Health at a Glance: Asia/Pacific 2018

MEASURING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE

OECD

World Health Organization

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Please cite this publication as:
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

ISBN 978-92-64-30623-3 (print)
ISBN 978-92-64-30624-0 (pdf)

Series: Health at a Glance: Asia/Pacific
ISSN 2305-4956 (print)
ISSN 2305-4964 (online)

Revised version, February 2019.
Details of revisions available at:
www.oecd.org/about/publishing/Corrigendum_Health_at_a_Glance_Asia_Pacific.pdf

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Foreword

Further significant efforts towards ensuring universal access to quality care have been made in Asia-Pacific countries and territories. This is witnessed by the significant decline in infant and maternal mortality, in particular in the lower-middle and low-income countries. Health at a Glance: Asia/Pacific 2018 *documents the progress made, but also sheds light on remaining gaps to improve the health of populations and, in particular, to reduce inequalities in access and improve quality of care. While access to care for the most marginalised groups has improved, women in low-income households living in rural areas constantly report significant problems in accessing needed care, due to distance and financial reasons. Addressing these gaps is necessary to achieve more inclusive economic growth and to deliver on the Sustainable Development Goals (SDGs), in particular SDG 3 to ensure healthy lives and promote well-being for all at all ages.*

This report presents the latest comparable data and trends on key aspects of health and health care systems in selected Asia-Pacific countries. The indicators provide a snapshot of health status, determinants of health, health care resources and utilisation, health expenditure and financing, and quality of care in the region. As countries strive to achieve universal health coverage, these indicators help measure their progress towards the SDGs.

For example, the report points to an increase in household out-of-pocket expenditure for health goods and services in lower-middle and low-income countries. It also signals that policies to improve affordability of medicines can enhance coverage and improve access in the region.

More than ever, clear, relevant and well-targeted data and indicators of health outcomes and health care are essential to assist policy makers in formulating evidence-based policies targeting health system improvements. Comparing health system performance across countries is important to identify good practices, foster dialogue on progress, encourage knowledge sharing and mutual learning between countries. It will also help policy makers identify priority areas for action to strive for health systems committed to people-centred care.

We hope that the data reported in this publication will help policy makers make further progress towards improving coverage, access and financial protection of populations across the Asia-Pacific region.

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Executive summary

Health at a Glance: Asia/Pacific 2018 presents key indicators on equity, 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. The report provides a concise overview of the progress of countries towards achieving universal health coverage for their population.

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

- Life expectancy at birth across lower-middle and low income Asia-Pacific countries reached 70 years in 2016. Upper-middle and high income Asia-Pacific countries gained – on average – 3.6 years and OECD countries 3 years during the same period.
- The infant mortality rate has fallen dramatically in particular across the lower-middle and low income Asia-Pacific countries since 2000, with many countries experiencing declines of greater than 50%. At an average of 30 deaths per 1 000 live births in 2016, infant mortality in lower-middle and low income Asia-Pacific countries is still eight times the high income Asia-Pacific countries and OECD rate, and two and a half time the SDG target of 12 deaths per 1 000 live births.
- Between 2000 and 2015, the average maternal mortality rate across lower-middle and low income Asia-Pacific countries was cut by more than half, but it is still high at 140 deaths per 100 000 live births, twice the SDG target of 70 deaths per 100 000 live births.

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

- In high income Asia-Pacific countries, the share of population aged over 65 years is expected to double to reach – on average – 27.6% in 2050, whereas the share of population aged over 80 years is expected to triple between 2015-2050 to reach 10.2%.
- In upper-middle income and lower-middle low income Asia-Pacific countries, the share of population over 65 and over 80 will be two and half and four times the current share, and reach 23.9% and 14.5% (over 65) and 7.9% and 3.5% (over 80) respectively.

Less than two third of rural dwellers access basic sanitation

- Although access to basic drinking water for rural dwellers has improved steadily since 2010 and reached 81% of rural populations in 2015 compared to 94.1% in urban dwellings, improving sanitation in rural areas is more problematic.

- In the region, on average, only less than two third of rural dwellers had access to basic sanitation in 2015 compared to 80% in urban dwellings. In Papua New Guinea and Solomon Islands less than one person in five living in rural areas have access to basic sanitation for adequate excreta disposal.

Undernutrition remains prevalent, but more than one third of adults are overweight in Asia-Pacific

- Stunting of children under age 5 – which reflects both maternal and child undernutrition – affects – on average – about one quarter of children in Asia-Pacific.
- More than one third of adults are overweight in Asia-Pacific, and one in ten persons is obese. Overweight also affects 5% of children under age 5 and more than 20% of adolescent in the Asia-Pacific region. Between 2010 and 2016, the rates of obesity in Asia-Pacific have risen by 33% among adults and 58% among adolescents.

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

- Lower-middle and low income Asia-Pacific countries spend – after adjusting for differences in prices across countries – just below USD 200 per person per year on health, against USD 670 and USD 3 450 in upper-middle income and high income Asia-Pacific countries respectively. This amounts to over 4.3% of gross domestic product, on average, in middle and low income Asia-Pacific countries, compared to over 7.3% in high income Asia-Pacific countries in 2015. On average, high income countries reported an increase of 0.8 percentage points from 2010-2015, twice the increase reported by middle and low income countries at 0.4 percentage points.
- The share of public spending in total health spending increased in all Asia-Pacific countries from 2010 to 2015, but it is much lower in lower-middle and low income Asia-Pacific countries compared to upper-middle and high income Asia-Pacific countries: 41.9% compared to 62% and 72.3%, respectively.
- On average, household out-of-pocket expenditure (that is, payments made directly by households for health services and goods) accounted for 48.2% of total health expenditure in lower-middle and low income Asia-Pacific countries in 2015, an increase of one percentage point from 2010, signalling that significant gaps in providing health coverage remain in the region.
- Spending on pharmaceuticals accounted for almost one third of all health expenditure on average across lower-middle and low income Asia-Pacific countries in 2015, whereas it accounted for 28% and 15% of health spending in upper-middle and high income Asia-Pacific countries respectively. Most of the spending on pharmaceuticals across lower-middle and low income Asia-Pacific countries is paid for by households out of pockets.

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 equity, health status and its determinants, health care resources and utilisation, health expenditure and financing and health care quality.

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

Chapter 1 and Chapter 2 were prepared by Alberto Marino and Luca Lorenzoni from the OECD Health Division, with support from Jun Gao, Therese Maria Reginaldo and Novee Lor Leyso (WHO/WPRO) and Mark Laundry and Rakesh Mani Rastogi (WHO/SEARO). Chapter 3, Chapter 4 and Chapter 5 were prepared by Frederic Daniel and Luca Lorenzoni from the OECD Health Division, with support from Gaelle Balestat (OECD Health Division), Jun Gao, Therese Maria Reginaldo and Novee Lor Leyso (WHO/WPRO) and Mark Laundry and Rakesh Mani Rastogi (WHO/SEARO). Chapter 6 was prepared by Frederic Daniel and Luca Lorenzoni from the OECD Health Division, with support from Michael Mueller (OECD Health Division) Chandika Indikadahena (WHO Geneva), Annie Chu and Maria Teresa Pena (WHO/WPRO) and Hui Wang and Lluis Vinals Torres (WHO/SEARO). Chapter 7 was prepared by Ian Brownwood, Frederic Daniel, Nicolaas Sieds Klazinga, Yuka Nishita and Luca Lorenzoni (OECD Health Division).

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

Valuable input was received from Britta Monika Baer, Navreet Bhattal, Annie Chu, Peter Cowley, Emmanuel Eraly, Socorro Escalante, Ann-Kira Fortune, Indrajit Hazarika, James Kelley, Warrick Junsuk Kim, Kathleen Lannan, Li Zhao, Priya Mannava, Jonathan Passmore, Roberta Pastore, Kalpeshsinh Rahevar, Hai-rim Shin, Howard Sobel, Ronald Tamangan, Juliawati Untoro, Martin Vandendyck (WHO/WPRO) and Gaetan Lafortune (OECD Health Division).

This publication benefited from the comments and suggestions of Vivian Lin (former Director, Health Systems, WHO/WPRO), Phyllida Travis (Director, Health Systems Development, WHO/SEARO), Ho-Young Maeng (Director General of the OECD/Korea Policy Centre) and Francesca Colombo (Head of OECD Health Division).

Structure of the publication

Health at a Glance: Asia/Pacific 2018 is divided into seven chapters:

- Chapter 1 *Country 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 4-5 indicators are

presented in the form of country dashboards. The indicators are selected based on their policy relevance, but also on data availability and interpretability. In order to assess comparative performance across countries, each country is classified for every indicator based on how they compare against the income group-specific median.

- Chapter 2 on *Health Inequalities* highlights disparities in access to basic health care services. It explores the role of the four most important drivers of inequality – education; rural-urban divide; gender and wealth – in access to antenatal and postnatal care.
- Chapter 3 on *Health status* highlights the variations across countries in life expectancy, 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 non-medical 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 alcohol drinking, unhealthy diets, and underweight and overweight, as well as water and sanitation. It also includes an indicator on road safety.
- Chapter 5 on *Health care resources and utilisation* 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 expenditure and financing* examines trends in health spending across Asia-Pacific countries and territories. It looks at how health services and goods are paid for, and the different mix between public funding, private health insurance, direct out-of-pocket payments by households and external resources. It also looks at pharmaceutical expenditure trends.
- Chapter 7 on *Quality of care* 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 B provides some additional tables on the demographic and economic context within which different health systems operate.

Asia-Pacific countries and territories

For this fifth edition of *Health at a Glance: Asia/Pacific*, 27 regional countries and territories were compared (see Table 1 below): 22 in Asia (Bangladesh; Brunei Darussalam; Cambodia; China; Democratic People's Republic of Korea; Hong Kong, China; India; Indonesia; Japan; Lao PDR; Macau, China; Malaysia; Mongolia; Myanmar; Nepal; Pakistan; Philippines; Republic of Korea; Singapore; Sri Lanka; Thailand and Viet Nam) and five in the Pacific region (Australia, Fiji, New Zealand, Papua New Guinea and Solomon Islands).

Selection and presentation of indicators

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

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

The cut date for all the data reported in this publication is Friday 14 September 2018.

Averages

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 Asia-Pacific countries and territories.

"OECD" refers to the unweighted average for the 35 OECD member countries. It includes Australia, Japan, New Zealand and the Republic of Korea. Data for OECD countries are generally extracted from OECD sources, unless stated otherwise.

Table 1. **Country ISO codes, GDP per capita and classification**

Country	ISO code	GDP per capita in USD international (2017)	World Bank classification by income level	Classification used in this report
Australia	AUS	45 847	High	H
Bangladesh	BGD	3 835	Lower-middle	LM/L
Brunei Darussalam	BRN	71 226	High	H
Cambodia	KHM	3 655	Lower-middle	LM/L
China	CHN	15 175	Upper-middle	UM
Fiji	FJI	8 906	Upper-middle	UM
Hong Kong, China	HKG	55 921	High	H
India	IND	6 543	Lower-middle	LM/L
Indonesia	IDN	11 274	Lower-middle	LM/L
Japan	JPN	39 014	High	H
Korea, DPR	PRK		Low	LM/L
Korea, Rep.	KOR	35 919	High	H
Lao PDR	LAO	6 709	Lower-middle	LM/L
Macau, China	MAC	101 679	High	H
Malaysia	MYS	26 452	Upper-middle	UM
Mongolia	MNG	11 822	Lower-middle	LM/L
Myanmar	MMR	5 687	Lower-middle	LM/L
Nepal	NPL	2 440	Low	LM/L
New Zealand	NZL	35 463	High	H
Pakistan	PAK	4 881	Lower-middle	LM/L
Papua New Guinea	PNG	3 347	Lower-middle	LM/L
Philippines	PHL	7 574	Lower-middle	LM/L
Singapore	SGP	85 535	High	H
Solomon Islands	SLB	1 964	Lower-middle	LM/L
Sri Lanka	LKA	11 669	Lower-middle	LM/L
Thailand	THA	16 264	Upper-middle	UM
Viet Nam	VNM	6 297	Lower-middle	LM/L

Acronyms and abbreviations

AIDS	Acquired immunodeficiency syndrome
ALOS	Average length of stay
ART	Antiretroviral treatment
BMI	Body mass index
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
SDG	Sustainable Development Goals
SEARO	WHO Regional Office for South-East Asia
SHA	System of Health Accounts
TB	Tuberculosis
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDESA	United Nations, Department of Economic and Social Affairs, Population Division
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WPRO	WHO Regional Office for the Western Pacific

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Chapter 1

Country dashboards

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

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

For each dimension, a set of 4-5 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. Indicators where coverage is highest are therefore prioritised.

In order to assess comparative performance across countries, each country is classified for every indicator based on how they compare against the income group-specific median. Therefore, countries significantly above/below their respective group will be classified as better/worse than average (▲/▼), with the remaining countries classified as close to the average (⊙). This applies to all indicators, with a caveat for the dashboard on health care resources: given the nature of the indicators presented, whereas they cannot be classified as better or worse performance, the arrows simply imply that the values are significantly higher or lower than the median. The dashboard on quality of care does not split the countries across income groups due to data coverage limitations.

Methodology

In order to allow for cross-country comparisons of performance, countries 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 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 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.

Health status

The five indicators used to compare health status are life expectancy at birth for males (2016), life expectancy at birth for females (2016), survival to age 65 for males (2016), survival to age 65 for females (2016), and under age 5 mortality rate per 1 000 live births (2016).

Table 1.1. **Dashboard on health status**

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

Country	LE (M) at birth		LE (F) at birth		Survival to age 65 (M)		Survival to age 65 (F)		Under age 5 mortality rate	
	In years		In years		%		%		Per 1 000 live births	
High income	**80.6**		**84.9**		**88.8**		**93.9**		**3.4**	
Australia	81	▲	84.8	⦿	89.5	▲	93.6	▼	3.7	⦿
Brunei Darussalam	75.3	▼	77.6	▼	83.6	▼	88.2	▼	9.9	▼
Hong Kong, China	81.2	▲	86.8	▲	89.3	⦿	94.4	▲	2.5	▲
Japan	81.1	⦿	87.1	▲	88.3	⦿	94.1	⦿	2.7	⦿
Korea, Rep.	79.5	▼	85.6	⦿	87.0	▼	94.3	▲	3.4	⦿
Macau, China	78.4	▼	82.8	▼	90.2	▲	95.9	▲		
New Zealand	80.5	⦿	84	⦿	88.5	⦿	92.0	▼	5.4	▼
Singapore	80.8	⦿	85	⦿	89.6	▲	93.6	⦿	2.8	⦿
Upper-middle income	**72.5**		**77.7**		**74.5**		**86.0**		**11.0**	
China	75	▲	77.9	⦿	83.5	▲	87.8	▲	9.9	⦿
Fiji	67.1	▼	73.1	▼	64.9	▼	78.3	▼	22.0	▼
Malaysia	73.2	⦿	77.6	⦿	76.5	⦿	86.2	▲	8.3	▲
Thailand	71.8	⦿	79.3	▲	72.6	⦿	85.8	⦿	12.2	⦿
Lower-middle & low income	**67.3**		**71.6**		**67.2**		**77.2**		**30.6**	
Bangladesh	71.1	▲	74.4	▲	73.0	▲	79.2	⦿	34.2	⦿
Cambodia	67.3	⦿	71.2	⦿	67.3	⦿	76.6	⦿	30.6	⦿
India	67.4	⦿	70.3	⦿	66.8	⦿	74.7	▼	43.0	▼
Indonesia	67.3	⦿	71.4	⦿	67.1	⦿	76.5	⦿	26.4	⦿
Korea, DPR	67	⦿	74	⦿					20.0	▲
Lao PDR	64.2	▼	67.4	▼	65.0	⦿	71.8	▼	63.9	▼
Mongolia	65.7	⦿	74.2	▲	58.6	▼	78.6	⦿	17.9	▲
Myanmar	64.6	▼	68.9	▼	63.3	⦿	72.8	▼	50.8	▼
Nepal	68.8	⦿	71.6	⦿	71.4	▲	78.1	⦿	34.5	⦿
Pakistan	65.7	⦿	67.4	▼	67.6	⦿	72.4	▼	78.8	▼
Papua New Guinea	63.6	▼	68.3	▼	58.8	▼	68.8	▼	54.3	▼
Philippines	66.2	⦿	72.6	⦿	61.6	▼	77.9	⦿	27.1	⦿
Solomon Islands	69.7	▲	72.7	⦿	72.4	▲	78.8	⦿	25.8	⦿
Sri Lanka	72.1	▲	78.5	▲	73.1	▲	87.8	▲	9.4	▲
Viet Nam	71.7	▲	80.9	▲	73.1	▲	88.0	▲	21.6	⦿

Risk factors

The five indicators used to compare risk factors are the age-standardised prevalence estimates for daily tobacco smoking among persons aged 15 and above (2015), recorded alcohol consumption in litres per capita among persons aged 15 and above (2015), the share of population with access to basic sanitation (2015), the share of population with access to basic drinking water (2015) and the prevalence of overweight among adolescent (crude estimates, 2016).

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

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

Country	Smoking		Alcohol consumption		Access to basic sanitation		Access to basic drinking water		Adolescents overweight	
	% of daily smokers		Liters per capita		% population		% population		% population aged 10-19 years	
High income	**14.7**		**6.8**		**100**		**100**		**25.0**	
Australia	13.4	⦿	9.7	▼	100	⦿	100	⦿	33.1	▼
Brunei Darussalam	13.2	▲	1.0	▲	96	▼	100	⦿	25.1	⦿
Hong Kong, China	14.9	⦿	2.8	▲	96	▼	100	⦿		
Japan	19.1	▼	7.6	⦿	100	⦿	99	⦿	12.7	▲
Korea, Rep.	22.1	▼	9.3	⦿	100	⦿	100	⦿	24.9	⦿
Macau, China	25.1	▼	6.1	⦿			100	⦿		
New Zealand	14.6	⦿	8.7	⦿	100	⦿	100	⦿	38.2	▼
Singapore	13.3	▲	1.8	▲	100	⦿	100	⦿	21.2	⦿
Upper-middle income	**17.1**		**4.0**		**95**		**96**		**25.3**	
China	22.4	▼	5.8	⦿	75	▼	96	⦿	25.2	⦿
Fiji	14.9	▲	2.3	⦿	96	⦿	94	▼	33	▼
Malaysia	17.4	⦿	0.5	▲	100	▲	96	⦿	25.3	⦿
Thailand	16.9	⦿	6.4	▼	95	⦿	98	▲	20.4	▲
Lower-middle & low income	**18.7**		**2.1**		**59**		**88**		**11.4**	
Bangladesh	20.4	⦿			47	⦿	97	▲	8.4	▲
Cambodia	15.5	⦿	2.1	⦿	49	⦿	75	▼	10.4	⦿
India	10.5	▲	3.1	⦿	44	▼	88	⦿	6.3	▲
Indonesia	33.6	▼			68	⦿	90	⦿	14.2	▼
Korea, DPR			3.4	⦿	77	▲	100	▲		
Lao PDR	25.1	▼	5.4	▼			80	⦿	12.5	⦿
Mongolia	22.2	▼	5.8	▼	59	⦿	83	⦿	16.7	▼
Myanmar	16.2	⦿	0.7	⦿	65	⦿	68	▼	10.7	⦿
Nepal	17.6	⦿	0.3	▲	46	⦿	88	⦿	7	▲
Pakistan	10.3	⦿			58	⦿	89	⦿	9.2	⦿
Papua New Guinea	31.1	▼	0.9	⦿	19	▼	37	▼	30.6	▼
Philippines	18.9	⦿	4.5	▼	75	▲	91	⦿	12	⦿
Solomon Islands			1.0	⦿	31	▼	64	▼	23.6	▼
Sri Lanka	9.9	▲	2.4	⦿	94	▲	92	▲	12	⦿
Viet Nam	18.7	⦿	4.1	▼	78	▲	91	⦿	8.6	▲

Quality of care

The five indicators used to compare quality of care are the five-year net survival rate for breast cancer, cervical cancer and colon cancer among persons aged 15 and above (2014), and vaccination rates for diphtheria tetanus toxoid and pertussis (DTP3) and measles (MCV) among children aged around 1 (2016).

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

▲ Better than ⦿ Close to ▼ Worse than central tendency

Country	Breast cancer		Cervical cancer		Colon cancer		DTP3		MCV	
	Five-year survival rate		Five-year survival rate		Five-year survival rate		Coverage (%)		Coverage (%)	
Median	**83.2**		**66.1**		**59.7**		**96**		**95**	
Australia	89.5	▲	66.4	⦿	70.7	▲	94	⦿	95	⦿
Bangladesh							97	⦿	94	⦿
Brunei Darussalam							99	▲	98	⦿
Cambodia							90	▼	81	▼
China	83.2	⦿	67.6	⦿	57.6	⦿	99	▲	99	▲
Fiji							99	▲	94	⦿
Hong Kong, China	83.3	⦿	65.8	⦿	56.4	⦿				
India	66.1	▼	59.0	▼	38.9	▼	88	▼	88	▼
Indonesia							79	▼	76	▼
Japan	89.4	▲	71.4	▲	67.8	▲	99	▲	96	⦿
Korea, DPR							96	⦿	99	▲
Korea, Rep.	86.6	⦿	77.3	▲	71.8	▲	98	⦿	98	⦿
Lao PDR							82	▼	76	▼
Macau, China										
Malaysia	65.0	▼	57.1	▼	55.9	⦿	98	⦿	96	⦿
Mongolia	76.1	▼					99	▲	98	⦿
Myanmar							90	▼	91	⦿
Nepal							87	▼	83	▼
New Zealand	87.6	⦿	67.4	⦿	64.0	⦿	92	▼	92	⦿
Pakistan							72	▼	61	▼
Papua New Guinea							72	▼	70	▼
Philippines							86	▼	80	▼
Singapore	80.3	⦿	63.4	⦿	61.7	⦿	97	⦿	95	⦿
Solomon Islands							99	▲	99	▲
Sri Lanka							99	▲	99	▲
Thailand	68.7	▼	53.9	▼	47.0	▼	99	▲	99	▲
Viet Nam							96	⦿	99	▲

Health care resources

The four indicators used to compare health care resources are health expenditure per capita in USD international (2015), the share of out-of-pocket spending in total current health spending (2015), the per capita expenditure on pharmaceuticals in USD international (2015) and the number of hospital beds per 1 000 population (2016).

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

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

Country	Health spending		Out-of-pocket		Pharma spending		Beds per 1 000 population	
	USD international per capita		Share of health spending		USD international per capita		Number	
High income	**3 605.7**		**19.6**		**564.8**		**3.3**	
Australia	4 491.6	▲	19.6	⦿	616.8	⦿	3.8	⦿
Brunei Darussalam	2 083.4	▼	6.0	▼			2.8	⦿
Hong Kong, China							4.0	⦿
Japan	4 405.1		13.1	⦿	792.5	▲	13.1	▲
Korea, Rep.	2 556.0	▼	36.8	▲	512.8	⦿	12.0	▲
Macau, China							2.5	▼
New Zealand	3 530.1	⦿					2.7	⦿
Singapore	3 681.3	⦿	31.6	▲	232.7	▼	1.8	▼
Upper-middle income	**686.2**		**26.9**		**189.9**		**2.2**	
China	762.2	⦿	32.4	⦿	332.8	▲	5.4	▲
Fiji	331.4	▼	21.4	⦿	47.1	▼	2.3	⦿
Malaysia	1 063.9	▲	36.7	▲			1.3	▼
Thailand	610.2	⦿	11.8	▼			2.1	⦿
Lower-middle & low income	**223.7**		**50.9**		**59.9**		**1.2**	
Bangladesh	88.0	▼	71.8	▲	42.9	⦿	0.8	⦿
Cambodia	209.6	⦿	59.4	⦿	64.8	⦿	0.8	⦿
India	237.7	⦿	65.1	▲			0.7	▼
Indonesia	369.3	▲	48.3	⦿			1.2	⦿
Korea, DPR							14.3	▲
Lao PDR	165.8	⦿	45.4	⦿	23.4	▼	1.5	⦿
Mongolia	469.6	▲	39.3	⦿	60.6	⦿	7.0	▲
Myanmar	267.2	⦿	73.9	▲	111.5	▲	0.9	⦿
Nepal	150.6	⦿	60.4	⦿	59.1	⦿	1.2	⦿
Pakistan	134.4	⦿	66.5	▲	32.2	▼	0.6	▼
Papua New Guinea	98.6	▼	5.8	▼				
Philippines	322.8	▲	53.5	⦿	137.8	▲	0.5	▼
Solomon Islands	173.0	⦿	3.3	▼	25.6	▼	1.4	⦿
Sri Lanka	353.1	▲	38.4	▼			3.8	▲
Viet Nam	334.3	▲	43.5	⦿	66.9	⦿	2.6	▲

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Chapter 2

Health inequalities

Unequal access to fundamental rights and services – such as health care – required for individuals to sustain and improve their livelihoods stifle economic growth and poverty reduction and undermine social cohesion and stability (UNESCAP, 2017).

The United Nations 2030 Agenda for Sustainable Development aims to leave no one behind, and the reduction of inequalities 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 (WHO, 2017a).

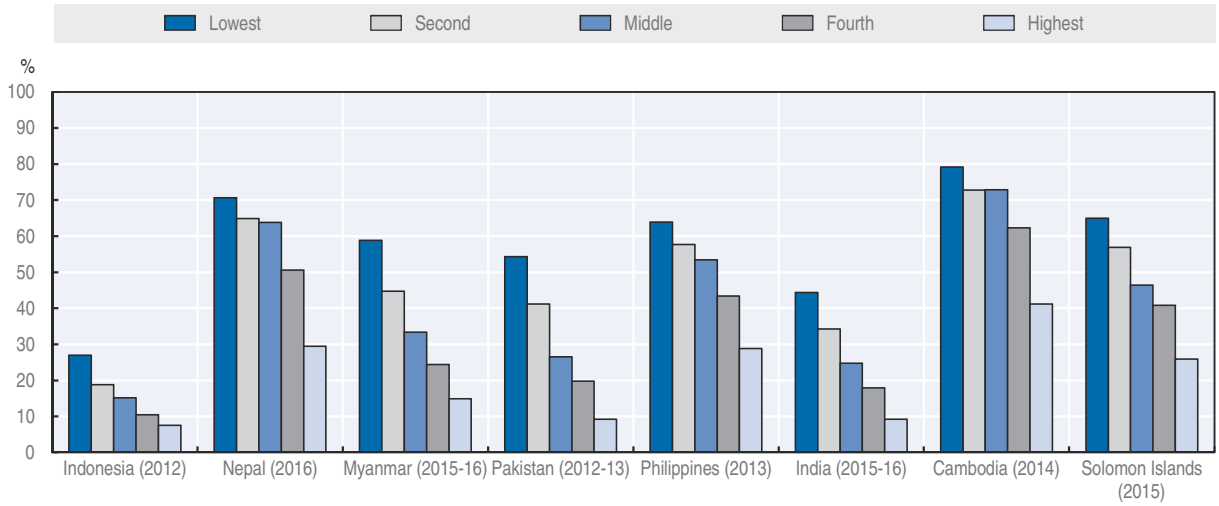
The aim of this chapter is to explore health inequalities across a number of social determinants: gender, economic status, education and place of residence. Evidence suggests that certain socially disadvantaged groups tend to use health services less, although these groups may need health services more. This phenomenon, sometimes referred to as "inverse care law", can partly be explained by the fact that disadvantaged groups typically face multiple barriers in accessing services, such as financial, geographical and cultural barriers.

Using country data from Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), this chapter analyses disparities in access to care and use of services by also looking at changes over time. Comparing results from earlier and later surveys reveals that access rates to care for the most marginalised groups have improved. However, it also finds that women in worst-off households living in rural areas constantly report significant problems in accessing care when needed due to distance and financial reasons.

Disparities in access to care

A significant proportion of women aged 15-49 reported problems in access to health care when they are sick. Gender often interacts with other social factors such as income or residence, which may lead to compound disadvantage. In Cambodia, Nepal, the Philippines and the Solomon Islands, more than three women in four with the lowest household income reported difficulties in accessing health care due to financial reasons (Figure 2.1). In Cambodia, over 40% of women from households with the highest income also have problems with access to care due to financial reasons, while in India, Indonesia and Pakistan, less than one woman in ten from household in the richest quintile have unmet care needs due to financial reasons.

Figure 2.1. **Women aged 15-49 who reported problems in accessing care due to financial reasons, by income quintile**



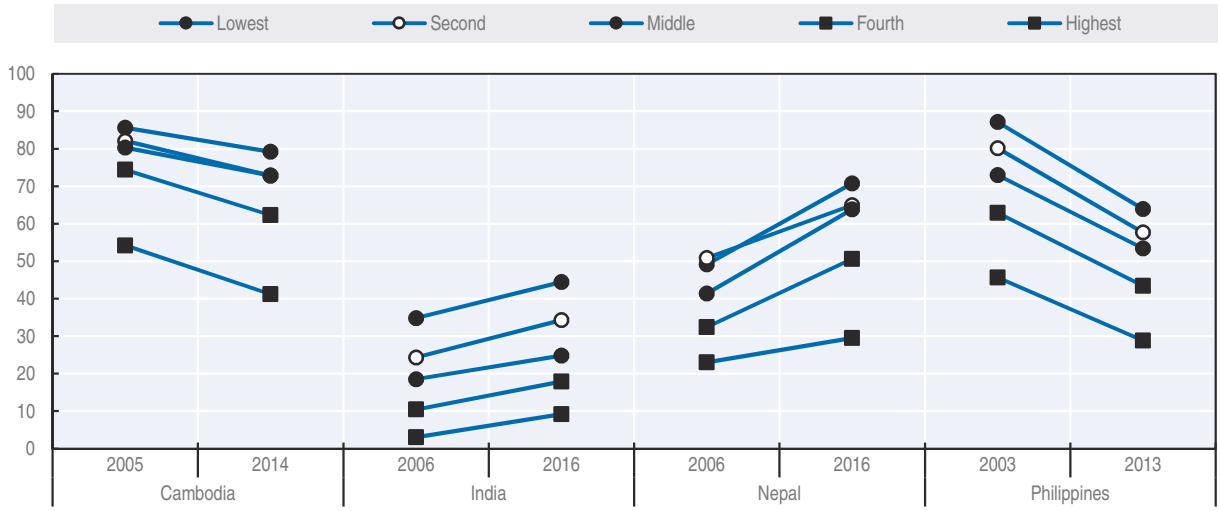
Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866619

Over time, the proportion of women who reported problems in access to health care due to financial reasons decreased in Cambodia and the Philippines for all income groups, whereas it increased in India and Nepal for all income groups. The distance between groups with the lowest income and the highest income increased in Cambodia, India and Nepal. The Philippines saw significant increases both in terms of access and in closing the gap with the worst-off groups (Figure 2.2).

However, inequalities go beyond income. In Cambodia, Nepal and the Philippines, almost three women in four with no education have problems in accessing care due to financial reasons. In Pakistan, the proportion of women with no education reporting problems in accessing care due to financial reasons is more than three times the proportion of women with secondary or higher education (Figure 2.3).

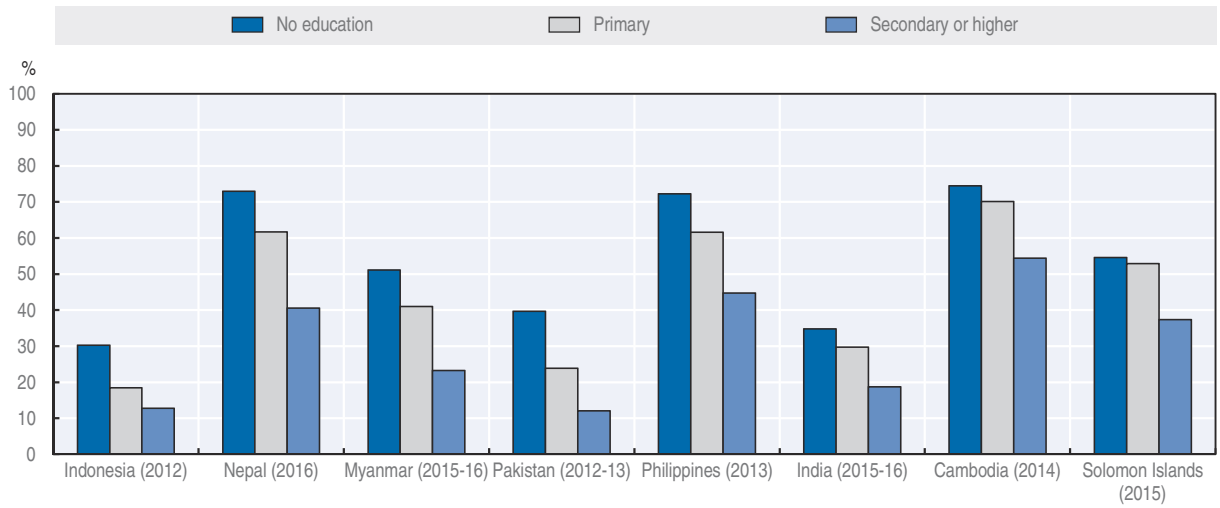
Figure 2.2. **Change in the proportion of women aged 15-49 who reported problems in accessing care due to financial reasons, by income quintile**



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866828

Figure 2.3. **Women aged 15-49 who reported problems in accessing care due to financial reasons, by education level**



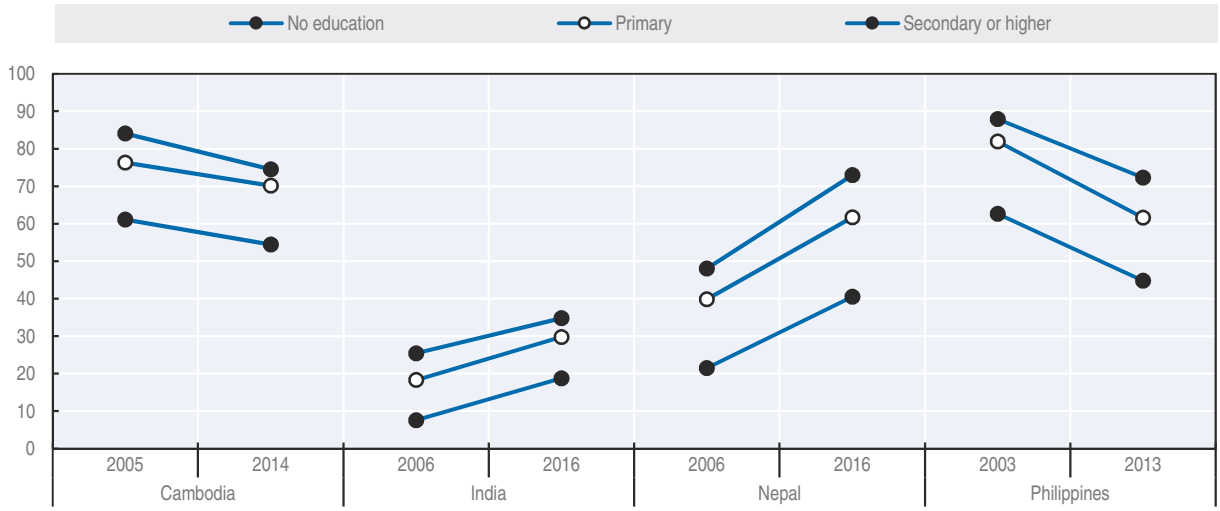
Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866942

Nepal reported a significant decrease in terms of access to care for women in all education groups, and the gap in problems accessing care due to financial reasons between women with no education and women with secondary or higher education increased (Figure 2.4). On the contrary, Cambodia saw an increase both in terms of access and in closing the gap with the less educated groups.

The urban-rural divide in access to care due to financial reasons is less pronounced than the ones due to income and education levels. However, in Pakistan and the Solomon Islands the proportion of women living in rural areas reporting financial problems in accessing care is twice the proportion of women living in urban areas (Figure 2.5).

