points, whereas Solomon Islands reported the largest decrease of almost 10 percentage points from 2010 to 2020 (Figure 4.9, 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[3]).

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/WHO, 2019[4]).

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, using flushing to piped sewer systems, septic tanks, or pit latrines, along with improved pit latrines or composting toilets (UNICEF/WHO, 2019[4]).

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, 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.

References

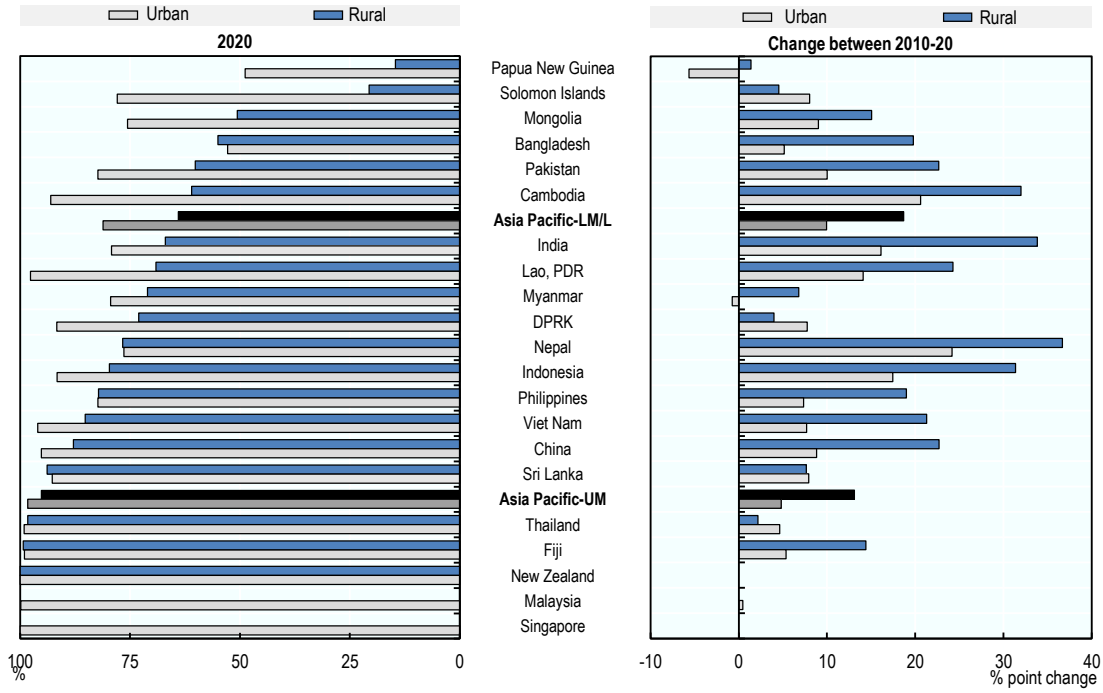
UNICEF (2018), *WASH strategy*, http://www.unicef.org/wash/3942_91538.html. [2]

UNICEF/WHO (2019), *Progress on household drinking water, sanitation and hygiene 2000-2017. Special Focus on INequalities*, United Nations International Children's Emergency Fund and World Health Organization, New York, https://www.unicef.org/media/55276/file/Progress%20on%20drinking%20water,%20sanitation%20and%20hygiene%202019%20.pdf. [4]

WHO (2019), *Sanitation*, World Health Organization, https://www.who.int/news-room/fact-sheets/detail/sanitation. [1]

WHO (2018), *Guidelines on Sanitation and Health*, World Health Organization, https://apps.who.int/iris/handle/10665/274939. [3]

Figure 4.8. Access to basic sanitation, 2020 and change between 2010-20



Source: WHO/UNICEF JMP database 2021.

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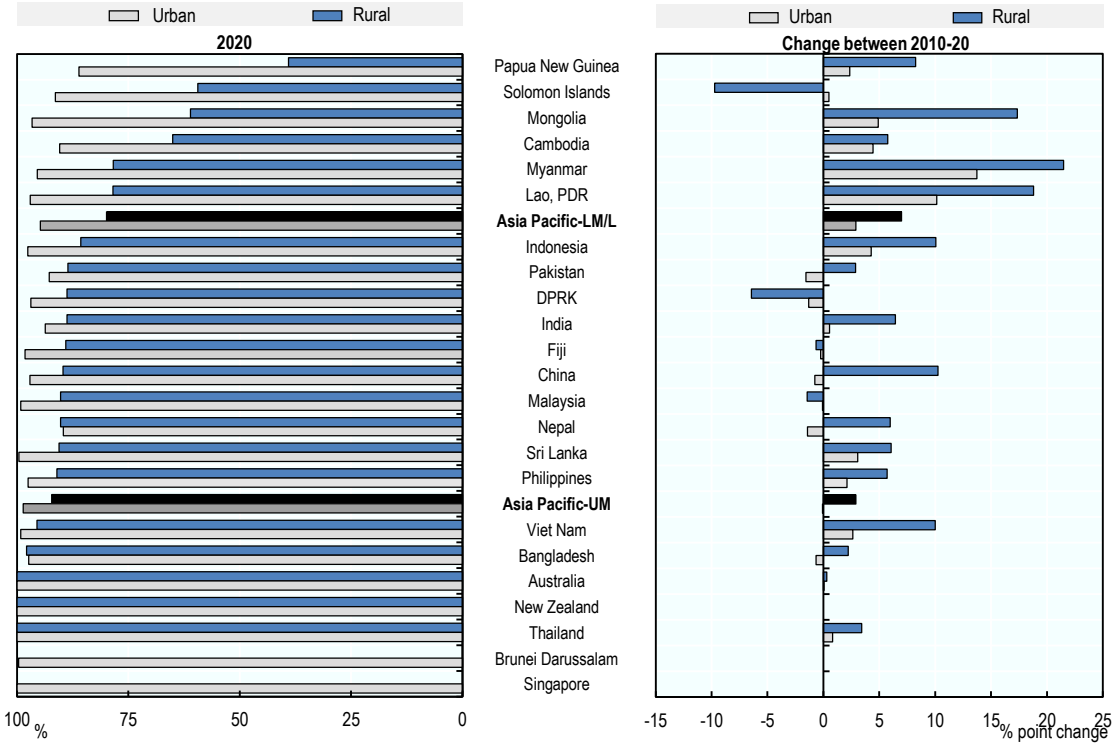
Figure 4.9. Access to basic drinking water, 2020 and change between 2010-20



Source: WHO/UNICEF JMP database 2021.

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Tobacco

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 worldwide there were almost 1 billion current tobacco smokers aged 15 years and above in 2020, 847 million of which were men. Amongst children between ages 13 and 15, an estimated 24 million were smokers. Although global tobacco use has fallen over the past two decades, the progress is still off track for achieving the target set by governments to cut 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, 2021[1]). The UN SDGs call for strengthening the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries and territories, as appropriate.

Tobacco use 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 amongst infants (NCD Alliance, 2010[2]). Children who smoke 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 (CDC, 2021[3]). Smoking is also a risk factor for dementia. New studies have shown that 14% of Alzheimer's cases worldwide may be attributed to smoking (McKenzie, Batti and Tursan d'Espaignet, 2014[4]; Livingston et al., 2017[5]). Recently, tobacco smoking is also found to be associated with higher risks of developing severe symptoms and mortality amongst COVID-19 patients (WHO, 2020[6]; Vardavas and Nikitara, 2020[7]). Smoking is harmful not only for smokers but also bystanders.

As of 2020, comprehensive smoke-free legislation was in place for almost 1.8 million people in 67 countries and territories, covering only 23% of the world's population. In Asia-Pacific, Australia, Brunei Darussalam, Cambodia, Lao PDR, Nepal, New Zealand, Pakistan, Papua New Guinea and Thailand have comprehensive smoke-free policies. Evidence shows that countries and territories with comprehensive smoke-free policies have decreased the number of smokers and reduced mortality from smoking-related illnesses (WHO, 2021[1]).

The economic and social costs of tobacco use are also high, with families deprived of breadwinners who die prematurely from tobacco-related diseases, large public health costs for treatment of tobacco-related diseases, and lower workforce productivity (WHO, 2019[8]). Smoking rates in low-income countries are about half the rate of rates in high-income countries (WHO, 2021[1]).

More than two in five men aged 15 and above in middle- and low-income Asia-Pacific countries and territories reported current use of tobacco in 2020, as compared to one in four in high-income countries and territories (Figure 4.11, left panel). The proportion of current tobacco users varied greatly across countries and territories. This proportion amongst men was highest in Indonesia at 71.4%, and Myanmar, the Solomon Islands, Papua New Guinea, Lao PDR, Bangladesh, and Mongolia, had over half of the adult males using tobacco currently. New Zealand and Australia, however, reported the lowest prevalence, with around 15% of adult males using tobacco currently. India has reduced smoking rates recently through implementation of multiple tobacco control measures, including an innovative text message-based smoking cessation programme (WHO, 2019[8]). However, India has a high prevalence of daily smokeless tobacco use amongst 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 7.8%, 4.1% and 10.2% of women aged 15 and above report using tobacco currently in high-, upper-middle-, and lower-middle- and low-income Asia-Pacific countries and territories respectively (Figure 4.11, right panel). The rates were highest amongst female tobacco smokers in Papua New Guinea (25.1%), Myanmar (19.7%), and the Solomon Islands (19.2%).

Tobacco use in adolescence has both immediate and long-term health consequences. Amongst youth aged 13 to 15 years, two in five males used tobacco in Papua New Guinea, and around one in four females used tobacco in Papua New Guinea and Solomon Islands (Figure 4.12). In all reporting countries and territories, except for Nepal and Fiji, the prevalence of tobacco use amongst females was higher for adolescents than adults. On the contrary, the prevalence amongst males was higher for adults than for adolescents in all reporting countries and territories.

Increasing tobacco prices through higher taxes is an effective intervention to reduce tobacco use, by discouraging youth from initiating tobacco use and encouraging tobacco users to reduce their consumption or quit (WHO, 2019[8]) Higher taxes also assist in generating additional government revenue. However, only New Zealand, Sri Lanka and Thailand have total taxes that account for over 75% of the tobacco retail price in 2020 (WHO, 2021[1]). In Thailand, increased tax revenue has been used to support smoking cessation programmes (WHO, 2019[8]). As a measure of the comparative cost that current tobacco users in Asia-Pacific incur, in Nepal, Papua New Guinea and Sri Lanka, around one fifth of the GDP per capita is required to purchase 2000 cigarettes of the most sold brand, while this figure is of less than 2% of the GDP per capita in Japan, Korea and Singapore (Figure 4.13).

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 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 mandated plain packaging of tobacco products (WHO, 2019[8]).

Definition and comparability

Current tobacco use prevalence among adults is defined as the percentage of the population aged 15 years and over who reported consuming one or more tobacco products, smoked or smokeless, on a daily or non-daily basis.

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

References

CDC (2021), *Health Effects of Cigarette Smoking*, https://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/effects_cig_smoking/. [3]

Livingston, G. et al. (2017), "Dementia prevention, intervention, and care", *The Lancet*, Vol. 390/10113, pp. 2673-2734, https://doi.org/10.1016/S0140-6736(17)31363-6. [5]

McKenzie, J., L. Batti and E. Tursan d'Espaignet (2014), *WHO Tobacco Summaries: Tobacco and Dementia*, World Health Organization, Geneva, https://www.who.int/publications-detail-redirect/WHO-NMH-PND-CIC-TKS-14.1. [4]

NCD Alliance (2010), *Tobacco: a major risk factor for Non-communicable Diseases*, https://ncdalliance.org/sites/default/files/rfiles/NCDA_Tobacco_and_Health.pdf. [2]

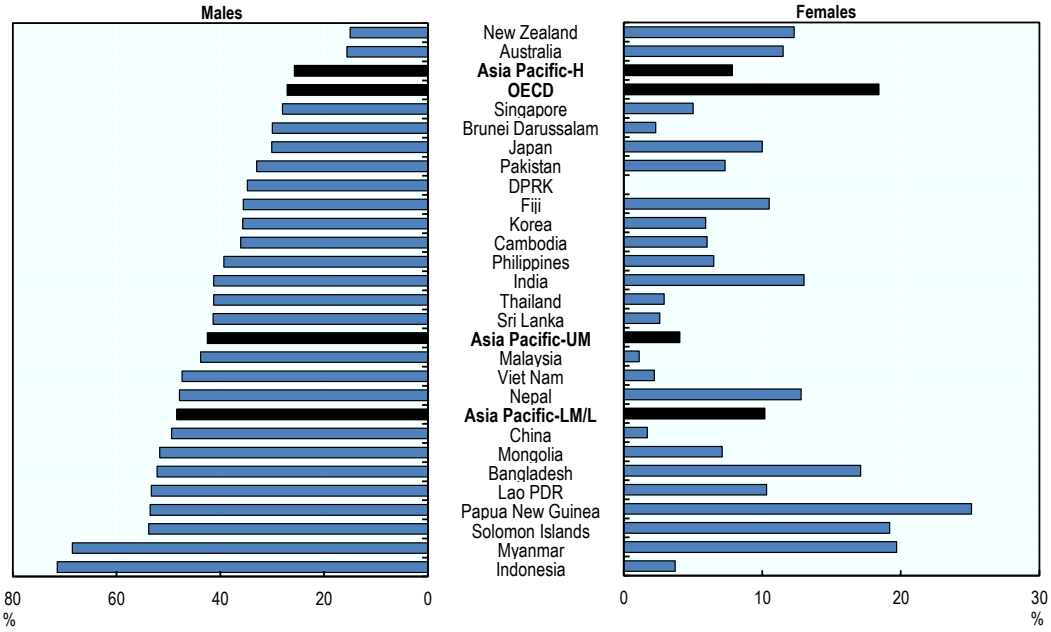
Vardavas, C. and K. Nikitara (2020), "COVID-19 and smoking: A systematic review of the evidence", *International Society for the Prevention of Tobacco Induced Diseases*, pp. 1-4, https://doi.org/10.18332/tid/119324. [7]

WHO (2021), *WHO report on the global tobacco epidemic 2021: addressing new and emerging products*, World Health Organization, https://apps.who.int/iris/handle/10665/343287. [1]

WHO (2020), *WHO statement: Tobacco use and COVID-19*, http://www.who.int/news-room/detail/11-05-2020-who-statement-tobacco-use-and-covid-19. [6]

WHO (2019), *WHO report on the global tobacco epidemic, 2019: offer help to quit tobacco use*, World Health Organization, https://apps.who.int/iris/handle/10665/326043. [8]

Figure 4.11. Age-standardised prevalence estimates for current tobacco use amongst persons aged 15 and above, by sex, 2020



Source: WHO global report on trends in tobacco use 2021.

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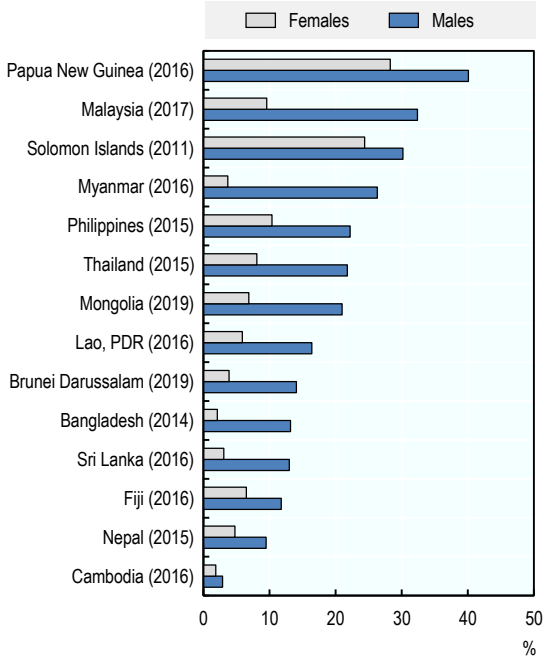
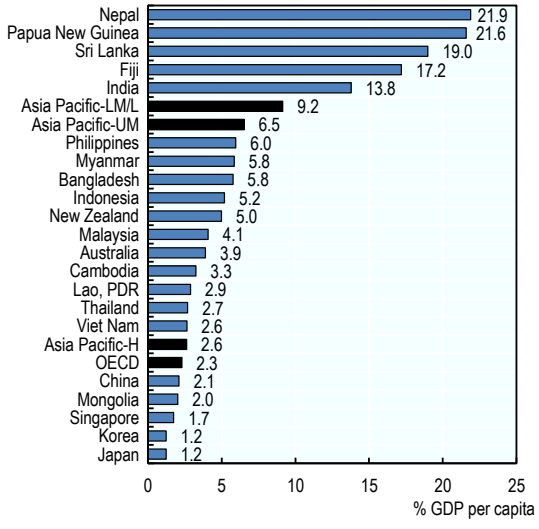
Figure 4.12. Prevalence of current tobacco use amongst youth aged 13 to 15, by sex, latest available year



Note: Youth aged 13 to 17 for Malaysia.
Source: WHO GHO 2022.

Figure 4.13. Percentage of GDP per capita to purchase 2000 cigarettes of the most sold brand, latest available year



Source: WHO report on the global tobacco epidemic 2021.

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5 Health care resources and utilisation

Doctors and nurses

Access to high-quality health services critically depends on the size, skill-mix, competency, geographic distribution and productivity of the health workforce. Health workers 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 and territories, there are 1.1 doctors 1 000population, whereas a higher number of doctors – 1.6 per 1 000 population – is reported in upper-middle-income countries and territories. Mongolia, Australia and DPRK have the highest number of doctors per capita, with 3.9, 3.8, and 3.7 doctors per 1 000 population, respectively; slightly higher than the OECD average of 3.6. 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 foundation for a strong and effective health workforce, able to respond to the 21st century priorities, requires matching effectively the supply and skills of health workers to population needs, now and in the future (WHO, 2016[1]). To this aim, 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[2]). 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[3]).

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 Australia, Japan and New Zealand, with more than 10 nurses per 1 000 population. The supply is much lower in several low-income countries and territories, including Papua New Guinea, Pakistan and Bangladesh, where there is 1 nurse or less per 2000 population. On average, less than two nurses per 1 000 population work in lower-middle and low-income Asia-Pacific countries. Furthermore, nurses are not well distributed geographically within countries and territories such as Indonesia and the Philippines (Dayrit et al., 2018[4]; Harimurti, Prawira and Hort, 2017[5]), and several other countries and territories in the region face the same issue (WHO, 2020[6]).

In some countries and territories, 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[7]), 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 the biggest supplier of nurses and a major exporter of doctors (Dayrit et al., 2018[4]), 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 1.7 and 2.1 nurses per doctor in lower-middle-, 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 11 nurses per doctor. On the other hand, doctors outnumber nurses in Pakistan and Bangladesh, whereas the same number of nurses and doctors is reported in Myanmar and Mongolia.

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[1]) provide the framework for strengthening health workforce services to help countries and territories 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 personnel, including professional nurses, auxiliary nurses, enrolled nurses 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.

Data are based on head counts.