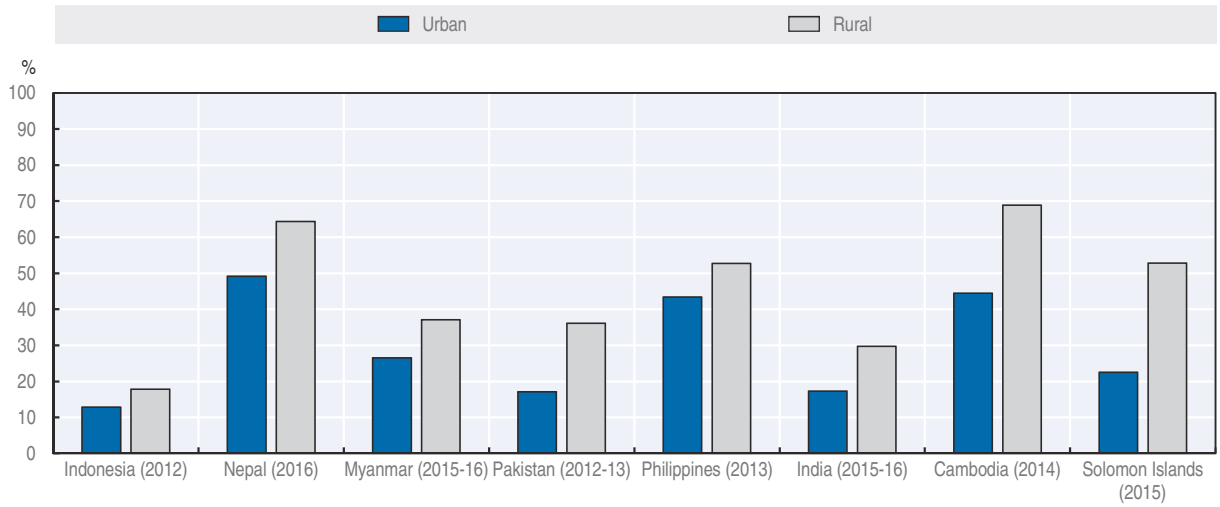
Figure 2.4. **Change in the proportion of women aged 15-49 who reported problems in accessing care due to financial reasons, by education level**



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866961

Figure 2.5. **Women aged 15-49 who reported problems in accessing care due to financial reasons, by geographical location**



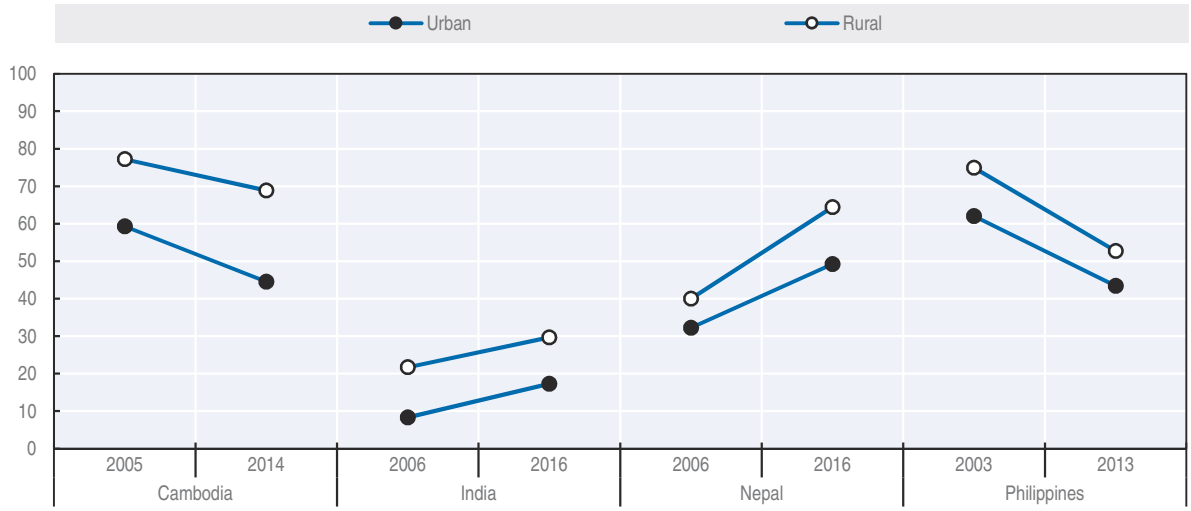
Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866980

Cambodia and the Philippines reported better access to health care for women living in urban and rural areas over time. However, the rural-urban divide widened in Cambodia, while it narrowed down in the Philippines (Figure 2.6).

Distance to providers represents another barrier in access to health care that intersects with income. Many women in the lowest household income quintile have serious problems with health care access due to distance. In Nepal, Pakistan and the Solomon Islands, about two women in three from worst-off households reported having unmet care needs due to distance, whereas in Indonesia only one woman in five among worst-off households reported problems in accessing care due to distance (Figure 2.7).

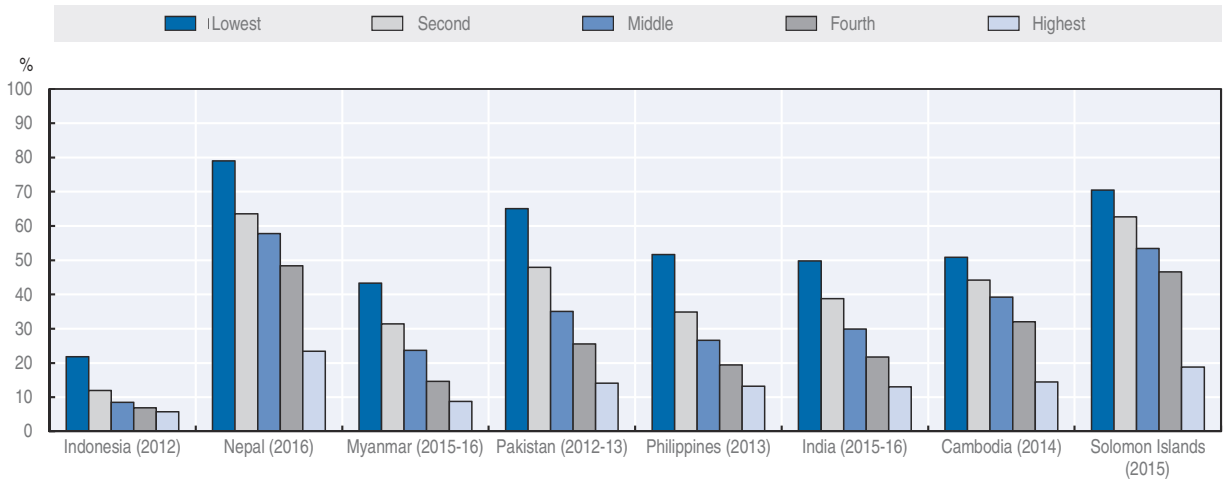
Figure 2.6. **Change in the proportion of women aged 15-49 who reported problems in accessing care due to financial reasons, by geographical location**



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866999

Figure 2.7. **Women aged 15-49 who reported problems in accessing care due to distance, by income quintile**



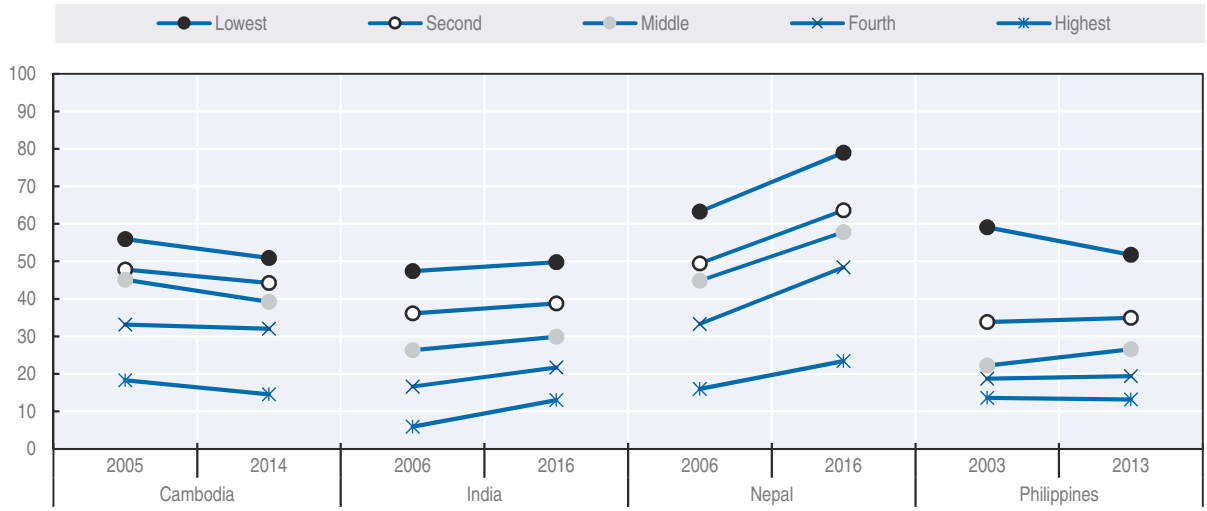
Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933867018

Among better-off households, 23.4% of women reported problems in access due to distance in Nepal. The gap in access to care due to distance between women living in worst-off households and women living in better-off household is large and similar across reporting countries, and a woman in the lowest income quintile experiences problems in access to care due to distance between three and five times more than a woman in the highest income quintile.

Over time, the problems in access to care due to distance increased in India and Nepal for women in all income groups, while the situation improved in Cambodia (Figure 2.8). The gap in problems in access to care between the better-off and the worst-off women narrowed down in Cambodia, India and the Philippines, whereas it widened in Nepal.

Figure 2.8. **Change in the proportion of women aged 15-49 who reported problems in accessing care due to distance, by income quintile**

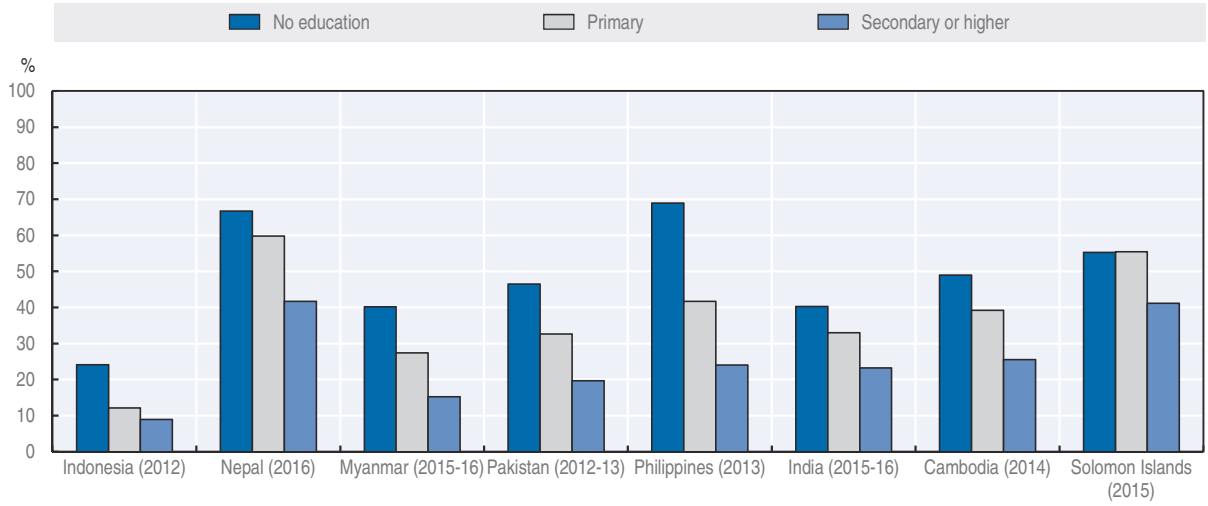


Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933867037

The gap in access due to distance is less pronounced by education level than by income level (Figure 2.9). However, in the Philippines a woman with no education has three times more problems in accessing care due to distance than a woman with secondary or higher education.

Figure 2.9. **Women aged 15-49 who reported problems in accessing care due to distance, by education level**

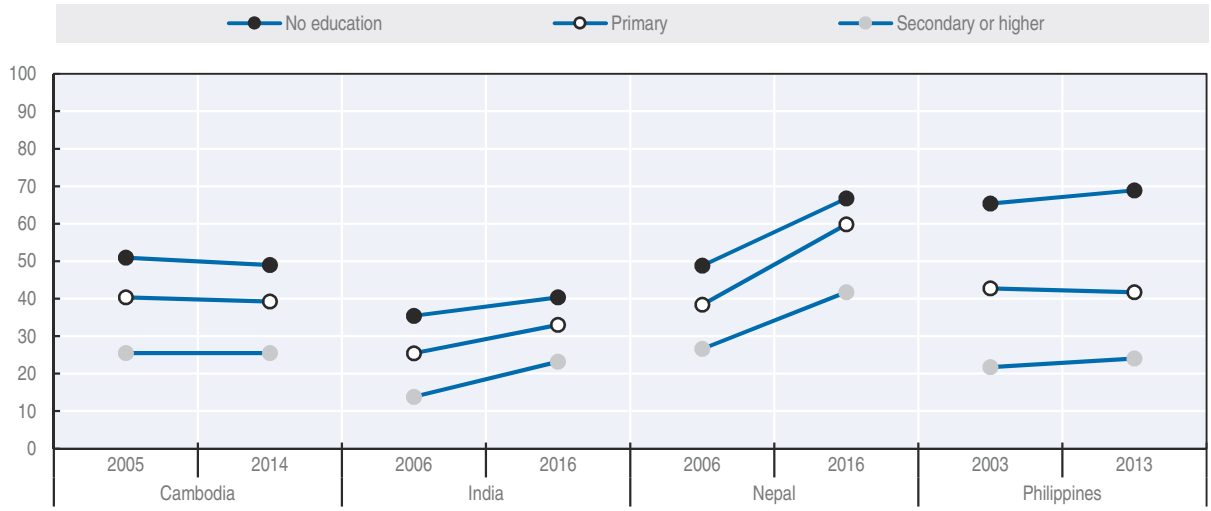


Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933867056

Over time, access to care slightly improved in Cambodia for all education groups (Figure 2.10). In India, the gap in problems in accessing care due to distance between women with no education and women with secondary or higher education narrowed down, even if more women in both groups reported increased problems in access, whereas

Figure 2.10. **Change in the proportion of women aged 15-49 who reported problems in accessing care due to distance, by education level**



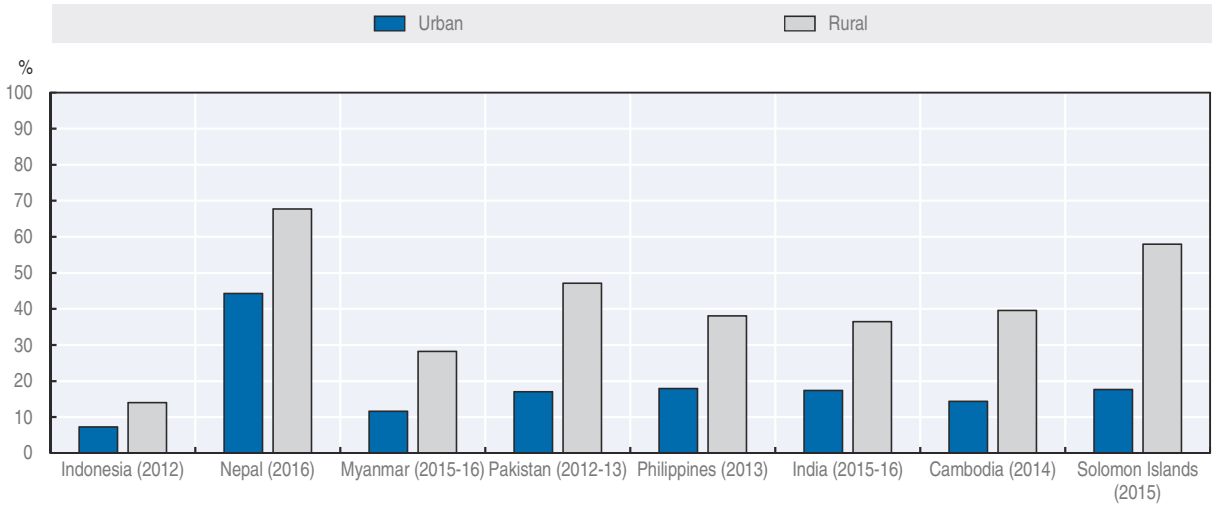
Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866638

in Nepal problems in access to care increased in all education groups and the gap between women with no education and high-educated women increased too.

The proportion of women with unmet care needs due to distance is consistently larger in rural areas than urban areas, suggesting that the offer of health care services may be less adequate in rural areas (Figure 2.11). In Nepal, more than two women in three living in rural areas reported problems in access to care due to distance. In the Solomon Islands, a woman living in rural areas reported more than three times problems in access to care due to distance as compared to a woman living in urban areas.

Figure 2.11. **Women aged 15-49 who reported problems in accessing care due to distance, by geographical location**

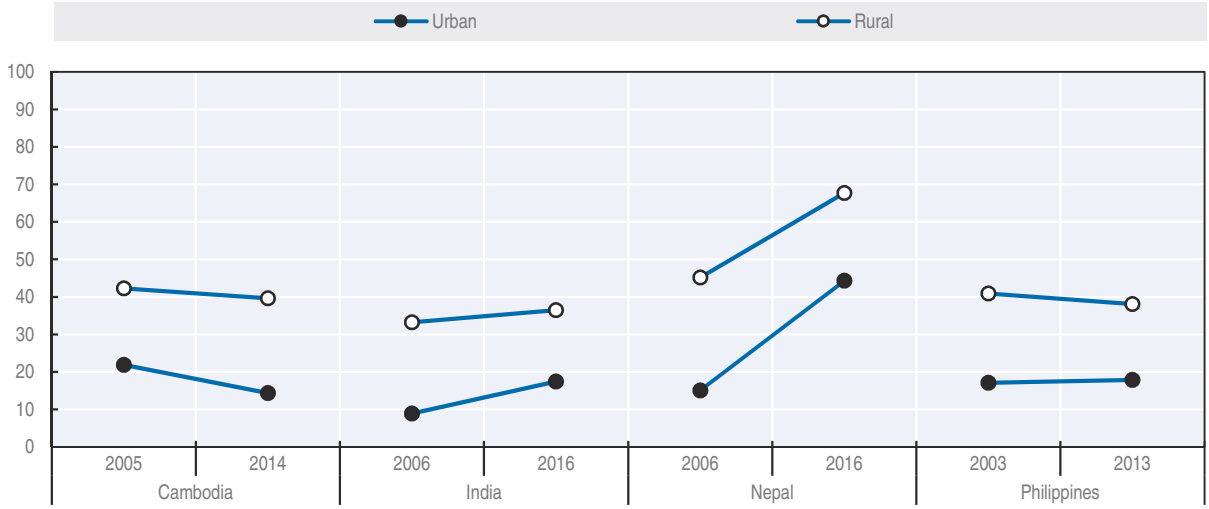


Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866657

The rural-urban divide in access to care due to distance decreased in India, Nepal and the Philippines, even if the proportion of women reporting problems in access to care due to distance increased for both geographical location groups in both India and Nepal (Figure 2.12).

Figure 2.12. **Change in the proportion of women aged 15-49 who reported problems in accessing care due to distance, by geographical location**



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866676

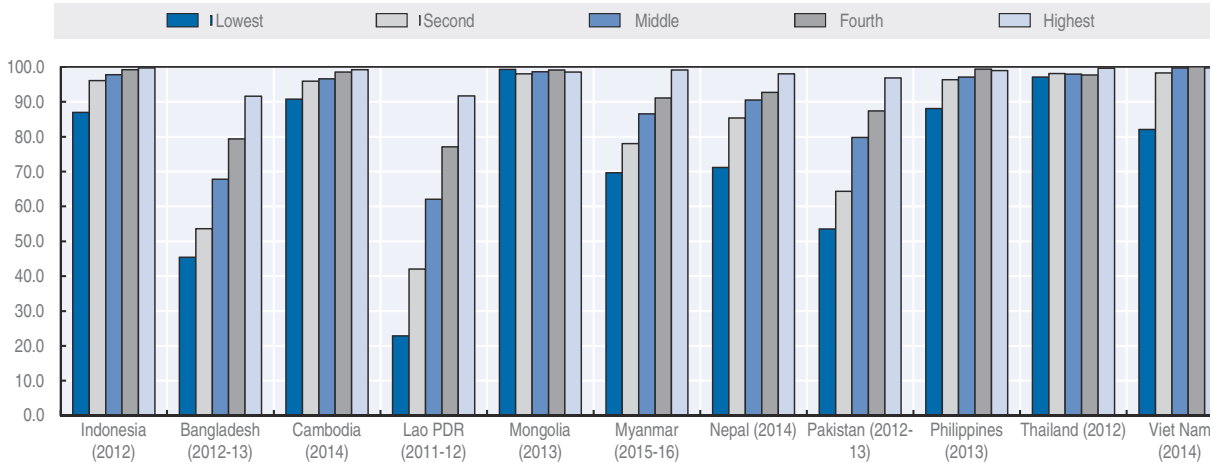
Disparities in use of services

This analysis looks at three indicators to also review progress over time in the use of health services: access to antenatal care; access to treatment for children with diarrhoea; and DPT3 immunisation coverage. While the indicators described below do not provide an exhaustive list, they are an illustration of disparities in the use of essential services in Asia-Pacific. Beyond disparities based on income, it should be noted that there are many other forms of social exclusion – such as gender, race, ethnicity, age, employment status, sexual orientation and health status – that often interact with poverty and education, acting as strong determinants of inequalities in health and access to care for disadvantaged groups.

Access to antenatal care by skilled professionals varies by income quintile across reporting Asia-Pacific countries (Figure 2.13). In Cambodia, Indonesia, Mongolia, the Philippines and Thailand, antenatal care coverage is high for all women aged 15-49 who had a recent live birth, whereas in Lao PDR one woman in four in the worst-off households reported access to antenatal care. In Lao PDR, the proportion of women who reported at least one antenatal care visit is four times higher for mothers in the richest households than for mothers in the poorest households.

All reporting countries showed an increase in the use of antenatal care for all income groups over time (Figure 2.14). However, the divide between the better-off and the worst-off women in access to antenatal care remains quite large in Bangladesh, Lao PDR and Pakistan. This illustrates the importance of sustaining action to equity-focused approaches to health as countries advance the SDGs in Asia-Pacific.

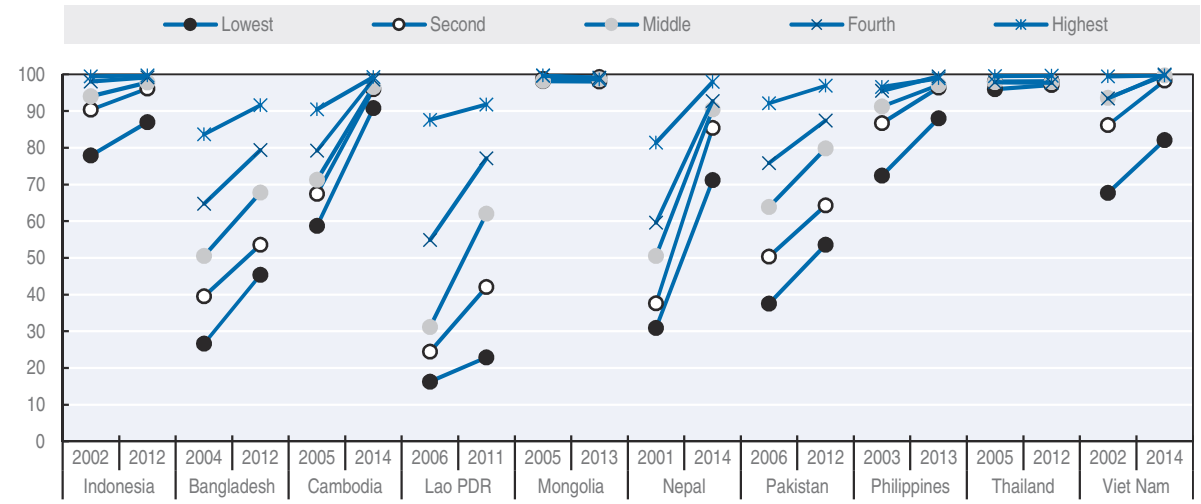
Figure 2.13. **Women aged 15-49 who reported at least one antenatal visit, by income quintile**



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866695

Figure 2.14. **Change in the proportion of women aged 15-49 who reported at least one antenatal visit, by income quintile**



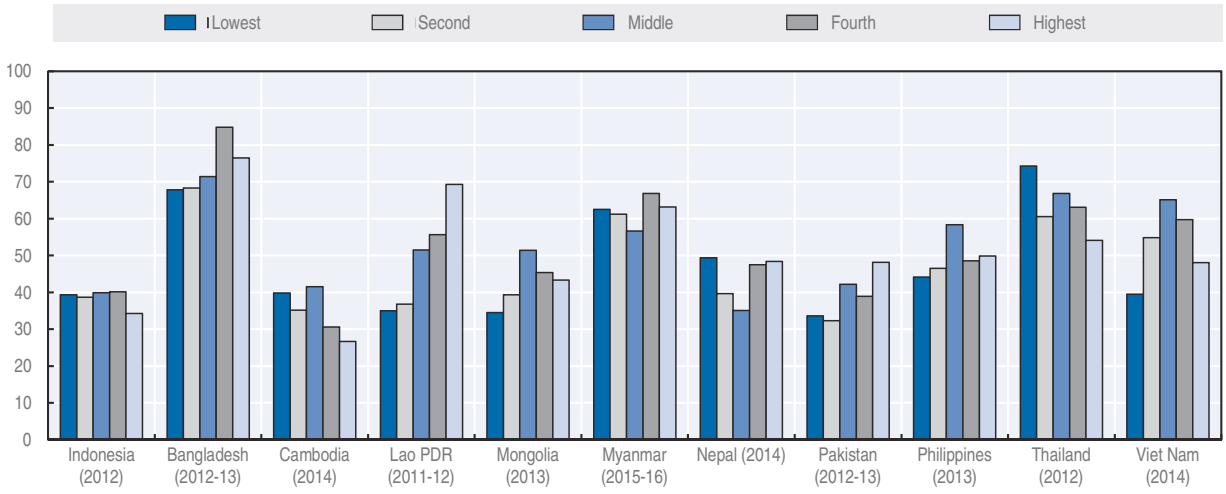
Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866714

In Bangladesh, Myanmar and Thailand more than one child in two with diarrhoea receives oral rehydration salts across all income groups, and disparities are small (Figure 2.15). However, in Lao PDR, children with diarrhoea from well-off households have two times higher access to treatment as compared to children in worst-off households.

All reporting countries showed an increase in the use of oral rehydration salts for children with diarrhoea across all household income groups over time, except in Pakistan for households in all quintiles but the highest (Figure 2.16). The divide between women in better-off households and women in worst-off households in access to oral rehydration for their children with diarrhoea remains quite small, suggesting that there are no disparities in the use of this health care service due to income.

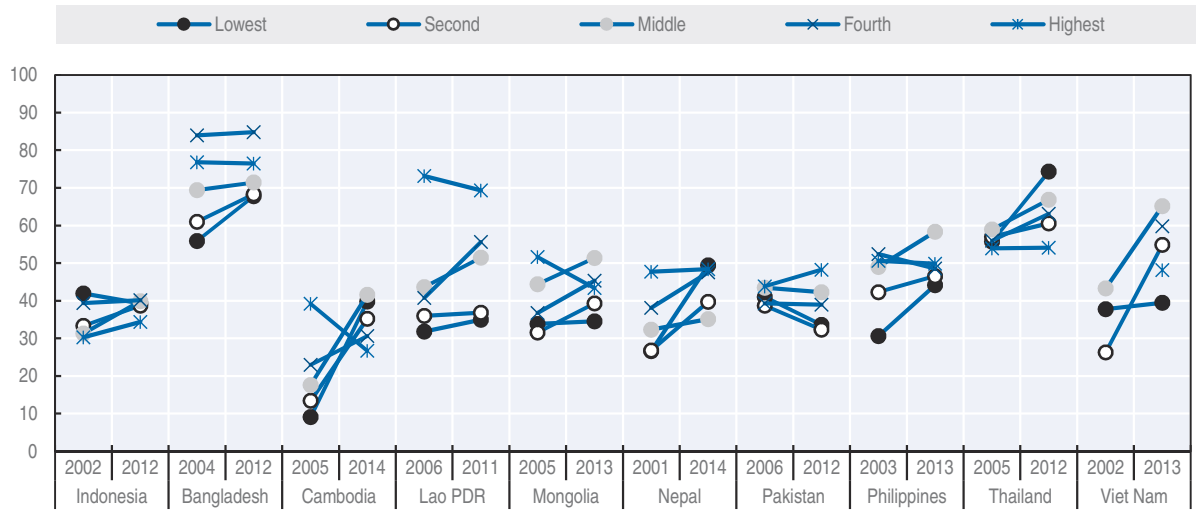
Figure 2.15. **Children aged under 5 years with diarrhoea receiving oral rehydration salts, by household's income quintile**



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866733

Figure 2.16. **Change in the proportion of children aged under 5 years with diarrhoea receiving oral rehydration salts, by household's income quintile**



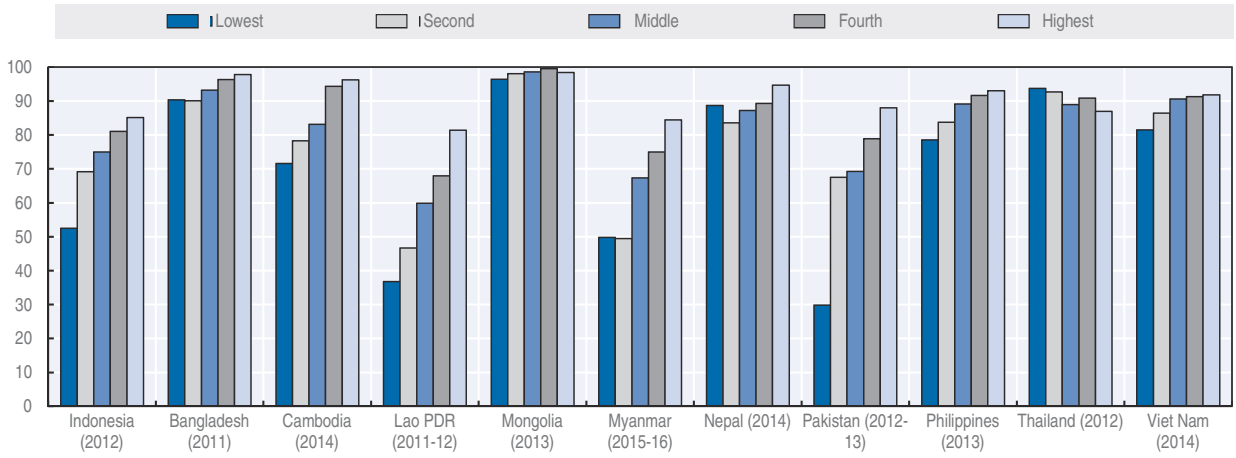
Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866752

Universal coverage of children against vaccine-preventable diseases is crucial in reducing infant and child mortality (see indicator "Childhood vaccination programmes" in Chapter 5). Bangladesh, Mongolia, Nepal, Thailand and Viet Nam achieved high immunisation coverage among one-year old children for both poorer and richer households, but in countries such as Pakistan and Lao PDR inequalities are large with a difference of more than 50% in the proportion of children with DTP3 immunisation coverage living in well-off households compared to worst-off households (Figure 2.17).

All reporting countries showed an increase in DTP3 immunisation coverage among one-year old children for all household income groups over time, except in Thailand (all income

Figure 2.17. **DTP3 immunisation coverage among one-year old children, by household's income quintile**

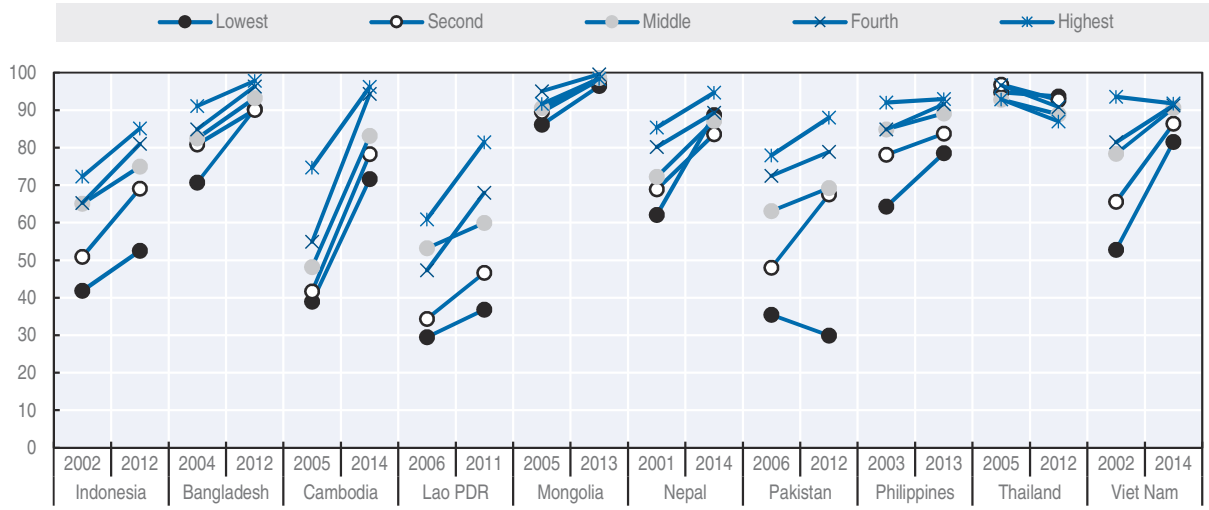


Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866771

groups) and in worst-off households in Pakistan (Figure 2.18). The divide in access to DTP3 immunisation coverage between children in worst-off households and children in better-off households was large and increasing over time in Indonesia, Lao PDR and Pakistan.

Figure 2.18. **Change in the proportion of DTP3 immunisation coverage among one-year old children, by household's income quintile**



Source: DHS and MICS surveys, various years.

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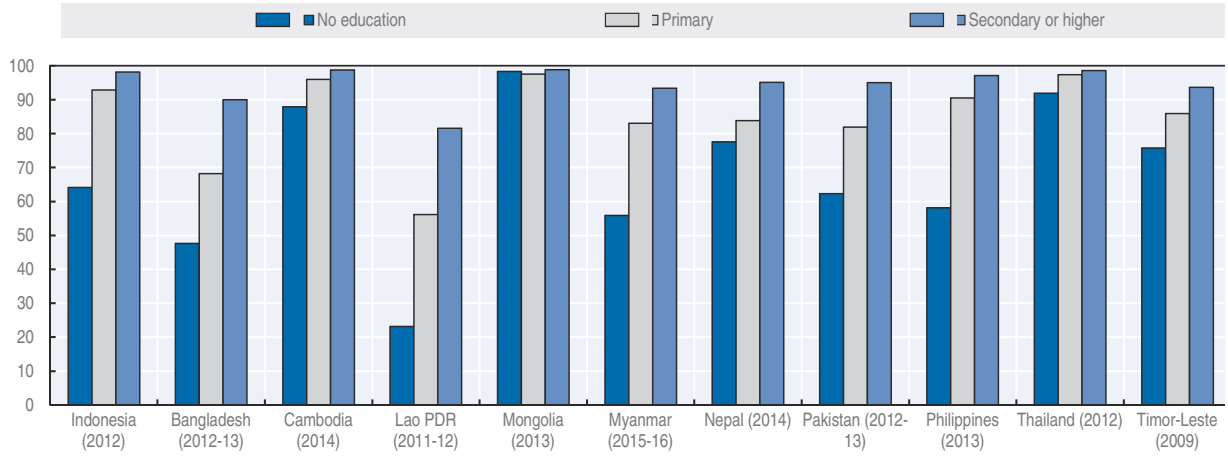
The gap in use of antenatal care by education groups is less pronounced than that by income levels (Figure 2.19). However, a large divide between women with no education and women with higher education in access to antenatal care is reported in Lao PDR.

All reporting countries showed an increase in the use of antenatal care for all education groups over time, except women with no education in Indonesia (Figure 2.20). The divide between women with no education and women with secondary or higher education in access to antenatal care remains quite large in Lao PDR.

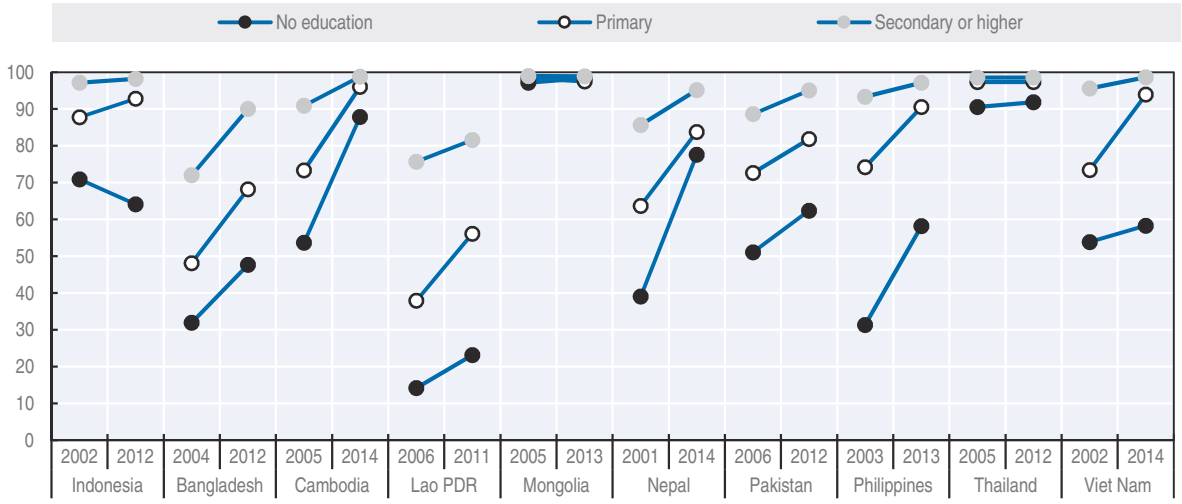
Figure 2.19. **Women aged 15-49 who reported at least one antenatal visit, by education level**



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866809

Figure 2.20. **Change in the proportion of women aged 15-49 who reported at least one antenatal visit, by education level**



Source: DHS and MICS surveys, various years.

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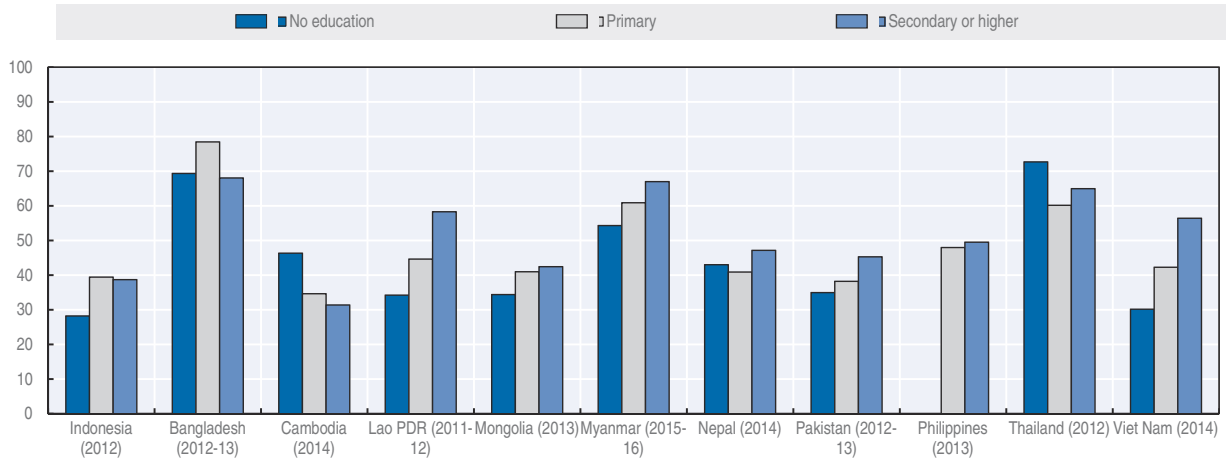
In Bangladesh, Myanmar and Thailand more than one child in two with diarrhoea receives oral rehydration salts across all education groups, and disparities are small (Figure 2.21). However, in Viet Nam children with diarrhoea whose mother has a higher level of education have two times higher access to treatment as compared to children whose mother has no education. A similar disparity in access is reported for Lao PDR.

Mongolia, the Philippines, Thailand and Viet Nam showed an increase in the use of oral rehydration salts for children with diarrhoea across all education groups over time (Figure 2.22). The divide between more educated women and women with no education in access to oral rehydration for their children with diarrhoea increased in Indonesia and Pakistan over time.

Figure 2.21. **Children aged under 5 years with diarrhoea receiving oral rehydration salts, by mother's education level**



Source: DHS and MICS surveys, various years.

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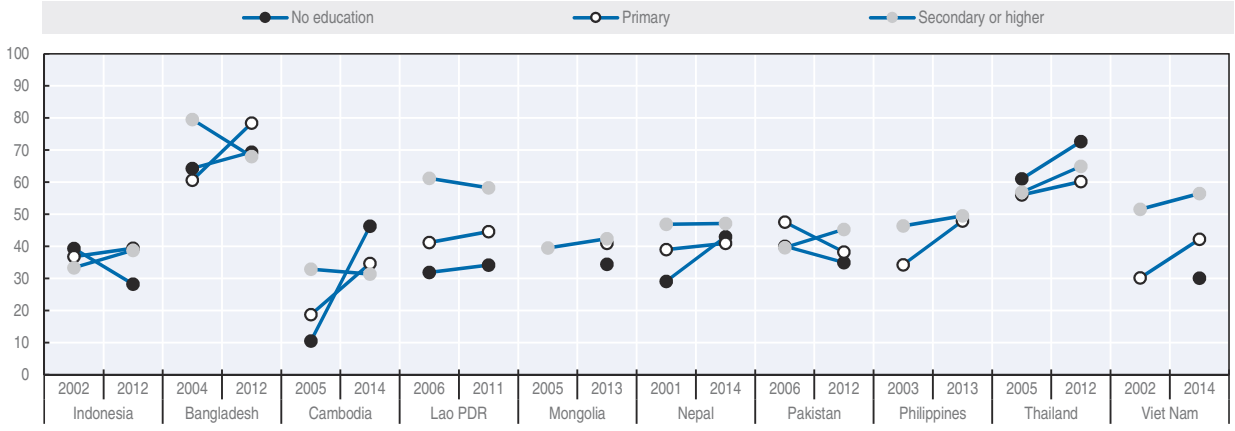
Figure 2.22. **Change in the proportion of children aged under 5 years with diarrhoea receiving oral rehydration salts, by mother's education level**



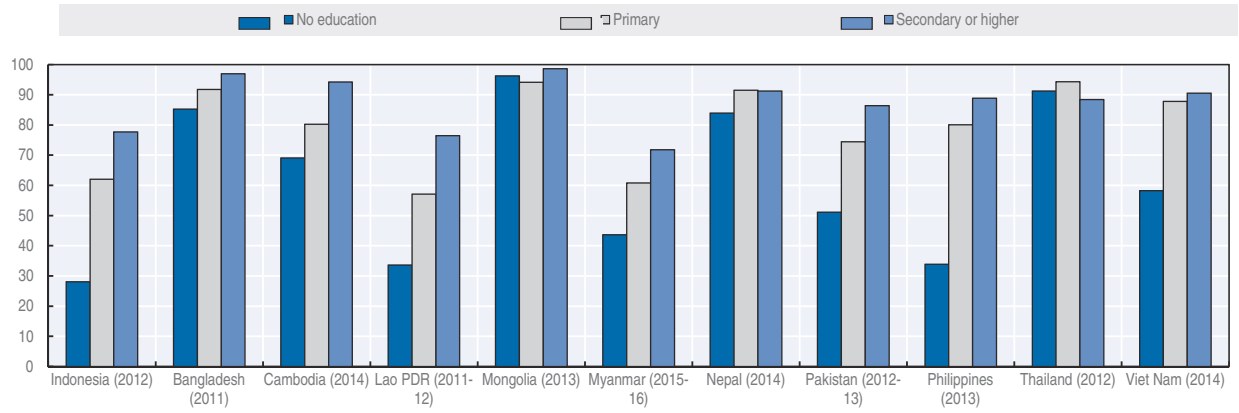
Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933866885

In countries such as Indonesia, Lao PDR and the Philippines inequalities in the proportion of children with immunisation coverage whose mother has high education compared to no education are large with a difference of more than 50% (Figure 2.23).

All reporting countries showed an increase in DTP3 immunisation coverage among one-year old children for all education groups over time, except in Thailand (all education groups) and children whose mother has no education in the Philippines (Figure 2.24). The divide in access to DTP3 immunisation coverage between children whose mother has no education and children whose mother has a higher level of education was large and increasing over time in Indonesia, Lao PDR and the Philippines.

Figure 2.23. **DTP3 immunisation coverage among one-year old children, by mother's education level**



Source: DHS and MICS surveys, various years.

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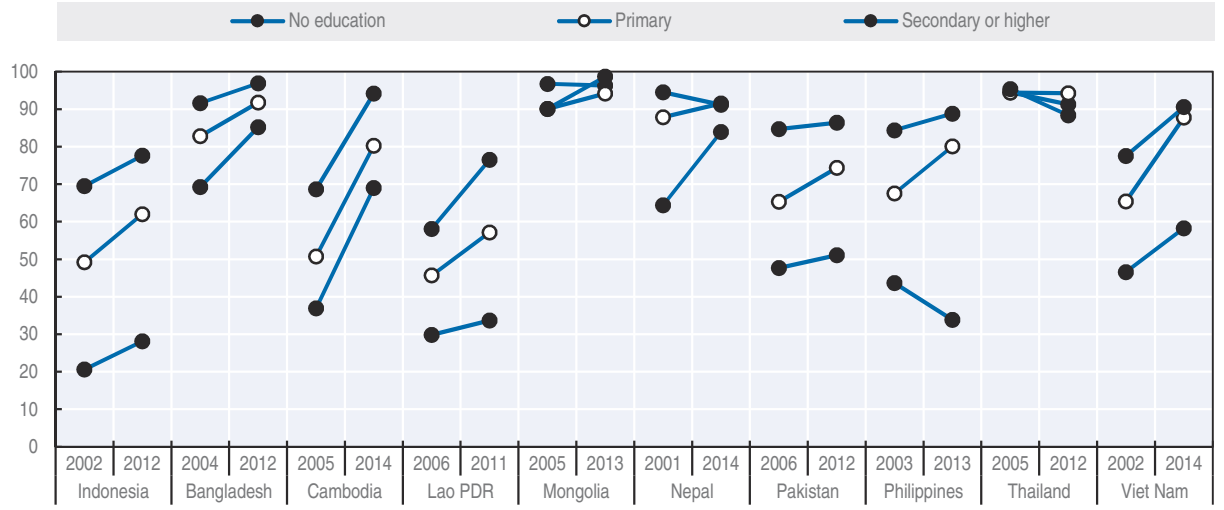
Figure 2.24. **Change in the proportion of DTP3 immunisation coverage among one-year old children, by mother's education level**



Source: DHS and MICS surveys, various years.

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Chapter 3

Health status

LIFE EXPECTANCY AT BIRTH

Life expectancy at birth continues to increase remarkably in Asia-Pacific, reflecting sharp reductions in mortality rates at all ages, particularly among infants and children (see indicators "Infant mortality" and "Under age 5 mortality" in Chapter 3). These gains in longevity can be attributed to a number of factors, including rising living standards, better nutrition and improved drinking water and sanitation facilities (see indicator "Water and sanitation" in Chapter 4). Improved lifestyles, increased education and greater access to quality health services also play an important role (National Institute on Ageing, National Institute of Health and WHO, 2011).

Life expectancy at birth for the whole population across low and lower-middle Asia-Pacific countries and territories reached 69.9 years on average in 2016, a gain of about 5.8 years since 2000, whereas it reached 74.3 years in upper-middle income countries, a gain of about 3.6 years since 2000. In comparison, OECD countries gained 3.1 years during the same period (Figure 3.1, left panel).

However, a large regional divide persists in life expectancy at birth. The country with the longest life expectancy in 2016 was Japan with 84.2 years. Hong Kong, China, Singapore, Australia, New Zealand, the Republic of Korea and Macau, China also exceeded 80 years for total life expectancy. In contrast, ten countries in the Asia-Pacific region had total life expectancies of less than 70 years, and in Lao PDR a child born in 2016 can expect to live an average of less than 66 years.

Women live longer than men (Figure 3.1, right panel) do, but the degree of disparities varies across countries. The gender gap in life expectancy stood at 4.7 and 5.4 years on average across Asia-Pacific low and lower-middle, and upper-middle countries respectively in 2016, less than the OECD country average of 5.6 years. The gender difference was particularly large in Viet Nam and Mongolia with eight years or longer, while Pakistan reported a gender gap of less than two years. Women also have greater rates of survival to age 65 (Figure 3.2), regardless of the economic status of the country. On average, 77.6% and 84.5% of a cohort of newborn infant females would survive to age 65 in low and lower-middle, and upper-middle income Asia-Pacific countries respectively, while only 67.3% and 74.4% of males will survive to age 65 in low and lower-middle, and upper-middle income Asia-Pacific countries respectively. In Japan, the Republic of Korea, Hong Kong, China and Macau, China 94% of newborn infant females will survive to age 65, whereas in Mongolia and Papua New Guinee less than three out of five newborn infant males will survive to age 65. Many reasons contribute to this gender difference, such as biological differences resulting in slower ageing of immune systems and the later onset of cardiovascular diseases such as heart attacks and strokes among women (UNESCAP, 2017).

Higher national income – as measured by GDP per capita – is generally associated with higher life expectancy at birth (Figure 3.3). There were, however, some notable differences in life expectancy between countries with similar income per capita. Nepal and Bangladesh had higher, and Mongolia and Indonesia had lower life expectancies than predicted by their GDP per capita alone. Socioeconomic status and education play an important role in life expectancy as seen in the case of Japan, where the higher educational background of mothers and household wealth are associated with better infant and child survival (see indicators "Infant mortality" and "Under age 5 mortality" in Chapter 3).

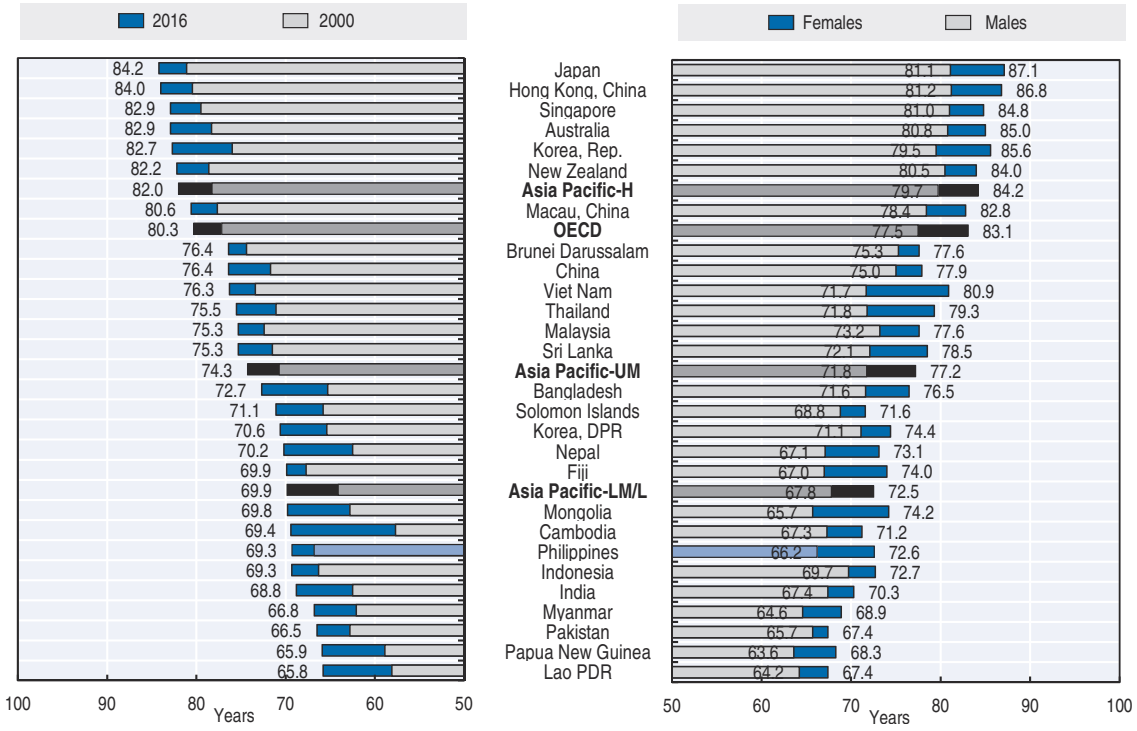
Definition and comparability

Life expectancy at birth is the best-known measure of population health status, and is often used to gauge a country's health development. It measures how long, on average, a newborn infant can expect to live if current death rates do not change. Since the factors affecting life expectancy often change slowly, variations are best assessed over long periods.

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

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

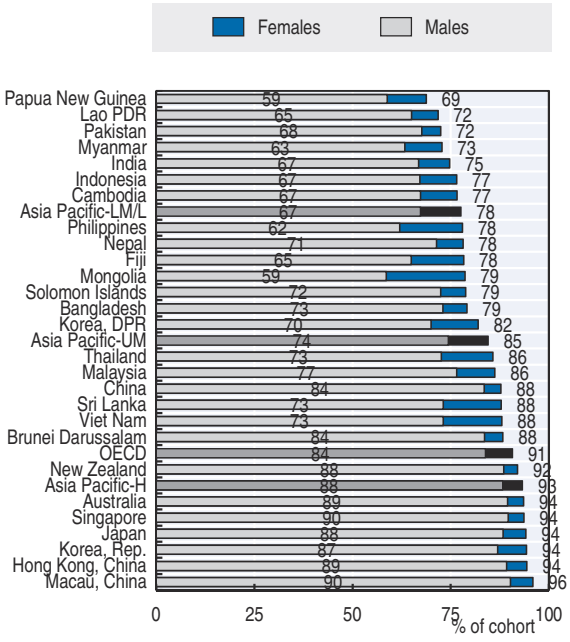
3.1. Life expectancy at birth, 2000 and 2016, and by sex, 2016



Source: OECD Health Statistics 2018; the World Bank World Development Indicators Online.

StatLink http://dx.doi.org/10.1787/888933867075

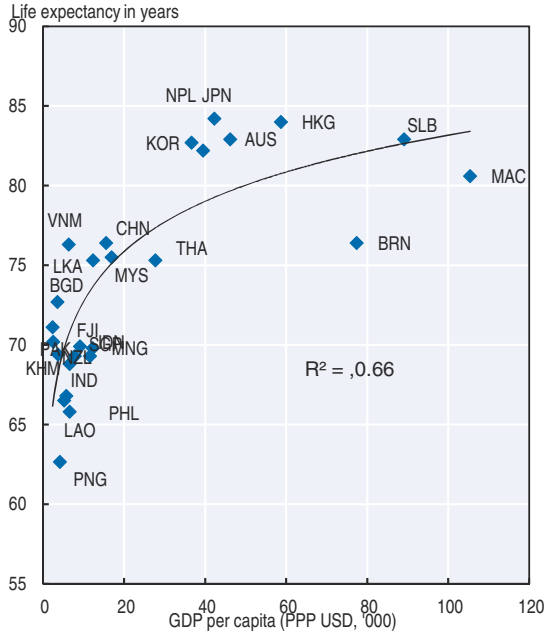
3.2. Survival rate to age 65, 2016



Source: The World Bank World Development Indicators Online.

StatLink http://dx.doi.org/10.1787/888933867284

3.3. Life expectancy at birth and GDP per capita, 2016



Source: OECD Health Statistics 2018; The World Bank World Development Indicators Online.

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INFANT MORTALITY

Infant mortality, deaths in children aged less than one year, reflects the effect of economic, social and environmental conditions on the health of mothers and infants, as well as the effectiveness of health systems.

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

Infant mortality can be reduced through cost-effective and appropriate interventions. These include immediate skin-to-skin contact between mothers and newborns after delivery, early and exclusive breastfeeding for the first six months of life, and kangaroo mother care for babies weighing 2 000g or less. Postnatal care for mothers and newborns within 48 hours of birth, delayed bathing until after 24 hours of childbirth and dry cord care are important to reducing infant deaths. Management and treatment of neonatal infections, pneumonia, diarrhoea and malaria is also critical (UNICEF, 2013). Oral rehydration therapy is a cheap and effective means to offset the debilitating effects of diarrhoea (WHO, 2006) and countries could also implement relatively inexpensive public health interventions including immunisation, and provide clean water and sanitation (see indicator "Water and sanitation" in Chapter 4 and "Childhood vaccination programmes" in Chapter 5).

Sustainable Development Goals set a target of reducing infant mortality to 12 deaths or less per 1 000 live births by 2030. In 2016, among lower-middle and low income Asia-Pacific countries, the average was 30 deaths, around half the rate observed in 2 000 (Figure 3.4). Upper-middle income Asia-Pacific countries reached the SDG target reporting a rate – on average – of 11.5 deaths per 1 000 live births. Geographically, infant mortality was lower in eastern Asian countries, and higher in South and Southeast Asia. Hong Kong, China; Japan; Singapore; Macau, China and the Republic of Korea had rates of three deaths or lower per 1 000 live births in 2016, whereas Pakistan and the Lao PDR had rates greater than 50.

Infant mortality rates have fallen dramatically in the Asia-Pacific since 2000, with many countries experiencing declines of greater than 50% (Figure 3.4). In China, Mongolia and Cambodia rates have declined by 65% or more, but reductions in the Solomon Islands, Brunei Darussalam and Fiji have been less pronounced over recent years.

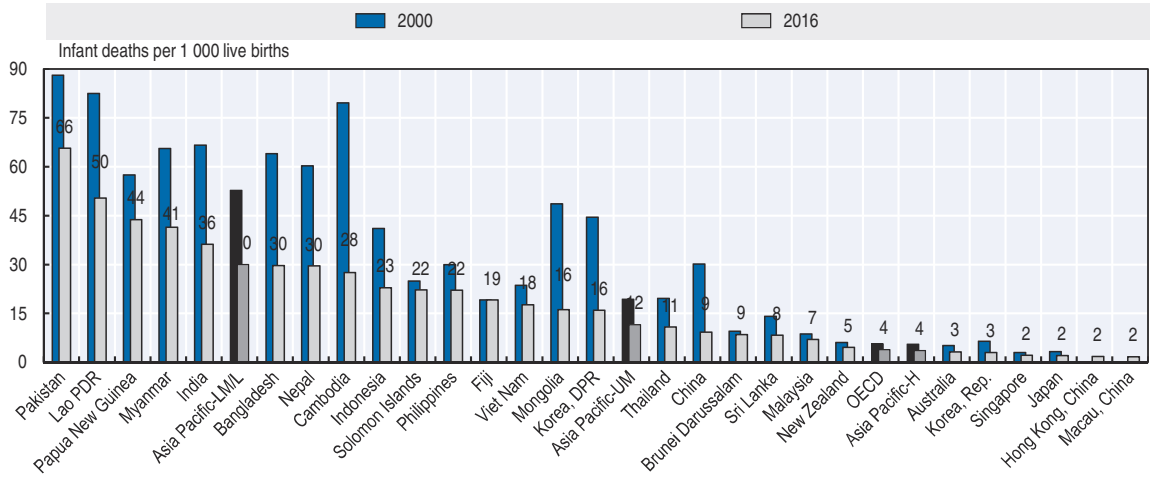
Across countries, important determinants of infant mortality rates are income status and mother education (Figure 3.5). In Myanmar, Lao PDR and Cambodia, infant mortality rates are almost four times higher in the poorest quintile compared to the richest quintile. Similarly, in Viet Nam infant born to mothers with no education had a six-fold higher risk of dying compared to infants whose mothers had achieved secondary or higher education, while the disparity based on mother's education was small in the Solomon Islands and Sri Lanka. Geographical location (urban or rural) is another determinant of infant mortality in the region, though relatively less important – except for Cambodia – in comparison to income or mother's education (Figure 3.5). Reductions in infant mortality will require not only improving quality of care, but also ensuring that all segments of the population benefit from improvements in care.

Definition and comparability

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

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

3.4. Infant mortality rates, 2000 and 2016 (or nearest year)



Source: UN Inter-agency Group for Child Mortality Estimation (IGME) Child Mortality Report 2017; Hong Kong annual digest of statistics 2017; Macau yearbook of Statistics, 2016.

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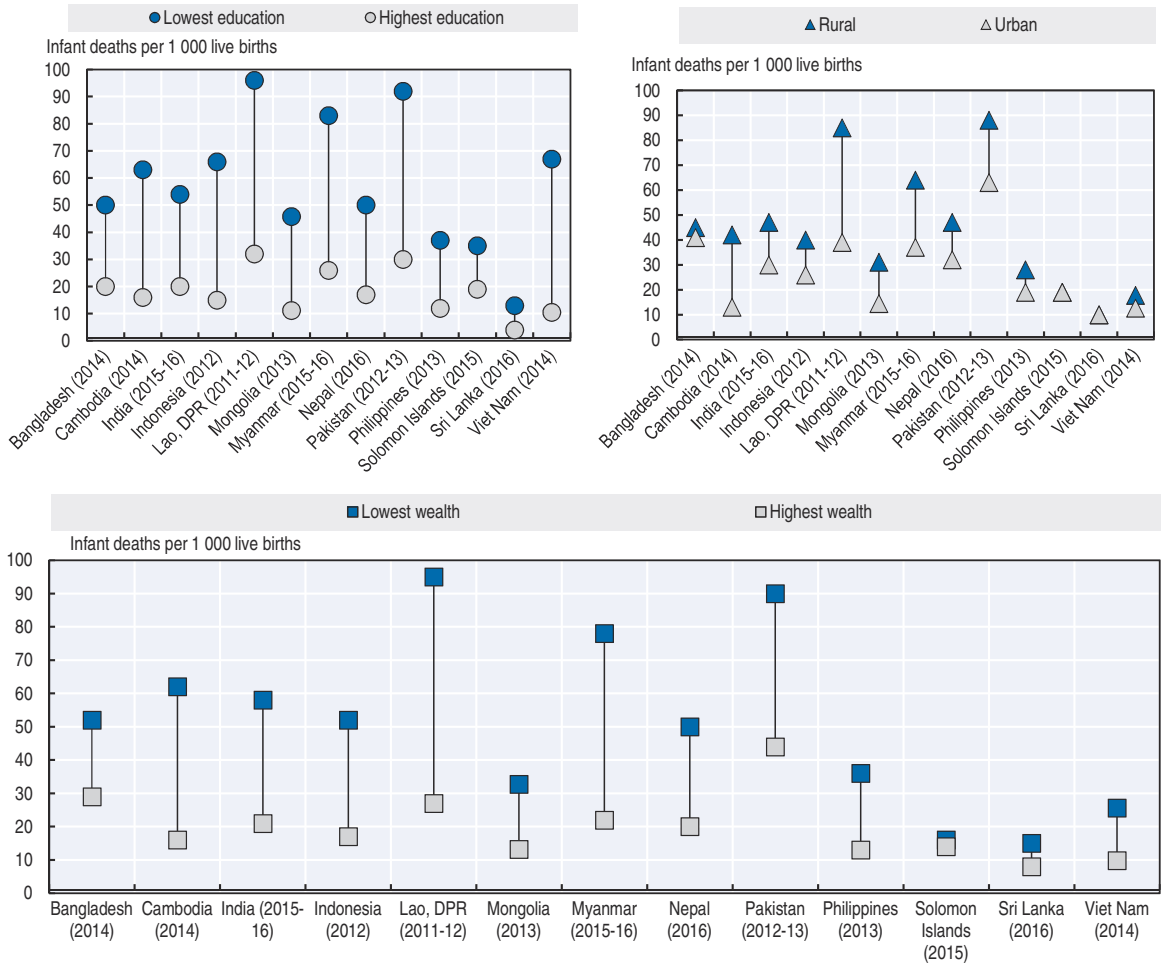
3.5. Infant mortality rates by socioeconomic characteristic, selected countries and year



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933867645

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).

The main causes of death among children under five include pneumonia (17%), preterm birth complications (15%), intrapartum-related complications (10%), diarrhoea (9%) and malaria (7%). Undernutrition, suboptimal breastfeeding and zinc deficiency are overlapping risk factors of children diarrhoea and pneumonia – the leading infectious causes of childhood morbidity and mortality (Fischer Walker et al., 2013; WHO and UNICEF, 2013). More than three-fourth of under age 5 deaths occur in the neonatal period.

Childhood malnutrition is the underlying cause of death in an estimated 35% of all deaths among children under the age of five. Malnutrition is an impediment to the progress towards achieving the SDGs. In view of the importance of improving nutrition to promote heath and development, in 2012 the World Health Assembly endorsed a "Comprehensive implementation plan on maternal, infant and young child nutrition", which specified a set of six global nutrition targets. The UN General Assembly has also proclaimed the UN Decade of Action on Nutrition (2016-25).

In 2016, 5.6 million children died worldwide before their fifth birthday and slightly less than 40% of these deaths (2.2 million) occurred in the Eastern and Southern Asia regions (UNICEF, 2017). The average under age 5 mortality rate across lower-middle and low, and upper middle income Asia-Pacific countries was 35.9 and 13.1 deaths per 1 000 live births respectively (Figure 3.6). Hong Kong, China; Singapore; Japan; the Republic of Korea and Australia achieved very low rates of four or less deaths per 1 000 live births, below the average across OECD countries. Mortality rates in Pakistan, the Lao PDR, Myanmar and Papua New Guinea were high, in excess of 50 deaths per 1 000 live births. These countries also had the highest infant mortality in the region. Due to their population, India alone accounted for 19% (1.1 million) of total under age 5 deaths in the world.

Whilst under age 5 mortality has declined by an average of 50% in lower-middle and low income Asia-Pacific countries, progress varies significantly among countries. Countries such as Myanmar, China and Cambodia reported a drop of 70% or more. Evidence (WHO, 2014a) 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. These efforts also resulted in a 67% decline in maternal mortality between 2000 and 2015 (see indicator "Maternal mortality" in Chapter 3). In order to achieve the SDG target, countries need to accelerate their efforts, for example by scaling effective preventive and curative interventions, targeting the main causes of post-neonatal deaths, namely pneumonia, diarrhoea, malaria and undernutrition, and reaching the most vulnerable newborn babies and children (UNICEF, 2013).

As is the case for infant mortality (see indicator "Infant mortality" in Chapter 3), inequalities in under age 5 mortality rates also exist within countries (Figure 3.7). Across countries, under age 5 mortality rates consistently vary based on household income and mother's education, and to a certain extent by geographical location. For example, in Viet Nam under age 5 mortality was almost six times higher among children whose mother had no education compared to those whose mother had more than secondary education. Inequality by education was also large in Cambodia and Mongolia. In Cambodia, Lao PDR and Myanmar disparities in under age 5 mortality according to income were also large with children in the poorest 20% of the population three times more likely to die before their fifth birthday than those in the richest 20%. Inequalities in mortality rates based on geographic locations were relatively small – except for Cambodia and Lao PDR (Figure 3.7). To accelerate reductions in under age 5 mortality, populations in need should be identified in each national context and health interventions need targeted to them effectively.

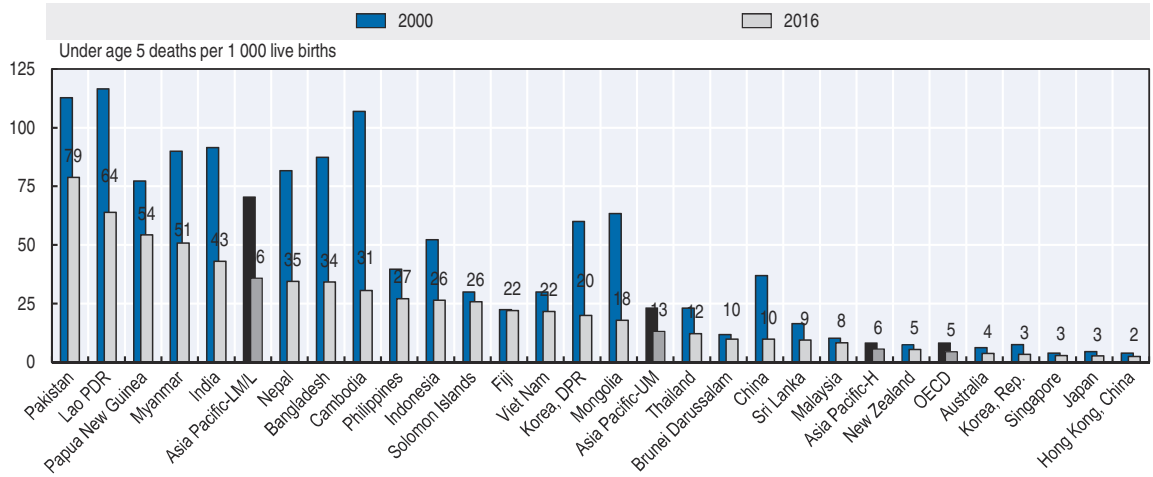
Definition and comparability

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

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

See indicator "Infant mortality" in Chapter 3 for definition of rate ratios.

3.6. Under age 5 mortality rates, 2000-2016 (or nearest year)



Source: UN IGME Child report 2017; The Hong Kong council of social service.

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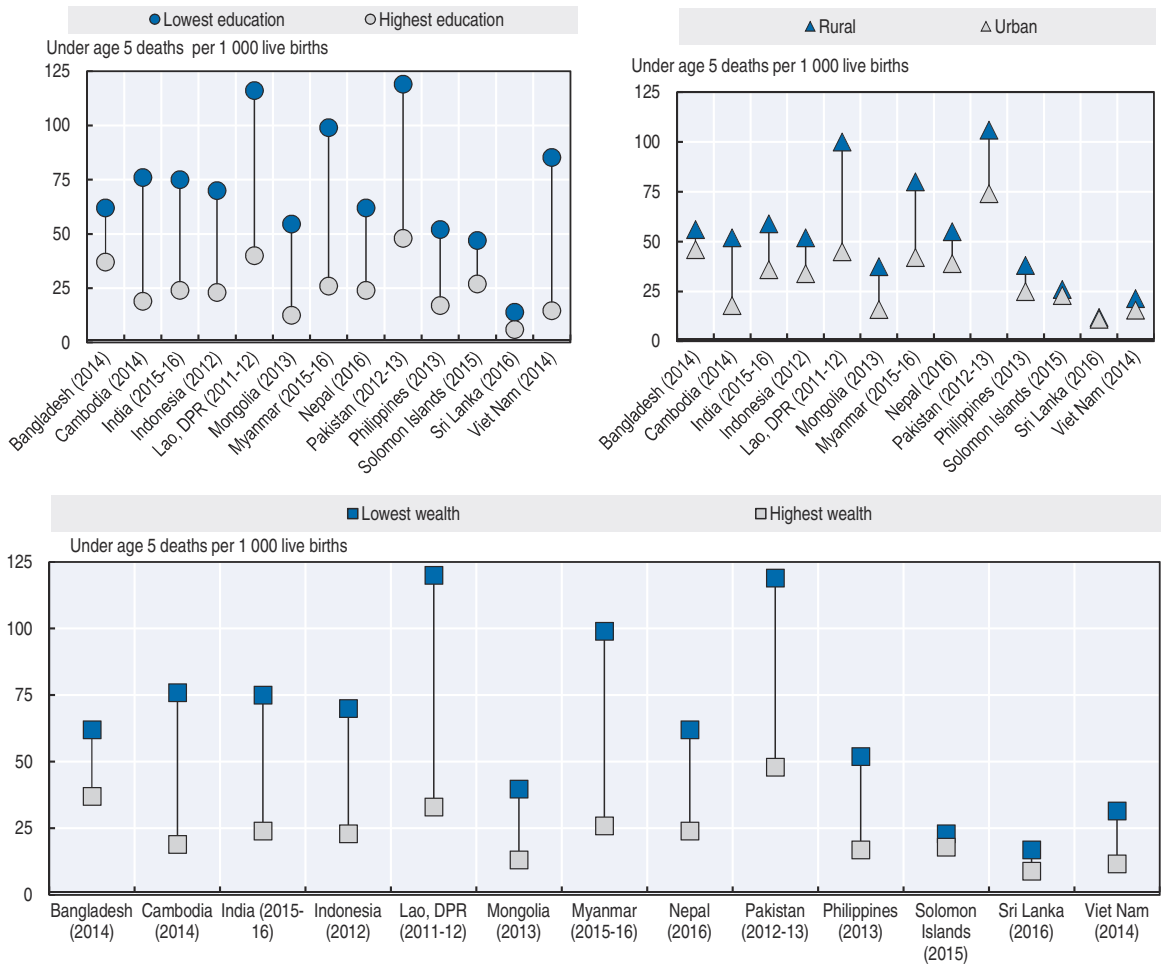
3.7. Under age 5 mortality rates by socio-economic and geographic factor, selected countries and years



Source: DHS and MICS surveys, various years.