References

Dayrit, M. et al. (2018), *The Philippines Health System Review*, World Health Organization, Regional Office for South-East Asia, https://apps.who.int/iris/handle/10665/274579. [4]

Harimurti, P., J. Prawira and K. Hort (2017), *The Republic of Indonesia Health System Review*, Health Systems in Transition, WHO Regional Office for South-East Asia, https://apps.who.int/iris/handle/10665/254716. [5]

Liu, X. and A. Zhu (2018), *Attraction and Retention of Rural Primary Health-care Workers in the Asia Pacific Region*, http://apps.who.int/iris/. [3]

Muir, T. (2017), "Measuring social protection for long-term care", *OECD Health Working Papers*, No. 93, OECD Publishing, Paris, https://doi.org/10.1787/a411500a-en. [8]

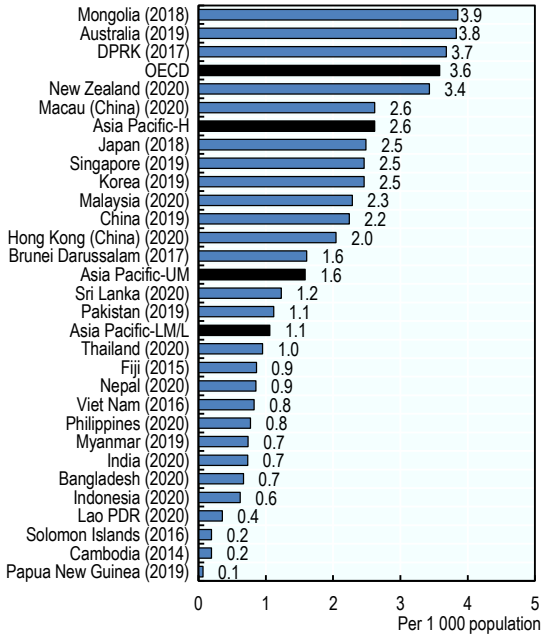
Sakamoto, A., M. Rahman and S. Nomura (2018), *Japan Health System Review*, Health Systems in Transition, World Health Organization, Regional Office for South-East Asia, https://apps.who.int/iris/handle/10665/259941. [2]

Walton-Roberts, M. and S. Rajan (2020), "Global Demand for Medical Professionals Drives Indians Abroad Despite Acute Domestic Health-Care Worker Shortages", *Migration Information Source*, https://www.migrationpolicy.org/article/global-demand-medical-professionals-drives-indians-abroad. [7]

WHO (2020), *Health workforce country profiles*, https://www.who.int/westernpacific/health-topics/health-workforce/country-profiles. [6]

WHO (2016), *Global strategy on human resources for health: workforce 2030*, World Health Organization, https://apps.who.int/iris/handle/10665/250368. [1]

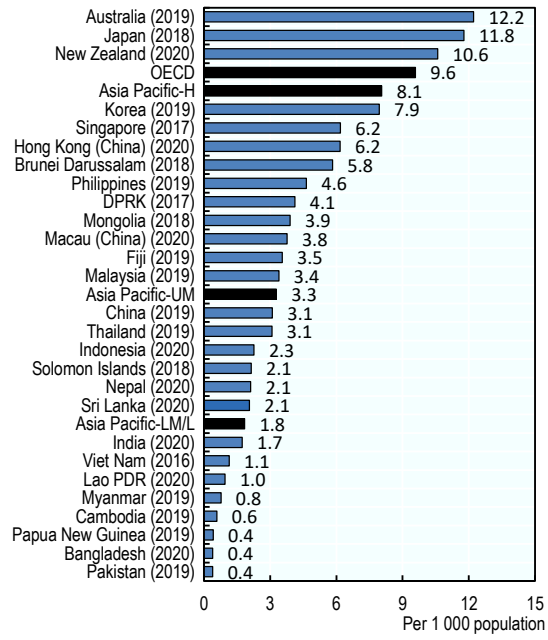
Figure 5.1. Doctors per 1 000 population, latest year available



Note: Denominator for Hong Kong (China) is based on mid-year population; for Macau (China) on end of year population.
Source: OECD Health Statistics 2022; WHO GHO, 2022; National Data Sources (see Annex A).

StatLink https://stat.link/4mzthk

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



Note: Denominator for Hong Kong (China) is based on mid-year population; for Macau (China) on end of year population.
Source: OECD Health Statistics 2022; WHO GHO, 2022; National Data Sources (see Annex A).

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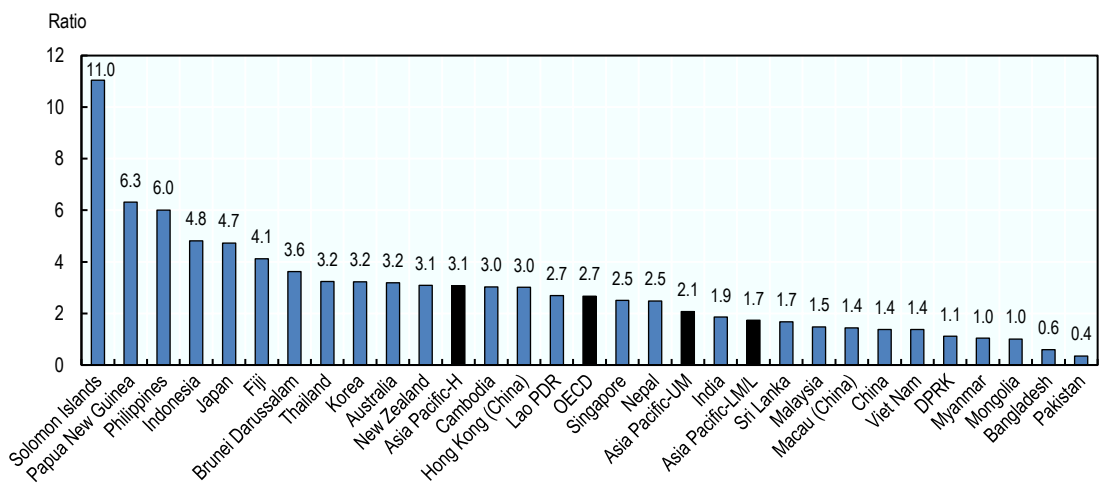
Figure 5.3. Ratio of nurses to doctors, latest year available



Note: Denominator for Hong Kong (China) is based on mid-year population; for Macau (China) on end of year population.
Source: OECD Health Statistics 2022; WHO GHO, 2022; National Data Sources (see Annex A).

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Consultations with doctors

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 6.8, but there are some cross-country variations (Figure 5.4). The doctor consultation rate ranges from above ten per person in Korea and Japan 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 and territories, suggesting that income levels have some impact on populations' health care-seeking behaviours. It should be noted that in low-income countries and territories 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 many Asia-Pacific countries and territories – higher that the OECD average at 2 122 per year (Figure 5.5). Doctors had more than 5 000 consultations on average in Korea, Sri Lanka, Thailand and Japan in a year, while a doctor in Brunei Darussalam, Malaysia, New Zealand and Bangladesh, generally delivers less than 1 300 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 and territories (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 and territories 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 and territories. 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 2022; National Data Sources (see Annex A).

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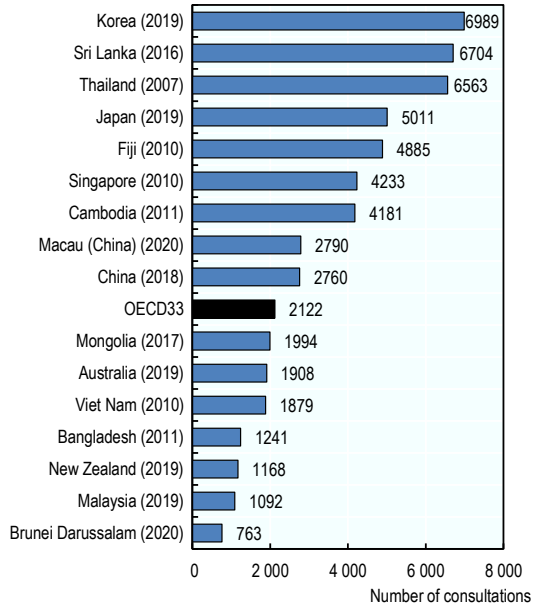
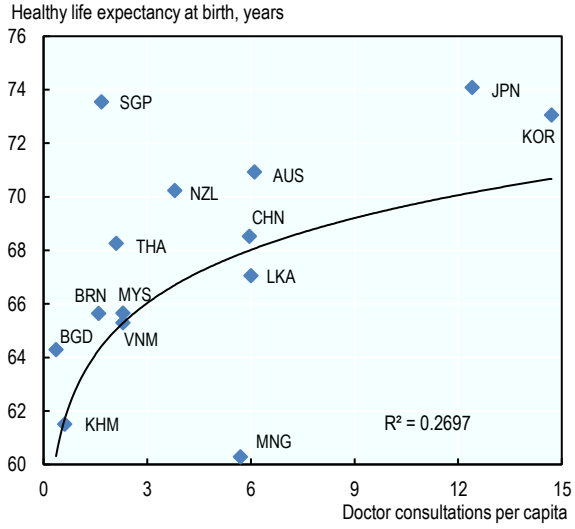
Figure 5.5. Estimated number of consultations per doctor, latest year available



Source: OECD Health Statistics 2022; National Data Sources (see Annex A).

StatLink https://stat.link/0djeif

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



Source: OECD Health Statistics 2022; WHO GHO 2020; National Data Sources (see Annex A).

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Medical technologies

The need to prevent diseases, diagnose early and treat effectively under the Universal Health Coverage mandate of the Sustainable Development Goals 3 calls for safe, effective, and appropriate medical care.

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 territories, 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 115 CT scanners are available per million population in Japan, as opposed to less than one per million population in Bangladesh, Pakistan, Papua New Guinea, Lao PDR and Myanmar (Figure 5.7). Also for MRI units, Japan reports 55 units per million population, whereas Cambodia, Myanmar, Pakistan, the Philippines, Sri Lanka and Bangladesh, report less than one unit per million population (Figure 5.8) Korea has the highest number of mammographs at 421.9 per million females aged 50-69, as opposed to Bangladesh, Pakistan, Myanmar, Sri Lanka and Papua New Guinea, 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[1]).

The availability of treatment equipment is also much higher in high-income countries. Australia and Japan have over 10 radiation therapy units per million population, whereas there is less than one unit per 10 million people in Papua New Guinea, Cambodia, Bangladesh, Lao PDR, Indonesia, Pakistan, Nepal, Viet Nam, Myanmar, the Philippines and India (Figure 5.10).

Clinical guidelines have been developed in some OECD countries to promote more rational use of diagnostic technologies (OECD, 2017[1]). 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, 2020[2])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[3]). 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[4]).

Definition and comparability

The data cover equipment installed both in hospitals and the ambulatory sector and public and private sectors in most countries and territories. However, there is only partial coverage for some countries and territories. 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).

References

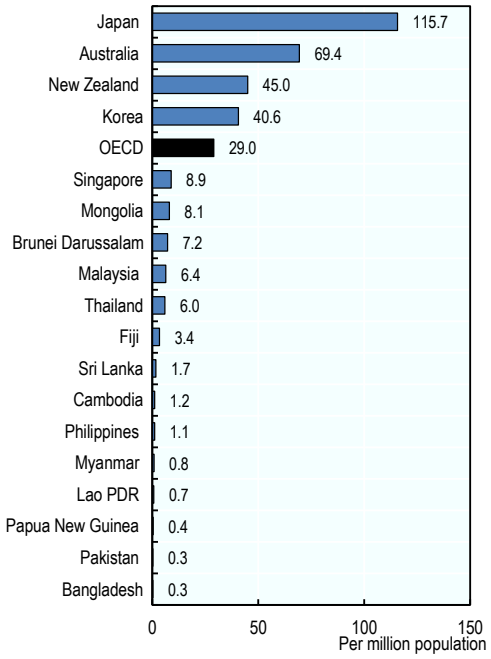
Choosing Wisely Australia (2020), *Choosing Wisely - Recommendations*, https://www.choosingwisely.org.au/recommendations. [3]

Government of Western Australia (2020), *Diagnostic Imaging Pathways*, http://imagingpathways.health.wa.gov.au/. [4]

NICE (2020), *NICE guidance*, National Institute for Health and Care Excellence, http://nice.org.uk. [2]

OECD (2017), *Tackling Wasteful Spending on Health*, OECD Publishing, Paris, https://doi.org/10.1787/9789264266414-en. [1]

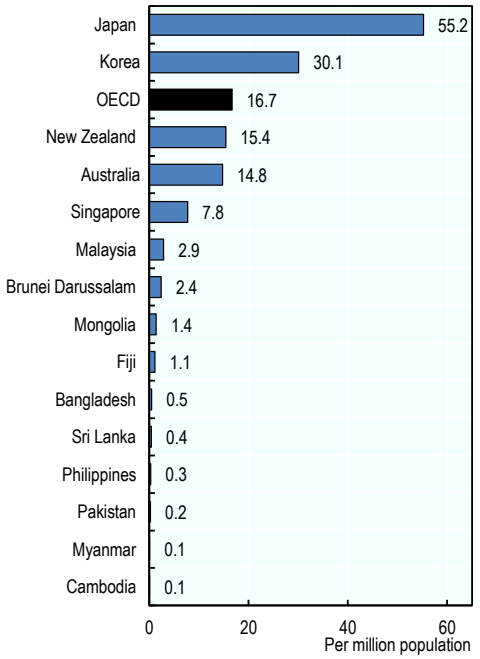
Figure 5.7. Computed tomography scanners, latest year available



Source: OECD Health Statistics 2022; WHO Global atlas of medical devices 2022 (forthcoming).

StatLink https://stat.link/uypzv6

Figure 5.8. MRI units, latest year available



Source: OECD Health Statistics 2022; WHO Global atlas of medical devices 2022 (forthcoming).

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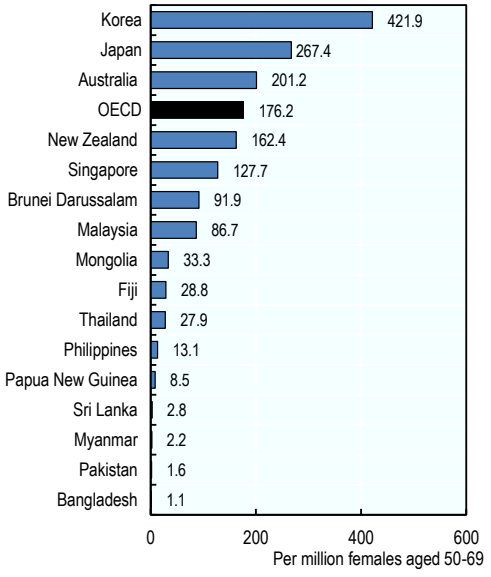
Figure 5.9. Mammographs, latest year available



Source: OECD Health Statistics 2022; WHO Global atlas of medical devices 2022 (forthcoming).

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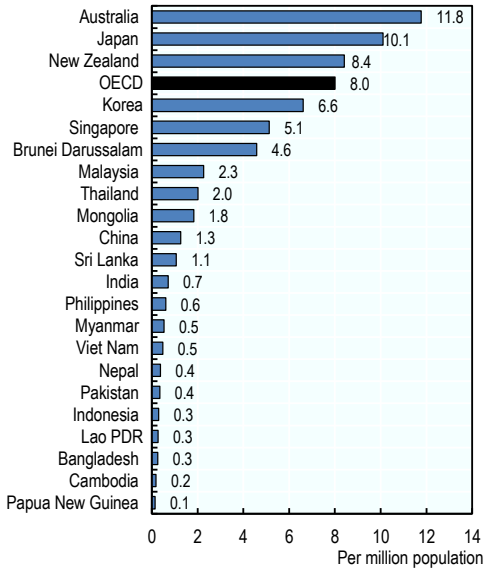
Figure 5.10. Radiation therapy equipment, latest year available



Source: OECD Health Statistics 2022; WHO Global atlas of medical devices 2022 (forthcoming).

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Hospital care

Hospitals in most countries and territories 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 2.6 and 2.8 per 1 000 population on average across upper-middle and lower-middle and low-income Asia-Pacific countries and territories, respectively; lower than the OECD average of 4.6 and the high-income Asia-Pacific countries and territories average of 5.4 (Figure 5.11). More than one bed per 100 population is available in DPRK, Korea and Japan, whereas the stock of beds is less than one per 1 000 population in India, Pakistan, Bangladesh and Cambodia. These large disparities reflect substantial differences in the resources invested in hospital care across countries and territories.

Hospital discharge is at 121.3 and 130 per 1 000 population on average in upper-middle and lower-middle and low-income Asia-Pacific countries and territories, respectively; close to the OECD average of 130.6 (Figure 5.12). The highest rates are in Sri Lanka and Mongolia, with over 275 discharges per 1 000 population in a year, while in Bangladesh, Cambodia and Nepal, discharge rates are less than 50 per 1 000 population, suggesting deferrals in accessing hospital services.

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

In Asia-Pacific, the variation across countries and territories in the number of days spent – on average – in hospital is large (Figure 5.14). Lower-middle- and low-income countries and territories report the lowest ALOS in Asia-Pacific at 4.9 days. The longest average length of stay is of more than 16 days in Japan, 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

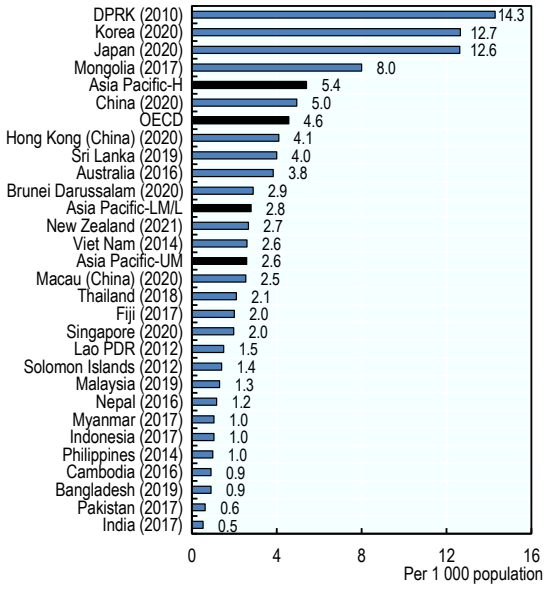
All hospital beds include those for acute care and chronic/long-term care, in both the public and private sectors. A discharge is defined as the release of a patient who has stayed at least one night in hospital. It includes deaths in hospital following inpatient care but usually excludes same-day separations.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

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 and territories define acute care, and what they include or exclude in reported statistics. For the most part, reported ALOS data in the developing countries and territories of the Asia-Pacific region cover only public sector institutions.

References

Sakamoto, A., M. Rahman and S. Nomura (2018), *Japan Health System Review*, Health Systems in Transition, World Health Organization, Regional Office for South-East Asia, https://apps.who.int/iris/handle/10665/259941. [1]

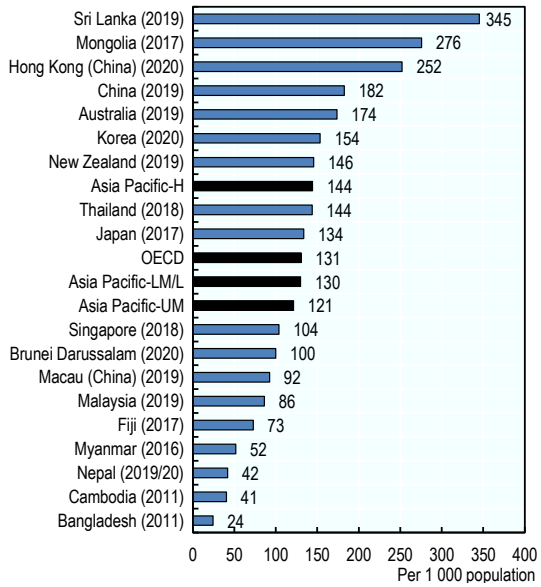
Figure 5.11. Hospital beds per 1 000 population, latest year available



Source: OECD Health Statistics 2022; WHO GHO 2020, Hong Kong annual statistic digest 2021, National sources (see Annex A).