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MORTALITY FROM ALL CAUSES

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

There are wide disparities in adult mortality in the region. For males in 2016, the probability of dying between ages 15 and 60 ranged from a low of 65 per 1 000 population in Singapore and Japan to 294 per 1 000 in Mongolia (Figure 3.8). It also exceeded 250 per 1 000 population in Papua New Guinea, and was less than 80 also in Australia. Among females, the probability ranged from 36 per 1 000 population in the Republic of Korea and Japan to a high of 191 in Papua New Guinea. Probabilities were also less than 40 in Singapore. Mortality was higher among men than women across countries and in Viet Nam, Sri Lanka, the Republic of Korea, Mongolia and Malaysia, rates for men were more than twice as high as those for females. Across lower-middle and low income Asia-Pacific countries, the average probability of dying was 204.3 per 1 000 population for adult men and 130.7 per 1 000 population for adult women, still much higher than the average adult mortality in OECD countries (101 per 1 000 population for men and 52 per 1 000 population for women), and higher than the average adult mortality in upper-middle income Asia-Pacific countries (171.3 for men and 95 for women).

All-cause mortality for the entire population ranged from less than 300 per 100 000 population in Japan and Macau, China, to over 1 000 in Pakistan, Papua New Guinea, Myanmar and the Lao PDR (Figure 3.9). The average rate in lower-middle and low income Asia-Pacific countries was 902, 50% higher than that of the OECD. Nonetheless, mortality for the entire population had declined in all reporting Asia-Pacific between 2000 and 2016, and the gap with OECD countries had narrowed.

The share of deaths due to non-communicable diseases is increasing in Asia-Pacific. Non-communicable diseases such as cardiovascular diseases and cancers were the most common causes of death, being responsible for over 82% and 78% of all deaths, on average, across high and upper-middle income Asia-Pacific countries (Figure 3.10; 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. But communicable diseases such as respiratory infections, diarrhoeal diseases and tuberculosis, along with maternal and perinatal conditions, also remained major causes of death among lower-middle and low income countries in Asia-Pacific accounting for 16% of all deaths. In WPRO, violence and injuries are the leading cause of death for those aged 5-49, and the first five leading causes of deaths in the 15-29 age group are all violence and injury subtypes (see indicator "Mortality from injuries" in Chapter 3).

Definition and comparability

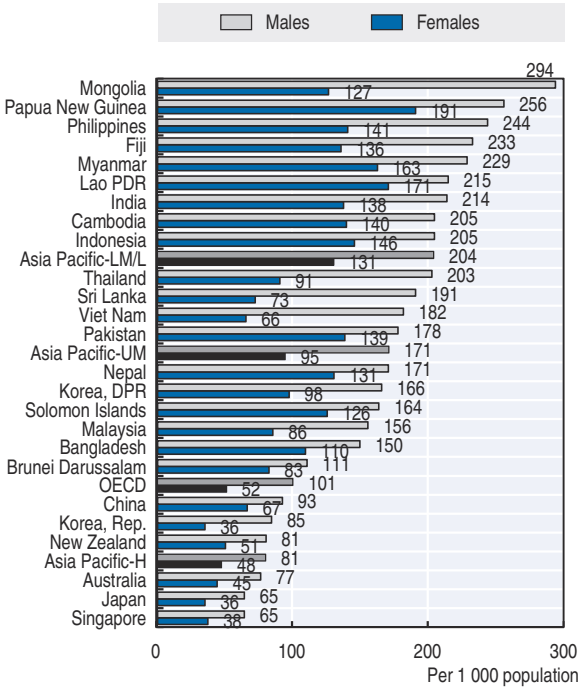
Mortality rates are calculated by dividing annual numbers of deaths by mid-year population estimates. Rates have been age-standardised to the World Standard Population to remove variations arising from differences in age structures across countries.

Complete vital registration systems do not exist in many developing countries, and about one-third of countries 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).

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

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

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



Source: WHO Global Health Observatory (GHO) 2018.

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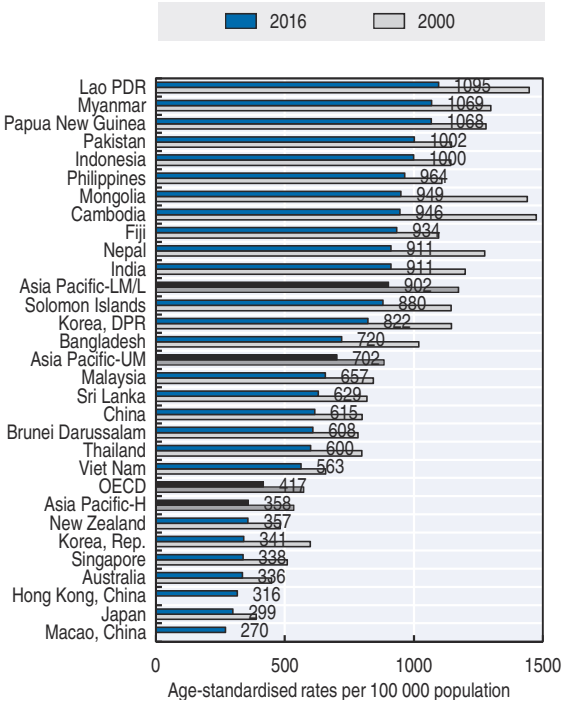
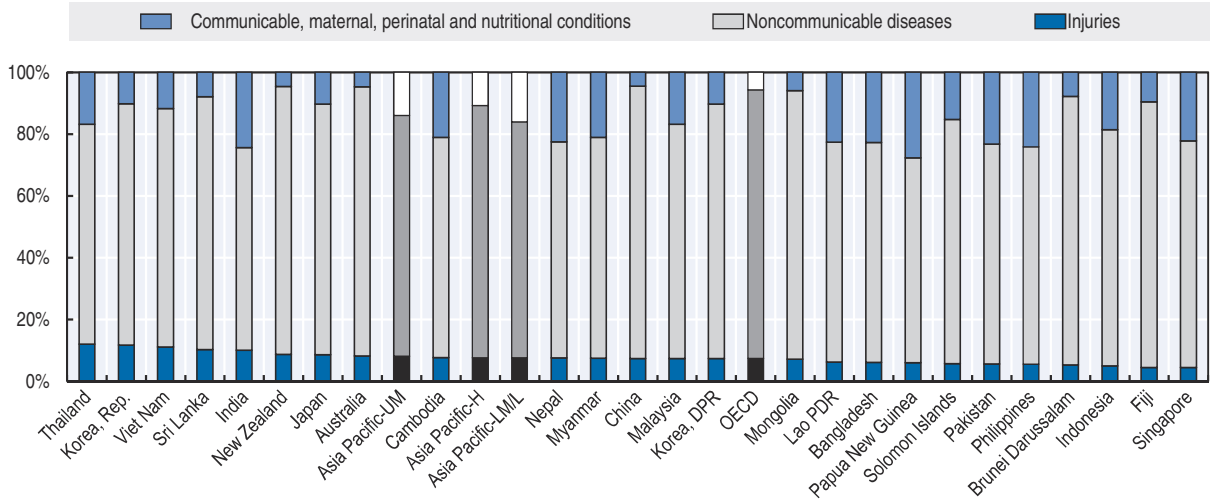
3.9. All cause-mortality rates for all populations, 2000 and 2016



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

StatLink http://dx.doi.org/10.1787/888933867721

3.10. Proportions of all cause deaths, 2016



Source: WHO Global Burden of Disease, 2018.

StatLink http://dx.doi.org/10.1787/888933867094

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 9.4 million deaths in SEARO and WPRO and accounted for one-third of all deaths in 2016 in these regions (WHO, 2018a).

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 combined (WHO, 2018a).

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

Mortality from cardiovascular disease varied across countries with a notably high level, exceeding 440 deaths per 100 000 population in Mongolia in 2016 (Figure 3.11). This was in contrast to a group of developed countries – Republic of Korea, Japan, Singapore, Australia, Macau, China, Hong Kong, China and New Zealand – where death rates were below 100 per 100 000 population. The large variation in mortality may be due to differences in the prevalence of risk factors for CVD and also access to high quality acute care (see indicator "In-hospital mortality following acute myocardial infarction and stroke" in Chapter 7) across countries. The average mortality rate from CVD in lower-middle and low income Asia-Pacific countries was twice the one in OECD countries (311 versus 127.8 deaths per 100 000 population). While all Asia-Pacific countries and territories had decreased mortality from CVD, the rate was unchanged in Bangladesh, Myanmar and the Philippines from 2000-16.

Success of reducing the mortality rates from CVD in OECD countries owes to a decline in smoking rates, expanded health system's capacity to control high cholesterol and blood pressure, and greater access to effective care in the event of an acute episode such as a stroke or heart attack (OECD, 2015). 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).

The types of CVD that are fatal differ across countries in the region. In China, Cambodia, Korea DPR, the Republic of Korea, Viet Nam, Bangladesh and Myanmar mortality from stroke was greater than IHD (Figure 3.12). In all other Asia-Pacific countries, the trend was similar to European and North American countries and mortality from IHD was greater than for stroke (Ueshima et al., 2008).

While mortality rates from CVD by age group follow a similar curve in Asia-Pacific and OECD countries, mortality is systematically higher in lower-middle and low income Asia-Pacific countries across all age groups (Figure 3.13).

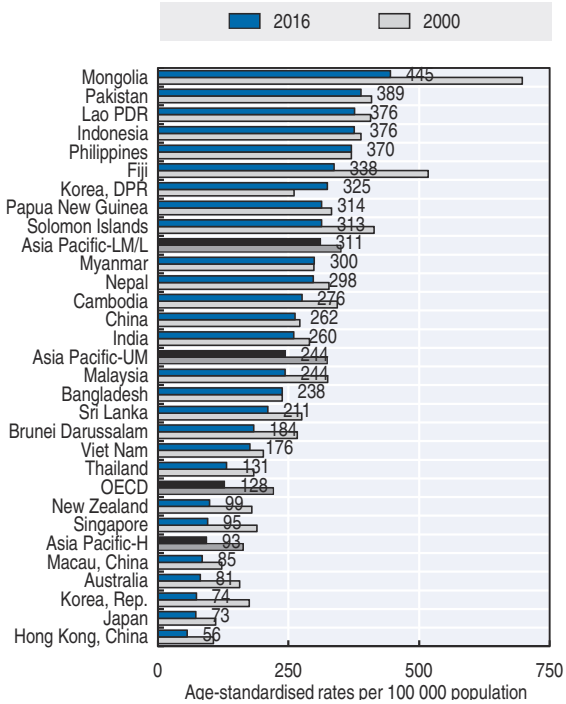
As the proportion of older people increases in Asia-Pacific (see indicator "Ageing" in Chapter 3), demand for health care will increase and the complexity and type of care that CVD patients require will change. Increases in total cholesterol and blood pressure, along with smoking, overweight/obesity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

Definition and comparability

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

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

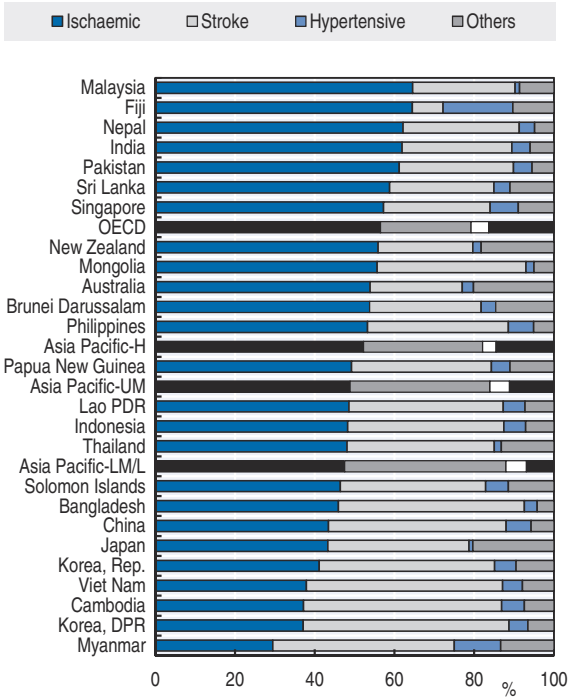
3.11. Cardiovascular disease, estimated mortality rates, 2000 and 2016



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

StatLink http://dx.doi.org/10.1787/888933867113

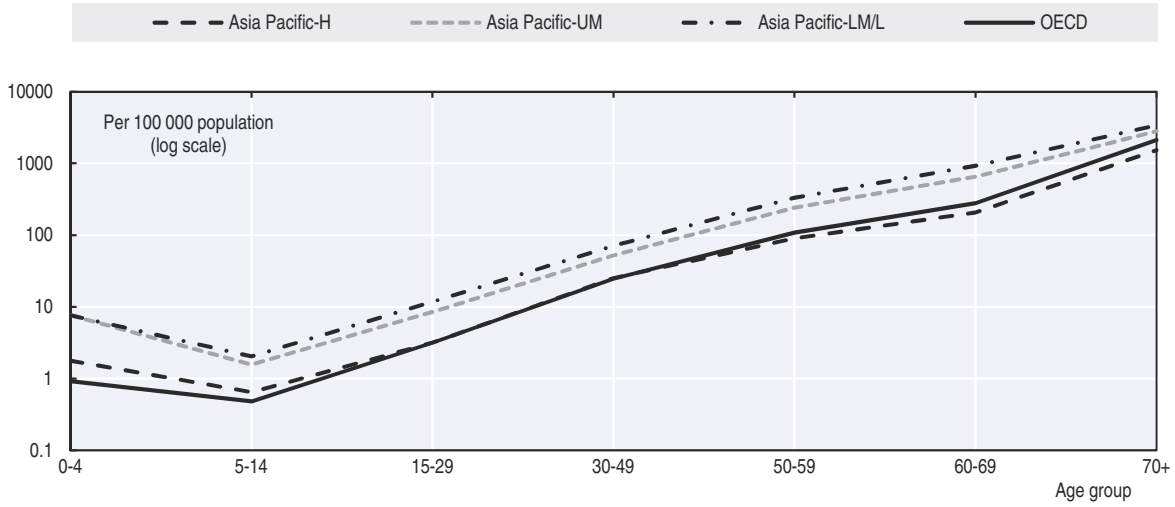
3.12. Proportions of cardiovascular disease deaths, 2016



Source: WHO Global Burden of Disease, 2018.

StatLink http://dx.doi.org/10.1787/888933867132

3.13. Cardiovascular diseases, age-specific mortality rates, Asia-Pacific countries by income group and OECD, 2016



Source: WHO Global Burden of Disease, 2018.

StatLink http://dx.doi.org/10.1787/888933867151

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 4.5 million deaths (or 16.3% of total deaths) in Asia-Pacific in 2016 (WHO, 2018a).

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; Wilson et al., 2018; Whiteman & Wilson, 2016). Prevention, early detection and treatment remain at the forefront in the battle to reduce the burden of cancer, and progress towards fighting cancer needs to be monitored not only by mortality rates but also by survival estimates, taking account of early detection of the disease and the effectiveness of treatment (OECD, 2013).

Mongolia had higher cancer mortality rates, all with over 200 deaths per 100 000 population in 2016 (Figure 3.14). Cancer deaths were less common in Sri Lanka, India, Nepal, Bangladesh and Fiji, and they had less than 90 deaths per 100 000 population.

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

Trachea, bronchus and lung cancer were the leading type of cancer in upper-middle and high-income Asia-Pacific countries (Figure 3.15), accounting for 19.7%, and 19.8% of all cancer deaths – on average – respectively in 2016. Liver cancer was the first cause of cancer deaths in lower-middle and low income Asia-Pacific countries, accounting for around 17% of cancer deaths in 2016. In Mongolia, with the highest cancer mortality, the large proportion of deaths was due to liver cancer, precipitated by hepatitis B infection. Besides Mongolia, liver cancer deaths occurred frequently in the Lao PDR, Viet Nam and Thailand. Incidence is expected to fall in coming decades, with increased immunisation for hepatitis B (see indicator "Child vaccination programmes" in Chapter 7).

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

Cancer causes the highest economic loss among top causes of death worldwide as a large proportion of cancer deaths occur in the economically productive age group (Figure 3.16). OECD and high-income Asia-Pacific countries had high mortality rates among older people (70 years or more), whereas lower-middle and low income Asia-Pacific countries had high mortality rates for people aged less than 60 years. For a large number of cancers, the risk of developing the disease rises with age but in lower-middle and low-income countries, life expectancy is considerably lower than other countries, so the older people die of other diseases.

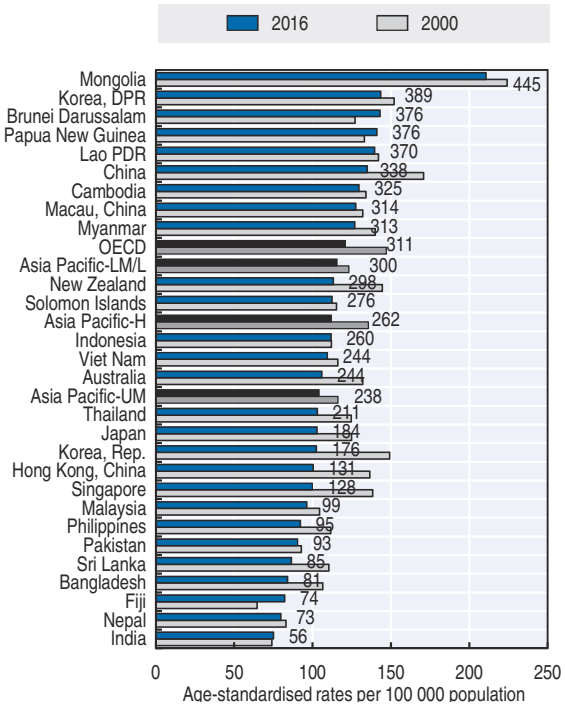
As with cardiovascular disease, the ageing of the population will lead to many more cases of cancer in coming decades, taxing underprepared health systems. Since the drugs and technologies for treating patients are expensive, cancer control planning in the Asia-Pacific region might more effectively target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

Definition and comparability

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

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

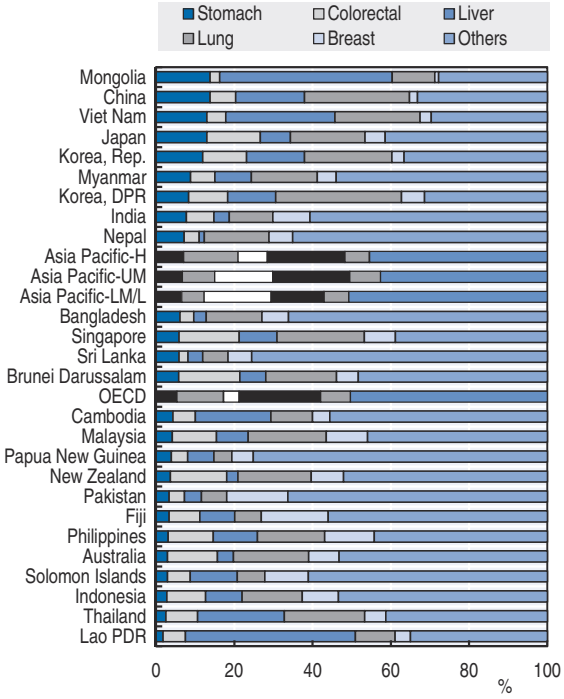
3.14. All cancers, estimated mortality rates, 2000 and 2016



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

StatLink http://dx.doi.org/10.1787/888933867170

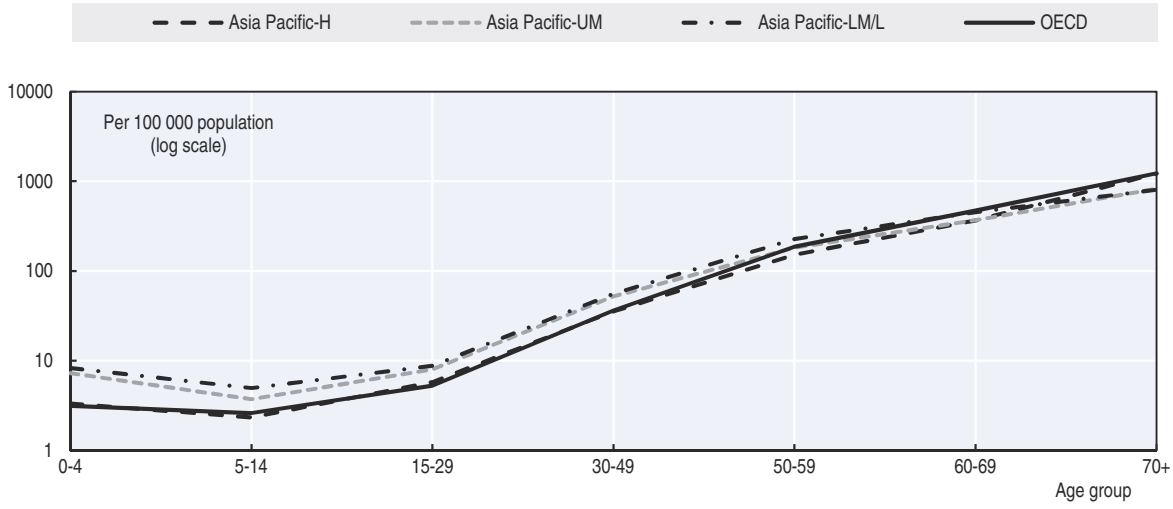
3.15. Proportions of cancer deaths, 2016



Source: WHO Global Burden of Disease, 2018.

StatLink http://dx.doi.org/10.1787/888933867189

3.16. Malignant neoplasms, age-specific mortality rates, Asia-Pacific countries by income group and OECD, 2016



Source: WHO Global Burden of Disease, 2018.

StatLink http://dx.doi.org/10.1787/888933867208

MORTALITY FROM INJURIES

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

Mortality from injuries was highest in India, Myanmar, Cambodia and Thailand with greater than 70 deaths per 100 000 populations, while the rate was lowest in Hong Kong, China; and Singapore with 15 deaths per 100 000 population in 2016 (Figure 3.17). Lower-middle and low income Asia-Pacific countries had twice the injury mortality rate than OECD countries (64 versus 31 deaths per 100 000 population).

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

Deaths due to road traffic crashes represent 37.7% and 30.1% of all injuries deaths in upper-middle and lower-middle and low income Asia-Pacific countries respectively in 2016. However, this figure should be considered in the context of a corresponding global increase in the number of registered vehicles, suggesting that interventions to improve global road safety have mitigated the expected rise in the number of deaths (WHO, 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 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). 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 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 (*www.who.int/roadsafety/decade_of_action/en/*). This policy message was strengthen by SDG 3.6, which targets halving the number of global deaths and injuries from road traffic accidents by 2020.

The main causes of injury deaths are different across countries in the region (Figure 3.18). In China, Solomon Islands, Thailand and Malaysia, 39% or more of all injury deaths were due to road traffic crashes, while in the Republic of Korea mortality rates for road traffic injuries are one of the highest in high-income countries at 19.9% of all injury deaths. In the Republic of Korea, Singapore and Japan, self-inflicted injuries were the leading cause of injury mortality, accounting for over 50% of all injury deaths. Over 90% of people who had attempted or committed suicide were diagnosed with psychiatric disorders such as severe depression, bipolar disorder and schizophrenia (Turecki and Brent, 2016) but mental disorders are still under-treated or ineffectively treated (OECD, 2014). Interpersonal violence is the main cause of injury deaths for men in the Philippines.

Age-specific mortality was consistently higher in middle and low-income countries across all age groups, and significant higher for children up to the age of 15 (Figure 3.19). Drowning is the leading cause of unintentional injury-related deaths among those aged 5-14 in the region (WHO, 2014b). Drowning is a largely preventable cause of death that is strongly associated with poverty. Population most at risk are those living in low-income countries of densely populated communities with high exposure to open water.

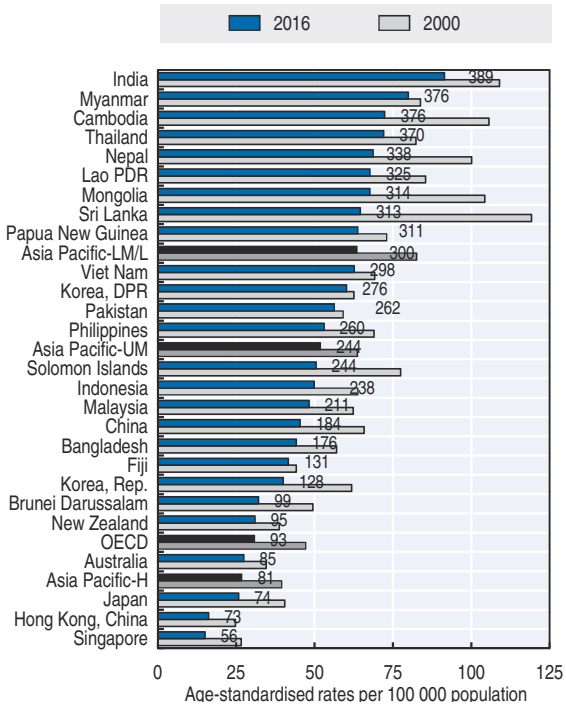
Definition and comparability

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

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

Estimates for road injury deaths drew on death registration data, reported road traffic deaths from official road traffic surveillance systems and revised regression model for countries without usable death registration data (WHO, 2015a).

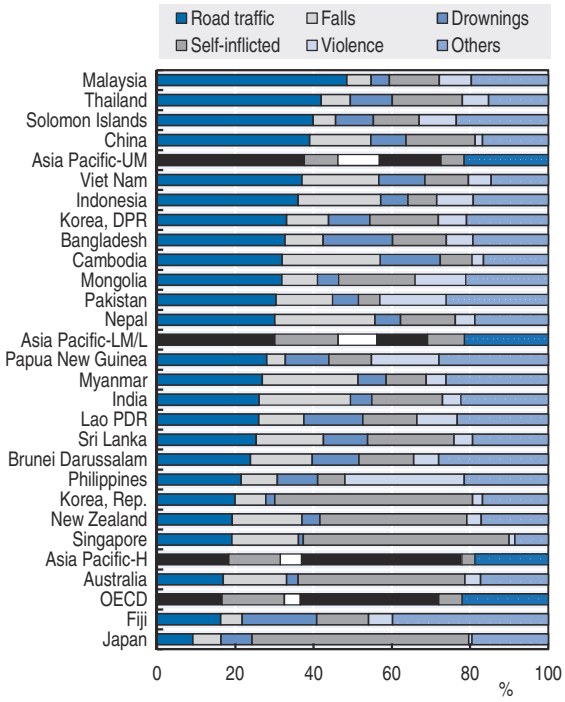
3.17. Injuries, estimated mortality rates, 2000 and 2016



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

StatLink http://dx.doi.org/10.1787/888933867227

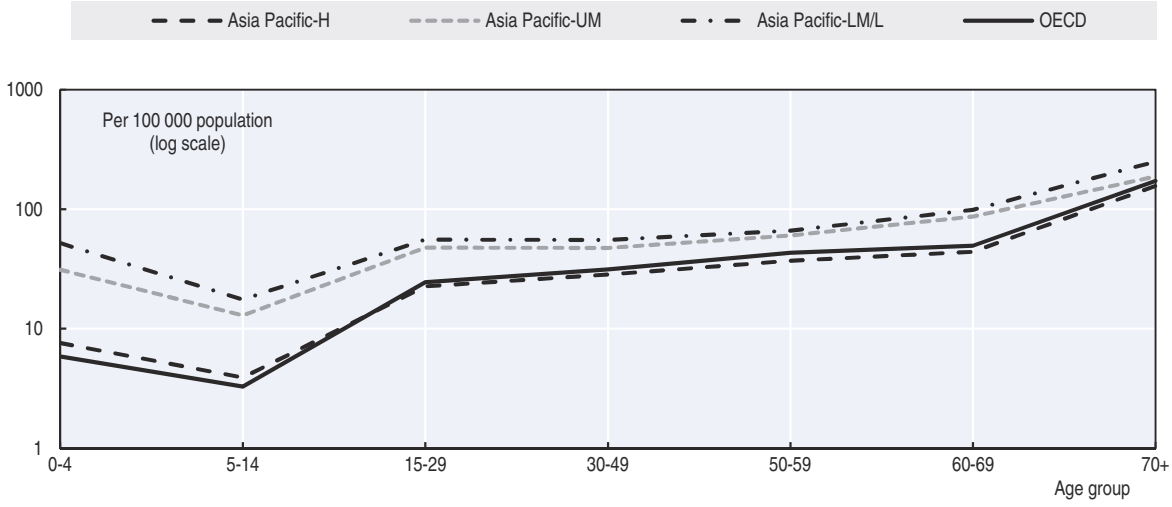
3.18. Proportions of injury deaths, 2016



Source: WHO Global Burden of Disease, 2018.

StatLink http://dx.doi.org/10.1787/888933867246

3.19. Injuries, age-specific mortality rates, Asia-Pacific countries by income group and OECD, 2016



Source: WHO Global Burden of Disease, 2018.

StatLink http://dx.doi.org/10.1787/888933867265

MATERNAL MORTALITY

Pregnancy and childbearing, whilst offering women opportunities for personal development and fulfilment, also present inherent risks. Maternal mortality – the death of a woman during pregnancy, childbirth, or within 42 days of the termination of pregnancy – is an important indicator of a woman's health and status. The Sustainable Development Goals set a target of reducing the global maternal mortality ratio to less than 70 per 100 000 live births by 2030.

Almost 303 000 maternal deaths were estimated to have occurred worldwide in 2015 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 0.56, that is one woman in 180 (WHO, 2015b).

The leading causes of deaths are severe bleeding after childbirth, infections, high blood pressure during pregnancy and unsafe abortion. The majority of these deaths are preventable, and occur in resource-poor settings (WHO, 2015b). Fertility and maternal mortality have strong associations with economic development and GDP. Risk of maternal death can be reduced through family planning, better access to high-quality antenatal, intrapartum and postnatal care by skilled health professionals.

Maternal mortality ratio (MMR) averaged around 140 deaths per 100 000 live births in lower-middle and low income Asia-Pacific countries in 2015, more than four times the upper-middle income Asia-Pacific countries average, and more than ten times the high-income Asia-Pacific countries average (Figure 3.20, left panel). Estimates for 2015 show a small group of countries – Hong Kong, China; Australia; Japan; Singapore and the Republic of Korea – with very low MMRs of less than 10, but a group of countries including Papua New Guinea and Nepal had high MMRs at 200 or more deaths per 100 000 live births. About one-fifth of the world's maternal mortality burden occurred in India and Pakistan alone.

Despite high ratios in certain countries, significant reductions in maternal mortality have been achieved in Asia-Pacific over the last 15 years (Figure 3.20, right panel). The MMR declined by more than 50% between 2000 and 2015 across lower-middle and low income Asia-Pacific countries. Cambodia and the Lao PDR showed the largest reductions among countries reporting high ratios in 2000. According to a study (WHO, 2014a), Cambodia's success is related to reduced fertility through wider use of contraceptives and increased coverage of antenatal care and skilled birth attendance – achieved through increasing the number of midwives and facilities providing Emergency Obstetric and Newborn Care.

Across countries, maternal mortality is inversely related to the coverage of skilled births attendance (Figure 3.21). Bangladesh, the Lao PDR and Papua New Guinea reported that less than one in two live births are attended by skilled health professionals (see indicator "Pregnancy and birth" in Chapter 5). These countries have relatively high MMRs above 176 deaths per 100 000 live births.

Higher coverage of antenatal care (at least four times) 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).

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

Definition and comparability

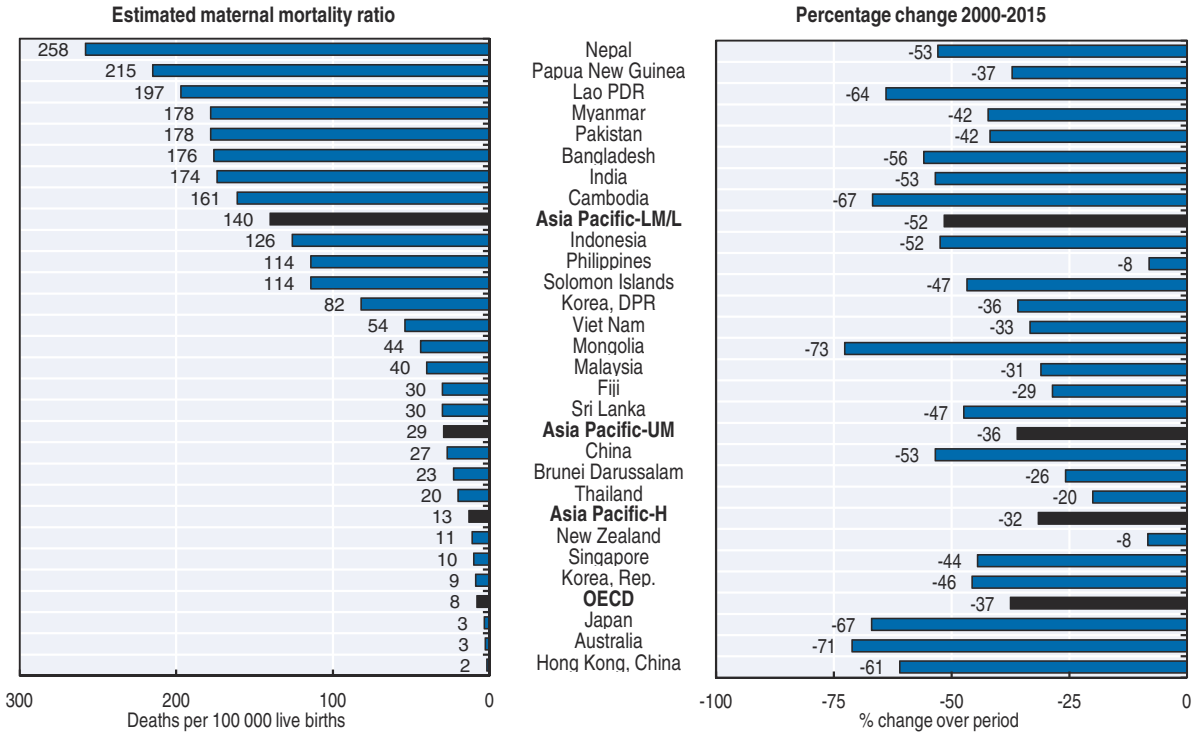
Maternal mortality is defined as the death of a woman while pregnant or during childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from unintentional or incidental causes (WHO, 2015b).

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

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

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

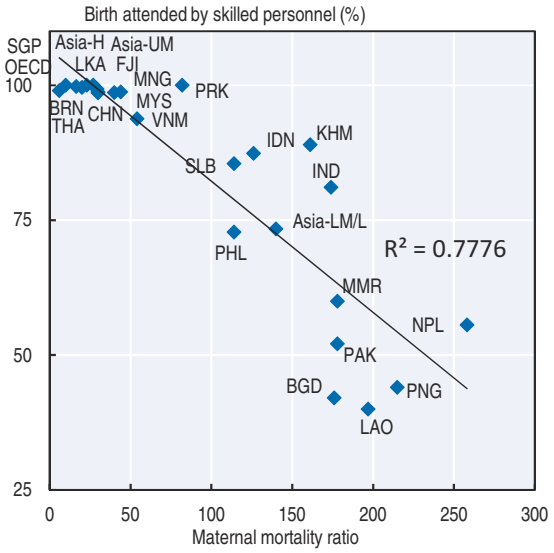
3.20. Estimated maternal mortality ratio, 2015 (or latest year available), and percentage change since 2000



Source: OECD Health Statistics 2018; WHO (2018); Health facts of Hong Kong 2017.

StatLink http://dx.doi.org/10.1787/888933867303

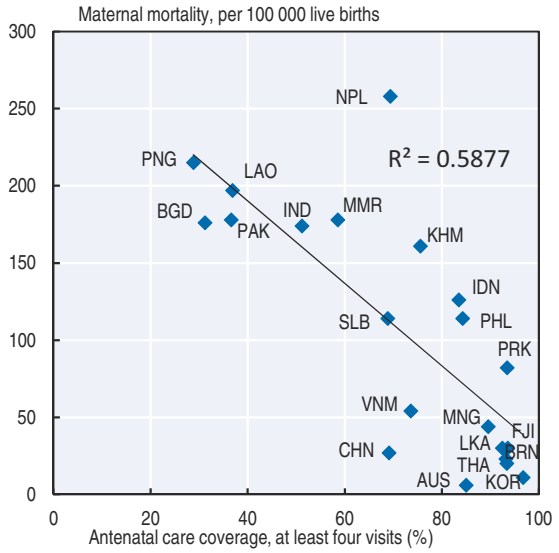
3.21. Skilled birth attendant coverage and estimated maternal mortality ratios, latest year available



Source: OECD Health Statistics 2018; WHO (2018); WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933867322

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



Source: WHO GHO 2018; National survey on children for India for 2013-14.

StatLink http://dx.doi.org/10.1787/888933867341

TUBERCULOSIS

Tuberculosis (TB) is the leading cause of death from an infectious disease in Asia-Pacific. In 2016, there were 10.4 million newly occurring (incident) TB cases worldwide, 1.3 million deaths among HIV-negative people globally. One third of new cases and one fourth of deaths were estimated in India and Indonesia alone. Most of these TB cases and deaths occur disproportionately among men, but the burden of disease among women is also high as it remains among the top three killers for them in the world. Most cases of TB are curable if diagnosed early and the right treatment is provided.

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

In Asia-Pacific, mortality rates were high in Myanmar, Papua New Guinea, Lao PDR, Pakistan and the Philippines with over 40 deaths of people without HIV per 100 000 populations (Figure 3.23, left panel).

Five countries in the world which collectively accounted to 56% of the estimated cases globally in 2016 were in the Asia-Pacific region: India (2.8 million), Indonesia (1.0 million), China (0.9 million), the Philippines (0.57 million) and Pakistan (0.5 million). The case notification rate is particularly high in Korea DPR, Papua New Guinee and the Philippines, at more than 300 cases per 100 000 population. An incidence rate higher than 500 cases per 100 000 population was estimated for the Philippines and Korea DPR, while for Australia and New Zealand less than ten 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 80% in most Asia-Pacific countries in 2015 (Figure 3.24). However, Japan reports a treatment success rate of 53% only.

The Asia-Pacific region is rising to the challenges presented by TB. In a large part of the countries, incidence rates have declined from 2013-16 (Figure 3.25). However, few countries like the Philippines, Singapore, Brunei Darussalam, Solomon Islands and Fiji showing upward trend and Thailand and Malaysia showing inconclusive trend with no much change in the last few years.

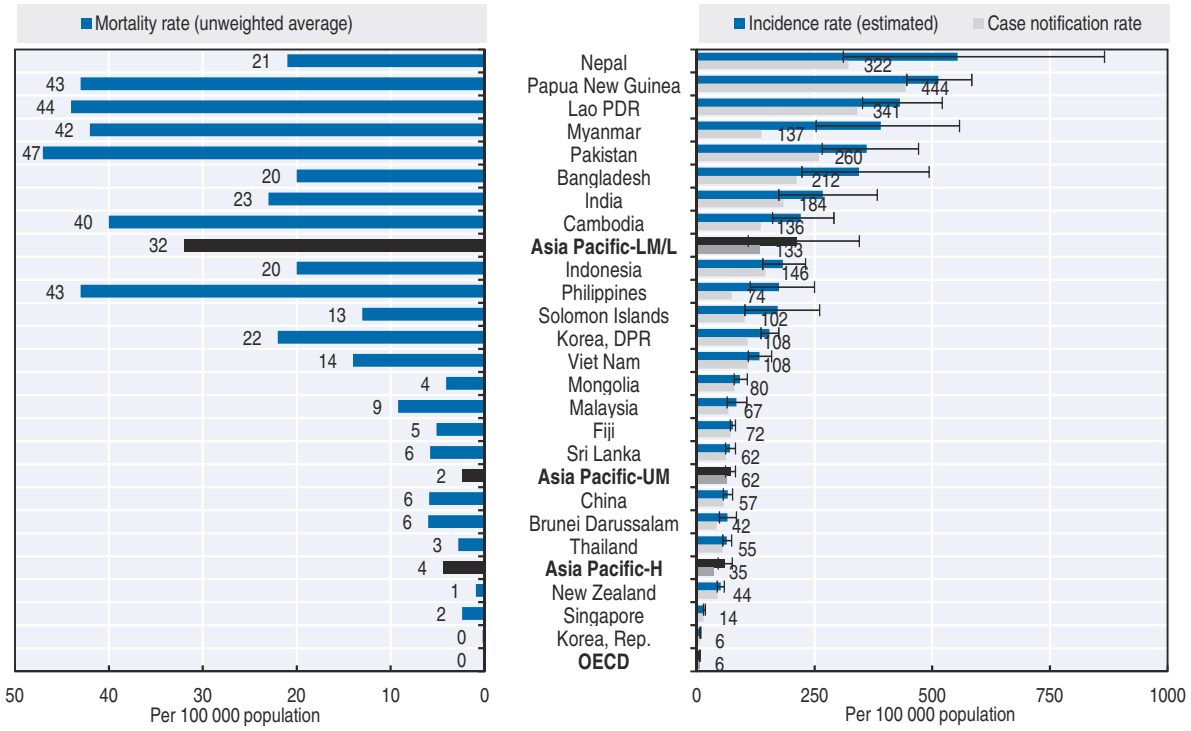
The region still faces important challenges in TB control, including providing services to those in greatest need, especially the poor and vulnerable. HIV-TB co-infection, the emergence of drug-resistant strains, a sizeable proportion of TB-affected population facing catastrophic costs due to TB, funding gaps and the need for greater technical expertise all remain threats to progress (WHO, 2015c; WHO, 2012a). With regards to multidrug-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. The TB treatment coverage is the number of new and relapse TB cases that were notified and treated in national TB control programmes and notified to WHO, divided by the estimate of the number of incident TB cases for the same year, expressed as a percentage.

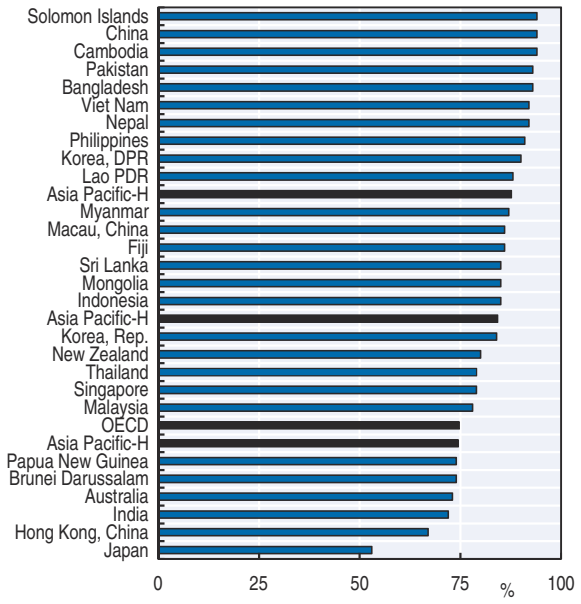
3.23. Estimate of the burden of disease caused by tuberculosis, 2016



H represents lower and upper bounds.
Source: Global Tuberculosis Report 2017.

StatLink http://dx.doi.org/10.1787/888933867360

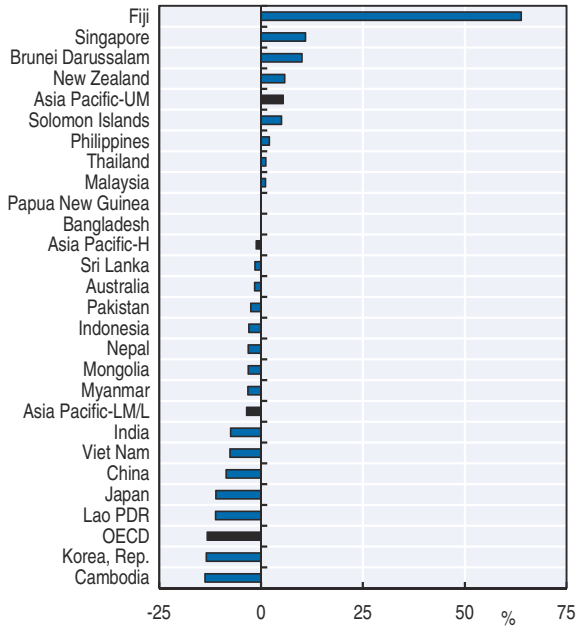
3.24. Tuberculosis treatment success for new TB cases, 2015



Source: Global Tuberculosis Report 2017.

StatLink http://dx.doi.org/10.1787/888933867379

3.25. Change in tuberculosis incidence rate, 2013-16



Source: Global Tuberculosis Report 2017.

StatLink http://dx.doi.org/10.1787/888933867398

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 (UNAIDS, 2013; Ruxrungtham et al., 2004). Asia is second only to sub-Saharan Africa as the region with the greatest number of people with HIV. The UN set a SDG target to end the epidemic of AIDS as a public threat by 2030.

In Asia-Pacific, the prevalence of HIV infection varied importantly, ranging from 0.1% of adults aged 15 to 49 in Australia, Pakistan and the Philippines to 1.1% of adults aged 15 to 49 in Thailand in 2017 (Figure 3.26, left panel). Although HIV prevalence is low, the absolute number of people living with HIV was high at more than 4 million in reporting countries in 2017, because of Asia-Pacific's large population (Figure 3.26, right panel). More than 2 million people living with HIV were in India.

Expanded access to antiretroviral therapy (ART) has increased the survival rates of people living with HIV, but about half of the people eligible for HIV treatment do not receive it worldwide (UNAIDS, 2018). The estimated ART coverage among person living with HIV in 2017 was less than one-fifth in Indonesia and Pakistan, whereas more than two people in three had access to ART in Myanmar, Thailand, Cambodia and Australia (Figure 3.27).

Over past years, many countries in Asia-Pacific responded to HIV/AIDS successfully and incidence rates have declined. Between 2010 and 2016, new cases of HIV infection were reduced by more than 40% in Nepal, Cambodia and Thailand (UNAIDS, 2018). However, a high number of new cases of HIV infections was reported in Myanmar, Malaysia and Papua New Guinee in 2017 (Figure 3.28).

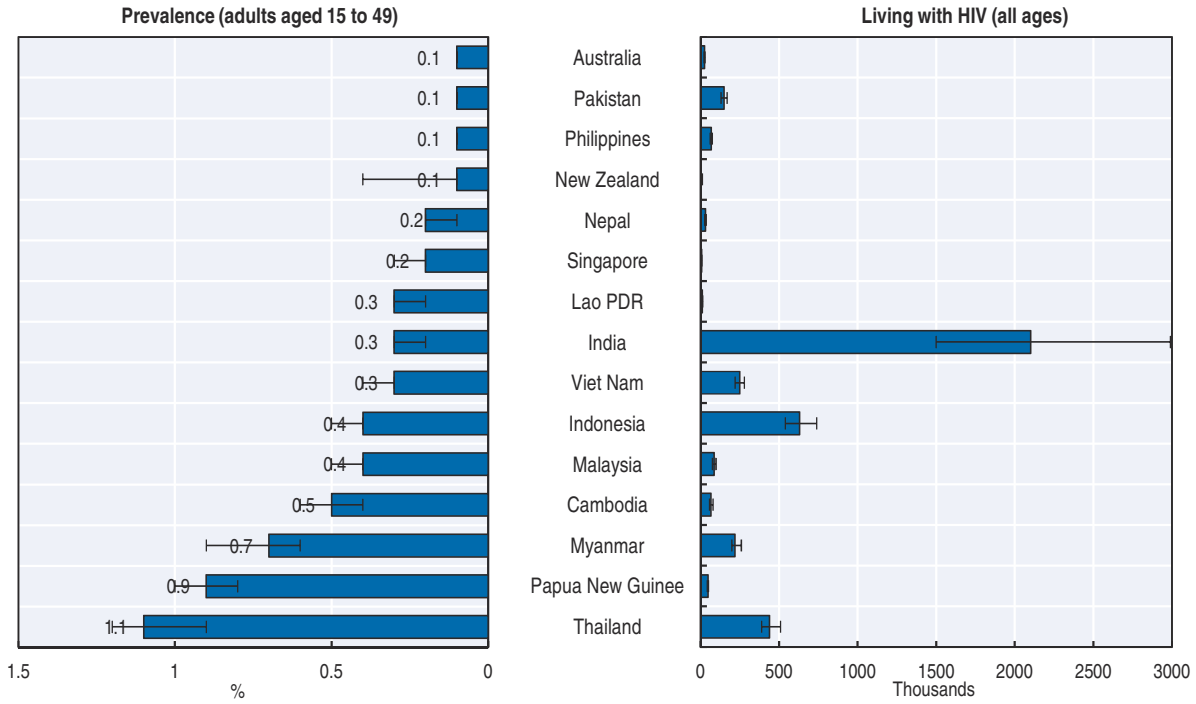
Advances in HIV prevention and treatment could end AIDS as a public health threat in the region. Recent evidence has emerged showing that antiretroviral drugs not only improves the health and prolong the lives of people living with HIV, but also prevents HIV transmission. The rapid scale-up antiretroviral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

Definition and comparability

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

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

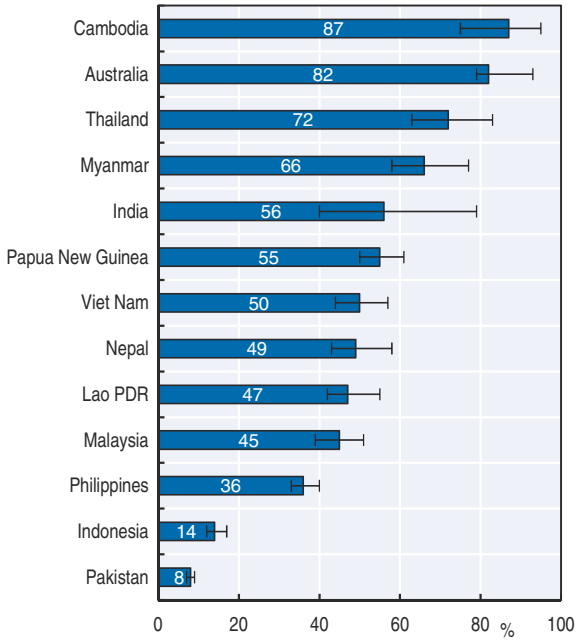
3.26. HIV prevalence and estimated number of people living with HIV, 2017



H represents lower and upper bounds.
Source: UNAIDS (2018).

StatLink http://dx.doi.org/10.1787/888933867417

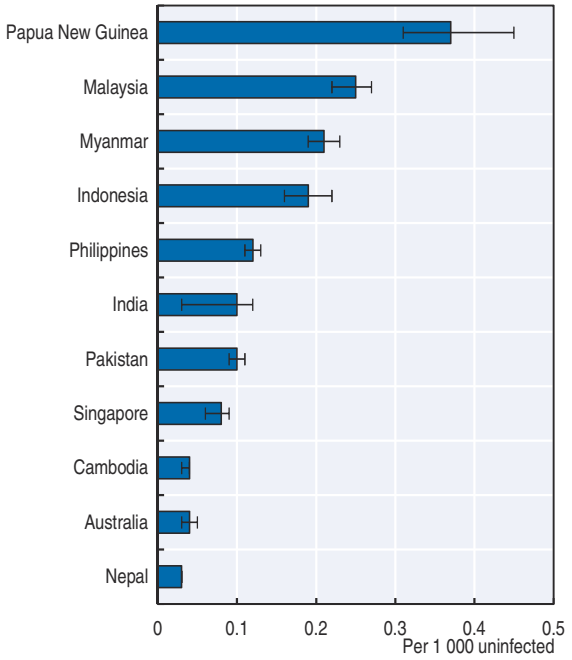
3.27. Estimated antiretroviral therapy coverage among people living with HIV, 2017



H represents lower and upper bounds.
Source: UNAIDS (2018).

StatLink http://dx.doi.org/10.1787/888933867436

3.28. New HIV infections per 1 000 uninfected population, 2017



H represents lower and upper bounds.
Source: UNAIDS (2018).

StatLink http://dx.doi.org/10.1787/888933867455

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, although no vaccine currently exists (a vaccine against falciparum is currently being trailed in Africa though). If left untreated, malaria can become life-threatening by disrupting the blood supply to vital organs.

As part of the SDG targets, the UN set a goal to end the epidemic of malaria by 2030. China, Malaysia, Nepal and the Republic of Korea have set an even closer target date of 2020 for elimination.

About 2.3 billion people live at some risk of malaria and 1 billion people are at high risk in Asia-Pacific. Malaria-endemic countries in the region are Papua New Guinea, Solomon Islands, Pakistan, India, Nepal, the Philippines, Indonesia, Myanmar, the Lao PDR, Cambodia, Thailand, DPR Korea, China, Viet Nam, Bangladesh, the Republic of Korea and Malaysia. Malaria transmission is intense in some areas of Papua New Guinea and the Solomon Islands, and 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 2014, there were 163 million suspected cases and 6.2 million probable or confirmed cases in Asian countries (WHO, 2015d), and confirmed cases were concentrated in Pakistan and India (Figure 3.29, left panel). Death rates are estimated to be highest in Papua New Guinea and the Solomon Islands (Figure 3.29, right panel).

For a balanced understanding, changes in the number of malaria cases should be viewed in parallel with changes in malaria incidence. The number of cases per 1 000 population at risk registered a decline in all reporting Asia-Pacific countries from 2010-16 (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 among at-risk population and improved access to artemisinin-based combination treatment (Mu et al., 2016; Linn et al., 2018).

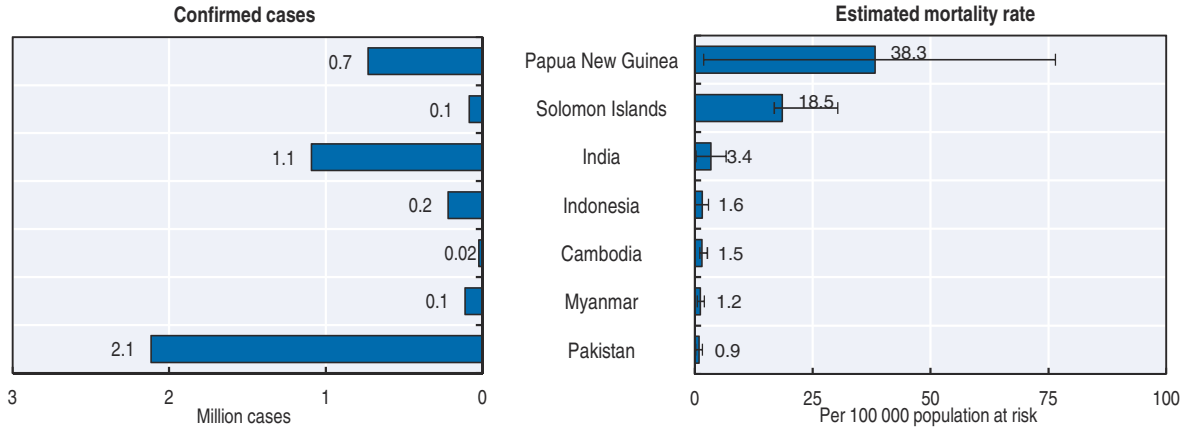
Prompt treatment with artemisinin-based combination therapies (ACT) could save people infected with malaria. But Nepal and Pakistan reported delivering insufficient quantities of antimalarial medicines in 2014 (WHO, 2015d) (Figure 3.31).

Definition and comparability

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

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

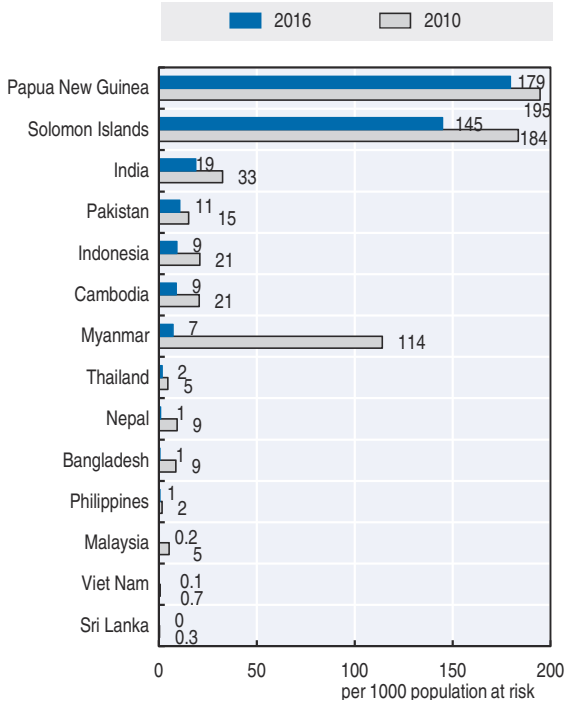
3.29. Confirmed malaria cases and estimated mortality rates, 2016



H represents lower and upper bounds.
Source: World Malaria Report (2017).

StatLink http://dx.doi.org/10.1787/888933867474

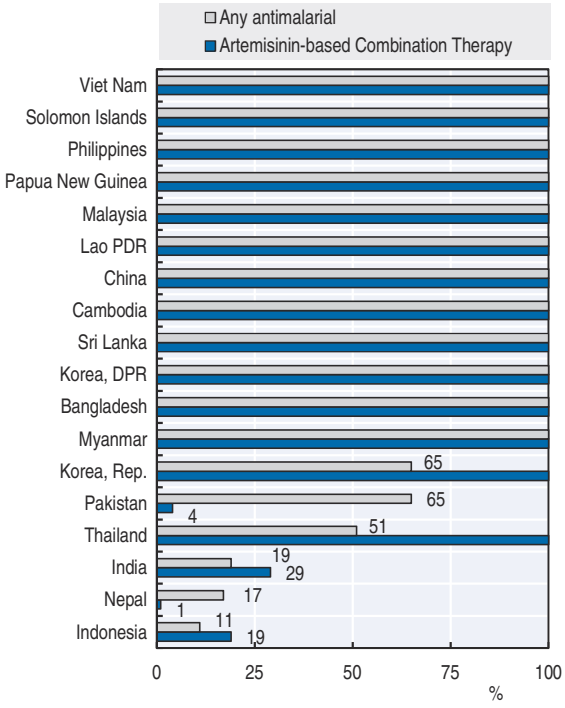
3.30. Changes in malaria incidence rate, 2010-16



Source: WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933867512

3.31. Estimated coverage of at-risk persons with malaria control interventions, 2016



Source: World Malaria Report (2017).

StatLink http://dx.doi.org/10.1787/888933867531

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% among the male and female adult population (18 years or older) respectively (NCD Risk Factor Collaboration, 2016). In Asia-Pacific, about 227 million people live with type 2 diabetes and about half of them are undiagnosed and unaware of developing long-term complications. In 2012, diabetes caused 1.5 million deaths worldwide and an additional 2.2 million deaths were related to higher-than-optimal blood glucose (WHO, 2016a).

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

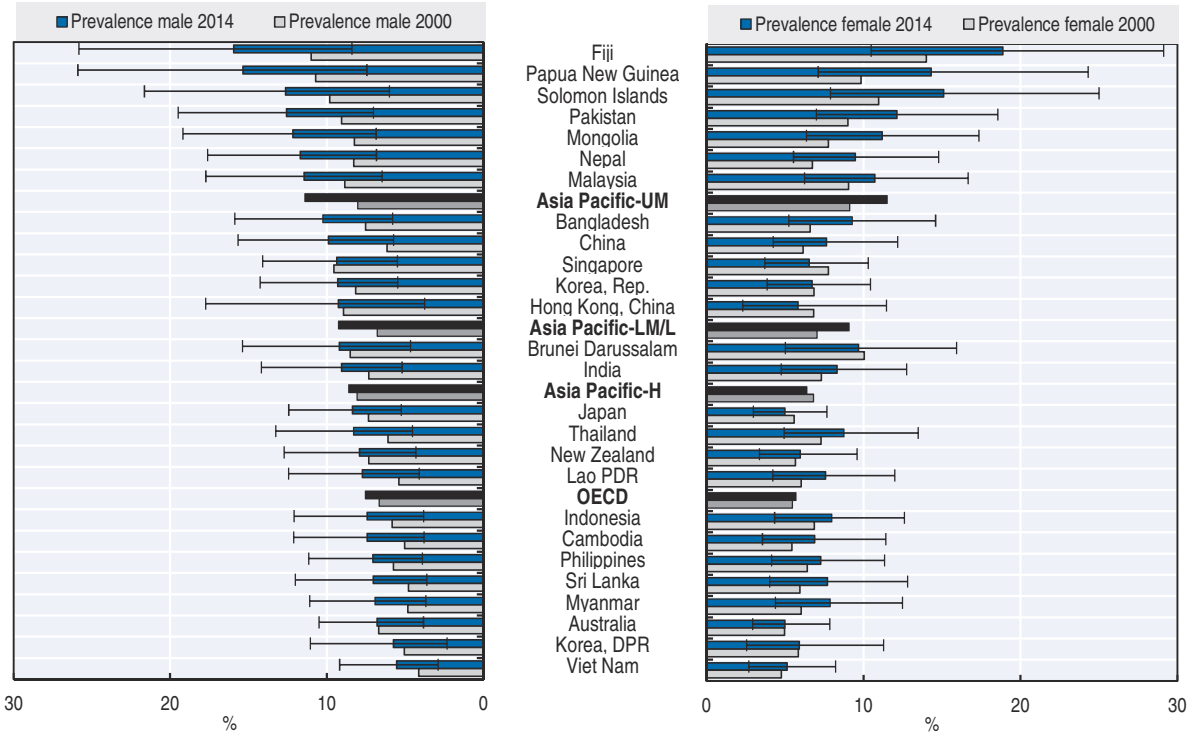
Among the 27 Asia-Pacific countries and territories in this report, the prevalence of diabetes for women ranged from 5% in Australia to 18.9% in Fiji of the adult population (Figure 3.32, right panel), while the prevalence for males ranged from 5.5% in Viet Nam to 15.9% in Fiji (Figure 3.32, left panel). In all countries and territories in study (except Singapore), the prevalence of diabetes among males increased from 2000-14, whereas the prevalence of diabetes among women increased in all countries but Japan, Brunei Darussalam, Hong Kong, China and Singapore (Figure 3.32).

Among lower-middle and low income Asia-Pacific countries, deaths attributable to high blood glucose increased by 50% between 2000 and 2015 (Figure 3.33). More than 190 deaths per 100 000 population were caused by high blood glucose in adults in Fiji in 2015. This mortality rate doubled in the Bangladesh and Myanmar between 2000 and 2015, and increased by more than 80% in India and Sri Lanka.

Definition and comparability

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

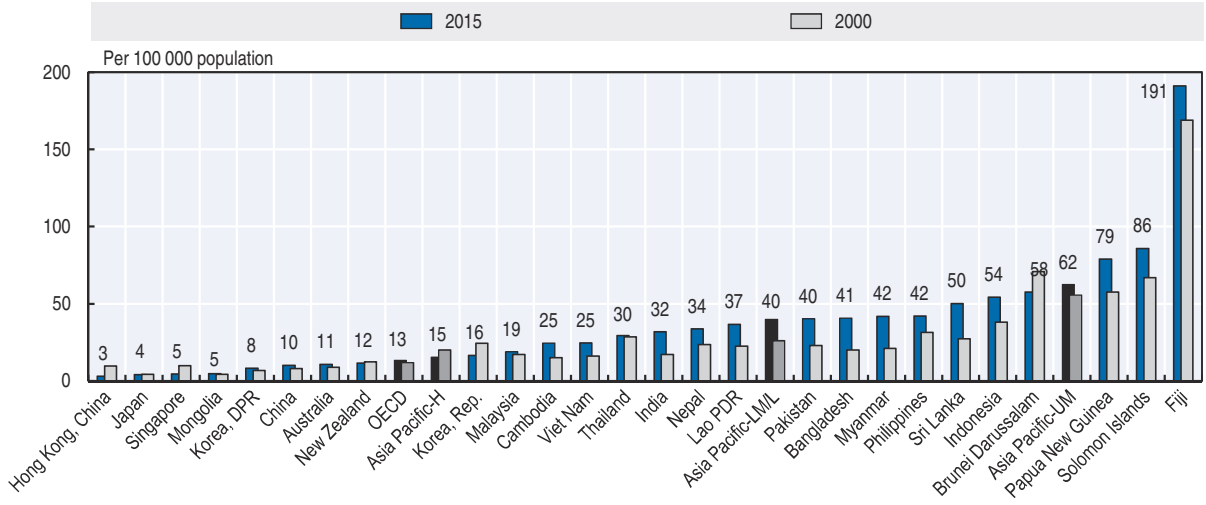
3.32. Diabetes prevalence among adults, 2010 and 2014



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

StatLink http://dx.doi.org/10.1787/888933867550

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



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

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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" in Chapter 3) and declining fertility rates. In Asia-Pacific countries and territories, since 2000, life expectancy has increased by about 4.5 years and fertility has decreased from 2.6 children per woman of reproductive age, to the population replacement level of 2.1. This has been mainly due to better access to reproductive health care, primarily a wider use of contraceptives (see indicator "Reproductive health" in Chapter 4). Population ageing reflects the success of health and development policies over the last few decades.

The share of the population aged 65 years and over is expected to increase by nearly two and half times in lower-middle and low income Asia-Pacific countries in the next decades to reach 15.1% for females and 11.7% for males in 2050. This is still lower than the high-income and upper-middle income countries average of 31.4% and 19.1% for females and 26.7% and 17.6% for males respectively in 2050 (Figure 3.34, left panel). The share of older people will be particularly large in Hong Kong, China; Japan; the Republic of Korea and Singapore where more than one third of the population will be aged 65 and over in 2050. Ageing wears a largely woman's face as women tend to outlive men.

Globally, the speed of ageing in the region will be unprecedented. It is particularly fast in Brunei Darussalam and Mongolia, where the share of the population over 65 is expected to increase by five- and four-fold respectively between 2015 and 2050. Many low and middle income countries are faced with much shorter timeframes to prepare for the challenges posed by the ageing of their populations.

The growth in the share of the population aged 80 years and over will be even more dramatic (Figure 3.34, right panel). On average across lower-middle and low income Asia-Pacific countries, the share of the population aged 80 years and over is expected to increase three and half times between 2015 and 2050, to reach 3.5% for females and 2.2% for males. The proportion is expected to triple for females and to quadruple for males in high-income and upper-middle income countries during the same period. The proportion is expected to grow by over eight times in Brunei Darussalam and more than five times in Macau, China for both females and males, and by over six times for males in the Republic of Korea, Korea DPR and Hong Kong, China over the next decades.

The pressure of population ageing will depend on the health status of people as they become older, highlighting that the health and well-being of older people are strongly related to circumstances across their life course. Given overall numbers of older people in the population, there is likely to be a greater demand for health care that meets the need of older people in the Asia-Pacific region in coming decades. All countries in the region will urgently need to address drastic changes in demographic structures and subsequent changes in health care needs. Health promotion and disease prevention activities will increasingly need to address cognitive and functional decline, including frailty and falls. Health systems will need to be reoriented to become more responsive to older people's 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. 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.

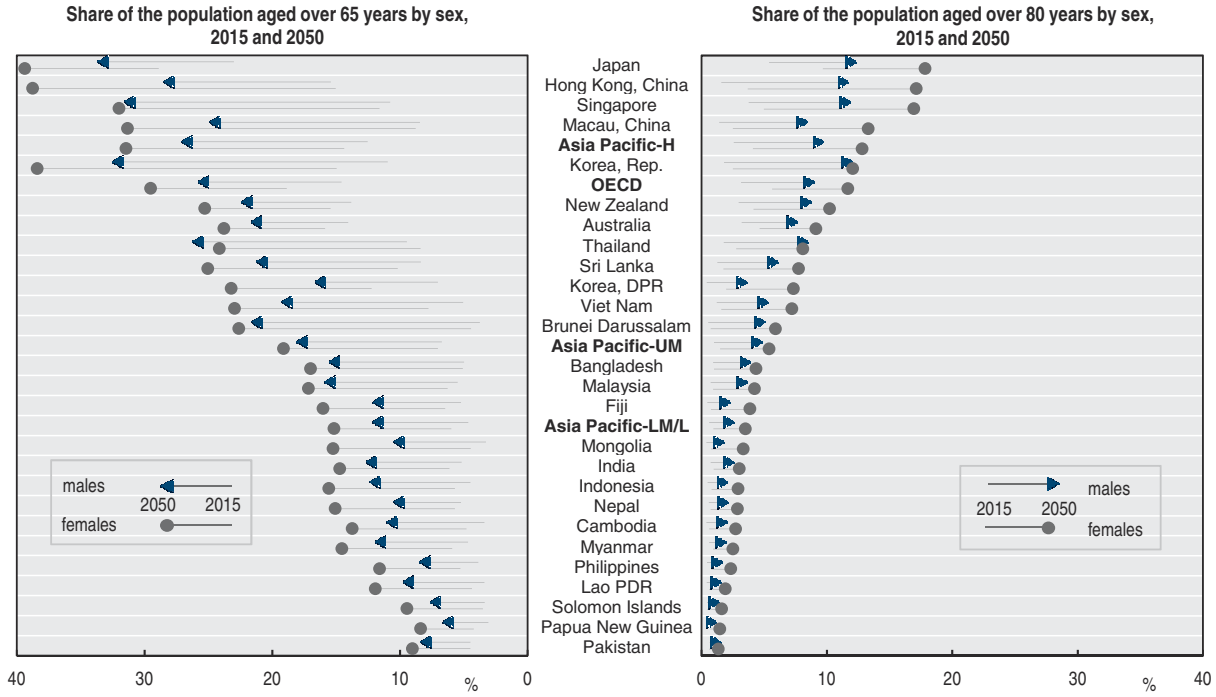
Over the next few decades, the share of the economically active population aged 15-64 is expected to decline across countries in Asia-Pacific (Figure 3.35). In 2050, the ratio of people aged 15-64 to people aged over 65 years will be around one third of the 2015 value in high- and upper-middle income Asia-Pacific countries, whereas it will be less than half the 2015 value in lower-middle and low income Asia-Pacific countries. In Singapore; the Republic of Korea; Hong Kong, China; and Japan there will be less than two persons aged 15-64 for each person aged over 65 years.

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

Definition and comparability

Population projections are based on the most recent "medium-variant" projections from the United Nations, World Population Prospects – 2017 Revision.