StatLink https://stat.link/65m3na

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



Source: OECD Health Statistics 2022; National sources (see Annex A).

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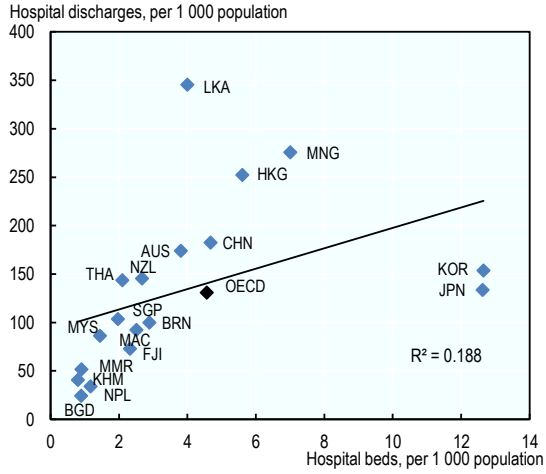
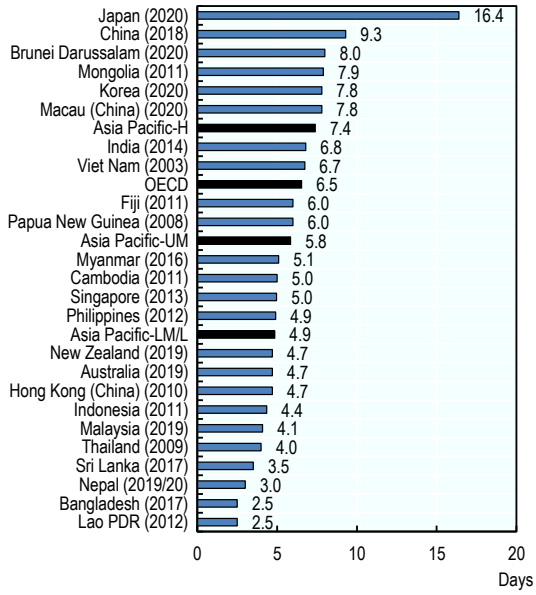
Figure 5.13. Hospital beds per 1 000 population and hospital discharges per 1 000 population, latest year available



Source: OECD Health Statistics 2022; WHO GHO 2022.

StatLink https://stat.link/sjpe57

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



Source: OECD Health Statistics 2022; National data sources (see Annex A).

StatLink https://stat.link/08h6bc

Pregnancy and birth

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 on "Infant feeding" in Chapter 4). WHO currently recommends a minimum of eight antenatal contacts (WHO, 2016[1]), 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). Receiving antenatal care at least four times increases the likelihood of receiving effective maternal health interventions during the antenatal period. This is one of the indicators in the Global Strategy for Women's, Children's and Adolescents' Health (2016-2030) Monitoring Framework, and one of the tracer indicators of health services for the universal health coverage (SDG indicator 3.8.1)

In Asia-Pacific, seven in ten pregnant women – on average – received the recommended four visits in lower-middle- and low-income countries and territories, but access to antenatal care varies across countries and territories (Figure 5.15, left panel). Malaysia and the Korea 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%.

The majority of births (99%) in high and upper-middle-income Asia-Pacific are attended by a skilled health professional. This contrasts with lower-middle and low-income countries, where 81.5% of births are attended by a skilled health professional (Figure 5.15, right panel). Skilled birth attendance is relatively low in Papua New Guinea (56.4%), Bangladesh (59%) and Myanmar (60.2%), where home births supported by untrained traditional birth attendants are more common.

In Asia-Pacific, delivery in health facilities varies across countries and territories (Figure 5.16). In Thailand, Mongolia, Viet Nam and DPRK, almost all deliveries take place at a health facility. On the other hand, in Bangladesh, most deliveries occur at home and less than 55% of births takes place in a health facility. Across countries and territories, 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 DPRK have a high coverage of births attended by skilled health professionals among mothers with different education and income levels, as well as living in different geographical locations. However, in other countries and territories, the coverage of births attended by skilled health professionals is highly unequal among women of different income and education levels. For example, in Lao PDR and Bangladesh, access differs almost three-fold between mothers of the lowest education level and mothers of the highest education levels. Disparity by household income is largest in Lao PDR and Bangladesh, again with almost three-fold difference between mothers living in household at the highest and at the lowest income quintiles. In contrast, differences in access to skilled care at birth remain relatively small between urban and rural areas across countries and territories (except in Lao PDR, Nepal, and Bangladesh).

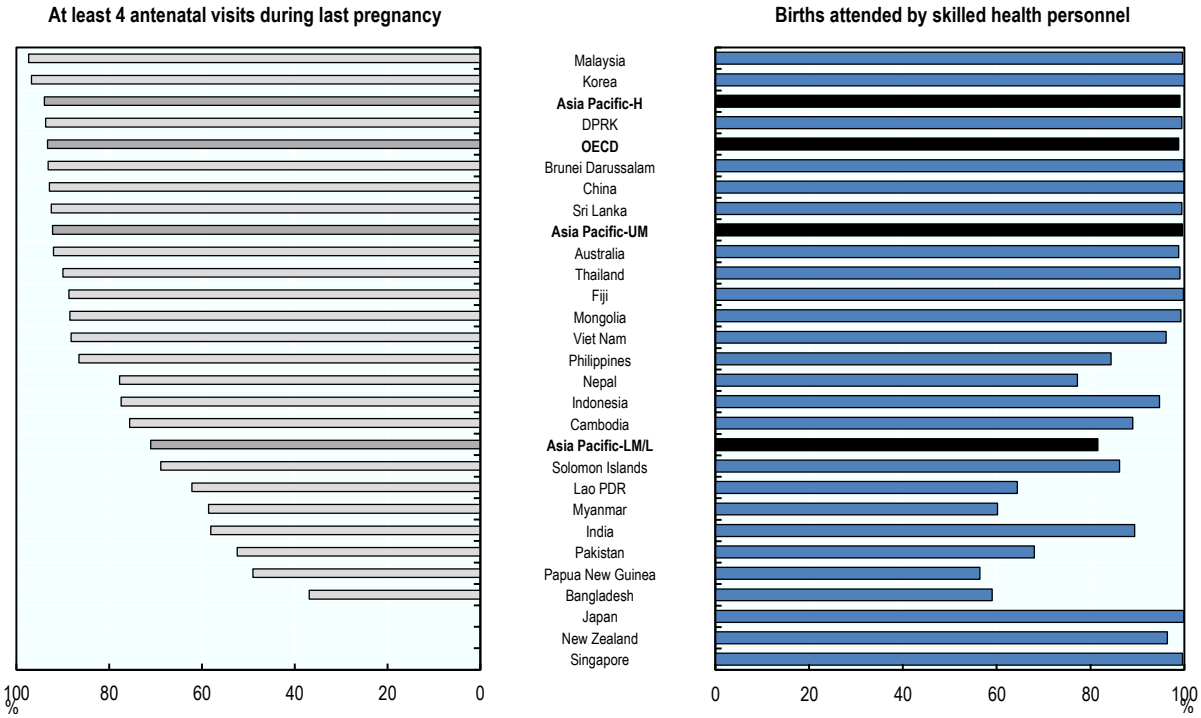
Definition and comparability

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.

References

WHO (2016), *WHO recommendations on antenatal care for a positive pregnancy experience*, World Health Organization, https://apps.who.int/iris/handle/10665/250796. [1]

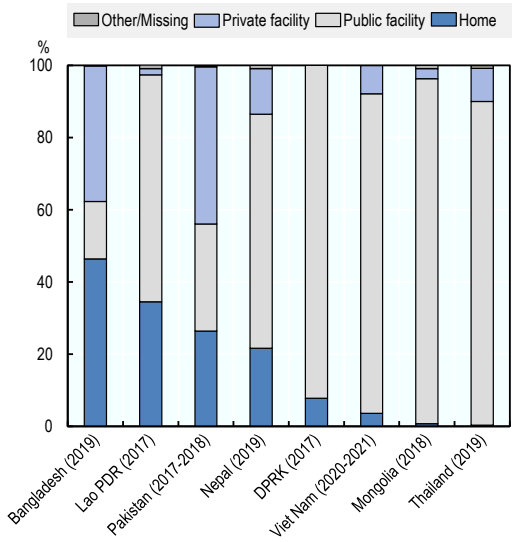
Figure 5.15. Provision of care during pregnancy and birth, 2021 or latest year available



Note: Women included are aged 15-49.
Source: UNICEF 2022.

StatLink https://stat.link/nacobx

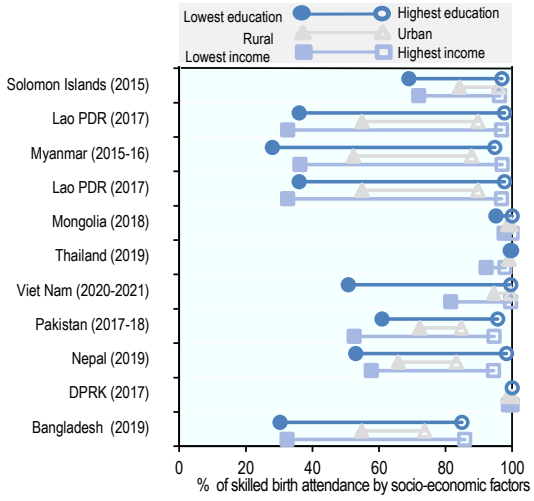
Figure 5.16. Place of delivery, latest year available



Source: DHS and MICS surveys, various years.

StatLink https://stat.link/xyhpls

Figure 5.17. Births attended by skilled health professionals, by socio-economic and geographic factors, latest year available



Source: DHS and MICS surveys, various years.

StatLink https://stat.link/8ydqjb

Infant and child health

Basic care for infants and children includes promoting and supporting early and exclusive breastfeeding (see indicators on "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) and zinc supplementation for severe diarrhoea, and antibiotic treatment for acute respiratory infection (ARI) (Bhutta et al., 2013[1]).

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 children receiving two annual high-dose vitamin A supplementations (Figure 5.18) and vaccination coverage (see indicator "Childhood vaccination" in Chapter 7). Access to vitamin A supplementation is markedly low in the Philippines, Papua New Guinea, and the Solomon Island with less than 40%, whereas Bangladesh, DPRK and Myanmar have nearly complete coverage.

Less than one child in four with diarrhoea in the Philippines, Viet Nam, Mongolia and Lao PDR, and less than one child in ten with diarrhoea in the Solomon Islands, Cambodia, Papua New Guinea and Myanmar, received oral rehydration solution and zinc supplement (Figure 5.19). Furthermore, less than half of children with diarrhoea received continued feeding and ORT in Pakistan, the Philippines, India and Papua New Guinea. The coverage was as high as 71% in Mongolia, DPRK and Thailand (Figure 5.20).

Access to appropriate medical care for children with ARI can also be improved in many countries and territories 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 and territories.

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 acute respiratory infection may also affect cross-national data comparisons.

Children aged 6-59 months who received vitamin A supplementation refers to full dose.

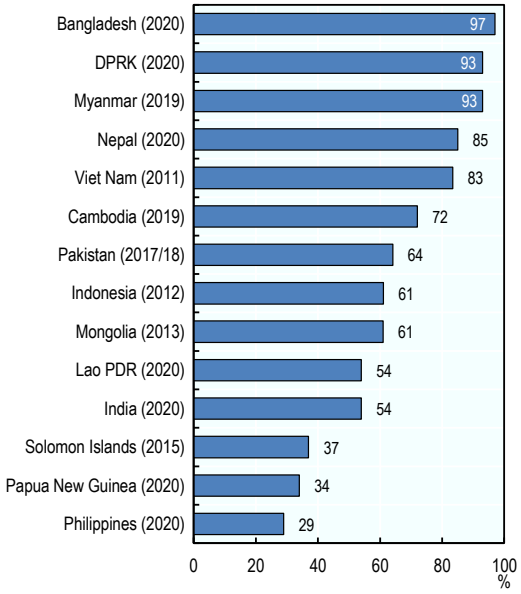
Children aged under 5 years with diarrhoea receiving continued feeding and ORT refers to those receiving continued feeding and oral rehydration solution, gruel or increased fluids.

The prevalence of acute respiratory infection 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.

References

Bhutta, Z. et al. (2013), "Interventions to address deaths from childhood pneumonia and diarrhoea equitably: What works and at what cost?", *The Lancet*, Vol. 381/9875, pp. 1417-1429, https://doi.org/10.1016/S0140-6736(13)60648-0. [1]

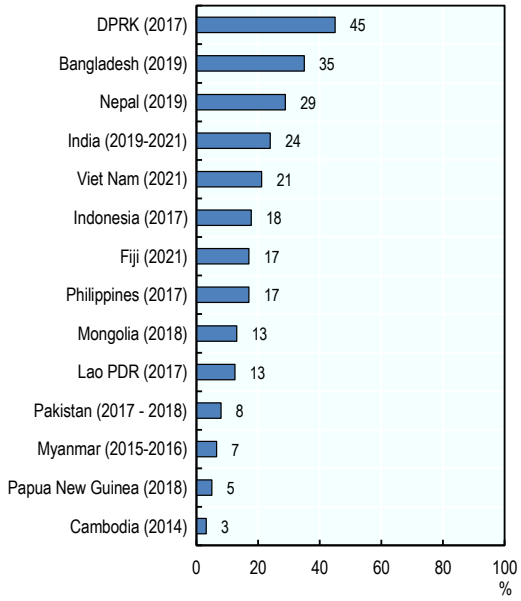
Figure 5.18. Children aged 6-59 months who received full dose vitamin A supplementation, latest year available



Source: UNICEF 2012; DHS and MICS surveys, various years.

StatLink https://stat.link/r1me7i

Figure 5.19. Children aged under 5 years with diarrhoea receiving oral rehydration solution and zinc supplements, latest year available



Source: DHS and MICS surveys, various years.

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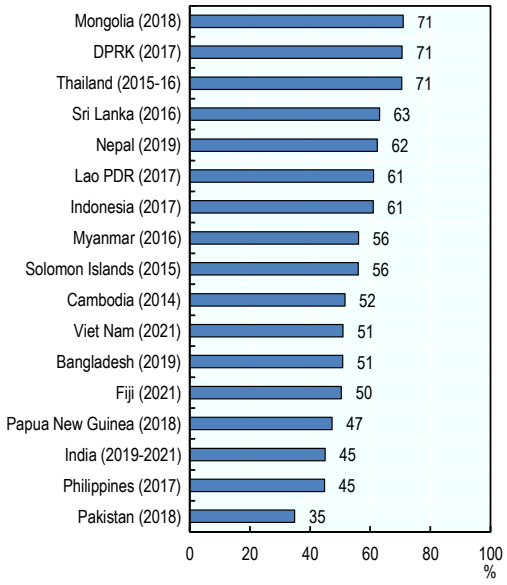
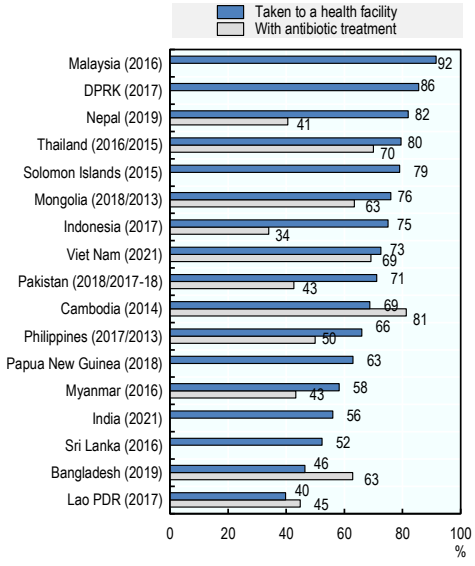
Figure 5.20. Children aged under 5 years with diarrhoea receiving continued feeding and oral rehydration therapy, latest year available



Source: UNICEF 2021; NHFS, DHS and MICS surveys, various years.

StatLink https://stat.link/vhwqpk

Figure 5.21. Care seeking and antibiotic treatment among children aged under 5 years with acute respiratory infection, latest year available



Note: First year refers to children taken to a health facility, the second year refers to those who received antibiotic treatment.
Source: UNICEF 2021, NHFS, DHS and MICS surveys, various years.

StatLink https://stat.link/3l56sp

Mental health care

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 and territories 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[1]). 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 UN 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 18.1 per 100 000 population (Figure 5.22). Developed OECD countries in the region such as New Zealand, Australia, Japan and Korea, report the highest number of psychiatrists, whereas in middle- and low-income Asia-Pacific countries and territories there is fewer than one psychiatrist on average per 100 000 population. This suggests that many countries and territories 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 and territory. 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[2]).

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 almost 90 mental health nurses per 100 000 population, followed by New Zealand with more than 70 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 territories, and less than one nurse per 100 000 population in Pakistan, Cambodia, Bangladesh, Nepal, Myanmar and the Philippines, 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[3]).

For the last decade, WHO flagship programme for mental health is the “mental health Gap Action programme (mhGAP)” (WHO, 2016[4]). 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. Currently, mhGAP is implemented in 90 countries.

There are 7.5 and 19.9 mental health beds per 100 000 population on average in lower-middle- and low-income, and upper-middle-income Asia-Pacific countries and territories, respectively, with Bangladesh, Papua New Guinea and Nepal reporting less than two psychiatric beds per 100 000 population (Figure 5.24). The large majority of beds in middle- and low-income countries and territories 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 and territories. 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.

References

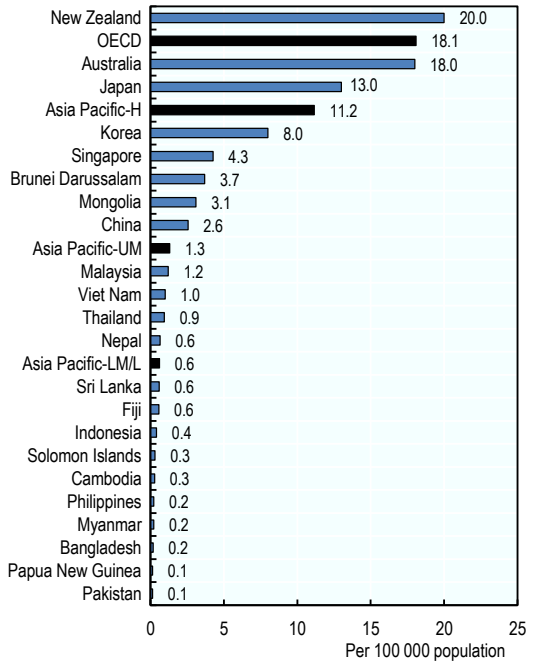
Australian Department of Health and Ageing (2012), *Evaluation of the Mental Health Nurse Incentive Program Final Report*. [3]

Australian Institute of Health and Welfare (2019), *Mental health services - in brief 2019*. [2]

WHO (2018), *Mental health atlas 2017*, World Health Organization, https://apps.who.int/iris/handle/10665/272735. [1]

WHO (2016), *mhGAP intervention guide for mental, neurological and substance use disorders in non-Specialized health settings : mental health gap action programme (mhGAP)*, World Health Organization, https://apps.who.int/iris/handle/10665/44406. [4]

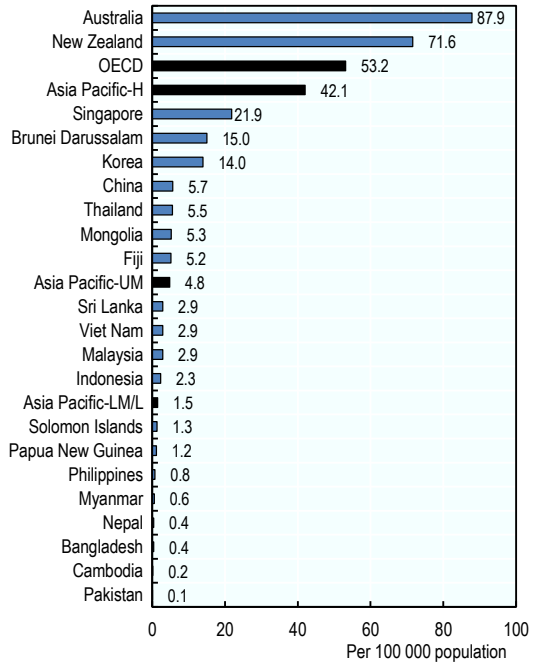
Figure 5.22. Psychiatrists, per 100 000 population, 2020 or latest year available



Source: OECD Health Statistics 2022; WHO Mental Health Atlas 2020.

StatLink https://stat.link/wkbvh5

Figure 5.23. Nurses working in mental health sector, per 100 000 population, 2020 or latest year available



Source: OECD Health Statistics 2022; WHO Mental Health Atlas 2020.

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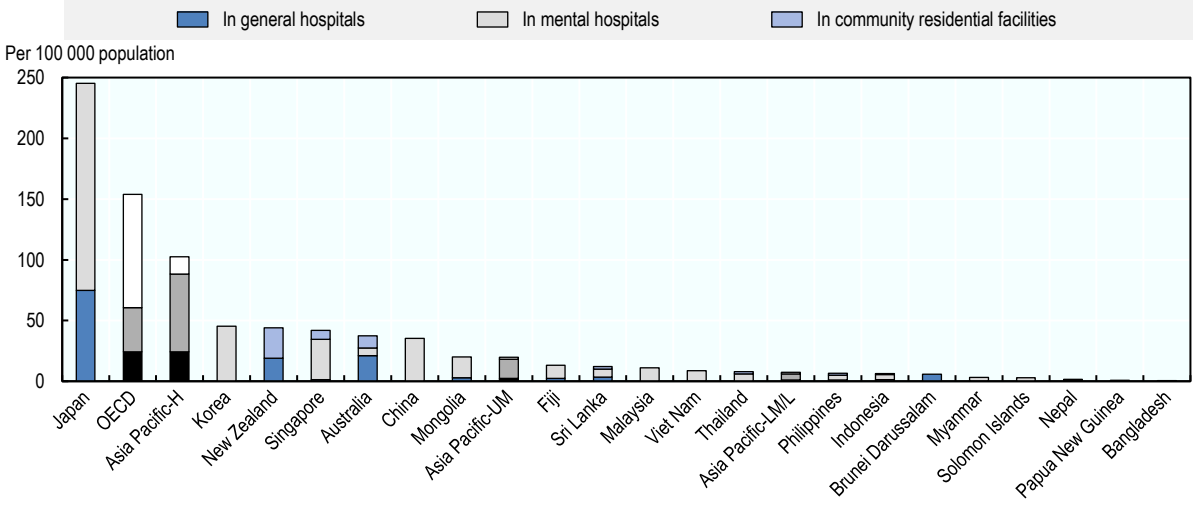
Figure 5.24. Mental health beds, per 100 000 population, 2020 or latest year available



Source: OECD Health Statistics 2022; WHO Mental Health Atlas 2020.

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Access to health care

People should be able to access health services when they need to, irrespective of their gender, economic status, education, and place of residence. The United Nations 2030 Agenda for Sustainable Development aims to leave no one behind, and it is said explicitly in SDG 10 "to reduce inequality within and among countries". SDG 3 is a call to ensure healthy lives and promote well-being for all at all ages, which implies tackling inequalities in health. However, differences in access to health care for women aged 15-49 either due to financial issues or distance to health facility are commonplace across countries in Asia-Pacific. Additionally, an extra layer of restrictions on access to health care for indigenous women in Asia-Pacific seems to exist as well, with indigenous women experiencing more health vulnerabilities when compared to non-Indigenous women, including continuous challenges and barriers to access quality and equitable health care services (Thummapol, Park and Barton, 2018[1]).

Women aged 15-49 report problems in access to care due to financial reasons, and the proportion of women with no education reporting problems in accessing care due to financial reasons is consistently higher than the proportion of women with secondary or higher education. Differences in access to care for financial reasons are also reported for women living in rural areas vis-à-vis urban areas, and for women from households in the lowest income quintile compared to women from households in the highest income quintile. Differences in access to care by social determinant are larger in countries such as Papua New Guinea, and Cambodia, while differences are narrower in Indonesia, India and Pakistan. In India, women aged 15-49 from households in the lowest income quintile have 3.6 times more difficulties in access to care due to financial reasons when compared to those from households in the highest income quintile (see Figure 5.25).

Distance to providers represent another barrier in access to health care for women aged 15-49 in Asia-Pacific countries. Women either with higher education levels, from households in the higher income quintile, or living in urban areas report less problems in access care than those with lower education, from households in the lower income quintile, or living in rural areas. Differences are larger for countries such as Papua New Guinea, Nepal and Pakistan, while for Indonesia, India and Bangladesh, differences in access to care due to distance to providers by social determinant are comparatively narrower. In Myanmar, women aged 15-49 from households in the lowest income quintile have 3.9 times more difficulties in access to care due to distance to providers compared to those from households in the highest income quintile, while difficulties in access to care for those with lower education are 3.8 times higher than for those with the highest education (see Figure 5.26).

Inequalities in access to health care are also reported in OECD countries. A quarter of individuals aged 18 or older report unmet need (defined as forgoing or delaying care) because limited availability or affordability of services compromise access. People may also forgo care because of fear or mistrust of health service providers. Strategies to reduce unmet need, particularly for the less well-off, need to tackle both financial and non-financial barriers to access (OECD, 2019[2]).

Definition and comparability

Indicators consider women aged 15-49. By accessing health care, the indicators refer to any type of health care when the respondent is sick, and these are not limited to reproductive health care.

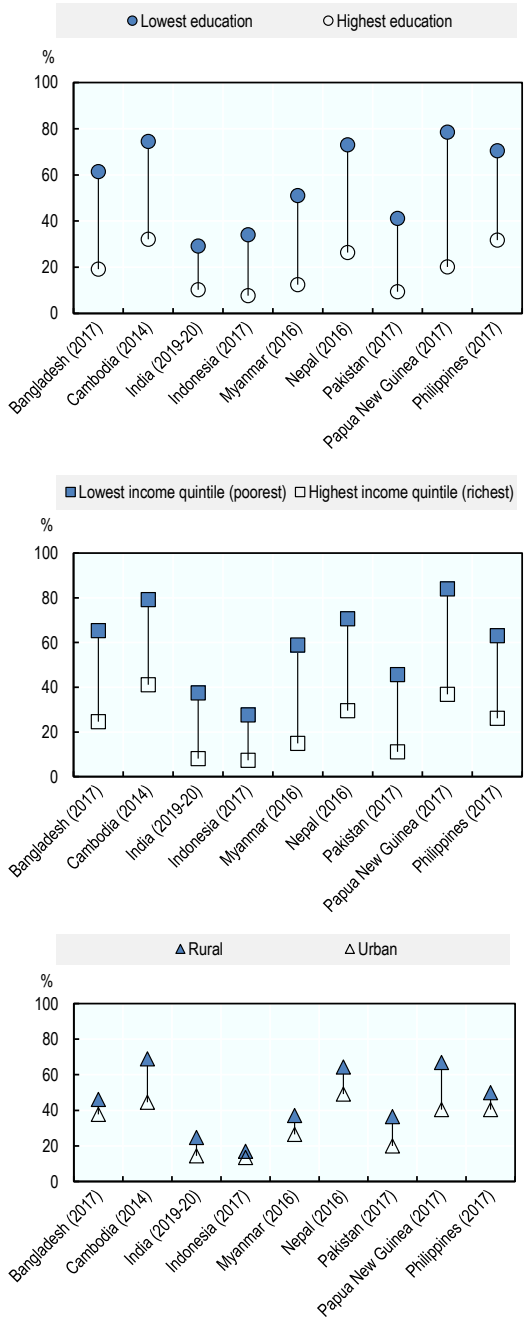
In the DHS survey, problems in accessing care due to financial reasons consider respondents who indicated that the issue was "getting money needed for treatment", while for distance the indicated issue was related to "distance to health facility". When referring to "lowest education", this could also mean "no formal education".

References

OECD (2019), *Health for Everyone?: Social Inequalities in Health and Health Systems*, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/3c8385d0-en. [2]

Thummapol, O., T. Park and S. Barton (2018), "Exploring health services accessibility by indigenous women in Asia and identifying actions to improve it: a scoping review", *Ethnicity & Health*, Vol. 25/7, pp. 940-959, https://doi.org/10.1080/13557858.2018.1470607. [1]

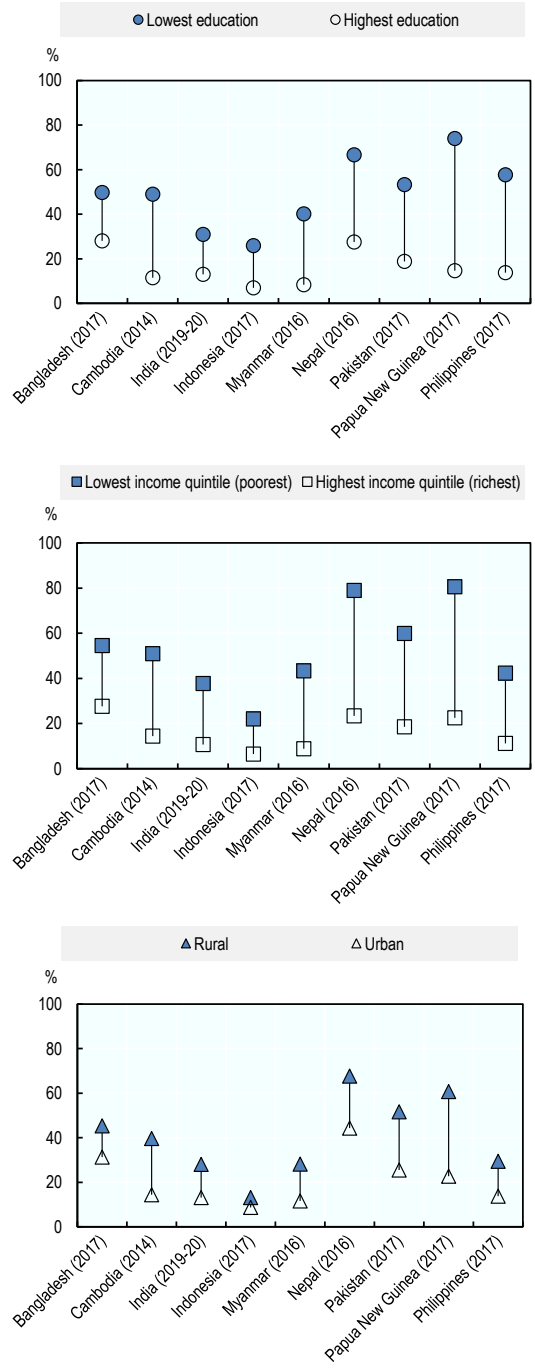
Figure 5.25. Women aged 15-49 who reported problems in accessing care due to financial reasons, by socio-economic characteristics, latest year available



Source: DHS surveys, various years.

StatLink https://stat.link/ng8sfq

Figure 5.26. Women aged 15-49 who reported problems in accessing care due to distance, by socio-economic characteristics, latest year available



Source: DHS surveys, various years.

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6 Health expenditure and financing

Health expenditure per capita and in relation to GDP

Across Asia-Pacific countries, per capita health spending continued to rise prior to the COVID-19 pandemic. Low- and lower-middle-income Asia-Pacific countries per capita health spending increased by 65% between 2010 and 2019, while in upper middle countries it grew by 76% during the same period; spending in high-income countries also grew, but more modestly at 33%. Despite this, huge differences in per capita health care spending remained in Asia-Pacific countries in 2019 (Figure 6.1), ranging from only 105 international dollars (USD PPPs) in Bangladesh to 5 294 international dollars (USD PPPs) in Australia. For comparison, average OECD current health spending per capita in 2019 was around 15 times that of the low-income countries in Asia-Pacific (4 353 versus 286 USD PPPs).

How much countries spend on health care as a share of GDP over time can be ascribed to both changes in health spending and economic performance. The health care sector continued to expand faster than the overall economy in Asia-Pacific, resulting in an increasing share of the economy devoted to health. On average, between 2010 and 2019, 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). All countries above the diagonal line in Figure 6.2 reported that health expenditure has grown faster than the economy. This means that the share of health care expenditure in all GDP expenditure has continued to increase. For both health spending and overall economic activity, growth in China was the strongest in the region – more than twice the average rate. By contrast, Brunei Darussalam was the only country to report a decrease in both per capita health spending and GDP in real terms between 2010 and 2019.

Health expenditure accounted for 3.9% of GDP in low- and lower-middle-income countries in 2019, unchanged from 2010. Health expenditure accounted for 4.2% and 7.5% of GDP in upper-middle-income and high-income Asia-Pacific countries respectively in 2019, an increase of 0.6 and 1 percentage point compared to 2010. In 2019, the share of GDP varied from a low of 2.2% in Brunei Darussalam up to 10.7% 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 – more than twice that of the Asia-Pacific low- and middle-income countries (8.7% versus 4%) and 1 percentage point higher than that in high-income countries. Between 2010 and 2019, the share of health in relation to GDP declined by more than 3 percentage points in Solomon Islands, whereas it increased in Myanmar, China, Korea, Australia and Japan[1] by more than 1 percentage point (Figure 6.3).

Although health systems remain a highly labour-intensive sector, capital has become 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 in health care. However, capital investments in health tend to be more susceptible to economic cycles than current spending on health care. As a proportion of GDP, Philippines, China and Australia were the highest spenders on capital investment in 2019 with more than 0.5% of their GDP going on construction, equipment and technology in the health sector (Figure 6.4), whereas less than 0.1% of GDP was spent in capital investment in health in Brunei Darussalam in 2019.

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 outpatients, prevention and public health services, and health administration and health financing. 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.

Economy-wide 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 reported in international dollars (USD PPPs) reflect not only variations in the volume of health services, but also any variations in the prices of health goods and 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:

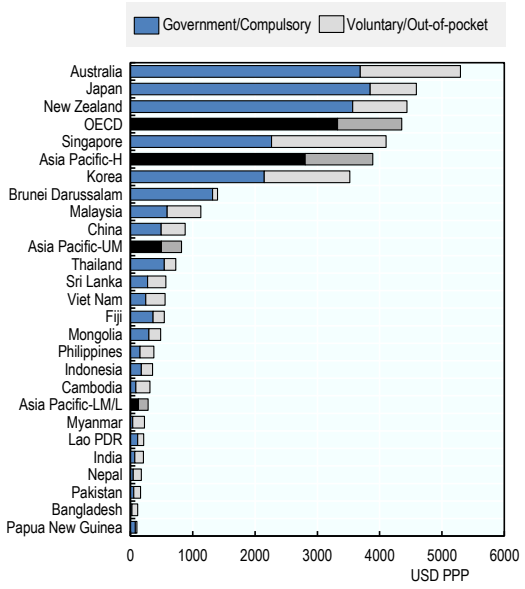
$((\sqrt[9]{\text{2019 value}/\text{2010 value}})-1)*100$

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.

Note

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

Figure 6.1. Health expenditure per capita, 2019



Source: WHO Global Health Expenditure Database; OECD Health Statistics 2022.

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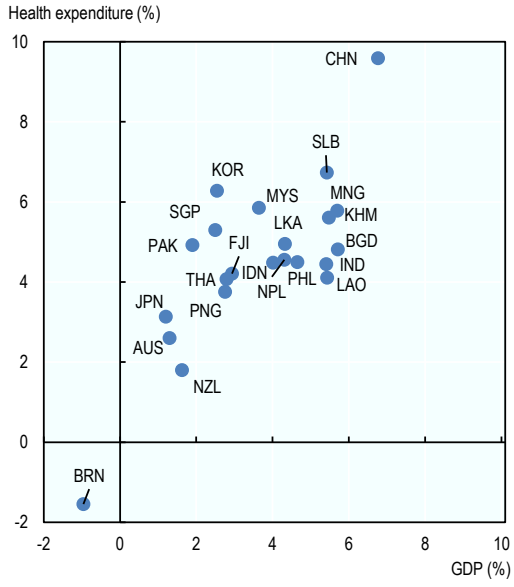
Figure 6.2. Annual average growth rate in per capita health expenditure and GDP, real terms, 2010-19



Source: WHO Global Health Expenditure Database.

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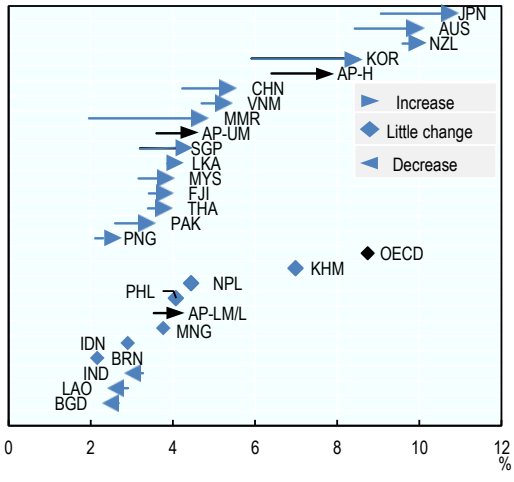
Figure 6.3. Change in health expenditure as a share of GDP, 2010-19



Source: WHO Global Health Expenditure Database; OECD Health Statistics 2022.

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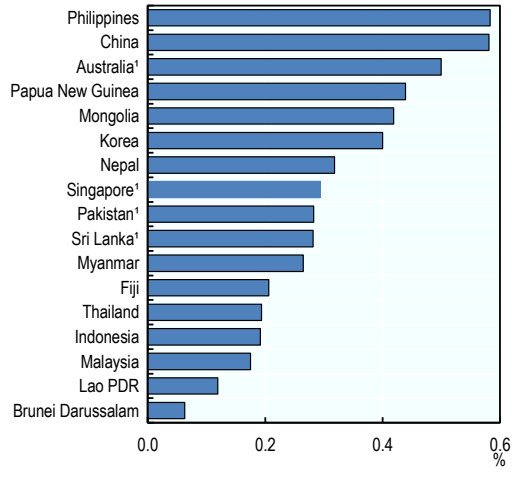
Figure 6.4. Gross fixed capital formation in the health care sector as a share of GDP, 2019



1. Data refer to 2018.
Source: WHO Global Health Expenditure Database.

StatLink https://stat.link/t9akf2

Financing of health care from government and compulsory health insurance schemes

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 (through either 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.