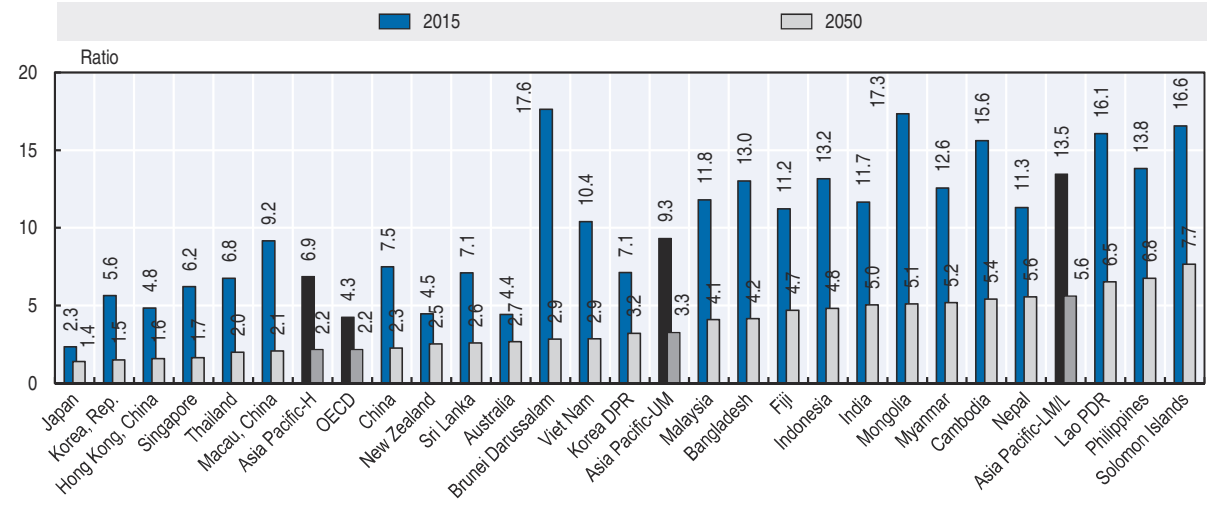
3.34. Share of the population aged over 65 and 80 years by sex, 2015 and 2050



Source: UN World Population Prospects, 2017.

StatLink http://dx.doi.org/10.1787/888933867588

3.35. Ratio of people aged 15-64 to people aged over 65 years, 2015 and 2050



Source: UN World Population Prospects, 2017.

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Chapter 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 (UNFPA, 2018).

Reproductive health involves having a responsible, satisfying and safe sexual life, along with the freedom to make decisions about reproduction. This includes accessing methods of fertility regulation and appropriate health care through pregnancy and childbirth, so as to 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.

The prevalence of contraceptive use varies across countries in Asia-Pacific. In China; the Republic of Korea; Thailand; Korea DPR; Macau, China and Viet Nam, more than three-quarters of married or in union women of reproductive age report using contraceptive methods (Figure 4.1). However, in lower-middle and low income Asia-Pacific countries only one in two married or in union women with reproductive age report using contraceptives methods. In Papua New Guinea and the Solomon Islands only one out of three married or in union women report using any method of contraception, and only one in four reports using any modern method.

The provision of medical care and counselling during antenatal care visits with trained health professionals are also key determinants of maternal and child health. WHO recommends a minimum of 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.

In Asia-Pacific, demand for family planning satisfied is generally higher among women of higher income and education levels (Figure 4.2). In Pakistan, demand satisfied in women from households in the richer income quintile is 60% higher than that among women in the poorest quintile. Differences in unmet need by income status are also large in Myanmar and India. In the Philippines, demand satisfied in women with highest education is 40% higher than that among women with the lowest education. Differences in unmet need by education level are also large in Myanmar and Pakistan. Unsatisfied demand for family planning is also high among adolescents and youth in Asia-Pacific countries with a young age of marriage and high gender inequality (UNESCAP, 2017).

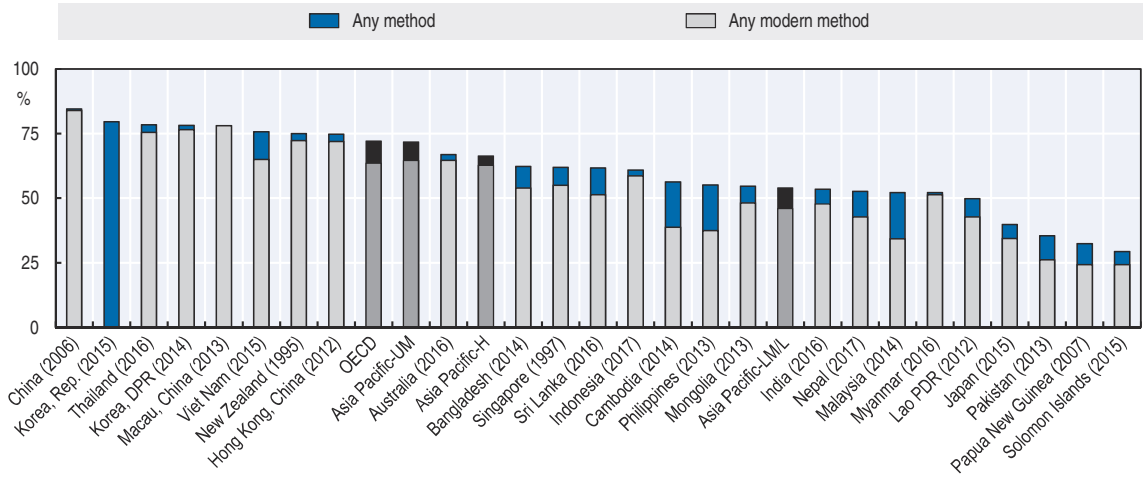
Definition and comparability

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 also reported as a percentage of married or in union women aged 15-49.

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

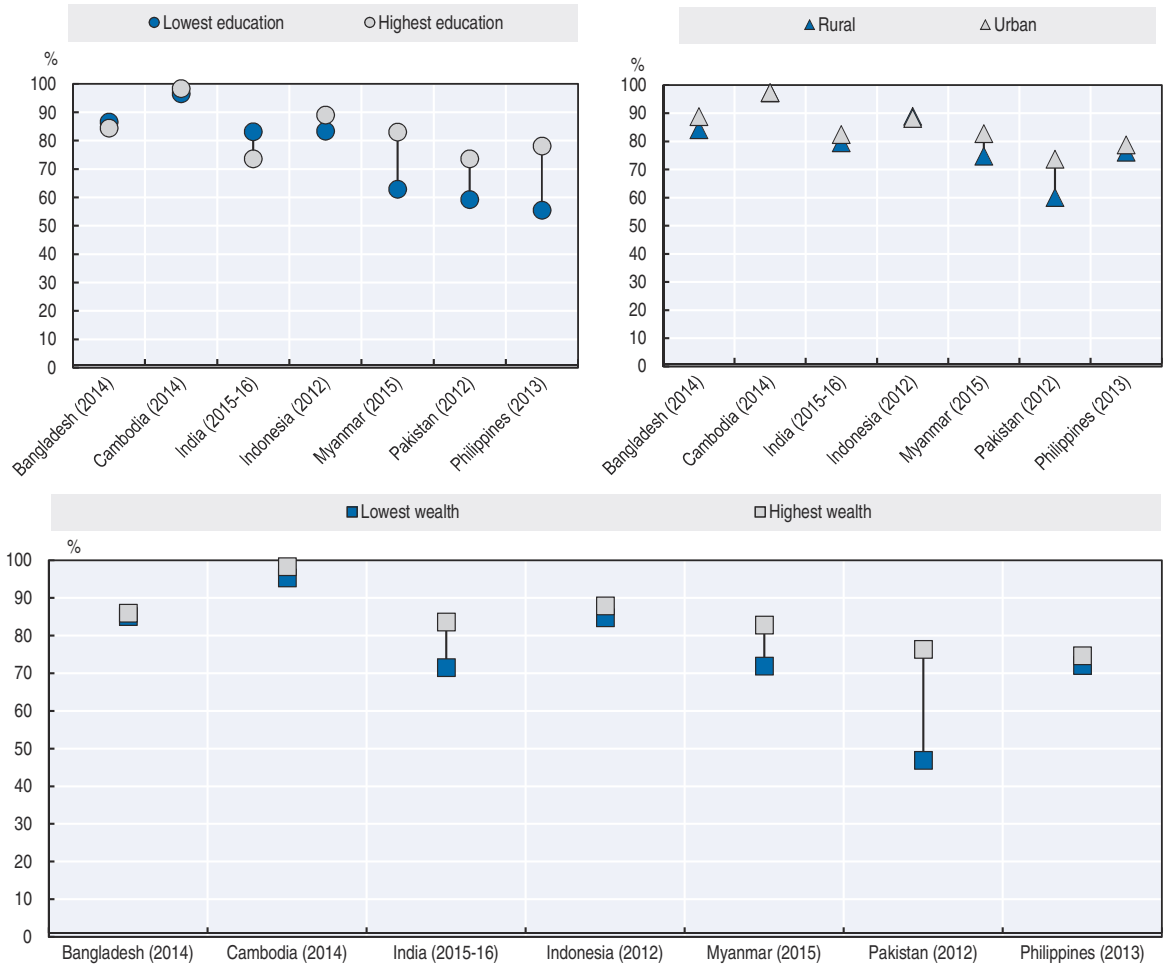
4.1. Contraceptive prevalence, married or in-union women, latest available estimate



Source: World Contraceptive Use 2018, UNDP.

StatLink http://dx.doi.org/10.1787/888933867740

4.2. Demand for family planning satisfied by socio-economic characteristics, selected countries, latest available estimate



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933867949

PRETERM BIRTH AND LOW BIRTH WEIGHT

Preterm birth (i.e. birth before 37 completed weeks of gestation) is the leading cause of neonatal death during the first four weeks of life (days 0-28), and the second leading cause of death in children under 5 (see indicator "Under age 5 mortality" in Chapter 3). Many survivors of preterm births also face a lifetime of disability, including learning disabilities and visual and hearing problems as well as long-term development. But preterm birth can be largely prevented. Three-quarters of deaths associated with preterm birth can be saved even without intensive care facilities. Current cost-effective interventions include kangaroo mother care (continuous skin to skin contact initiated within the first minute of birth), early initiation and exclusive breastfeeding (initiated within the first hour of birth) and basic care for infections and breathing difficulties (WHO, 2013; see indicator "Infant mortality" in Chapter 3). Preterm birth rates can be also reduced if women, particularly adolescents, have better access to family planning and increased empowerment, as well as improved care and nutrition during pregnancies (see indicator "Family planning" in Chapter 4).

An estimated 15 million babies were born preterm worldwide and over 1 million babies died from preterm birth complications in 2015 (WHO, 2018a). In the Asia-Pacific region, India, China, Pakistan, Indonesia, Bangladesh and the Philippines have a particularly large number of preterm births and they accounted for almost half of the preterm births globally. Across Asia-Pacific countries and territories, 11 babies out of 100 were born preterm on average in 2014 but the rate varies across countries, ranging from 6 in Japan to 16 in Pakistan and Indonesia (Figure 4.3, right panel). Sri Lanka and China have halved the rate in a recent decade through a national focus on improved obstetric and neonatal care, and the systematic establishment of referral systems with higher capacity of neonatal care units and staff and equipment (March of Dimes, Save the children, WHO, 2012).

Overall, it is estimated that 15% to 20% of all births worldwide are low birth weight, representing around 20 million births a year. In 2012, the World Health Assembly endorsed the Comprehensive implementation plan on maternal, infant and young child nutrition, which specified a set of six global nutrition targets. One of those targets aims to a 30% reduction in low birth weight by 2025.

Low birth weight occurring from restricted foetal growth or preterm birth is also an important determinant of child health as it is associated with greater risk of poor health, death or disabilities (UNICEF and WHO, 2004). Low birthweight is the result of many factors but largely preventable. Mothers' risk factors include poor nutritional status or a low body-mass index (BMI), low socioeconomic status or minority race, being a young mother, smoking or exposure to second hand smoke, excessive alcohol consumption, and history of in-vitro fertilisation treatment and low weight births.

On average, 11 newborns out of 100 had low weight at birth across Asia-Pacific countries and territories (Figure 4.3, left panel). There is a significant regional divide between countries in eastern Asia (such as China, the Republic of Korea and Mongolia) and southern Asia (Bangladesh, India, Nepal, Pakistan and Sri Lanka). China has the lowest low birth weight rate at 2.3% while Pakistan reported a rate of 31.6%. China achieved reductions in low birthweight through rapid and sustained economic growth over recent decades and also through improved access to food in many provinces.

Two infants less are low weight at birth in 100 live births in lower-middle and low income Asia-Pacific countries in 2014 as compared to 2000, while two infants more are low weight at birth in 100 live birth in the Republic of Korea, Thailand and six infants more in Pakistan in 2014 compared to 2000 (Figure 4.4). A substantial decline in the rate of low birth infants was observed in Bangladesh, Myanmar and Sri Lanka.

Antenatal care can help women prepare for delivery and understand warning signs during pregnancy and childbirth. Higher coverage of antenatal care is associated with higher birth weight, suggesting the significance of antenatal care over infant health status across countries (Figure 4.5).

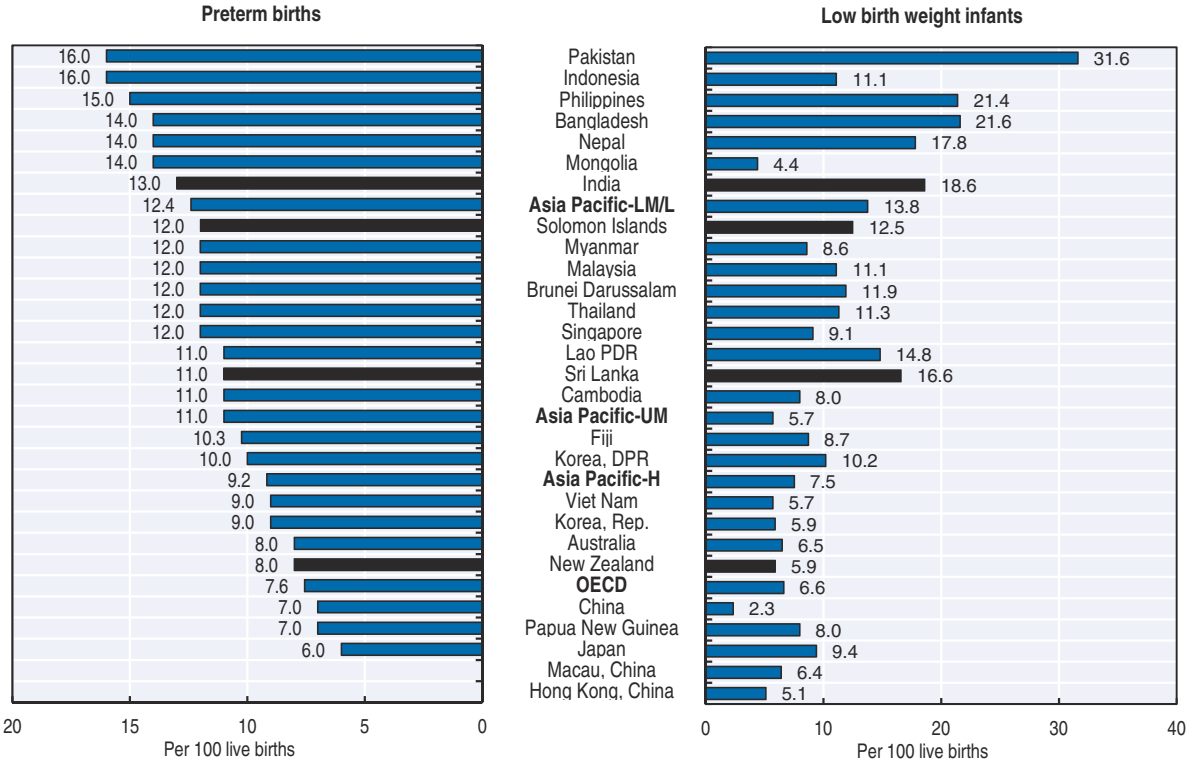
Definition and comparability

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

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

In developed countries, the main information sources are national birth registers. For developing countries, low birthweight estimates are primarily derived from mothers participating in national household surveys, as well as routine reporting systems (UNICEF and WHO, 2004).

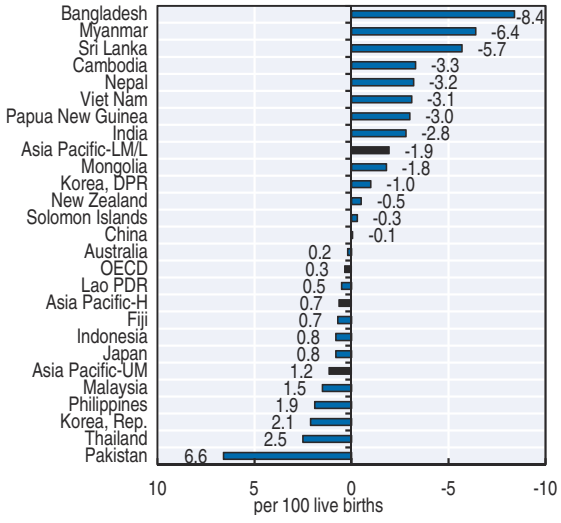
4.3. Preterm birth and low birth weight infants rates, 2014 (or latest year available)



Source: UNICEF Childinfo; Department of Health, Hong Kong, China, 2014; Statistics and Census Service, Macau, China, 2014.

StatLink http://dx.doi.org/10.1787/888933868120

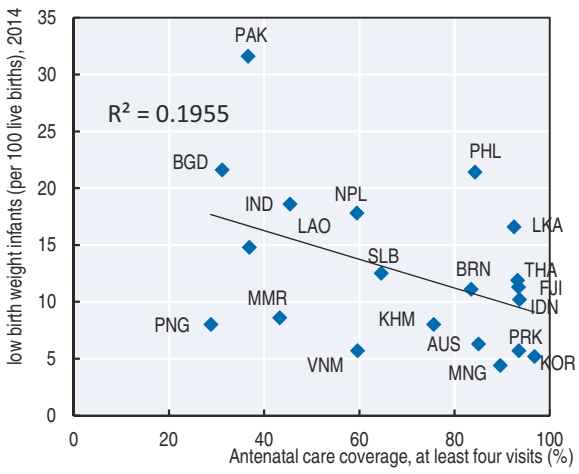
4.4. Low birthweight, increase or decrease, 2000-14 (or nearest year available)



Source: March of Dimes Foundation 2014.

StatLink http://dx.doi.org/10.1787/888933868139

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



Source: WHO GHO 2018; National survey on children for India for 2013-14.

StatLink http://dx.doi.org/10.1787/888933868158

INFANT AND YOUNG CHILD FEEDING

Optimal feeding practices of infants and young children 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 (Victora et al., 2016).

The first 1 000 days from the start of a woman's pregnancy until her child's second birthday offers a critical window of opportunity to ensure a healthy start of life and a foundation of a person lifelong health. Breastfeeding is an unequalled way of providing nutrition for infants. Breast milk gives infants the nutrients they need for healthy development, including the antibodies that help protect them from common childhood illnesses such as diarrhoea and pneumonia, the two primary causes of child mortality worldwide. Breastfeeding is also linked with better health outcomes later in life. Adults who were breastfed as babies often have lower blood pressure and lower cholesterol, as well as lower rates of overweight, obesity and type 2 diabetes. Breastfeeding also improves IQ, school attendance and is associated with higher income in adult life (Rollins et al., 2016). More than 800 000 deaths among children under five could be saved every year globally, if all children 0-23 months were optimally breastfed (Victora et al., 2016). 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.

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

In 2012, the World Health Assembly endorsed a Comprehensive implementation plan on maternal, infant and young child nutrition, which specified a set of six global nutrition targets. One of those targets aims to increase the rate of exclusive breastfeeding in the first six months up to at least 50% by 2025.

Globally, only 42% of newborns are put to the breast within one hour from birth (UNICEF and WHO, 2018), lower than the World Health Assembly target of increasing the percentage of children under six months of age who are exclusively breastfed to at least 50% by 2025. The evidence shows that the longer the delay of this first critical contact, the greater the risk of death (Victora et al., 2016). In Asia-Pacific, most of the countries that report data have exclusive breastfeeding rates greater than the global average, but there are variations across countries (Figure 4.6). Around three-quarters of infants are exclusively breastfed in Sri Lanka and the Solomon Islands, whereas only one in four infants is exclusively breastfed in Viet Nam, Thailand, China and Macau, China. 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 and WHO, 2017a; WHO, 2017b).

Cambodia has made notable efforts to improve rates of exclusive breastfeeding. In June 2004, the government declared that early initiation of and exclusive breastfeeding would be the top priority intervention to assist in reducing child mortality. Over the following 18 months, a number of diverse activities were implemented as part of a national breastfeeding movement. Breastfeeding practices were established in hospitals, and community-based volunteers advocated the benefit of breastfeeding to expecting and new mothers. Consequently, exclusive breastfeeding rates for babies under six months rose from 7% in 2000 to 60% in 2005 (UNICEF, 2008).

Exclusive breastfeeding is more common in lower-middle and low income Asia-Pacific countries rather than upper-middle and high income Asia-Pacific countries as well as among poorer women with lower education living in rural areas than richer women with higher education living in urban areas (Figure 4.7). As an example, in Viet Nam the rate of exclusive breastfeeding is much higher (2.5 times) among women with the poorest quintile than those with the richest quintile. Thailand and Myanmar represent an exception as women with the highest education level are much more likely to follow exclusive breastfeeding recommendations than those with the lowest education.

After the six months of life, an infant needs additional nutritionally adequate and safe complementary foods, while continuing breastfeeding. Appropriate complementary foods are introduced to only half of the children in India and Lao PDR between 6-8 months, and one out of five or less young children are continuously breastfed through the first year of life in Viet Nam, Korea DPR, Thailand and China (Figure 4.8).

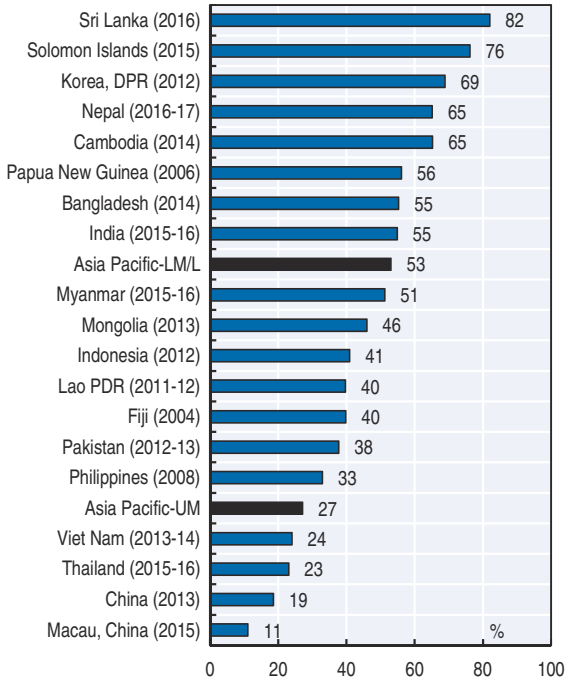
Considering persisting high levels of childhood malnutrition (see indicator in Chapter 4), infant and young child feeding practices must be further improved (Rollins et al., 2016).

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, 2011). Thereafter, to meet their evolving nutritional requirements, infants should receive adequate and safe complementary foods while continued breastfeeding up to two years of age or beyond.

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

4.6. Infants exclusively breastfed – first 6 months of life



Source: UNICEF World Children Report 2017, Survey on Diet and Nutrient intake, Hong Kong, China, 2012; SSM statistics 2015, Macau.

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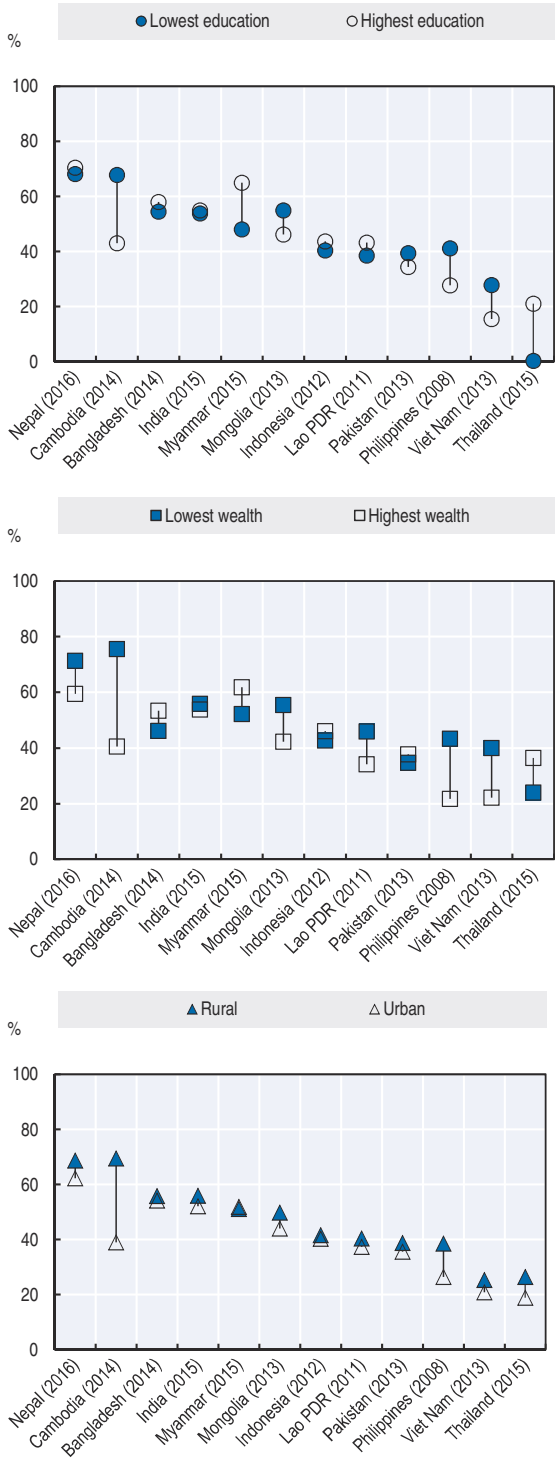
4.7. Infants exclusively breastfed in the first six months of life, by select socioeconomic and geographic factors



Source: DHS and MICS surveys, various years.

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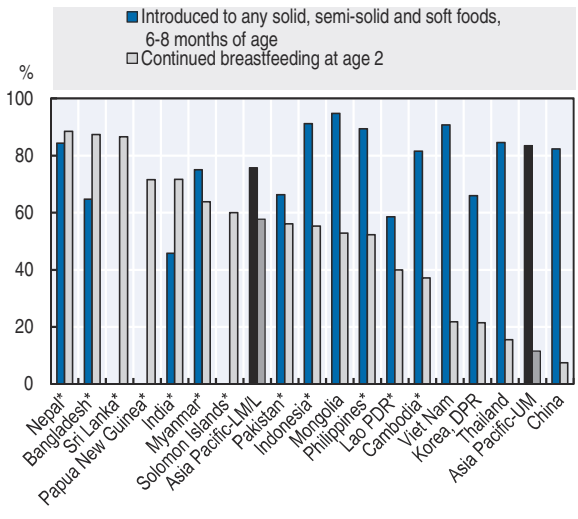
4.8. Feeding practices after 6 months of age, selected countries



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

Source: DHS and MICS surveys, various years; UNICEF Infant and young child feeding.

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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 able at all times to access sufficient, safe, nutritious food and a balanced diet that meets their needs for optimal growth and development, an active and healthy life (UNICEF, 2013). Maternal and child malnutrition in low and middle income countries encompasses both under nutrition and a growing problem with overweight and obesity. Many countries are facing a double burden of malnutrition – characterized by the coexistence of undernutrition along with overweight, obesity or diet-related NDC – which poses a real and growing health challenge. The identification, promotion and implementation of actions that simultaneously and synergistically address undernutrition as well as overweight, obesity and diet-related NCDs are important opportunities and immediate priorities to foster the United Nations Decade of Action on Nutrition: food systems for healthy, sustainable diets; aligned health systems providing universal coverage of essential nutrition actions; safe and supportive environments for nutrition at all ages; social protection and nutrition-related education; trade and investment for improved nutrition; and strengthen and promote nutrition governance and accountability (WHO, 2017c).

Undernutrition is an important determinant of poor child health and is estimated to contribute to 45% of all child deaths worldwide (Black et al., 2013), although it is rarely listed as a direct cause. In order to reduce under age 5 mortality, countries 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 and young child feeding" in Chapter 4).

Child malnutrition also predicts poorer cognitive and educational outcomes in later childhood and adolescence and has important education and economic consequences at the individual, household and community levels. Obesity in adulthood is a major risk factor for the world's leading causes of poor health and early death including cardiovascular disease, several common cancers, diabetes and osteoarthritis. Preventing obesity has direct benefits for children's health and wellbeing, in childhood and continuing into adulthood (WHO, 2018b).

The UN SDG target 2.2 sets that "by 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under five years of age", and also includes an indicator on childhood overweight. 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 (WHO, 2014c): to achieve a 40% reduction in the number of children under age five who are stunted; to achieve a 50% reduction of anaemia in women of reproductive age; achieve a 30% reduction in low birth weight; ensure that there is no increase in childhood overweight; increase the rate of exclusive breastfeeding in the first six months up to at least 50%; and to reduce and maintain childhood wasting to less than 5%.

The recently released report of the commission on ending childhood obesity (WHO, 2016b) states that "Childhood obesity is reaching alarming proportions in many countries and poses an urgent and serious challenge". And suggests that "obesity prevention and treatment requires a whole-of-government approach in which policies across all sectors systematically take health into account, avoid harmful health impacts, and thus improve population health and health equity".

High levels of stunting in a country are associated with poor socioeconomic conditions and increased risk of frequent and early exposure to adverse conditions such as illness and/or inappropriate feeding practices (WHO, 2014d). 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.

Many countries in Asia-Pacific have a high prevalence of stunting and wasting among children under age 5. Stunting prevalence is high at around 43% or more in Papua New Guinea, Lao PDR and Pakistan, whereas it is below 5% in the Republic of Korea and Australia (Figure 4.9). As for wasting, if there is no severe food shortage, the prevalence is usually below 10% even in poor countries, but it is much higher than this threshold in some countries such as India and Sri Lanka (Figure 4.9). On average, one in three children under age 5 in lower-middle and low income Asia-Pacific countries have stunted growth, whereas one in ten children under age 5 present low weight-for-height. The stunting and wasting prevalence is much lower in upper-middle and high income Asia-Pacific countries at 11.7% and 7.1% for stunting and 6.3% and 2% for wasting respectively.

Countries with higher stunting prevalence have a higher under age 5 mortality rate (Figure 4.10), reflecting also the fact that about 43% of under age 5 deaths are attributable to undernutrition (Black et al., 2013).

Childhood overweight and obesity is one of the most serious challenges of the 21st century. Its prevalence has increased at an alarming rate and the number of overweight or obese children under age 5 is estimated to be over 41 million worldwide in 2016. Almost half of these children live in Asia (WHO, 2018b). The prevalence of childhood overweight varies across Asia-Pacific, with a prevalence of 4.7% and 6.5% across lower-middle and low income and upper-middle income countries respectively (Figure 4.11). More than one child out of ten is overweight in Mongolia, Indonesia and Papua New Guinee, whereas less than 2% of children under age 5 are overweight in Japan, Bangladesh, Myanmar and Nepal.

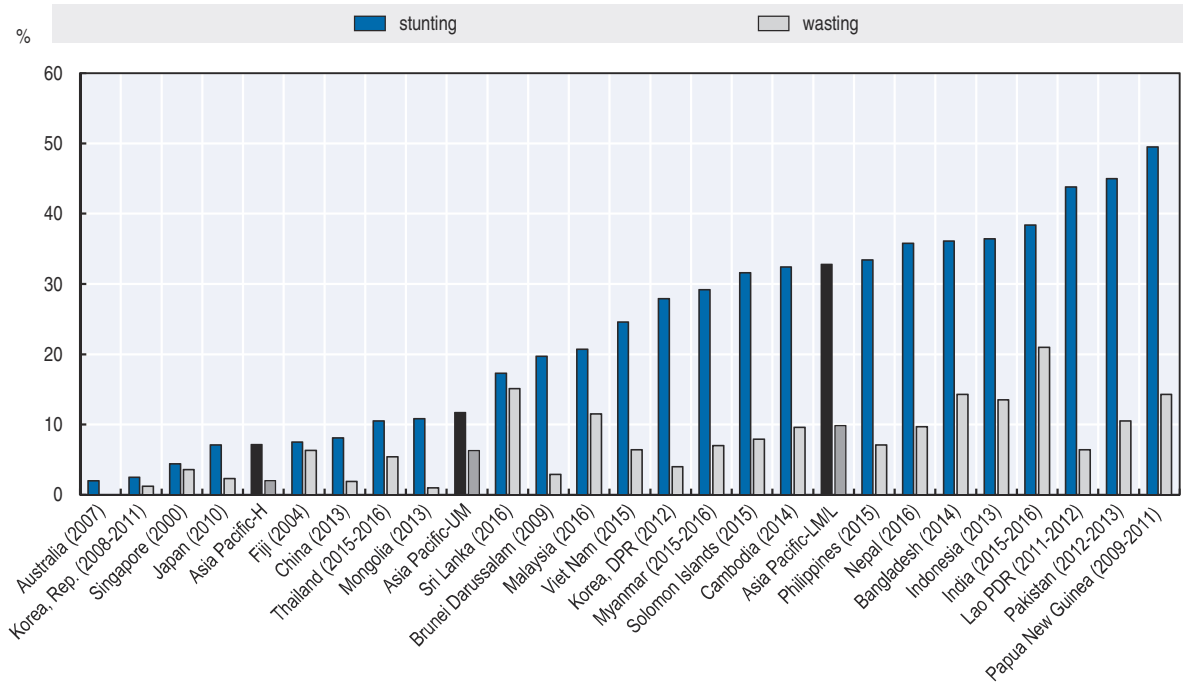
Definition and comparability

The WHO definition of children overweight is weight-for-height greater than 2 standard deviations above WHO Child Growth Standards median. The WHO definition of children obesity is weight-for-height greater than 3 standard deviations above the WHO Child Growth Standards median.

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

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

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



Source: WHO GHO 2018.

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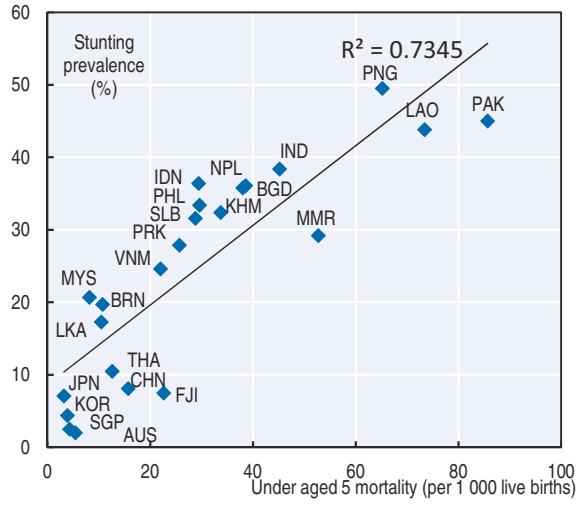
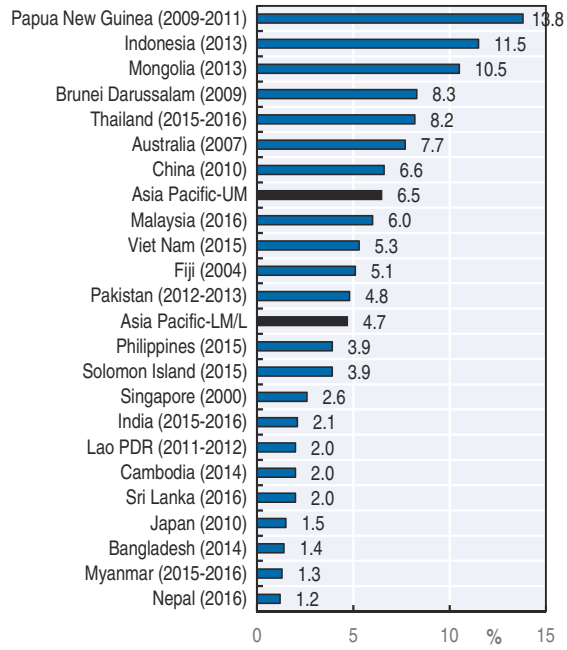
4.10. Under age 5 mortality and stunting prevalence, latest year available



Source: WHO GHO 2018; UN IGME Childinfo. National survey on children for India for 2013-14.

StatLink http://dx.doi.org/10.1787/888933867759

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



Source: WHO GHO 2018.

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ADOLESCENT HEALTH

Adolescence is a vulnerable phase in human development as it represents a transition from childhood to physical, psychological and social maturity. During this period, adolescents learn and develop knowledge and skills to deal with critical aspects of their health and development while their bodies mature. Adolescent girls, especially younger girls, are particularly vulnerable because they face the risks of premature pregnancy and childbirth (UNICEF, *http://data.unicef.org/topic/maternal-health/adolescent-health/*). The *Global Strategy for Women's, Children's and Adolescent's Health 2016-2030* fosters a world in which "every woman, child and adolescent in every setting realises their rights to physical and mental health and well-being, has social and economic opportunities, and is able to participate fully in shaping prosperous and sustainable societies".

The 1.2 billion adolescents (10-19 years) in the world today represent more than 18% of the global population. In 2015, more than 1.2 million adolescents died. Main causes of adolescent deaths include road injury, lower respiratory infections, self-harm, diarrhoeal diseases, drowning, interpersonal violence and maternal conditions (WHO, UNAIDS, UNFPA, UNICEF, UNWomen, The World Bank Group, 2018). In girls aged from 15-19 years, complications during pregnancy and childbirth are the leading cause of death globally.

Risk factors for NCD, the leading cause of premature adult deaths, are often acquired in adolescence. They include alcohol or tobacco use, lack of physical activity, unprotected sex and/or exposure to violence, which lead to an increased risk of overweight and obesity and diabetes and, ultimately, to a higher risk of NCDs across the life course. As the income level of a country increases, the prevalence of overweight and obesity adolescent increases, and men are more likely to be overweight and obese than women (Figure 4.12). On average across high- and upper-middle income Asia-Pacific countries, more than seven adolescent females and 10 adolescent males were obese in 2016, two and half times the prevalence observed across lower-middle and low income Asia-Pacific countries. A very high increase in the prevalence of obesity among adolescent was reported in Asia-Pacific, in particular in upper-middle and lower-middle and low-income countries (Figure 4.13). In China, India and Viet Nam, the prevalence of obesity doubled from 2010-16 for both males and females adolescents.

Adolescent pregnancies are a global problem that occurs in high, middle, and low income countries. Around the world, adolescent pregnancies are more likely to occur in marginalised communities, commonly driven by poverty and lack of education and employment opportunities. For some adolescents, pregnancy and childbirth are planned and wanted. However, for many adolescents, pregnancy and childbirth are neither planned nor wanted. Adolescents face barriers to accessing contraception including restrictive laws and policies regarding provision of contraceptive based on age or marital status, health worker bias and/or lack of willingness to acknowledge adolescents' sexual health needs, and adolescents' own inability to access contraceptives because of knowledge, transportation, and financial constraints. Adolescent pregnancy remains a major contributor to maternal and child morbidity and mortality, increased preterm births and low birthweight and to intergenerational cycles of ill-health and poverty. Adolescent pregnancy can also have negative social and economic effects on girls, their families and communities. Around 3.9 million unsafe abortions among girls aged 15-19 years occur each year, contributing to maternal mortality and lasting health problems (Darroch et al., 2016). Unmarried pregnant adolescents may face stigma or rejection by parents and peers and threats of violence. Similarly, girls who become pregnant before age 18 are more likely to experience violence within marriage or a partnership. With regards to education, school-leaving can be a choice when a girl perceives pregnancy to be a better option in her circumstances than continuing education, or can be a direct cause of pregnancy or early marriage. In lower-middle and low-income Asia-Pacific countries, one out of twenty women aged 15-19 give birth (Figure 4.14), twice the rate observed in upper-middle Asia-Pacific countries. In Lao PDR and Bangladesh, this proportion doubles to one out of ten adolescent giving birth.

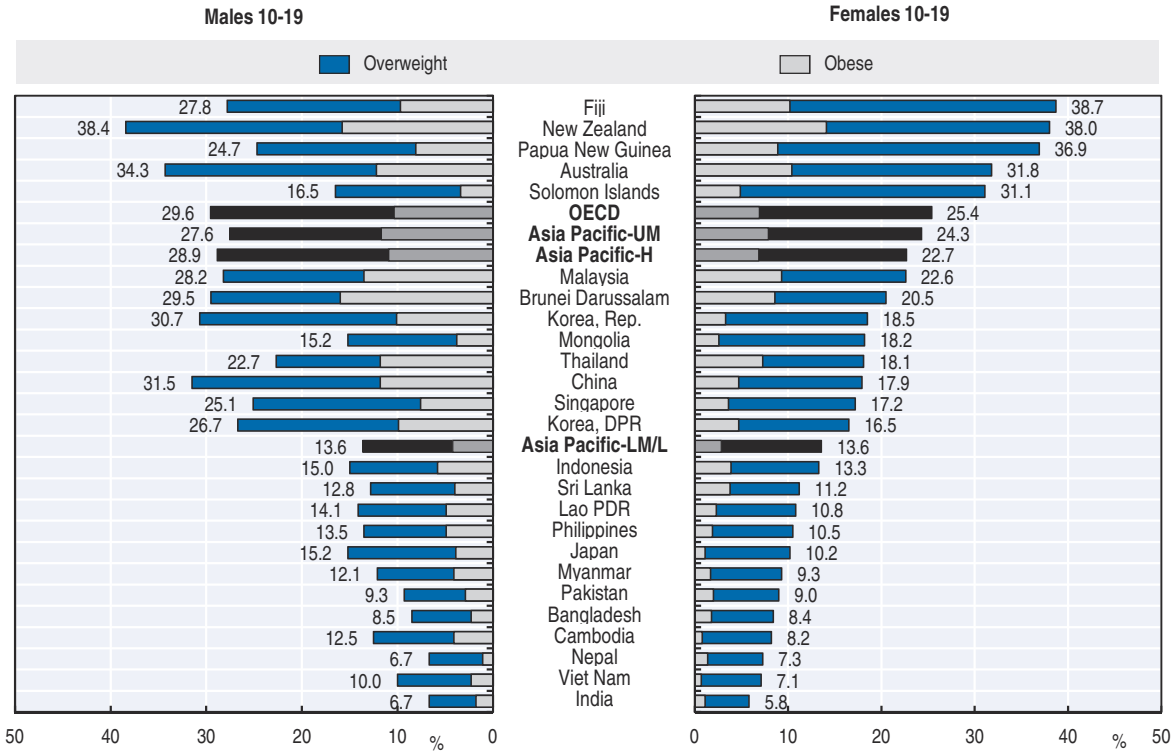
Definition and comparability

The WHO definition of adolescent overweight is a body mass index (BMI) greater than 1 standard deviation above the median, according to the WHO child growth standards.

THE WHO definition of adolescent obesity is a body mass index (BMI) greater than 2 standard deviation above the median, according to the WHO child growth standards.

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

4.12. Adolescents who are overweight or obese, 2016



Source: OECD Health Statistics 2018; WHO GHO, 2018.

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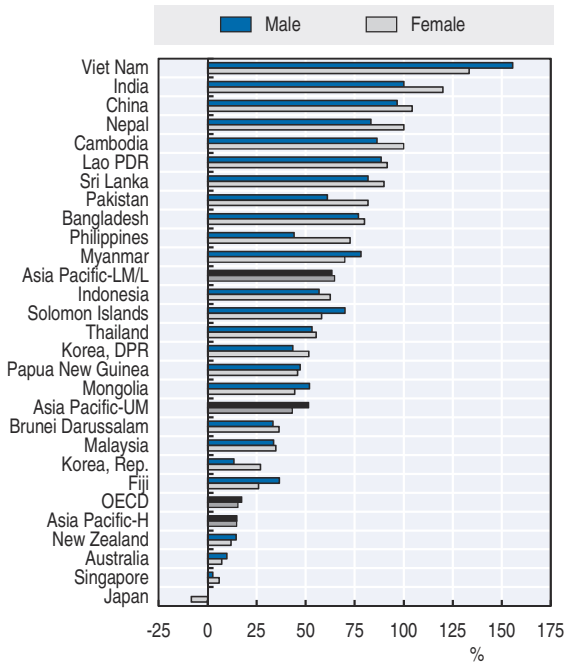
4.13. Change in obesity prevalence, 2010-16



Source: WHO GHO, 2018.

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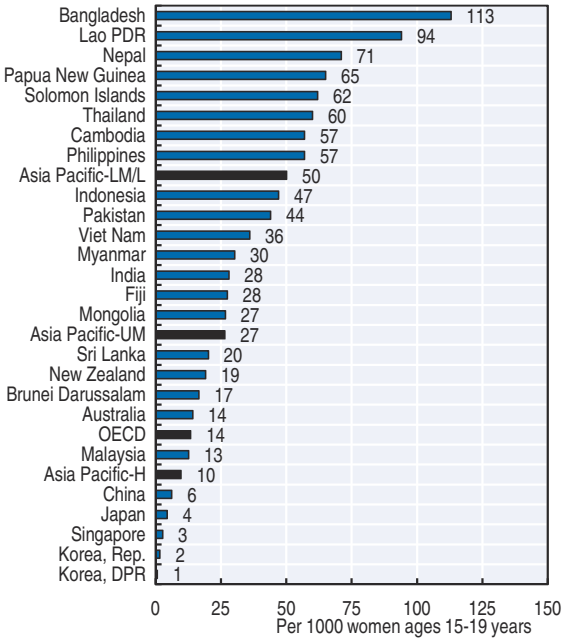
4.14. Adolescent birth rate, latest year available



Source: WHO GHO, 2018.

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OVERWEIGHT AND OBESE ADULTS

Globally, overweight and obesity is a major public health concern, and there are more overweight or obese than underweight adults. In 2016, 39% men and 39% of women aged 18+ were overweight and 11% of men and 15% of women were obese. Thus, nearly 2 billion adults worldwide were overweight and, of these, more than half a billion were obese. Both overweight and obesity have shown a marked increase over the past four decades (WHO, 2018a). Obesity is a known risk factor for numerous health problems, including hypertension, high cholesterol, diabetes, cardiovascular diseases, respiratory problems (asthma), musculoskeletal diseases (arthritis) and some forms of cancer, and mortality also increases progressively once the overweight threshold is crossed (Sassi, 2010). Social determinants of health such as poverty, inadequate water and sanitation, and inequitable access to education and health services underlie malnutrition. A key driver of the increasing obesity epidemic is a changing food environment, in which nutrient poor and energy dense processed foods are aggressively marketed, readily available and often cheaper than healthier alternatives. The economic priorities and policies that promote consumption-based growth, and the regulatory policies that promote market and trade liberalisation are increasingly regarded as contributing to the global rise of obesity too (Swinburn et al., 2011).

In Pacific countries, at least one adult female in four was obese in 2016, five times the rate observed in Japan and Viet Nam (Figure 4.15, left panel). In high and upper-middle income countries, two adult females in five were overweight in 2016, whereas the average prevalence for lower-middle and low income countries was lower at 32.7% (Figure 4.15, left panel). More than one adult male in four was obese in Fiji, New Zealand and Australia, and more than half of the adult males are overweight in Mongolia, Australia, New Zealand and Fiji (Figure 4.15, right panel). In high income and upper-middle income countries, at least two adult males in five were overweight in 2016, while the average prevalence reported for lower-middle and low income countries was lower at 27.7% (Figure 4.15, right panel).

Since 2010, the share of overweight people has increased in all Asia-Pacific countries and territories in study, in particular among males in Viet Nam, Lao PDR, Thailand and Indonesia (Figure 4.16). The prevalence of obesity is growing even more rapidly, in particular in Viet Nam and Lao PDR among both females and males (Figure 4.17). In developing countries obesity is more common among people with a higher socioeconomic status, those living in urban regions and middle-aged women. In developed countries, obesity is increasing among all age groups, and is associated with lower socioeconomic status, especially among women (Sassi, 2010).

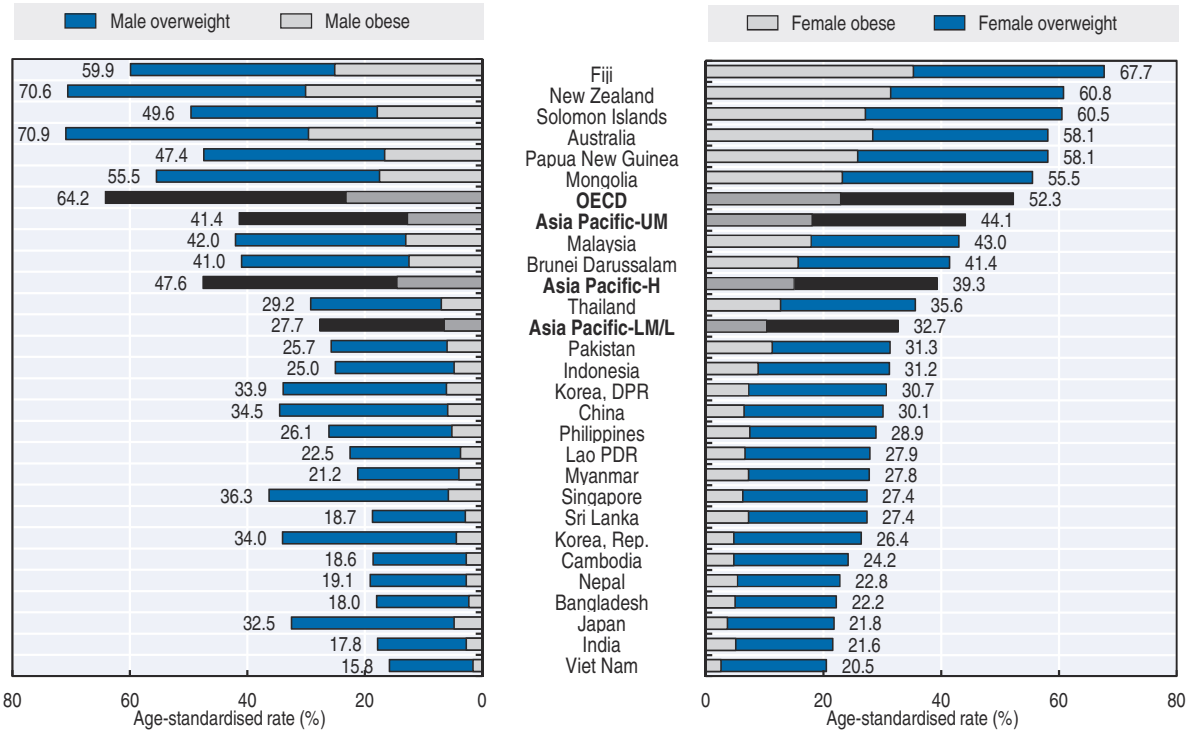
Definition and comparability

The most frequently used measure of underweight, overweight and obesity for adults is the Body Mass Index (BMI). This is a single number that evaluates an individual's weight in relation to height, and is defined as weight in kilograms divided by the square of height in metres (kg/m^2).

Based on the WHO classification, adults with a BMI below 18.5 are considered to be underweight/thinness and 25 or over are overweight. Adults who have a BMI of 30 or over are defined as obese.

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

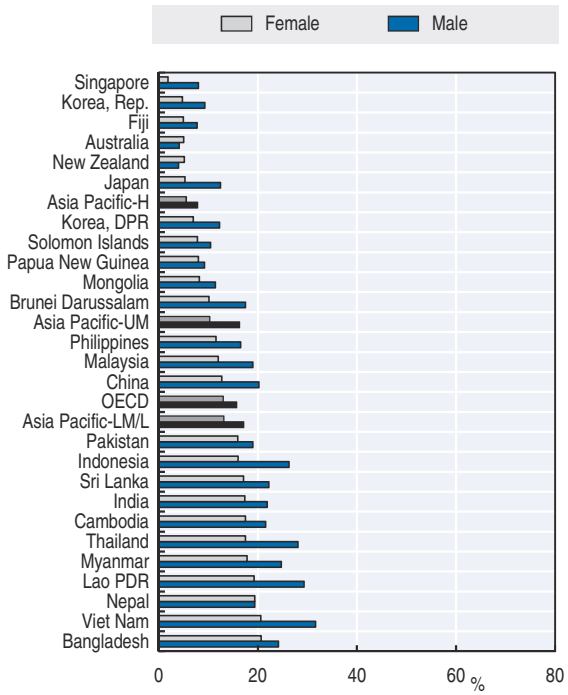
4.15. Adults who are overweight or obese, 2016



Source: WHO GHO, 2018.

StatLink http://dx.doi.org/10.1787/888933867854

4.16. Change in overweight prevalence, 2010-16



Source: WHO GHO, 2018.

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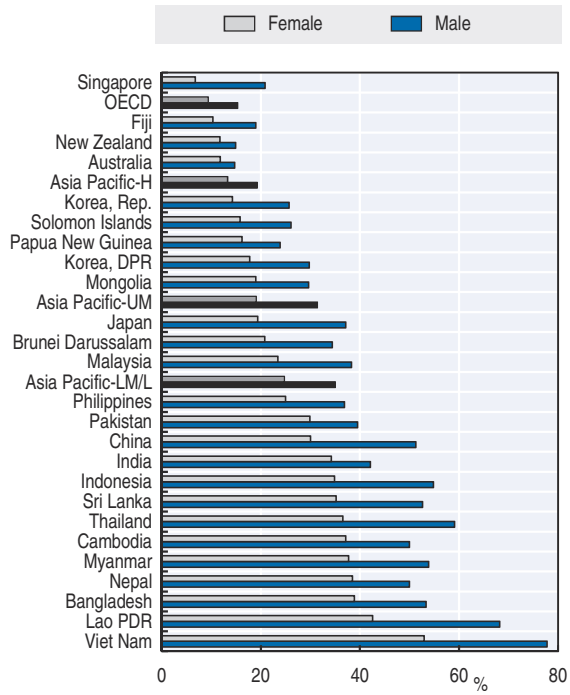
4.17. Change in obesity prevalence, 2010-16



Source: WHO GHO, 2018.

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WATER AND SANITATION

Safe water and adequate sanitation are vital to individual health, livelihood and well-being. Exposure to diarrhoea-causing agents is frequently related to the use of contaminated water and to unhygienic practices in food preparation and disposal of excreta. Globally, diarrhoeal diseases are responsible for the deaths of 525 000 children under age 5 every year (WHO, *www.who.int/en/news-room/fact-sheets/detail/diarrhoeal-disease*). It was estimated that 88% of that burden is attributable to unsafe water supply, sanitation and hygiene and is mostly concentrated on children in developing countries (UNICEF and WHO, 2017b). Better access to water and sanitation contributes 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. The United Nations 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 WASH (UNICEF, 2017) 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.

The proportion of the population using basic sanitary facilities has grown in Asia-Pacific over recent years (Figure 4.18, left panel). In 2015, almost three in five persons living in rural areas and four out of five persons living in urban areas in Asia-Pacific countries have access to basic sanitation. However, in Papua New Guinea and the Solomon Islands, less than one in five persons living in rural areas have access to basic sanitation for adequate excreta disposal and open defecation are still common. The progress was rapid in Cambodia, Lao PDR and Pakistan, with an increase of more than 40 percentage points in the proportion of the population living in rural areas with access to basic sanitation (Figure 4.18, right panel) between 2010-15. Cambodia also reported an increase of 13% in the population living in urban areas with access to basic sanitation during the same period. Myanmar was the only country in Asia-Pacific reporting a decrease in the percentage of the population having access to basic sanitation both in rural and urban areas from 2010-15.

Between 2010-15, all countries in Asia-Pacific – except Korea DPR – improved access to basic drinking water (Figure 4.19, right panel). On average, eight in ten persons in rural areas and nine in ten persons in urban areas have access to improved water sources in Asia-Pacific. Only Cambodia, Mongolia, Papua New Guinea, Myanmar, Solomon Islands and Lao PDR lagged behind with three-quarters or less of the population living in rural areas having access to basic water sources. Papua New Guinea is the only country in the region where less than half of the rural dwellers had access to basic water sources in 2015. China and Lao PDR reported an increase in the population living in rural areas having access to basic drinking water of more than 10% from 2010-15, whereas Solomon Islands reported a decrease of 10% during the same period (Figure 4.19, left panel). Since 2007, the establishment of water safety plans in many countries in the region, including Bangladesh, the Philippines, Mongolia and Viet Nam, has allowed 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, 2012b).

Definition and comparability

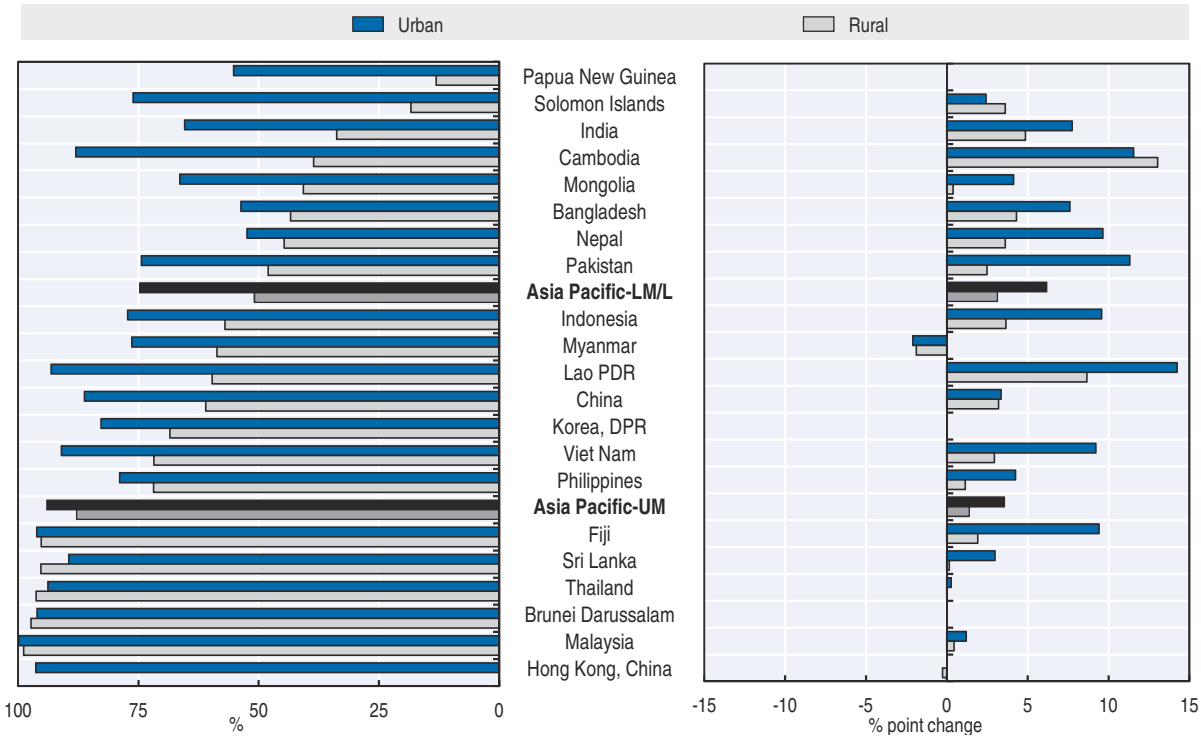
People that use improved sources of drinking water that required no more than 30 minutes per trip to collect water are classified as having at least basic drinking water services. An improved drinking-water source is constructed so that it is protected from outside contact, especially from faecal matter. Improved sources include piped water, public taps, boreholes, and protected dug wells or springs (UNICEF and WHO, 2017b).

People that use an improved sanitation facility that was not shared with other households are classified as having at least basic sanitation services. Improved sanitation facilities hygienically separate excreta from human contact, through the use of flushing to piped sewer systems, septic tanks or pit latrines, along with improved pit latrines or composting toilets (UNICEF and WHO, 2017b).

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, New Zealand, Japan, the Republic of Korea, Singapore and Hong Kong, China, 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.

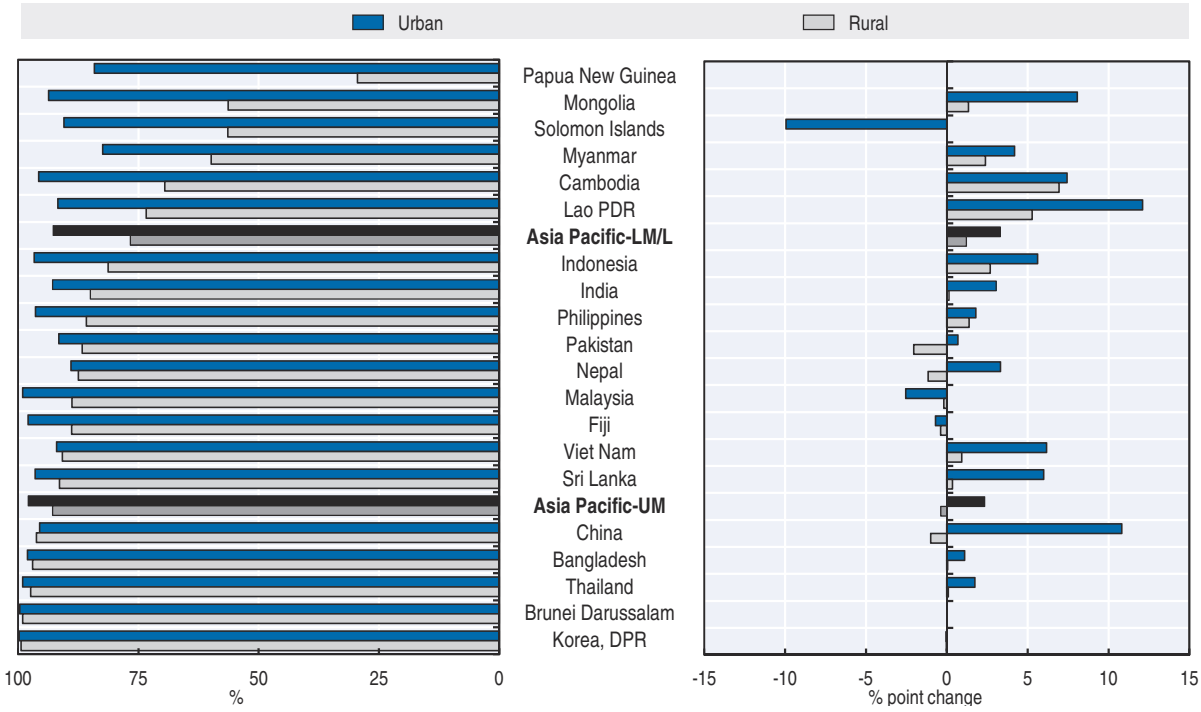
4.18. Access to basic sanitation, 2015 and change between 2010-15



Source: UNICEF and WHO 2017b.

StatLink http://dx.doi.org/10.1787/888933867911

4.19. Access to basic drinking water, 2015 and change between 2010-15



Source: UNICEF and WHO 2017b.

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TOBACCO

Tobacco use is the leading global cause of preventable deaths and kills more than 7 million people each year, of whom more than 6 million are from direct tobacco use and around 900 000 are non-smokers exposed to second-hand smoke (WHO, 2018a). It is estimated that there were 1 1 million current smokers in 2015, 84% of which were males (WHO, 2018c). The UN SDGs call for strengthening the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate.

Tobacco smoking is a major risk factor for six of the eight leading causes of premature mortality – ischemic heart disease, cerebrovascular disease, lower respiratory infections, chronic obstructive pulmonary disease, tuberculosis and cancer of the trachea, bronchus and lung. Moreover, smoking in pregnancy can lead to low birthweight and illness among infants. Children who establish smoking habits in early adolescence also increase their risk of cardiovascular diseases, respiratory illnesses and cancer, and they are more likely to experiment with alcohol and other drugs. Smoking is also a risk factor for dementia. New studies have shown that 14% of Alzheimer's cases worldwide may be attributed to smoking. Smoking is harmful not only for smokers but also surrounding such as families and colleagues. Exposure to second-hand tobacco smoke causes premature death; children accounted for 28% of the death attributable to second hand smoke in 2004 (WHO, 2018a). Comprehensive smoke-free legislation is currently in place for almost 1.5 million people in 55 countries in 2016 (WHO, 2017d). A study shows that in several countries with smoke-free policies including Thailand and Pakistan, there were a huge number of people who quit smoking and smoking-attributed death (Levy et al., 2013).

The economic and social costs are also high, with families deprived of breadwinners, large public health costs for treatment of tobacco related diseases, and lower workforce productivity (WHO, 2017d). Tobacco use is greatest among those who can least afford it (Hosseinpoor et al., 2012).

The proportion of daily tobacco smokers varies greatly across countries but one in three men aged 15 and above in middle and low income Asia-Pacific countries was reported to smoke tobacco daily in 2015 (Figure 4.20, left panel). In 2015, the smoking rate among men was highest in Indonesia at 65.4% and several other countries had over two in five adult males smoking daily such as Mongolia, China, Lao PDR and Papua New Guinea. In India, New Zealand and Australia, however, less than 20% of adult males smoked tobacco daily in 2015.

There are large male-female disparities and 7.6%, 2.4% and 4.6% of women aged 15 and above report smoking daily in high, upper-middle, and lower-middle low income Asia-Pacific countries respectively (Figure 4.20, right panel). The rates were highest in Australia, New Zealand and Papua New Guinea at 12%, 13.6% and 19.8% respectively in 2015.

Although regular smoking in adolescence has both immediate and long-term health consequences, among youth aged 13-15 years, more than one in three males aged 13-15 use tobacco in Malaysia, whereas almost one in five females aged 13-15 use tobacco in Nepal (Figure 4.21). In all reporting countries except Lao PDR and the Republic of Korea, the prevalence of regular smoking among females is higher for adolescent than adults.

Increasing tobacco prices through higher taxes is an effective intervention to reduce tobacco use, by discouraging youth from beginning cigarette smoking and encouraging smokers to quit (Kotz et al., 2014). Higher taxes also assist in generating additional government revenue. However, only Bangladesh, New Zealand, the Philippines and Thailand have total taxes that account for over 70% of the tobacco retail price (Figure 4.22).

In many countries in Asia-Pacific, there is a lack of public awareness about risks and tobacco control measures are lax. For instance, without habits changing, smoking is estimated to kill 2 million people annually in China over the next 15 years, there is low public awareness especially among the rural population and control policies face formidable opposition from large tobacco companies (Cui, 2010; Herd et al., 2010). In Indonesia, tobacco advertising and promotion is allowed with certain restrictions (The Jakarta Post, 25 July 2017, *www.thejackartapost.com*).

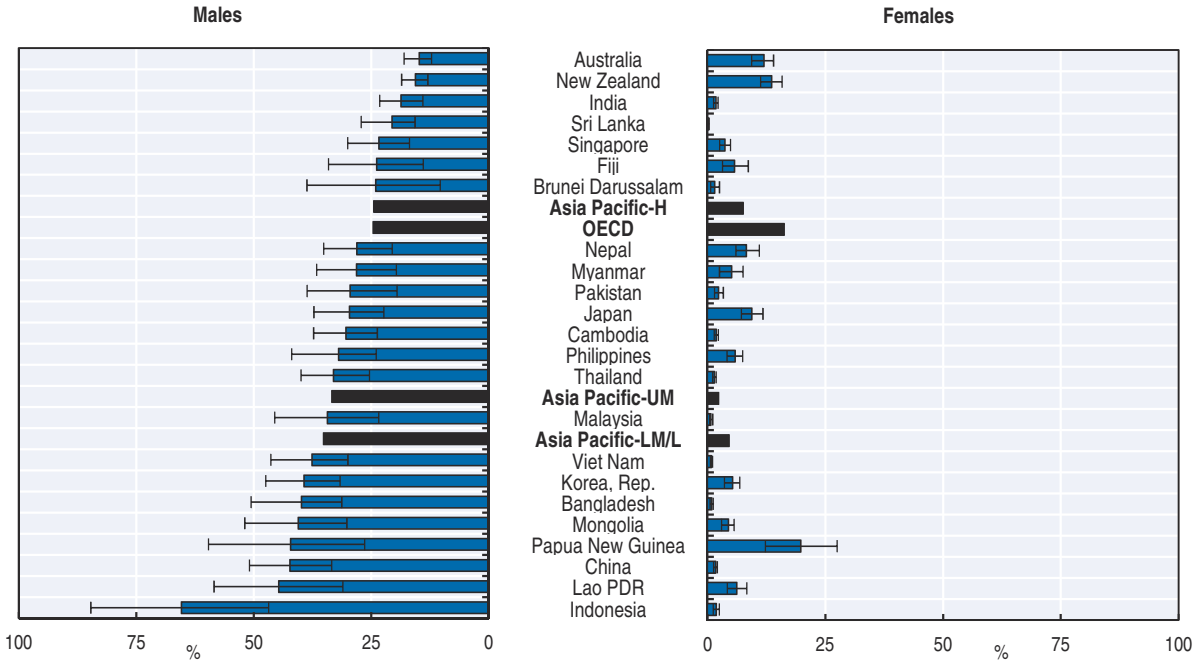
In Asia-Pacific, health warnings against smoking, including labels on tobacco product packaging and anti-tobacco mass media campaigns, could be used more to reduce tobacco use. Australia, Singapore and Thailand report that graphic pictorial warning labels have effectively impacted smoking-related behaviour (WHO, *www.who.int/news-room/fact-sheets/detail/tobacco/*).

Definition and comparability

Adults smoking daily is defined as the percentage of the population aged 15 years and over who reported smoking every day. Estimates for 2012 were based on data obtained from a broad range of health and household surveys, including the Global Adult Tobacco Survey (GATS). Results were age-standardised OECD standard population for OECD countries and to the WHO Standard Population for non-OECD countries.

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

4.20. Age-standardised prevalence estimates for daily tobacco smoking among persons aged 15 and above, 2015



Source: WHO report on Global Tobacco Epidemic 2017.

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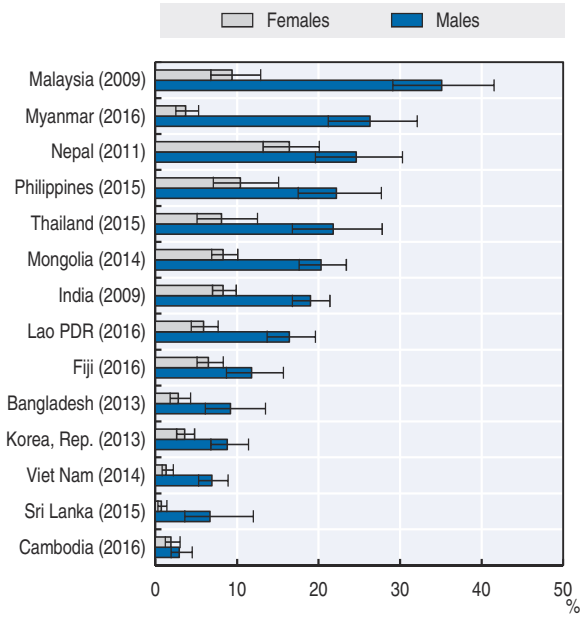
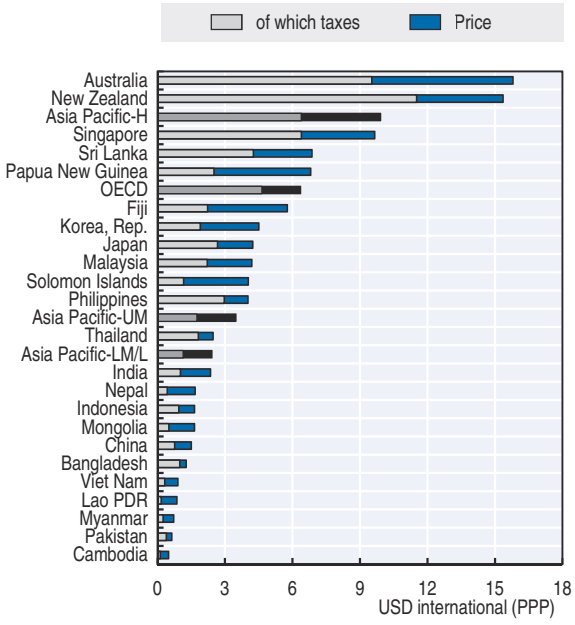
4.21. Prevalence of current tobacco use among youth aged 13 to 15, latest available estimate



Source: Global Youth Tobacco Surveys.