Generally, the higher the income level of a country, the higher the share of health care spending financed through government and compulsory health insurance schemes. This overall pattern of health care financing can be seen across Asia-Pacific countries: 74.1% in high-income countries versus 44.9% in low- and lower-middle-income countries (Figure 6.5). In New Zealand, Japan and Brunei Darussalam more than 75% of all health expenditure was paid for through government schemes and compulsory health insurance in 2019. The same pattern was observed in two low-income countries, Solomon Islands and Papua New Guinea. By contrast, in Myanmar and Bangladesh less than 25% of health spending was covered by such schemes. Between 2010 and 2019, the share of health expenditure financed by government and compulsory health insurance schemes increased by more than 10 percentage points in Pakistan, Indonesia, Singapore and Lao PDR, whereas it decreased by more than 10 percentage points in Viet Nam.

Figure 6.6 highlights the change in government and compulsory health insurance schemes spending as a share of GDP between 2010-19. On average, there was a slight increase in upper-middle- and high-income countries in Asia-Pacific from 2.2% to 2.6% and 4.7% to 5.5% of GDP respectively, whereas the share for low- and lower-middle-income countries remained unchanged at 1.7% of GDP over the same period. Japan[1] reported an increase of around 1.5 percentage points in the period in study.

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, general government revenues, 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 2019, health spending by government schemes and compulsory insurance stood at around 7.2% of total government expenditure across low- and lower-middle-income countries, whereas it represented 10.1% of total government expenditure in upper-middle-income countries in Asia-Pacific (Figure 6.7). In Japan, Australia, New Zealand and Singapore more than 15% of public spending was dedicated to health care. On the other hand, less than 5% of government expenditure was allocated to health care in India, Nepal, 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 in 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 2019.

Definition and comparability

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.

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

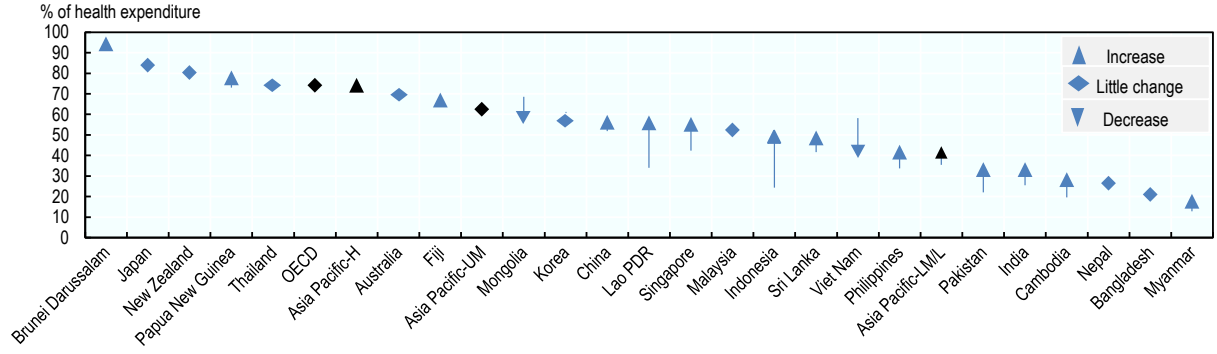
References

OECD/WHO/Eurostat (2011), *A System of Health Accounts: 2011 Edition*, OECD Publishing, Paris, https://doi.org/10.1787/9789264116016-en. [1]

Note

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

Figure 6.5. Health expenditure by government scheme and compulsory insurance scheme as a share of health expenditure, 2010 and 2019



Source: WHO Global Health Expenditure Database; OECD Health Statistics 2022.

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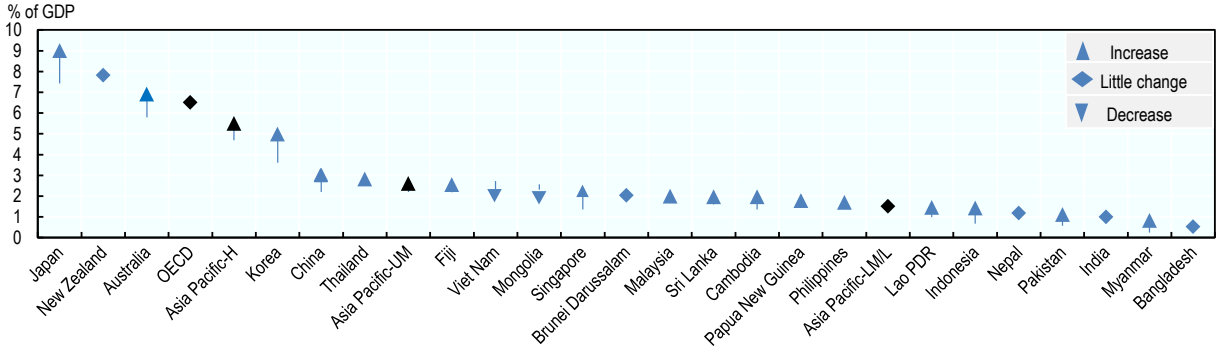
Figure 6.6. Health expenditure by government scheme and compulsory insurance scheme as a share of GDP, 2010 and 2019



Source: WHO Global Health Expenditure Database; OECD Health Statistics 2022.

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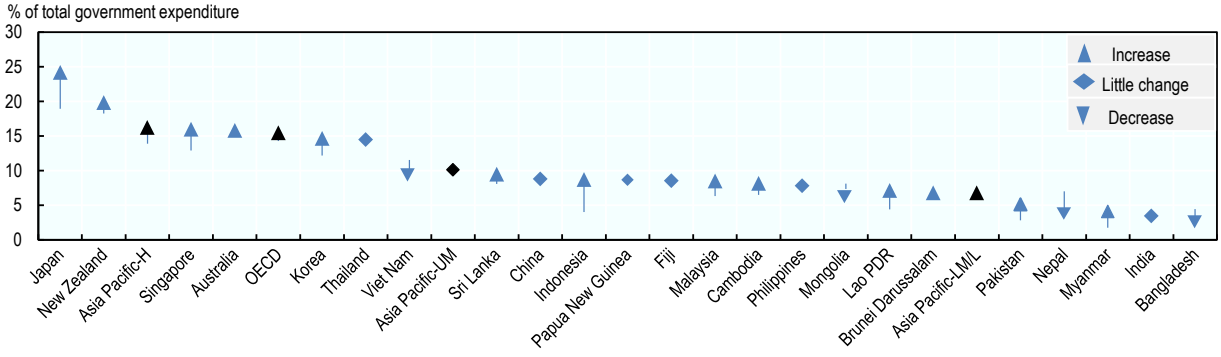
Figure 6.7. Health expenditure by government and compulsory health insurance schemes as a share of total government expenditure, 2010 and 2019



Source: WHO Global Health Expenditure Database; OECD Health Statistics 2022.

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Financing of health care from households' out-of-pocket payments and voluntary payment schemes

For each dollar spent on health, more than 60 cents continued to be financed "out-of-pocket" in Cambodia, Bangladesh and Myanmar in 2019. On average, the share of health spending paid out-of-pocket has fallen in countries of all income groups in Asia-Pacific between 2010 and 2019: by around 2 percentage points to 40.4% in low- and lower-middle-income countries, by 5 percentage points to 22.9% in upper-middle-income countries and by around 4 percentage points to 17.9% in high-income countries (Figure 6.8). However, the pattern is quite diverse across the countries in the region and could also be attributed to increasing unmet needs because of access barriers and/or financial constraints. While two-thirds of the Asia-Pacific reporting countries showed a decrease in the share of out-of-pocket spending, including more than 10 percentage points for Pakistan, India, Singapore and Indonesia, Cambodia reported a growth of more than 10 percentage points over the same period.

Research (Wang, Torres and Travis, 2018[1]) suggest that the main driver of households' out-of-pocket expenditure is medicines, composing more than 60% of total out-of-pocket spending in countries of the WHO South-East Asia Region. In Bangladesh and India, this percentage could be as high as 80%. Furthermore, the share of OOP spending on medicines was even higher among the poorer population, suggesting a disproportionally higher financial burden. In line with these findings, WHO and The World Bank has reported that the WHO South-East Asia and Western Pacific regions had the highest percentage of the population in the world facing catastrophic health spending – defined as out of pocket health spending exceeding the 10% of income – in 2017, pushing more people below the poverty line (WHO/World Bank, 2019[2]). Figure 6.9 shows that health expenditure by other voluntary payment schemes (e.g. PHI, spending by NGOs) 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 5 percentage points to 14.5% in upper-middle-income countries, whereas it increased by 1 percentage point to 8.1% in high-income countries, and slightly decreased to 8.9% in low- and lower-middle-income Asia-Pacific countries from 2010 to 2019. Less than 5% of current health expenditure was from voluntary payment schemes in Mongolia, Japan, Bangladesh and Lao PDR in 2019, while it represented 15% or more in Thailand, Indonesia, Fiji and Nepal in the same year. Fiji reported an increase of 12.4 percentage points between 2010 and 2019, whereas Viet Nam and Thailand reported an increase of more than 7 percentage points during the same period.

Definition and comparability

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[3]) 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.

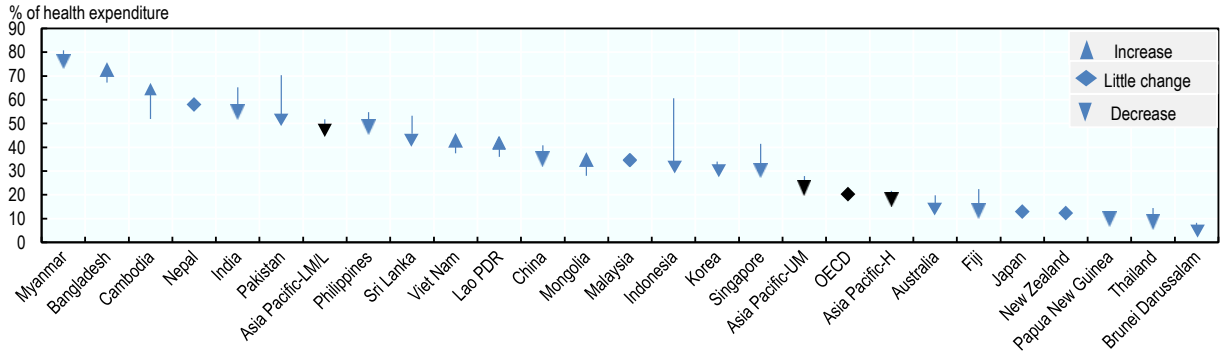
References

OECD/WHO/Eurostat (2011), *A System of Health Accounts: 2011 Edition*, OECD Publishing, Paris, https://doi.org/10.1787/9789264116016-en. [3]

Wang, H., L. Torres and P. Travis (2018), "Financial protection analysis in eight countries in the WHO South-east Asia region", *Bulletin of the World Health Organization*, Vol. 96/9, https://doi.org/10.2471/BLT.18.209858. [1]

WHO/World Bank (2019), *Global Monitoring Report on Financial Protection in Health 2019*, World Health Organization, https://apps.who.int/iris/handle/10665/331748. [2]

Figure 6.8. Health expenditure by households' out-of-pocket as a share of health expenditure, 2010 and 2019



Source: WHO Global Health Expenditure Database; OECD Health Statistics 2022.

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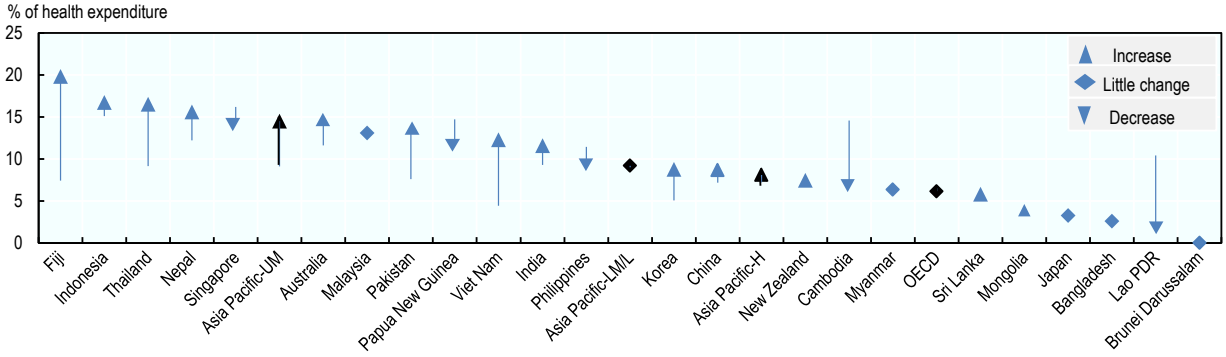
Figure 6.9. Health expenditure by voluntary health care payment schemes as a share of health expenditure, 2010 and 2019



Source: WHO Global Health Expenditure Database; OECD Health Statistics 2022.

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Health expenditure by type of service

Factors such as how care is organised and prioritised across providers, what the population needs are, and the various input costs, all affect how health spending is distributed across different services. Curative and rehabilitative care services comprise the greatest share – typically accounting for around 64% of all health spending across Asia-Pacific reporting countries (Figure 6.10). Medical goods (mostly retail pharmaceuticals) take up a further 15%, followed by a growing share on preventive care, which in 2019 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 medical goods 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 three-quarters of health spending in Viet Nam, China, Cambodia and Malaysia can be accounted for by curative and rehabilitative care services. At the other end of the scale, 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 Nepal, India and the Philippines. Of note that spending on pharmaceuticals consumed in the hospital settings is not included -theoretically – in these figures.

Around one fourth of the total spending can be attributed to preventive care in Fiji, whereas preventive care accounts for only 3% of spending in Sri Lanka, and around this level in Australia, Japan and Korea.

When restricting the analysis to spending by government schemes and compulsory insurance schemes, curative and rehabilitative care services comprise the greatest share – typically accounting for 68% of all health spending across Asia-Pacific reporting countries (Figure 6.11). Preventive care takes up a further 10%. Administration and overall governance of the health system covered 16% of the remainder spending. Across OECD countries, long-term care and pharmaceuticals accounted for a higher share of government health care spending as compared to Asia-Pacific reporting countries. The low share of pharmaceuticals spending in government health spending at 4% 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 half or less of all government spending. In Lao PDR, Cambodia and Nepal, the higher share of government spending was attributed to administration and other services.

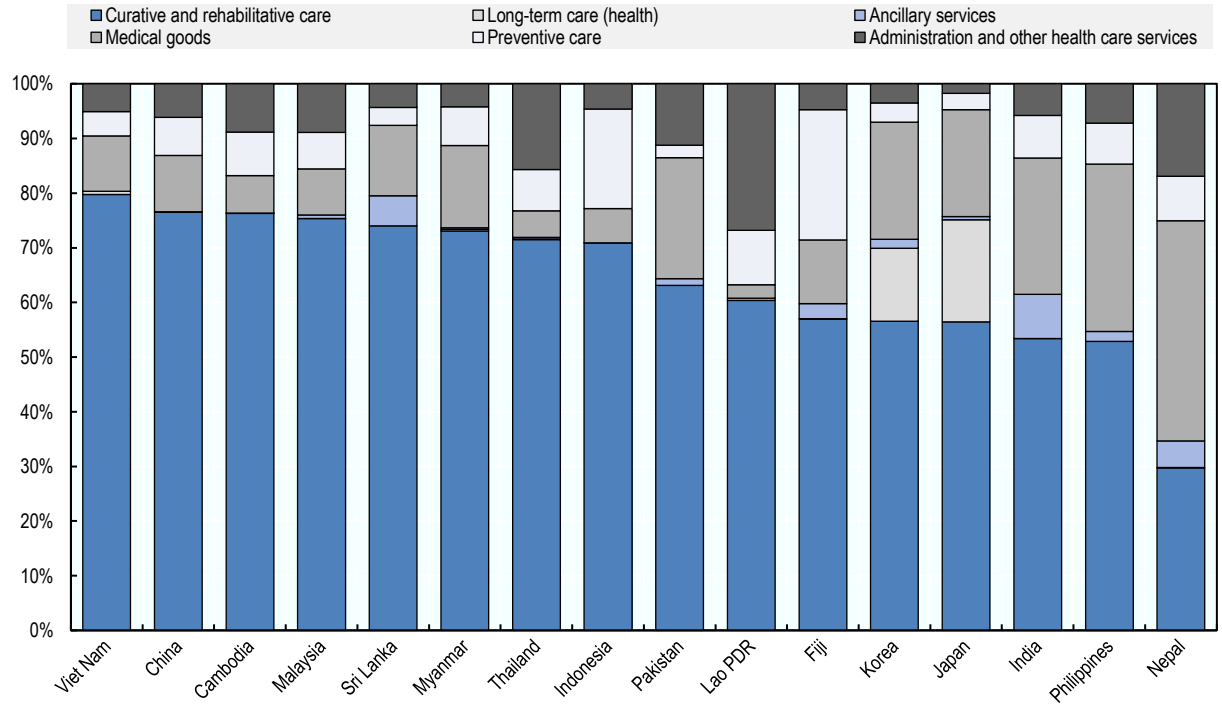
Around 30% of government total spending is attributed to preventive care in Fiji, whereas preventive care accounts for 2% of government spending in Pakistan.

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 6.10. Health expenditure by type of service, 2019



Source: WHO Global Health Expenditure Database.

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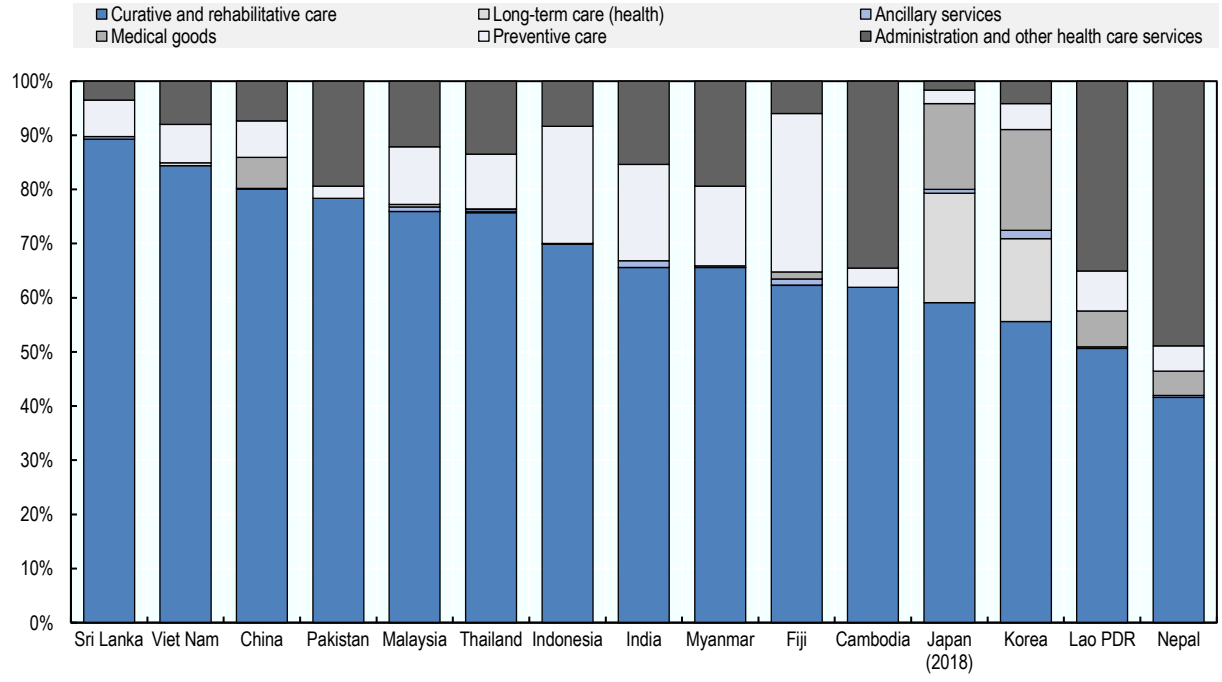
Figure 6.11. Domestic general government health expenditure by type of service, 2019



Source: WHO Global Health Expenditure Database.

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7 Quality of care

Childhood vaccination

Childhood vaccination continues to be one of the most cost-effective health policy interventions, preventing 4 to 5 million deaths every year (WHO, 2019[1]). Nevertheless, the global coverage for three doses of diphtheria-tetanus-pertussis (DTP3) vaccine dropped from 86% in 2019 to 81% in 2021 and an estimated 25 million children under the age of 1 year did not receive basic vaccines, the highest number since 2009 (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, Japanese encephalitis and human papilloma virus) are included at national or subnational level based on local morbidity, mortality and cost-effectiveness analysis.

Health systems providing high quality of care deliver effective, safe and people-centred health care. These national and subnational vaccination programmes are effective and safe in reducing disease burden of the population, and the level of adherence to the guidelines on childhood vaccination also reflects importantly the quality of care provided in countries, as well as availability, accessibility and affordability of vaccination services.

Diphtheria tetanus toxoid and pertussis, measles and hepatitis B vaccines are taken here as examples as they represent, in timing and frequency of vaccination, the full spectrum of organisational challenges related to routine vaccination for children. 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 vaccine, together with diphtheria and tetanus toxoid reduces the risk of severe pertussis among infants. WHO recommends the administration of the first dose as early as 6 weeks of age, subsequent doses given at least 4 weeks apart, and the third dose of the primary series should be completed by 6 months of age, if possible (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 and the estimated number of deaths decreased by 62% between 2000 and 2019, measles is still common in many developing countries and measles incidence has increased globally including in Asia since 2016 (Patel et al., 2020[4]). 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, and/or mumps, should be the standard for national childhood immunisation programmes (WHO, 2020[5]). Vaccination for hepatitis B is considered effective in preventing infection and its chronic consequences, such as cirrhosis and liver cancer. Yet, in 2019, hepatitis B resulted in 820 000 deaths, mostly from cirrhosis and hepatocellular carcinoma. Globally, WHO Western Pacific is the region with most infections in the world, and 116 million people are chronically infected (WHO, 2022[6]). 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, 2021[7]).

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 the diseases concerned. Hence, high coverage of these programmes illustrates effective delivery of high-quality health care. The COVID-19 pandemic, however, impeded access to childhood vaccinations in many countries as these services had been scaled down or closed, or people were concerned about risks of COVID-19 infection (WHO, 2020[2]). Consequently, vaccination rates have not returned to the pre-pandemic period in about half of the countries in the Asia-Pacific region (see Chapter 2 “The health impact of COVID-19”).

In 2021, 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. In most high and upper-middle-income Asia-Pacific countries, almost all children aged around one year received the recommended measles, DTP3 and hepatitis B vaccination, meeting the WHO’s minimum threshold of 95% to avoid vaccine-preventable diseases outbreaks. On the contrary, the average vaccination rate in lower-middle and low-income Asia-Pacific countries for these diseases was around 75%, which is insufficient to ensure interruption of disease transmission and protection of the whole population (Figures 7.1, 7.2 and 7.3). The average rate for these countries in 2021 was about 10 percentage points lower than the average rate in 2019 (European Commission, 2017[8]; OECD/WHO, 2020[9]), suggesting a substantial negative impact of COVID-19 pandemic on vaccination programmes.

Vaccination coverage rates for DTP3, measles and hepatitis B were similar for each Asia-Pacific country. Brunei Darussalam and China had the highest rate in Asia-Pacific at 99% against all of them. However, in Papua New Guinea, Myanmar and DPRK, less than one in two children were vaccinated with all three (Figures 7.1, 7.2 and 7.3).

Definition and comparability

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.

References

European Commission (2017), *Cancer Screening in Report on the implementation of the Council Recommendation on cancer screening*, https://ec.europa.eu/health/sites/health/files/major_chronic_diseases/docs/2017_cancerscreening_2ndreportimplementation_en.pdf. [8]

OECD/WHO (2020), *Health at a Glance: Asia/Pacific 2020: Measuring Progress Towards Universal Health Coverage*, OECD Publishing, Paris, https://doi.org/10.1787/26b007cd-en. [9]

Patel, M. et al. (2020), "Progress Toward Regional Measles Elimination — Worldwide, 2000–2019", *MMWR. Morbidity and Mortality Weekly Report*, Vol. 69/45, pp. 1700-1705, https://doi.org/10.15585/mmwr.mm6945a6. [4]

WHO (2022), *Hepatitis B*, World Health Organization, https://www.who.int/news-room/fact-sheets/detail/hepatitis-b. [6]

WHO (2021), *WHO recommendations for routine immunization - summary tables*, World Health Organization, https://cdn.who.int/media/docs/default-source/immunization/immunization_schedules/immunization-routine-table1.pdf. [7]

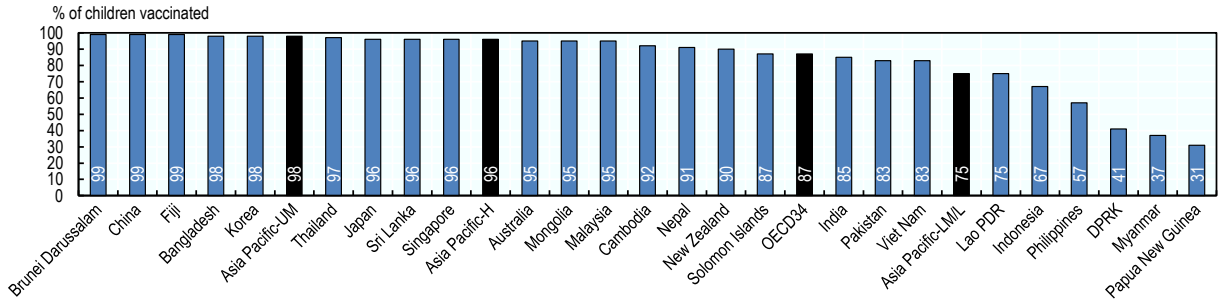
WHO (2020), *Measles*, World Health Organization, https://www.who.int/immunization/diseases/measles/en/. [5]

WHO (2020), *Pertussis*, World Health Organization, https://www.who.int/health-topics/pertussis#tab=tab_2. [3]

WHO (2020), *Vaccines work at all ages, everywhere*, World Health Organization, http://www.who.int/news-room/commentaries/detail/vaccines-work-at-all-ages-everywhere. [2]

WHO (2019), *Immunization*, World Health Organization, https://www.who.int/news-room/facts-in-pictures/detail/immunization. [1]

Figure 7.1. Vaccination coverage for diphtheria, tetanus toxoid and pertussis-containing vaccine, third dose (DTP3), 2021



Source: WHO/UNICEF estimates of national immunisation coverage (WUENIC) 2022.

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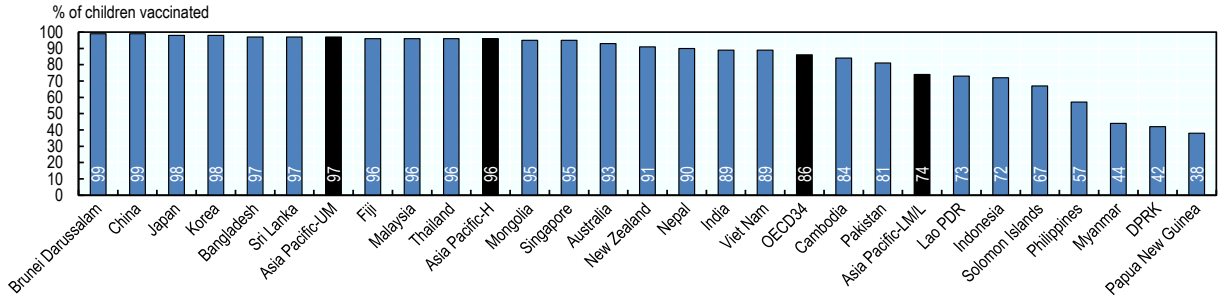
Figure 7.2. Vaccination coverage for measles-containing vaccine, first dose (MCV1), 2021



Source: WHO/UNICEF estimates of national immunisation coverage (WUENIC) 2022.

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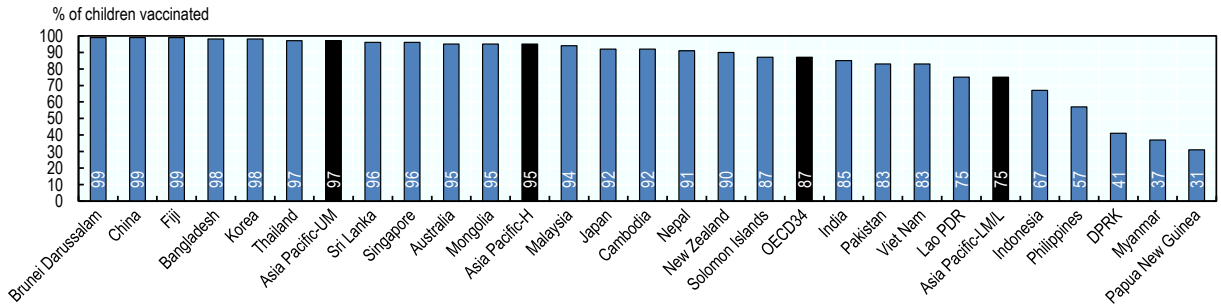
Figure 7.3. Vaccination coverage for hepatitis B-containing vaccine, third dose (HepB3), 2021



Source: WHO/UNICEF estimates of national immunisation coverage (WUENIC) 2022.

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In-hospital mortality following acute myocardial infarction and stroke

Cardiovascular disease is the major cause of death in Asia-Pacific, accounting for 35% of the total deaths in the region in 2019 (Zhao, 2021[1]). Ischaemic heart diseases and stroke were the two major causes of death in Asia-Pacific in 2019, accounting for 25.4% of total deaths in South-East Asia and 34.5% of all deaths in the Western Pacific region (Institute for Health Metrics and Evaluation, 2022[9]; indicator "Mortality from cardiovascular diseases" in Chapter 3). Additionally, both are associated with significant health, social and other non-financial costs, because of the persistent disabilities suffered by many survivors.

Quality, notably effectiveness of treatment following acute myocardial infarction (AMI) and stroke has improved significantly 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[2]). Effectiveness of treatment for ischaemic stroke has also improved dramatically over the last decade, through early identification of suspected ischaemic stroke patients and timely acute reperfusion therapy. Countries can further improve quality of stroke care through timely transportation of patients, evidence-based medical interventions and access to high-quality specialised facilities such as stroke units (OECD, 2015[3]). Due to COVID-19, however, 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 suffering from AMIs during the early period of the pandemic because of hospitals following additional precautionary measures to prevent infection and/or patients fearing infection (Tam et al., 2020[4]).

For both AMI and stroke, the case-fatality rate is a useful measure of acute care quality, reflecting notably the effectiveness of medical interventions, including early thrombolysis or treatment with aspirin when appropriate, and catheterisation, as well as co-ordinated and timely transport of patients. For AMI, age-standardised in-hospital case-fatality rates within 30 days of admission were low in Australia (3.2%) and New Zealand (4.3%) and high in Singapore (10.7%) in 2019 (Figure 7.4). The case-fatality rate generally decreased over the past decade and the cross-country difference decreased over time. 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 30-day case-fatality.

For ischemic stroke, the lowest case-fatality rates were reported in Japan (3.0%) and Korea (3.5%), while New Zealand reported the highest rate of 6.5% (Figure 7.5). Fatality rates for haemorrhagic stroke are significantly higher than for ischemic stroke for all countries, and countries that achieve better survival for one type of stroke also tend to do well for the other. The lowest case-fatality rates for haemorrhagic stroke were reported in Korea (15.5%), with New Zealand reporting the highest rate of 20.9% (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[5]).

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 Korea is regularly reporting hospital-level performance (OECD, 2019[6]). 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[7]).

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 and territories 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) of the OECD population with AMI or stroke, and facilitate more meaningful international comparisons.

References

Gil, M. et al. (1999), "Relationship of Therapeutic Improvements and 28-Day Case Fatality in Patients Hospitalized With Acute Myocardial Infarction Between 1978 and 1993 in the REGICOR Study, Gerona, Spain", *Circulation*, Vol. 99/13, pp. 1767–1773, https://doi.org/10.1161/01.CIR.99.13.1767. [2]

Lalloué, B. et al. (2019), "Does size matter? The impact of caseload and expertise concentration on AMI 30-day mortality—A comparison across 10 OECD countries", *Health Policy*, Vol. 123/5, pp. 441-448, https://doi.org/10.1016/j.healthpol.2019.03.007. [7]

OECD (2019), *Health at a Glance 2019: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/4dd50c09-en. [6]

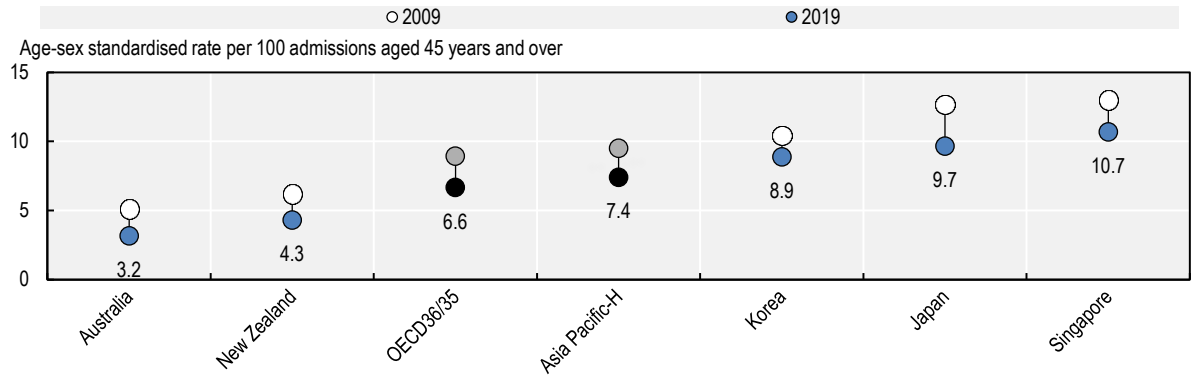
OECD (2015), *Cardiovascular Disease and Diabetes: Policies for Better Health and Quality of Care*, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264233010-en. [3]

OECD (2015), *OECD Reviews of Health Care Quality: Japan 2015: Raising Standards*, OECD Reviews of Health Care Quality, OECD Publishing, Paris, https://doi.org/10.1787/9789264225817-en. [5]

Tam, C. et al. (2020), "Impact of Coronavirus Disease 2019 (COVID-19) Outbreak on ST-Segment–Elevation Myocardial Infarction Care in Hong Kong, China", *Circulation: Cardiovascular Quality and Outcomes*, Vol. 13/4, https://doi.org/10.1161/circoutcomes.120.006631. [4]

Zhao, D. (2021), "Epidemiological Features of Cardiovascular Disease in Asia", *JACC: Asia*, Vol. 1/1, pp. 1-13, https://doi.org/10.1016/j.jacasi.2021.04.007. [1]

Figure 7.4. In-hospital case-fatality rates within 30 days after admission for acute myocardial infarction, patients 45 years old and over, 2009 and 2019 (or nearest years)



Source: OECD Health Statistics 2022.

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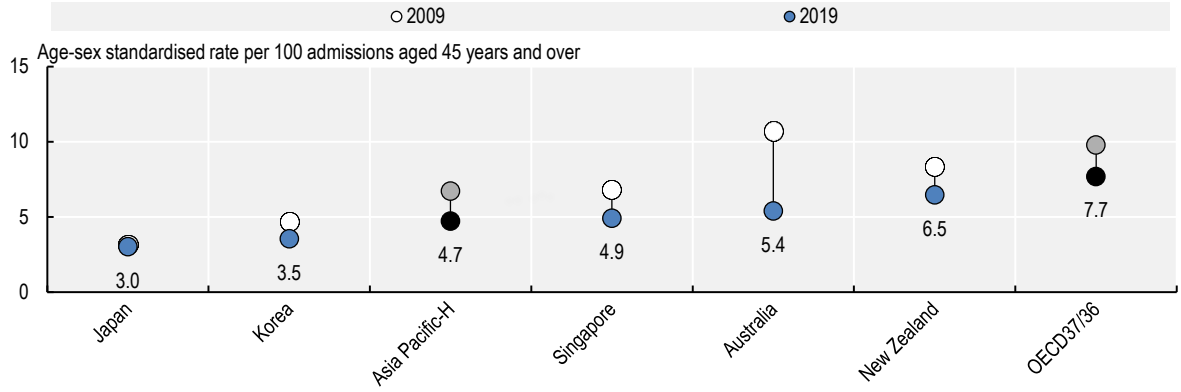
Figure 7.5. In-hospital case-fatality rates within 30 days after admission for ischemic stroke, patients 45 years old and over, 2009 and 2019 (or nearest years)



Source: OECD Health Statistics 2022.

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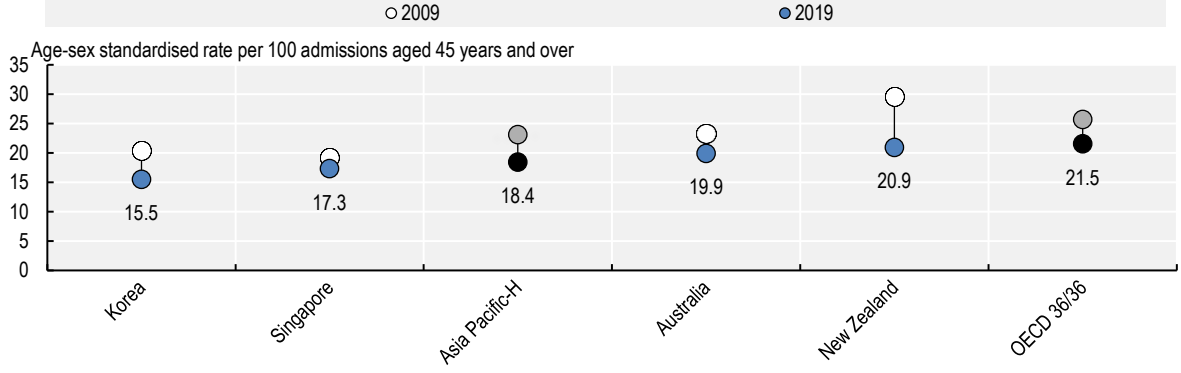
Figure 7.6. In-hospital case-fatality rates within 30 days after admission for haemorrhagic stroke, patients 45 years old and over, 2009 and 2019 (or nearest years)



Source: OECD Health Statistics 2022.

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Screening, survival and mortality for breast cancer

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 South-East Asia and the highest incidence and second highest mortality rates in Western Pacific region. In 2020, according to estimates based on pre-pandemic trend, approximately 948 000 women were expected to be newly diagnosed with breast cancer and over 316 000 died of the disease in the region (International Agency for Research on Cancer (IARC), 2022[17]; 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[1]; González-Jiménez et al., 2014[2]).

In many Asia-Pacific countries, the incidence of breast cancer has increased over recent decades. Over recent decades, age-standardised annual incidence rates per 100 000 women have risen quickly in China, India, Japan and Korea (IARC, 2022[3]) and the rates reached over 75 per 100 000 women in Japan and Singapore and about 65 per 100 000 women in Fiji and Korea in 2020. Incidence rates were already high (over 90 per 100 000 women) in Australia and New Zealand, where they have increased more slowly in recent years (IARC, 2022[4]).

In the 1990s, Australia, Japan and New Zealand introduced national breast cancer screening programmes to effectively detect the disease early and reduce mortality (OECD, 2013[5]; IARC, 2016[6]). 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, 2021[7]). 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[8]; Pham et al., 2019[9]; Ministry of Health Brunei Darussalam, 2020[10]). Most of these countries monitor effective implementation of breast cancer screening programme. Prior to the pandemic, mammography rate was high at above 70% in New Zealand and Korea while low at just over 10% in Brunei Darussalam. However, in 2020, the COVID-19 pandemic disrupted breast cancer screening programmes in countries in Asia-Pacific (Figure 7.7; see Chapter 2 "The health impact of COVID-19").

Cancer survival is one of the key measures of the effectiveness of health care systems in managing cancer, reflecting both early detection and the effectiveness of treatment. 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 Malaysia, India and Thailand, the probability that breast cancer patients survive their cancer for at least five years was less than 70%. 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, Korea and Thailand in particular have seen a large improvement in five-year net survival since 2000-04.

In 2020, mortality rates from breast cancer, reflecting effectiveness in early detection and treatment, and underlying trends in incidence, prevalence and survival, varied over ten-fold between countries and territories in the Asia-Pacific region. The rate was lowest in Mongolia at 3.9 per 100 000 women and the highest in Fiji at 41.0 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.

Definition and comparability

For mammography rate, target population and frequency of screening differ across countries, so data need to be interpreted with care.

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 (Allemani et al., 2018[11]).

See indicator "Mortality from cancer" in Chapter 3 for the definition of cancer mortality rates.

References

Allemani, C. et al. (2018), "Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries", *The Lancet*, Vol. 391/10125, pp. 1023-1075, https://doi.org/10.1016/S0140-6736(17)33326-3. [11]

González-Jiménez, E. et al. (2014), "Breastfeeding and the prevention of breast cancer: a retrospective review of clinical histories", *Journal of Clinical Nursing*, Vol. 23/17-18, pp. 2397-2403, https://doi.org/10.1111/jocn.12368. [2]

IARC (2022), *Cancer Over Time*, International Agency for Research on Cancer, Lyon, https://gco.iarc.fr/overtime/en. [3]

IARC (2022), *Cancer Today*, International Agency for Research on Cancer, Lyon, https://gco.iarc.fr/today/. [4]

IARC (2016), *Breast Cancer Screening*, IARC Handbooks of CAncer Prevention, No. 15, International Agency for Research on Cancer, Lyon, https://publications.iarc.fr/Book-And-Report-Series/Iarc-Handbooks-Of-Cancer-Prevention/Breast-Cancer-Screening-2016. [6]

Ministry of Health Brunei Darussalam (2020), *Breast Cancer Screening*, http://ppkk.gov.bn/SitePages/Breast-Cancer.aspx. [10]

OECD (2021), *Health at a Glance 2021: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/ae3016b9-en. [7]

OECD (2013), *Cancer Care: Assuring Quality to Improve Survival*, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264181052-en. [5]

Pg Suhaimi, A. et al. (2020), "Predictors of non-communicable diseases screening behaviours among adult population in Brunei Darussalam: a retrospective study", *Journal of Public Health*, Vol. 29/6, pp. 1303-1312, https://doi.org/10.1007/s10389-020-01240-z. [14]

Pham, T. et al. (2019), "Cancers in Vietnam—Burden and Control Efforts: A Narrative Scoping Review", *Cancer Control*, Vol. 26/1, https://doi.org/10.1177/1073274819863802. [9]

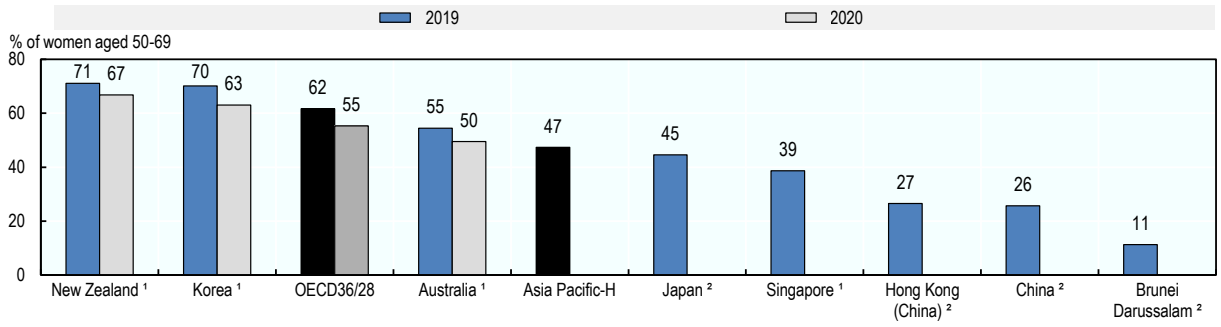
Wahidin, M. (2018), "Overview of Ten Years (2007-2016) Cervical and Breast Cancer Screening Program in Indonesia", *Journal of Global Oncology*, Vol. 4/Supplement 2, https://doi.org/10.1200/jgo.18.21100. [8]

World Cancer Research Fund/American Institute for Cancer Research (2018), *Diet, nutrition, physical activity and breast cancer*, World Cancer Research Fund/American Institute for Cancer Research, https://www.wcrf.org/sites/default/files/Breast-cancer-report.pdf. [1]

Yeung, M. et al. (2019), "Hong Kong female's breast cancer awareness measure: Cross-sectional survey", *World Journal of Clinical Oncology*, Vol. 10/2, pp. 98-109, https://doi.org/10.5306/wjco.v10.i2.98. [13]

Zhang, M. et al. (2021), "Breast Cancer Screening Rates Among Women Aged 20 Years and Above — China, 2015", *China CDC Weekly*, Vol. 3/13, pp. 267-273, https://doi.org/10.46234/ccdcw2021.078. [12]

Figure 7.7. Mammography screening in women aged 50-69 within the past two years, 2020 (or nearest year)

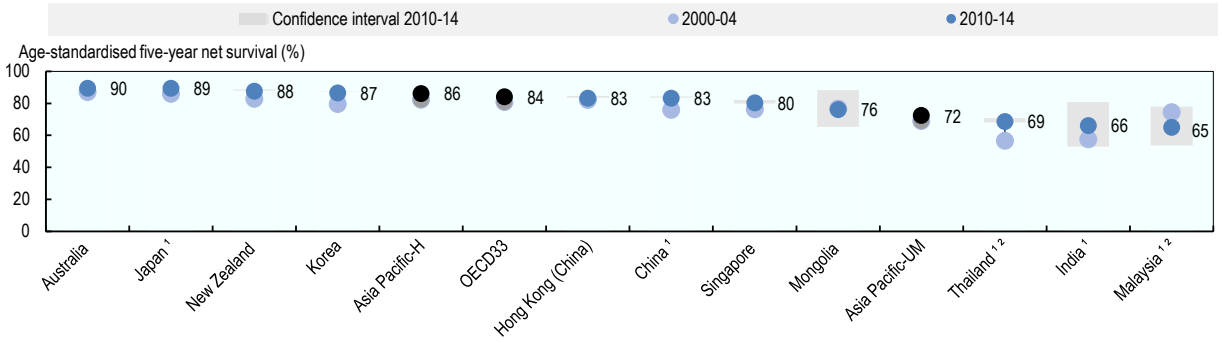


1. Programme data. 2. Survey data.

Source: OECD Health Statistics 2022, Zhang et al. (2021[12]), "Breast Cancer Screening Rates Among Women Aged 20 Years and Above — China, 2015", https://doi.org/10.46234/ccdcw2021.078; Yeung et al. (2019[13]), "Hong Kong female's breast cancer awareness measure: Cross-sectional survey", https://doi.org/10.5306/wjco.v10.i2.98 and Pg Suhaimi et al. (2020[14]), "Predictors of non-communicable diseases screening behaviours among adult population in Brunei Darussalam: a retrospective study", https://doi.org/10.1007/s10389-020-01240-z.

StatLink https://stat.link/cao2f1

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

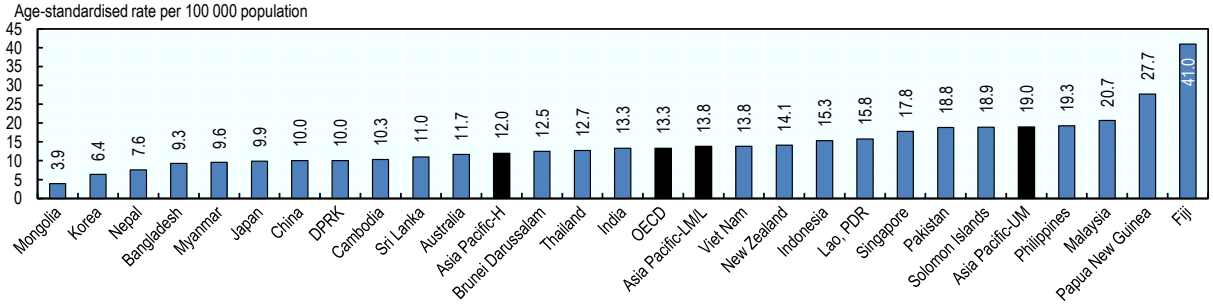


Note: For all countries, 95% confidence intervals for women diagnosed during 2010-14 are represented by grey areas. For Hong Kong (China), Mongolia and Malaysia the estimate in light blue is for 2005-09. 1. Data represent coverage of less than 100% of the national population. 2. Survival estimates are 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/oqtixz

Figure 7.9. Breast cancer mortality, 2020



Source: IARC Global Cancer Observatory 2022.

StatLink https://stat.link/0ohzq4

Vaccination, survival and mortality for cervical cancer

According to estimates based on the pre-pandemic trend, about 337 000 women in Asia-Pacific countries and territories were expected newly diagnosed with cervical cancer in 2020 (IARC, 2022[19]; see indicator on "Cancer incidence" in Chapter 3), although invasive cervical cancer is preventable if pre-cancerous or pre-invasive changes are detected and treated before progression occurs. WHO recommends human papilloma virus (HPV) vaccination for girls aged 9-14 years (WHO, 2017[1]) since vaccination against the main types of HPV responsible for cervical cancer is expected to effectively reduce incidence.

An increasing number of countries and territories in Asia-Pacific have national HPV vaccination programmes, but the target populations vary, based on epidemiological and other evidence such as cost-effectiveness that is specific to each country. In 2021, HPV vaccination coverage ranges widely between 1% of girls in the target age group in Singapore and almost 90% in Brunei Darussalam (Figure 7.10). A growing number of countries and territories in the region have also started implementing population-based cervical cancer screening programmes, and HPV test or Pap smear test is available through screening programmes in Australia, Brunei Darussalam, China, Fiji, Japan, Korea, Mongolia, New Zealand, Singapore, Sri Lanka, Thailand and Viet Nam (WHO, 2020[2]). Following these preventive services, cervical cancer incidence has decreased in Australia, New Zealand, Korea, Singapore and Thailand. On the contrary, it increased significantly in Japan and China to a smaller extent. In Asia-Pacific region, the incidence rate is lowest in Australia and New Zealand (both 5.6 new cases per 100 000 women) while the rate is almost 30 new cases per 100 000 women in Fiji and Papua New Guinea, followed by Solomon Islands (IARC, 2022[3]).

HPV vaccination and cervical cancer screening participation was sometimes adversely affected by the COVID-19 pandemic, as were childhood vaccination programmes and breast cancer screening (see indicator on "Childhood vaccination" and "Screening, survival and mortality for breast cancer"). Data are available only for a few countries in Asia-Pacific. Although HPV vaccination rate continued to increase in Brunei Darussalam in 2020, it decreased in Australia, New Zealand and Malaysia. The decline was particularly large in Malaysia (13 percentage points from 2019). Cervical cancer screening rates also decreased in at least some countries in the region during the pandemic (see Chapter 2 "The health impact of COVID-19").

During 2010-14, age-standardised five-year net survival for cervical cancer, reflecting effectiveness in early detection and treatment, ranged from 53.9% in Thailand to 77.3% in Korea (Figure 7.11). In most countries and territories in Asia-Pacific, net survival for cervical cancer were stable between 2000-04 and 2010-14 periods. The variation across countries and territories in the region has decreased over time as net survival for China and India improved significantly from 53 to 68% and 45 to 59%, respectively over the decade, converging towards the best performers.

Cervical cancer mortality rates vary almost 14-fold across countries in Asia-Pacific (Figure 7.12). High-income Asia-Pacific countries had low mortality rates in 2020, but the rates were high at around 20 deaths per 100 000 women in Fiji, Papua New Guinea and Solomon Islands where incidence rates for cervical cancer are also high.

Trends in cervical cancer mortality rates reflect coverage of HPV vaccination, effectiveness in early detection and treatment, and underlying trends in incidence, prevalence and survival. The mortality rates for cervical cancer have declined in Australia, New Zealand and Korea, but the mortality rate is slowly increasing in Japan (IARC, 2022[4]) where HPV vaccination was put on pause between 2013 and 2021 (Ministry of Health, Labour and Welfare, 2022[5]).

Definition and comparability

See the indicator "Screening, survival and mortality for breast cancer" for the definition of net survival. See the indicator "Mortality from cancer" in Chapter 3 for the definition of cancer mortality rates.

References

Allemani, C. et al. (2018), "Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries", *The Lancet*, Vol. 391/10125, pp. 1023-1075, https://doi.org/10.1016/S0140-6736(17)33326-3. [6]

IARC (2022), *Cancer Over Time*, International Agency for Research on Cancer, Lyon, https://gco.iarc.fr/overtime/en. [4]

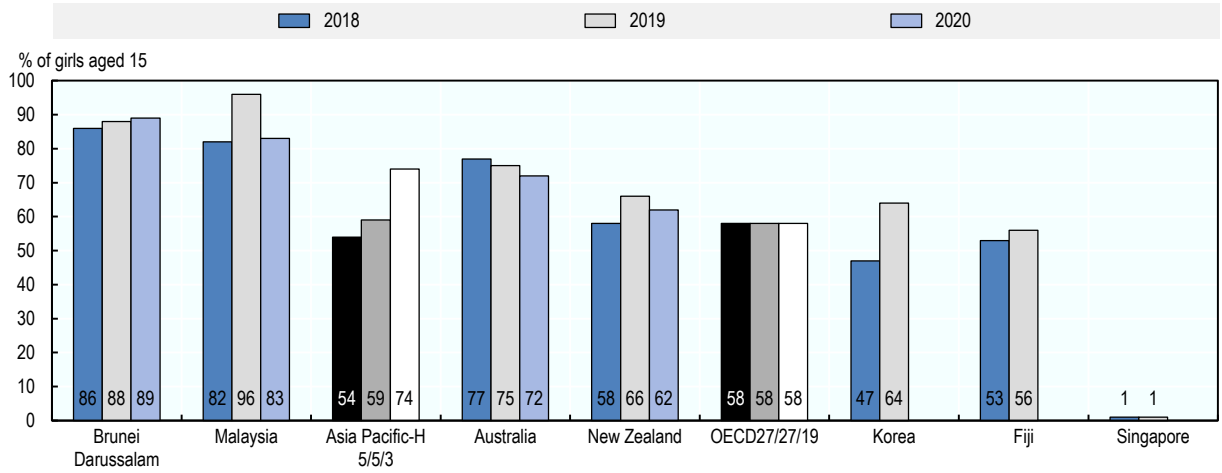
IARC (2022), *Cancer Today*, International Agency for Research on Cancer, Lyon, https://gco.iarc.fr/today/. [3]

Ministry of Health, Labour and Welfare (2022), *HPV vaccine ni kansuru Q&A*, https://www.who.int/teams/noncommunicable-diseases/surveillance/data/cancer-profiles. [5]

WHO (2020), *Cancer Country Profiles*, World Health Organization, https://www.who.int/teams/noncommunicable-diseases/surveillance/data/cancer-profiles. [2]

WHO (2017), *Human papillomavirus vaccines*, World Health Organization, https://www.who.int/teams/immunization-vaccines-and-biologicals/diseases/human-papillomavirus-vaccines-(HPV). [1]

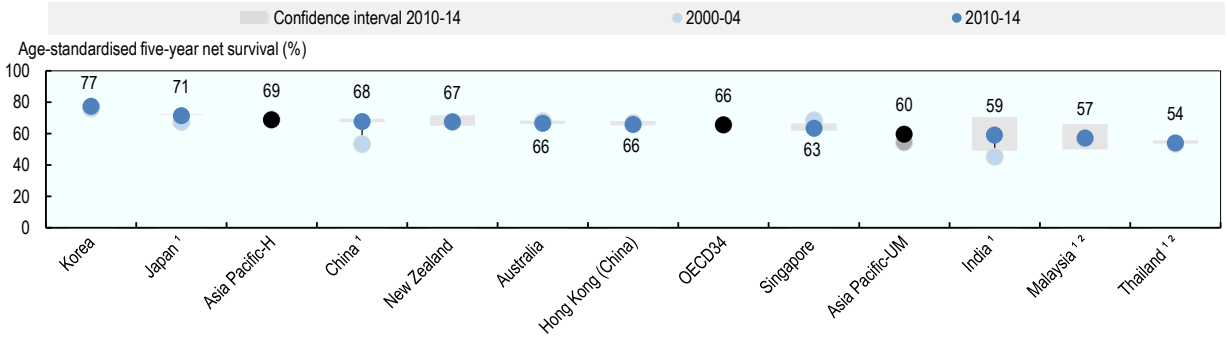
Figure 7.10. Vaccination coverage for human papillomavirus vaccine, complete schedule, females by age 15 (15HPVc), 2018-20



Source: WHO/UNICEF estimates of national immunisation coverage (WUENIC) 2022.

StatLink https://stat.link/73xywm

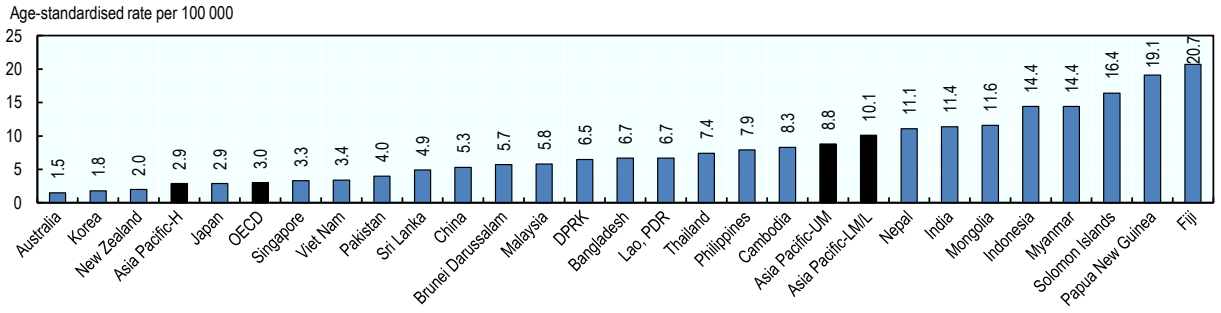
Figure 7.11. Cervical cancer: Age-standardised five-year net survival, 2000-04 and 2010-14



Note: For all countries, 95% confidence intervals for women diagnosed during 2010-14 are represented by grey areas. For Hong Kong (China) 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[6]) for more information.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/ewla1h

Figure 7.12. Cervical cancer mortality, 2020



Source: IARC Global Cancer Observatory 2022.

StatLink https://stat.link/q34cl1

Survival for other cancers

In Asia-Pacific countries and territories, according to estimates based on pre-pandemic trends, almost 462 000 people were expected newly diagnosed with oesophageal cancer and over 415 000 people died of it in 2020. Among all cancers, oesophageal cancer has the sixth highest incidence rates and fifth highest mortality rates in the region (IARC, 2022[1]). The risk is higher among men, and among people who smoke and drink alcohol.

Age-standardised five-year net survival for oesophageal cancer, reflecting effectiveness in early detection and treatment, has improved in most countries in the region since the early 2000s. For adults diagnosed during 2010-14, the highest five-year net survival was in Japan (36.0%) and Korea (31.3%) and the lowest was in India (4.1%) and Thailand (7.1%) (Figure 7.13). Countries with population-based gastric screening programmes, such as Korea and Japan, have experienced substantial improvements over the past few decades, and now have the highest levels of oesophageal cancer survival worldwide. Prior to the COVID-19 pandemic, mortality rates due to oesophageal cancer had also decreased in Australia, Japan, Korea, New Zealand and Singapore (IARC, 2022[2]). However, the pandemic may reverse these trends in some cases because emerging evidence points to an increased severity of oesophageal cancer among patients diagnosed during the early period of the pandemic (Okuyama et al., 2022[3]; Miyawaki et al., 2022[4]).

In 2020, over 37 000 people were expected newly diagnosed with melanoma of the skin and almost 12 000 people died of it in Asia-Pacific (IARC, 2022[1]). In 2020, incidence rates vary widely, from below 0.2 per 100 000 population in Viet Nam and Nepal and to over 30 per 100 000 population in Australia and New Zealand (IARC, 2022[1]). Melanoma of the skin is mainly caused by exposure to ultraviolet radiation, and people with a low level of skin pigmentation, a family history of the disease or poor immune function are at higher risk.

Age-standardised five-year net survival for melanoma of the skin ranges from 30% in Thailand to over 90% in Australia and New Zealand (Figure 7.14). In countries with high incidence rates, such as Australia and New Zealand, public health efforts have focused on raising awareness of the importance of recognition of the early symptoms of melanoma, helping to achieve the highest levels of survival. In some countries such as Singapore and Korea, a less favourable distribution of histologic sub-types – such as a higher proportion of nodular and acral lentiginous melanomas, which have a poorer prognosis – may also help to explain relatively low survival estimates (CONCORD Working Group, 2022[5]). Health policies targeting specific populations could help improve awareness, early diagnosis and access to treatment.

In recent years, net survival from melanoma of the skin has increased in most countries. Together with public health efforts, the introduction of immunotherapies and targeted treatments for metastatic melanoma has led to unprecedented clinical benefit and may have contributed to improving short-term survival (Di Carlo et al., 2020[6]). During the pandemic, dermatology units around the world rapidly adopted telemedicine and this may improve access to and outcomes of care if the quality of telemedicine is assured.

Leukaemia is the most common cancer among children aged 0-14 and up to 86 000 children in Asia-Pacific region were expected newly diagnosed in 2020 (IARC, 2022[1]). The causes of leukaemia are not well known, but some known risk factors include inherited factors, such as Down syndrome and a family history of leukaemia, and non-inherited factors, such as exposure to ionising radiation. There are different types of leukaemia but about three-quarters of cases among children are acute lymphoblastic leukaemia (ALL). The prognosis for leukaemia depends on various factors including age, initial white blood cell count, gender, initial reaction to induction treatment and type of leukaemia. Children with acute leukaemia who are free of the disease for five years are considered to have been cured, as remission after five years is rare.

Age-standardised five-year net survival for ALL among children was on average 88.5% during 2010-14 in high-income countries in Asia-Pacific and 68.6% in upper-middle-income countries in the region (Figure 7.15) and net survival improved over the period across countries, mainly due to progress in chemotherapy and stem cell transplantation technology. Mortality due to leukaemia among children decreased across countries where data are available (IARC, 2022[2]). However, countries have not benefited equally from progress in medical technologies; while survival estimate is high at 91% in New Zealand and Australia, it is low at 58% in China.

Definition and comparability

Net survival is defined in the indicator “Incidence, survival and mortality for breast cancer”.

References

CONCORD Working Group (2022), “Does the morphology of cutaneous melanoma help explain the international differences in survival? Results from 1,578,482 adults diagnosed during 2000-2014 in 59 countries (<scp>CONCORD</scp> -3)”, *British Journal of Dermatology*, https://doi.org/10.1111/bjd.21274. [5]

Di Carlo, V. et al. (2020), “Trends in short-term survival from distant-stage cutaneous melanoma in the United States, 2001-2013 (CONCORD-3)”, *JNCI Cancer Spectrum*, Vol. 4/6, https://doi.org/10.1093/jncics/pkaa078. [6]

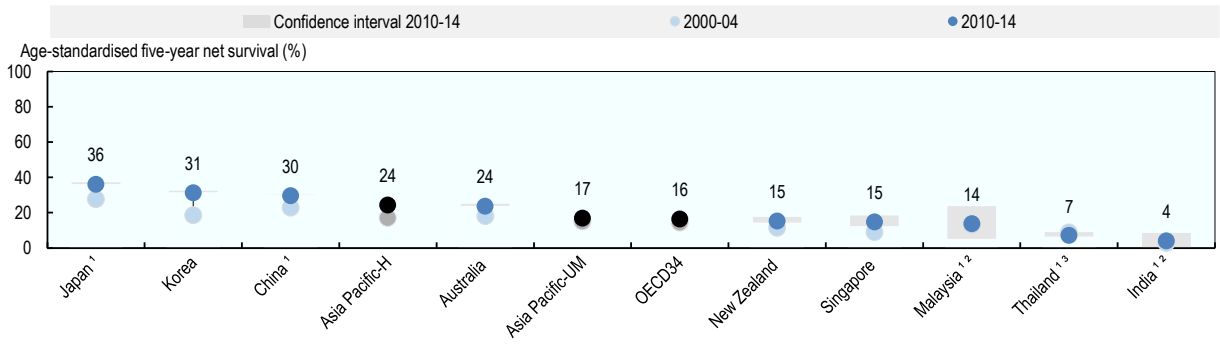
IARC (2022), *Cancer Over Time*, International Agency for Research on Cancer, Lyon, https://gco.iarc.fr/overtime/en. [2]

IARC (2022), *Cancer Today*, International Agency for Research on Cancer, Lyon, https://gco.iarc.fr/today/. [1]

Miyawaki, Y. et al. (2022), “Impact of the coronavirus disease 2019 pandemic on first-visit patients with oesophageal cancer in the first infection wave in Saitama prefecture near Tokyo: a single-centre retrospective study”, *Japanese Journal of Clinical Oncology*, Vol. 52/5, pp. 456-465, https://doi.org/10.1093/jjco/hyac002. [4]

Okuyama, A. et al. (2022), “Impact of the COVID-19 pandemic on the diagnosis of cancer in Japan: an observational study of hospital-based cancer registries data”, *The Lancet Oncology*, Vol. 23, p. S22, https://doi.org/10.1016/s1470-2045(22)00421-1. [3]

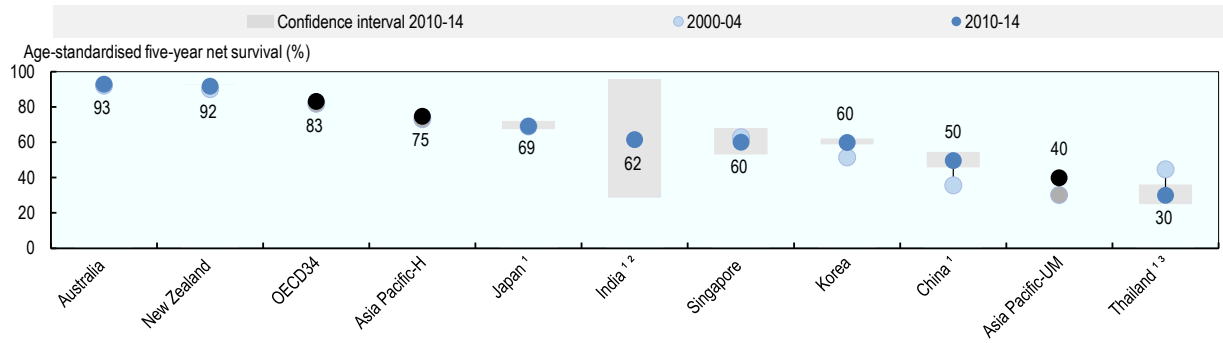
Figure 7.13. Oesophageal cancer five-year net survival, patients diagnosed during 2000-04 and 2010-14



Note: For all countries, 95% confidence intervals for patients diagnosed during 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. 2010-14 survival estimate for Malaysia and 2000-04 survival estimate for India are not age-standardised. 3. Survival estimate for 2000-04 is considered less reliable.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/w0eh4c

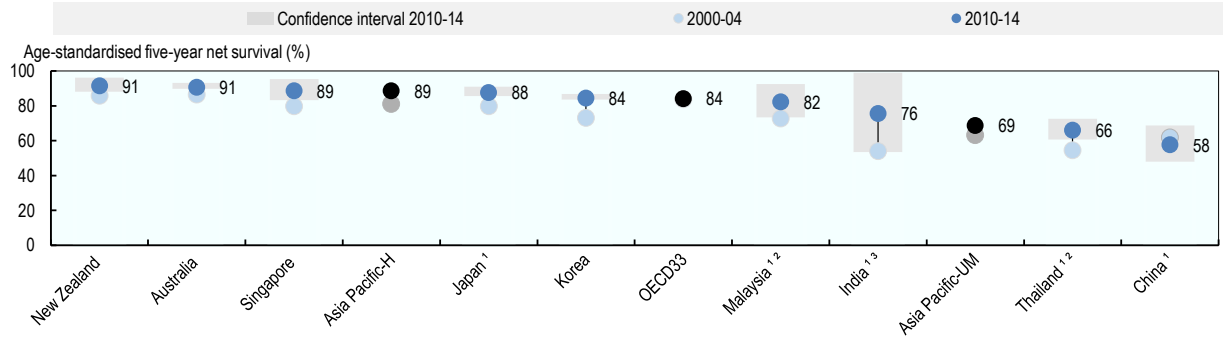
Figure 7.14. Melanoma five-year net survival, patients diagnosed during 2000-04 and 2010-14



1. Data represent coverage of less than 100% of the national population. 2. Survival estimates are not age-standardised. 3. Survival estimates are considered less reliable.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/qb2eyx

Figure 7.15. Childhood leukaemia five-year net survival, children diagnosed during 2000-04 and 2010-14



Note: Malaysia the estimate in light blue is for 2005-09 and for India, the estimate in dark blue is for 2005-09. 1. Data represent coverage of less than 100% of the national population. 2. Survival estimates are considered less reliable. 3. Survival estimates are not age-standardised.
Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

StatLink https://stat.link/b0z2gt

Annex A. National data sources

Bangladesh

Bangladesh Health Bulletin, 2019,
https://old.dghs.gov.bd/images/docs/Publicaations/Health%20Bulletin%202019%20Print%20Version%20(2)-Final.pdf

Brunei Darussalam

Ministry of Health, Health Information Booklet 2017 (2019 update),
http://www.moh.gov.bn/Downloadables/Health%20Information%20Bookler%202017%20(revised%20as%20of%20January%202019).pdf

Cambodia

Ministry of Health, Health Strategic Plan 2016-20,
http://hismohcambodia.org/public/fileupload/carousel/HSP3-(2016-2020).pdf

China

National Bureau of Statistics of China, China Statistical Yearbook 2019,
http://www.stats.gov.cn/tjsj/ndsj/2019/indexeh.htm

Hong Kong (China)

Hong Kong, China Annual Digest of Statistics 2019,
http://www.censtatd.gov.hk/hkstat/sub/sp140.jsp?productCode=B1010003

Department of Health, Health Statistics,
https://www.dh.gov.hk/english/statistics/statistics_hs/statistics_hs.html

Macau (China)

Statistics and Census Service, Macao Yearbook of Statistics 2019,
https://www.dsec.gov.mo/en-US/Home/Publication/YearbookOfStatistics

Malaysia

Ministry of Health, Malaysia Health Facts 2021,
https://www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/HEALTH%20FACTS/Health_Facts_2021.pdf

Myanmar

Annual public health statistics, 2020,
http://mohs.gov.mm/

Nepal

Ministry of Health, Annual Report, 2020-21,
https://dohs.gov.np/annual-report-fy-2077-78-2019-20/

Singapore

Ministry of Health, Singapore Health Facts,
http://www.moh.gov.sg/content/moh_web/home/statistics/Health_Facts_Singapore.html

Sri Lanka

Ministry of Health, Annual Health Statistics,
http://www.health.gov.lk/moh_final/english/public/elfinder/files/publications/AHB/2020/Final%20AHS%202018.pdf.

Annex B. Additional information on demographic and economic context

Table A B.1. Total mid-year population, thousands, 1980 to 2025

	1980	1990	2000	2010	2020	2025
Australia	14 706	17 048	19 018	22 019	25 670	26 958
Bangladesh	83 930	107 148	129 193	148 391	167 421	176 422
Brunei Darussalam	188	262	334	396	442	459
Cambodia	6 199	8 911	12 119	14 364	16 397	17 294
China	982 372	1 153 704	1 264 099	1 348 191	1 424 930	1 424 382
Democratic People's Republic of Korea	17 974	20 800	23 367	24 686	25 867	26 320
Fiji	645	780	833	905	920	950
Hong Kong (China)	4 979	5 839	6 731	7 132	7 501	7 500
India	696 828	870 452	1 059 634	1 240 614	1 396 387	1 454 607
Indonesia	148 177	182 160	214 072	244 016	271 858	282 004
Japan	117 624	123 686	126 804	128 105	125 245	121 960
Korea	38 171	44 120	46 789	48 813	51 845	51 690
Lao People's Democratic Republic	3 298	4 314	5 431	6 323	7 319	7 838
Macau (China)	245	350	432	557	676	722
Malaysia	13 216	17 517	22 945	28 718	33 200	35 028
Mongolia	1 698	2 161	2 451	2 703	3 294	3 538
Myanmar	33 466	40 100	45 538	49 391	53 423	55 337
Nepal	15 600	19 617	24 560	27 162	29 349	31 577
New Zealand	3 147	3 397	3 855	4 346	5 061	5 311
Pakistan	80 624	115 414	154 370	194 454	227 197	249 949
Papua New Guinea	3 105	3 865	5 508	7 583	9 750	10 701
Philippines	48 420	61 559	77 958	94 637	112 191	120 864
Singapore	2 401	3 022	4 054	5 164	5 910	6 090
Solomon Islands	234	324	430	540	691	773
Sri Lanka	14 944	17 204	18 776	20 669	21 715	22 000
Thailand	45 738	55 228	63 067	68 270	71 476	71 953
Viet Nam	52 968	66 913	79 001	87 411	96 649	100 104

Note: 2025 figures are based on medium variant estimates.
Source: UNDESA, World Population Prospects: The 2022 Revision.

Table A B.2. Share of the population aged 65 and over, 1980 to 2025

	1980	1990	2000	2010	2020	2025
Australia	9.6	11.1	12.4	13.6	16.2	17.9
Bangladesh	3.4	3.5	3.8	4.4	5.6	6.7
Brunei Darussalam	2.8	2.6	2.9	3.4	5.5	7.4
Cambodia	3.0	3.0	3.1	3.6	5.3	6.8
China	4.4	5.3	6.9	8.6	12.6	14.9
Democratic People's Republic of Korea	3.4	4.4	6.4	9.5	11.1	13.0
Fiji	2.6	2.8	3.2	4.2	5.5	6.5
Hong Kong (China)	6.4	8.6	11.2	13.3	18.8	23.3
India	4.0	4.1	4.5	5.1	6.7	7.6
Indonesia	3.7	4.0	5.0	5.9	6.7	7.5
Japan	9.3	12.4	17.8	23.6	29.6	30.4
Korea	3.8	4.9	7.1	11.0	15.8	20.3
Lao People's Democratic Republic	3.3	3.4	3.5	3.9	4.3	4.9
Macau (China)	7.5	6.6	7.3	7.1	11.7	15.1
Malaysia	3.3	3.7	4.1	5.1	7.0	8.4
Mongolia	4.8	3.8	3.4	3.8	4.3	5.4
Myanmar	4.1	4.4	4.9	5.2	6.5	7.5
Nepal	3.4	3.6	3.8	4.7	6.0	6.3
New Zealand	9.8	11.1	11.7	13.0	15.6	17.6
Pakistan	3.4	3.5	3.5	3.7	4.2	4.5
Papua New Guinea	1.1	1.8	2.3	2.6	3.0	3.5
Philippines	3.3	3.3	3.8	4.3	5.2	6.0
Singapore	4.9	5.6	6.3	7.2	13.2	18.1
Solomon Islands	3.2	3.2	3.3	3.4	3.5	3.6
Sri Lanka	4.9	6.1	7.1	7.6	10.8	12.7
Thailand	3.4	4.3	6.1	8.8	13.9	17.5
Viet Nam	5.5	5.6	6.2	6.5	8.4	10.4

Note: 2025 figures are based on medium variant estimates.
Source: UNDESA, World Population Prospects: The 2022 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
Democratic People's Republic of Korea	21.7	20.7	16.8	14.0	13.9
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	20.1	16.0	10.5	8.9	7.4
Lao People's Democratic Republic	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 2022 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
Democratic People's Republic of Korea	2.8	2.3	2.0	2.0	1.9
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	2.2	1.7	1.2	1.2	1.1
Lao People's Democratic Republic	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 2022 Revision.

Health at a Glance: Asia/Pacific 2022

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This seventh 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 health impact of COVID-19. 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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