StatLink http://dx.doi.org/10.1787/888933867987

4.22. National taxes and retail price for a pack of 20 cigarettes of the most sold brand, 2016



Source: WHO report on the global tobacco epidemic 2017.

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ALCOHOL

The health burden related to harmful alcohol consumption, both in terms of morbidity and mortality, is considerable in most parts of the world (Rehm et al., 2009; WHO, 2018d). Alcohol use is associated with numerous harmful health and social consequences, including an increased risk of a range of cancers, stroke, and liver cirrhosis, among others. Foetal exposure to alcohol increases the risk of birth defects and intellectual impairment. Alcohol misuse is also associated with a range of mental health problems, including depressive and anxiety disorders, obesity and unintentional injury (Currie et al., 2012). In 2016, the harmful use of alcohol resulted in some 3 million deaths (5.3% of all deaths) worldwide and 132.6 million DALY – 5.1% of all DALY in that year (WHO, 2018d). While many countries set age limits for purchasing or drinking alcohol, lack of enforcement and no age limits in some countries allow young people to access alcohol easily, increasing their consumption and risk of harmful consequences.

UN SDGs targets strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol.

WHO estimates that 5.1% of the global burden of disease is attributable to alcohol (WHO, *www.who.int/news-room/fact-sheets/detail/alcohol/*), which accounts for about as much mortality and disability as tobacco and hypertension (Rehm et al., 2009). In the South East Asian region, 4.6% of all deaths in 2012 were attributed to alcohol consumption, and in the Western Pacific region, 5.9%. The direct and indirect economic costs of alcohol (which include lost productivity, health care costs, and road traffic crashes and crime-related costs) are substantial – in Thailand and the Republic of Korea these are about 2% of GDP (Rehm et al., 2009; Thavorncharoensap et al., 2010).

In Asia-Pacific, alcohol consumption is highest among more developed countries (Figure 4.23, left panel). Adults aged 15 years and over in Australia, the Republic of Korea, New Zealand and Japan consumed over seven litres of alcohol per capita in 2015. In Thailand; Mongolia; China and the Lao PDR, alcohol consumption was between five and seven litres. Because cultural and religious traditions in a number of the remaining countries prohibit drinking alcohol, consumption figures in these are minimal. In some countries, only certain groups of people consume alcohol; in Thailand, for example, around one-third of the population drinks.

Average consumption increased by 0.9 and 0.8 litres per capita in upper-middle and lower-middle low income Asia-Pacific countries between 2000-15 (Figure 4.23, right panel), although variations exist across countries. Among countries with significant intake, alcohol consumption declined in Australia, the Republic of Korea; New Zealand and Japan. In Viet Nam, China, India and Mongolia, the increase in alcohol consumption per capita between 2000-15 was very large at more than two litres per capita.

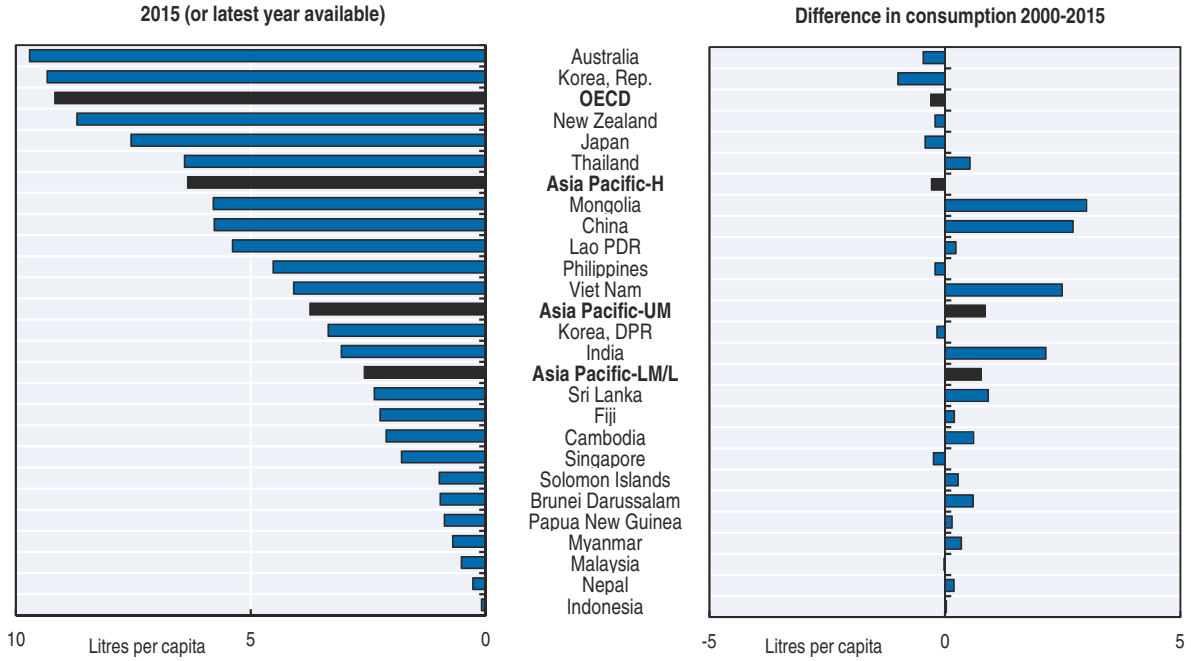
Changing patterns of drinking lead to more potential for harm through binging and heavy drinking occasions. In Asian countries, 16.8% of men and 4.5% of women reported weekly heavy episodic drinking during the last 30 days in 2010. In Mongolia, more than 70% of males and 40% of women reported heavy episodic drinking for the past 30 days (Figure 4.24). In Australia in 2010, two in five people aged 15 and over were at risk of harm from a single drinking occasion in the past 12 months; about 13% of recent drinkers admitted to driving under the influence of alcohol (AIHW, 2016).

Almost two in five road traffic deaths were attributable to alcohol in the Asia-Pacific region in 2013. In Lao PDR and Papua New Guinea, more than 50% of road traffic deaths are associated with alcohol (Figure 4.25). Based on the blood alcohol concentration (BAC) at which crash risk begins to increase exponentially, WHO recommends drink-driving prevention legislation set maximum legal thresholds at 0.05g/dl. WHO recommendations go further to specify no higher than 0.02 for novice and probationary drivers due to the interaction of alcohol and inexperience. Both aspects are required for WHO to consider a country with good legislation for drink driving. Setting and enforcing legislation on BAC limits of 0.05 g/dl can lead to significant reductions in alcohol-related crashes. For example Japan reduced BAC from 0.05 to 0.03 and recorded a 38% reduction in alcohol associated crashes. Some countries – such as Fiji, Australia and New Zealand – have limited BAC level to 0 g/dl for novice drivers.

Definition and comparability

Alcohol intake is measured in terms of annual consumption of litres of pure alcohol per person aged 15 years and over. Sources are based mostly on FAO (Food and Agriculture Organization of the United Nations) data, which consist of annual estimates of beverage production and trade supplied by national Ministries of Agriculture and Trade. The methodology to convert alcoholic drinks to pure alcohol may differ across countries. Data are for recorded alcohol, and exclude homemade sources, cross-border shopping and other unrecorded sources. Information on drinking patterns is derived from surveys and academic studies (WHO, 2018d).

4.23. Recorded alcohol consumption, population aged 15 years and over



Source: WHO GHO, 2018.

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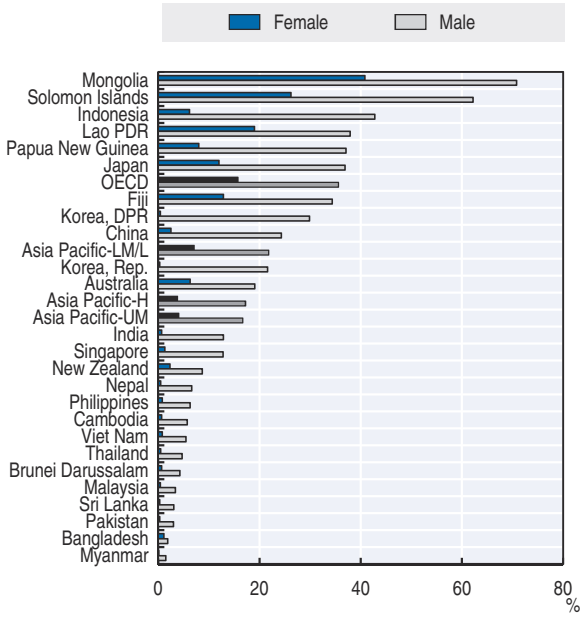
4.24. Heavy episodic drinking (drinkers only), past 30 days (%), 2010 (or nearest available year)



Source: WHO GHO 2018.

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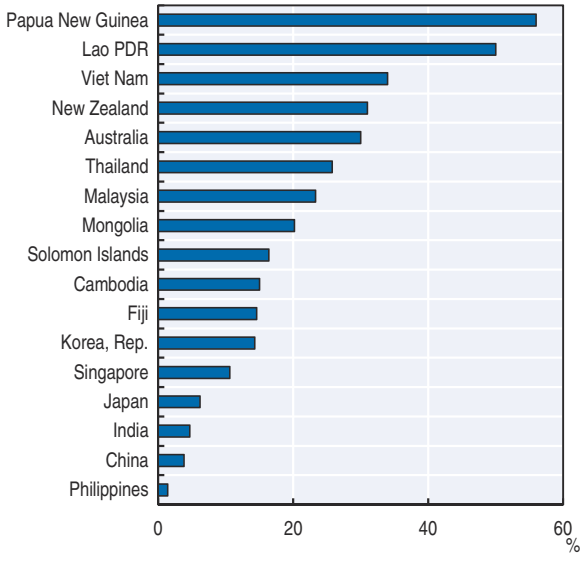
4.25. Proportion of road traffic deaths that are attributable to alcohol, 2013



Source: WHO GHO 2018.

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ROAD SAFETY

There were 1.25 million road traffic deaths globally in 2013. While the global rate for road traffic deaths is 17.4 per 100 000, there is great disparity by income, with rates more than twice as high in low- and middle-income countries than in the world's high income countries (WHO, 2015a). The burden of road traffic injuries falls disproportionately on vulnerable road users – pedestrians, cyclists and motorcyclists. Two thirds and half of those who die in road traffic crashes in WPRO and SEARO respectively are pedestrians, cyclists, or users of motorized two-wheelers, and this proportion is higher in emerging economies where urbanisation and motorisation accompany rapid economic growth. In many of these countries, necessary infrastructural developments, policy changes and levels of enforcement have not kept pace with vehicle use (WHO, 2015a).

In September 2015 the United Nations launched the 2030 Agenda for Sustainable Development (SDG). The SDG 3 target aims to halve the number of global deaths and injuries from road traffic crashes by 2020, while SDG 11 relates to providing access to sustainable transport systems for all, improving road safety, and expanding public transport.

In 2013, Asia-Pacific countries and territories reported 43 deaths per 100 000 population due to road traffic accidents (Figure 4.26), two and half times the rate observed across OECD counties. In Thailand, 70 males per 100 000 population aged more than 15 years old died because of road traffic injuries in 2012.

The five key risk factors in road traffic deaths and injuries are drinking and driving, speeding, and failing to use motorcycle helmets, seat-belts and child restraints (Table 4.1). In addition, distracted driving is a growing threat to road safety such as use of mobile phone and other in-vehicle technologies. Texting causes cognitive distraction and both of manual and visual distraction as well. Even talking on mobile phones without holding or browsing a phone can reduce driving performance (WHO, 2015a). Since hands-free phone and hand-held phone are equally at risk of cognitive distraction, some national laws regulate both of the ways of using mobile phones (Table 4.1).

Drinking and driving, especially with a blood alcohol concentration level of over 0.05g/dl (grams per decilitre), greatly increases the risk of a crash and the possibility that it will result in death or serious injury. Furthermore, lower limit BAC limits (0.02 g/dl) for young people and novice drivers can reduce the risk of road crashes, hence in Australia and New Zealand and China, for instance, they have additional national laws for young and novice drivers (WHO, 2015). Law enforcement through random breath testing checkpoints is highly cost effective and can reduce alcohol-related crashes by approximately 20%.

In high-income countries, speed contributes to about 30% of road deaths, while in some low and middle-income countries speed is the main factor in about half of road deaths. Speed limits are enforced by a national law in all Asia-Pacific countries. However, in several countries speed limits are not adapted at local level (Table 4.1).

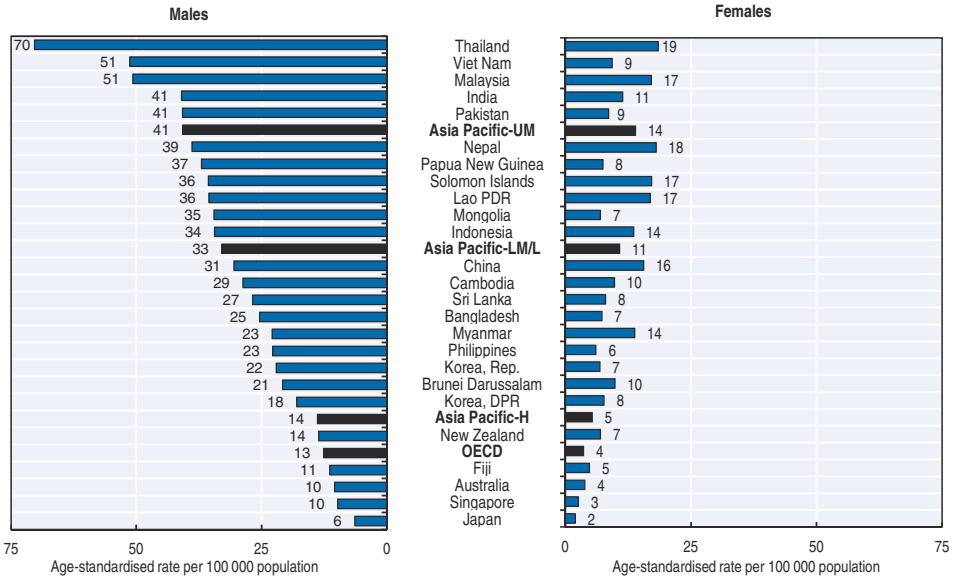
Wearing a motorcycle helmet correctly can reduce the risk of death by almost 40% and the risk of severe injury by over 70%. When motorcycle helmet laws are enforced, helmet-wearing rates can increase to over 90%. However, the motorcycle helmet wearing rate is very low in China (20%) and Pakistan (10.4%).

Wearing a seat-belt can reduce fatalities among front-seat passengers by up to 50% and among rear-seat car passengers by up to 75%. A national law does not exist in Bangladesh, Myanmar and Solomon Islands, while few other Asia-Pacific countries require that a seat-belt is worn by all the occupants of a car.

Child restraint systems, such as child seats for infants and booster seats for older children, decrease the risk of death in a crash by about 70% for infants and up to 80% for small children. However, mandatory child restraint national laws exist only in few Asia-Pacific countries – Australia, Singapore, Japan, New Zealand, Cambodia and Lao PDR.

The road fatality rate is the highest in the age groups of more than 85 (OECD/ITF, 2018). A recent study shows that 4% of current driver aged 75 and above have dementia, which disturbs driving skills (Fraade-Blanar et al., 2018). Drivers over 71 must renew driving license every 3 years instead of 5 years for those under 70 years, and drivers aged 75 and over need to take cognitive impairment screening test when renewing a driving license in Japan (2015 amendment to the Road Traffic Act).

4.26. Road traffic death rates, population aged 15 years and over, 2013



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

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Table 4.1. **Existence of a national legislation on five main risk factors of road traffic deaths, 2013**

Country	Existence of a national law on: drink-driving		seat-belt		child-restraint	Speed Limit			motorcycle helmet		mobile phone use (Y.N)
	National law	Road traffic deaths to alcohol (%)	National law	Applicability to all occupants	National law	National or local law	Rural (km/h)	Urban (km/h)	National law	Motorcycle helmet wearing rate (%)	National law on hand-held/hand-free mobile phone use
Thailand	Yes	25.8	Yes	No	No	National	90	80	Yes	n.a.	Hand-held only
Viet Nam	Yes	34	Yes	No	No	National	80	50	Yes	96.0% Drivers, 83.0% Passengers	Nothing
Malaysia	Yes	23.3	Yes	No	No	Both	90*	90*	Yes	97.4% Drivers, 88.7% Passengers	Hand-held only
India	Yes	4.7	Yes	Yes	No	Both	No limit	No limit	Yes	n.a.	Both
Pakistan	Yes	-	Yes	No	No	Both	110*	90*	Yes	10.4% All riders, 10.4% Drivers	Both
Nepal	Yes	-	Yes	No	No	National	80	80	Yes	-	Nothing
Papua New Guinea	Yes	56	Yes	Yes	No	National	75	60	Yes	-	Nothing
Solomon Islands	Yes	16.4	No	-	No	Both	No limit	No limit	Yes	-	Nothing
Lao PDR	Yes	-	Yes	No	Yes	National	90	40	Yes	-	Both
Mongolia	Yes	20.2	Yes	Yes	No	National	80	60	n.a.	6.6% Drivers	Hand-held only
Indonesia	Yes	-	Yes	No	No	Both	100	70	Yes	n.a.	Nothing
China	Yes	3.8	Yes	Yes	No	Both	no data	no data	Yes	20.0% All riders	Hand-held only
Cambodia	Yes	15	Yes	No	Yes	National	90	40	Yes	n.a.	Hand-held only
Sri Lanka	Yes	-	Yes	No	No	National	70	50	Yes	-	Hand-held only
Bangladesh	Yes	-	No	-	No	National	-112	No limit	Yes	-	Nothing
Myanmar	Yes	-	No	-	No	Both	80	48	Yes	n.a.	Nothing
Philippines	Yes	1.4	Yes	Yes	No	Both	80	40	Yes	n.a.	Nothing
Korea, Rep.	Yes	14.3	Yes	Yes	No	Both	80*	80*	Yes	73.8% All riders	Hand-held only
New Zealand	Yes	31	Yes	Yes	Yes	Both	100	50	Yes	-	Hand-held only
Fiji	Yes	14.6	No	-	No	No	no data	no data	No	-	Nothing
Australia	Yes	30	Yes	Yes	Yes	Both	100-130	50	Yes	n.a.	Hand-held only
Singapore	Yes	10.6	Yes	Yes	Yes	National	No limit*	70*	Yes	-	Hand-held only
Japan	Yes	6.2	Yes	Yes	Yes	Both	60	60	Yes	-	Hand-held only

* 2013 GHO speed limits UR.

Note: Speed limit regulation in 2015 (Global status report on road safety, 2015).

Source: WHO 2016, Global Status Report on Road Safety 2015, WHO.

StatLink http://dx.doi.org/10.1787/888933868101

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Chapter 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, and in particular doctors and nurses, are the cornerstone of health systems.

The number of doctors per 1 000 population varies widely across Asia-Pacific countries and territories, but it is generally lower than the OECD average (Figure 5.1). Across lower-middle and low income Asia-Pacific countries, there is one doctor per 1 000 population, whereas a slightly higher number of doctors – 1.2 per 1 000 population – is reported in upper-middle income countries. Australia and DPR Korea have the highest number of doctors per capita, with 3.5 doctors per 1 000 population, slightly higher than the OECD average of 3.4. In contrast, Papua New Guinea, Cambodia, the Solomon Islands and Indonesia have the lowest number of physicians per 1 000 population at or below 0.2.

The specialisation-mix and distribution of doctors may be improved in countries in Asia-Pacific. In Mongolia, for example, general practitioners account for only 21.9% of all doctors in 2011, and postgraduate training needs to be reorganised to ensure an adequate mix of specialisations (WHO, 2014e). 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 et al., 2018).

There is a large variation also in the number of nurses per 1 000 population across countries and territories in Asia-Pacific (Figure 5.2). The number of nurses is highest in high-income countries such as Japan, Australia and New Zealand, with over ten nurses per 1 000 population. The supply is much lower in a number of low-income countries, including Papua New Guinee, Pakistan and Bangladesh, where there are 0.5 nurses or less per 1 000 population. On average, two and three nurses per 1 000 population are available in lower-middle and low and upper-middle income Asia-Pacific countries respectively, much lower than the OECD average at nine nurses per 1 000 population. Nurses are not well distributed geographically within countries such as Indonesia and the Philippines (Mahendradhata et al., 2017; Dayrit et al., 2018), and several other countries in the region face the same issue.

In some countries, national human resources for health planning needs to take account of emigration trends in order to secure the necessary number of health professionals domestically. For example, India is the leading exporter of doctors and nurses to OECD countries, but their domestic density is half of the Asia-Pacific average for doctors and less than half for nurses. On the other hand, the Philippines is also the leading exporter of nurses and a major exporter of doctors (Dayrit et al., 2018), but the density of these health professionals is at about the Asia-Pacific average.

As seen in OECD countries, nurses outnumber doctors and there are 2.1 and 2.5 nurses per doctor in lower-middle and low, and upper-middle Asia-Pacific countries respectively (Figure 5.3). However, there are some exceptions. Due to very few numbers of doctors, Papua New Guinea and the Solomon Islands have more than nine nurses per doctor. On the other hand, doctors outnumber nurses in Bangladesh and Pakistan.

Countries 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 5). The WHO global strategic directions (WHO, 2016c) provide the framework for strengthening health workforce services to help countries achieve universal health coverage. The health workforce underpins the Sustainable Development Goals target 3.C to "substantially increase health financing and 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).

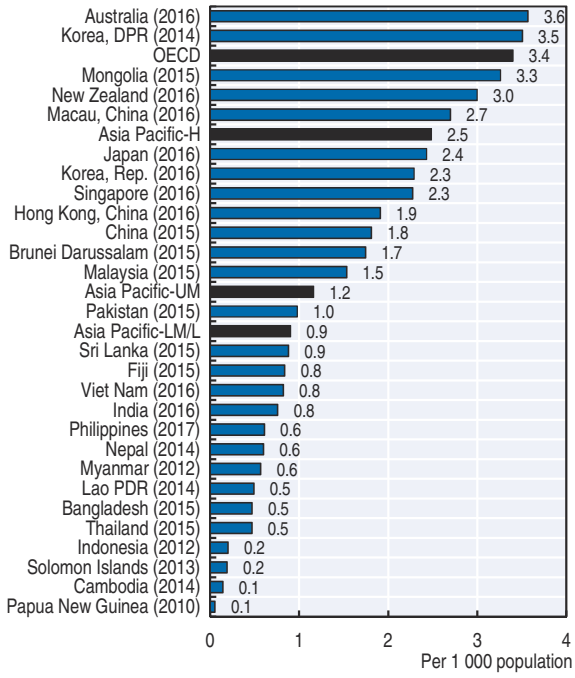
Definition and comparability

Doctors include Generalist medical doctors (including family and primary care doctors) and Specialist medical doctors.

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

Data are based on head counts.

5.1. Doctors per 1 000 population, latest year available



Source: OECD Health Statistics 2018; WHO GHO, 2018; National Data Sources (see Annex A).

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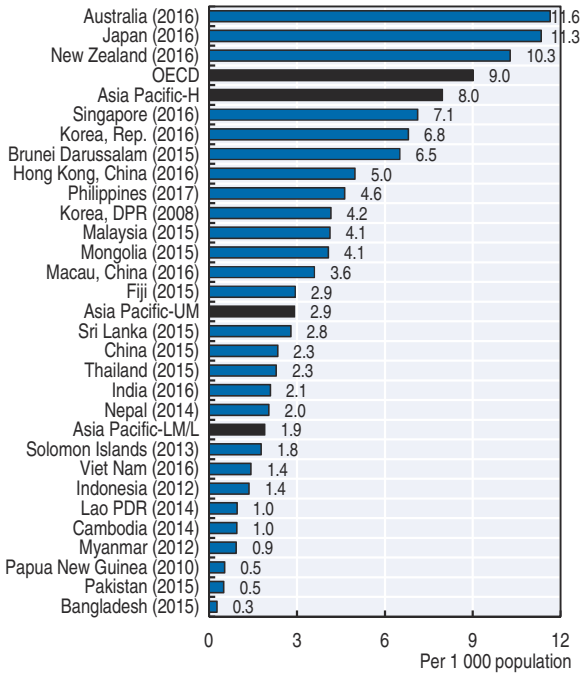
5.2. Nurses per 1 000 population, latest year available



Source: OECD Health Statistics 2018; WHO GHO, 2018; National Data Sources (see Annex A).

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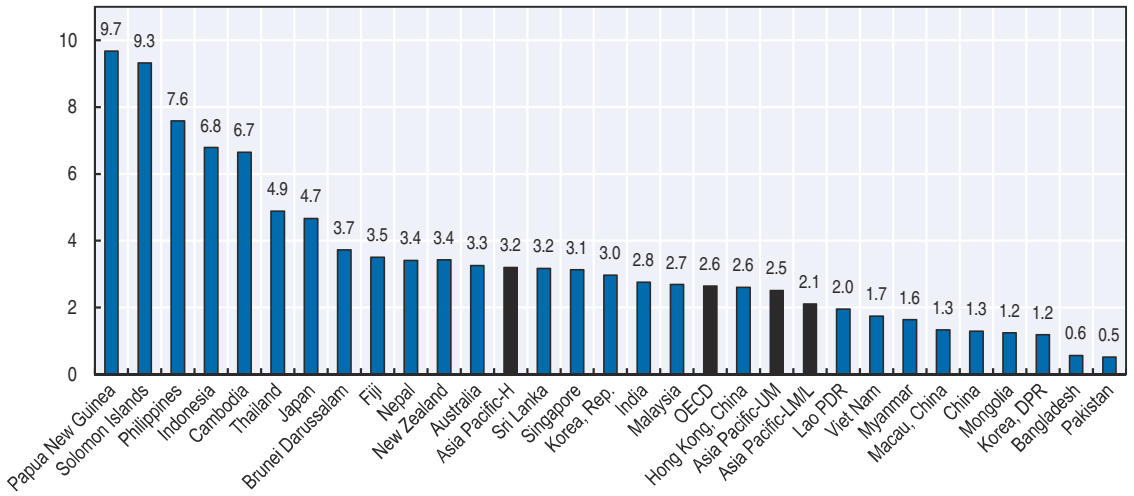
5.3. Ratio of nurses to doctors, latest year available



Source: OECD Health Statistics 2018; WHO GHO, 2018; National Data Sources (see Annex A).

StatLink http://dx.doi.org/10.1787/888933868595

CONSULTATIONS WITH DOCTORS

Consultations with doctors are an important measure of overall access to health services, since most illnesses can be managed 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 6.9, but there are some cross-country variations (Figure 5.4). The doctor consultation rate ranges from above ten in the Republic of Korea, Japan and Hong Kong, China to less than one in Bangladesh and Cambodia. In general, consultation rates tend to be highest in the high-income countries in the region and significantly lower in low-income countries (except Singapore), suggesting that economic situations have some impact on populations' health care-seeking behaviours. It should be noted that in these low-income countries, most primary contacts are with non-doctors (i.e. medical assistants, clinical officers or nurses).

Mainly reflecting the limited supply of doctors (see indicator "Doctors and nurses" in Chapter 5), the number of consultations per doctor is – in most Asia-Pacific countries – higher that the OECD average at 1994 per year, but there is a large cross-country variation (Figure 5.5). Doctors had more than 6 000 consultations on average in the Republic of Korea, Thailand and Hong Kong, China in a year while doctors in Bangladesh, New Zealand and Viet Nam generally had less than 2 000 consultations per year.

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

There is a close relationship between doctor consultation rates – a proxy for access to services – and life expectancy at birth, with consultation rates being highest in countries with highest 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 where life expectancy is much lower than expected based on consultation rates, indicating that other factors beyond doctor consultations affect life expectancy, such as geographic accessibility and income level.

While there are large variations in consultation rates across countries, there are also substantial variations in consultation rates between the poorest and richest households within each country (Figure 5.7). Although the poorest quintiles might be expected to have the greatest need for medical consultations, their consultation rates are typically lower than in other households, and especially so in India, Thailand, Sri Lanka, China, Nepal and Indonesia. However, there are some exceptions and people in poor households visit doctors more often than the non-poor, particularly in Bangladesh, Hong Kong, China and the Republic of Korea.

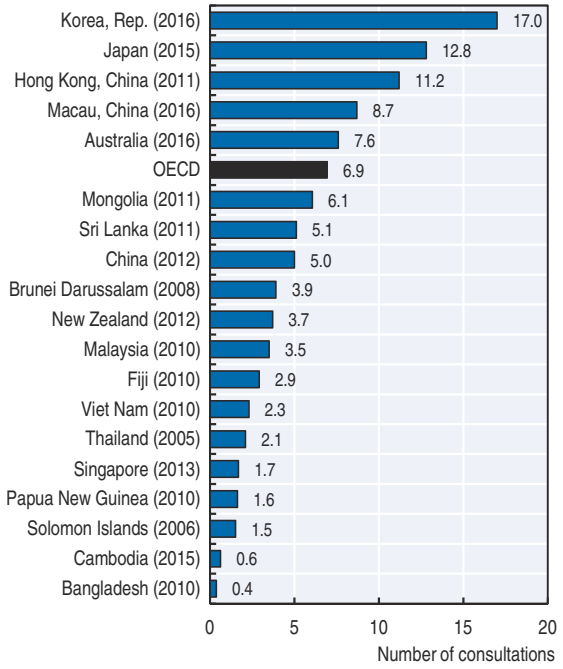
Definition and comparability

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 in homes.

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

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

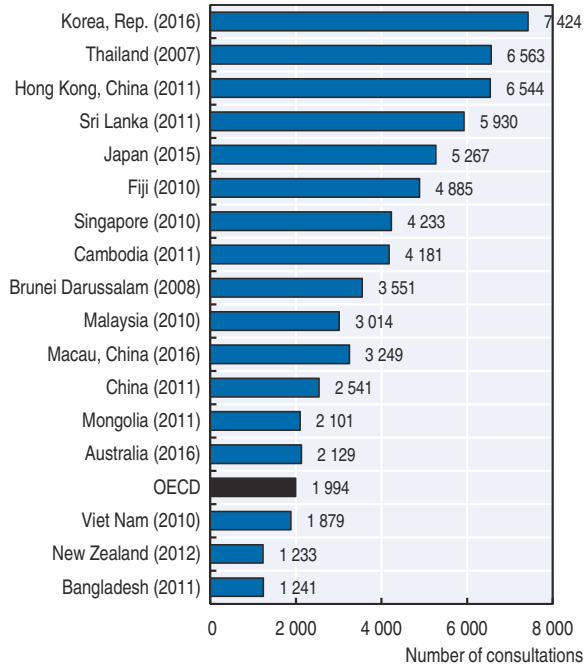
5.4. Doctor consultations per capita, latest year available



Source: OECD Health Statistics 2018; National Data Sources (see Annex A).

StatLink http://dx.doi.org/10.1787/888933868614

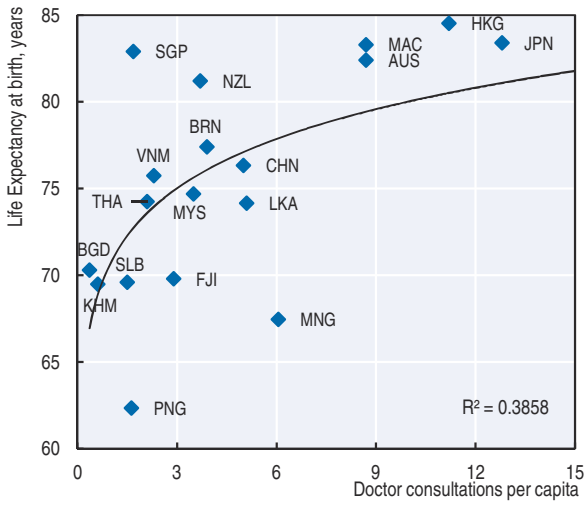
5.5. Estimated number of consultations per doctor, latest year available



Source: OECD Health Statistics 2018; National Data Sources (see Annex A).

StatLink http://dx.doi.org/10.1787/888933868633

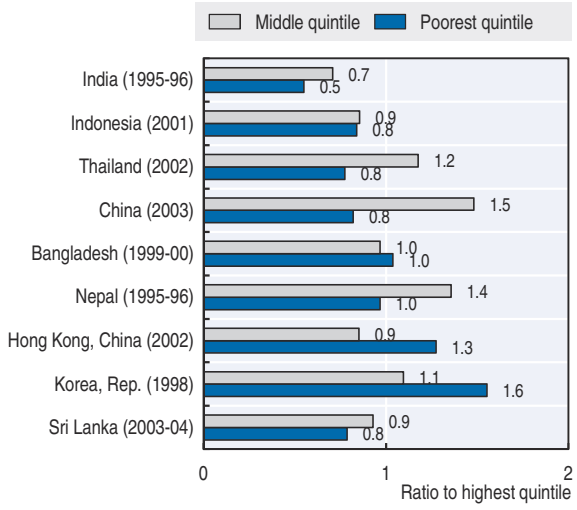
5.6. Doctor consultations per capita and life expectancy at birth, latest year available



Source: OECD Health Statistics 2018; National Data Sources (see Annex A).

StatLink http://dx.doi.org/10.1787/888933868652

5.7. Ratio of doctor consultation rates in poorest and middle socioeconomic quintiles, compared to highest quintile, latest year available



Source: National Data Sources (see Annex A).

StatLink http://dx.doi.org/10.1787/888933868671

MEDICAL TECHNOLOGIES

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

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

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

Japan has by far the highest number of CT scanners per million population. One CT scanner is available per 10 000 population in Japan, as opposed to less than one per million population in Lao PDR, Papua New Guinea, Pakistan and Myanmar (Figure 5.8). Also for MRI units, Japan reports five units per 100 000 population, whereas Sri Lanka, the Philippines, Pakistan, Myanmar and Cambodia report less than one unit per million population (Figure 5.9) The Republic of Korea has the highest number of mammographs at seven per 10 000 female aged 50-69, as opposed to Papua New Guinea, Sri Lanka, Pakistan and Myanmar where less than 10 mammographs are available per million females aged 50-69 (Figure 5.10).

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 (OECD, 2017). Although the use of medical technologies is not well known 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).

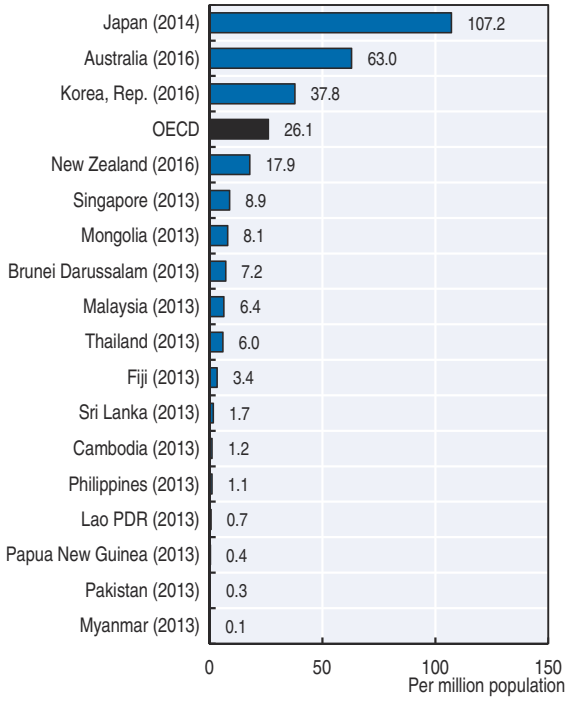
The availability of treatment equipment is also much higher in high income countries. New Zealand and Australia have over 10 radiation therapy units per million population, whereas there is only one unit per 10 million people in Myanmar, Cambodia, Pakistan, Bangladesh and Papua New Guinea and Sri Lanka (Figure 5.11).

Clinical guidelines have been developed in some OECD countries to promote more rational use of diagnostic technologies (OECD, 2017). 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, 2012). In the United States, 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, 2015). 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, 2013).

Definition and comparability

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

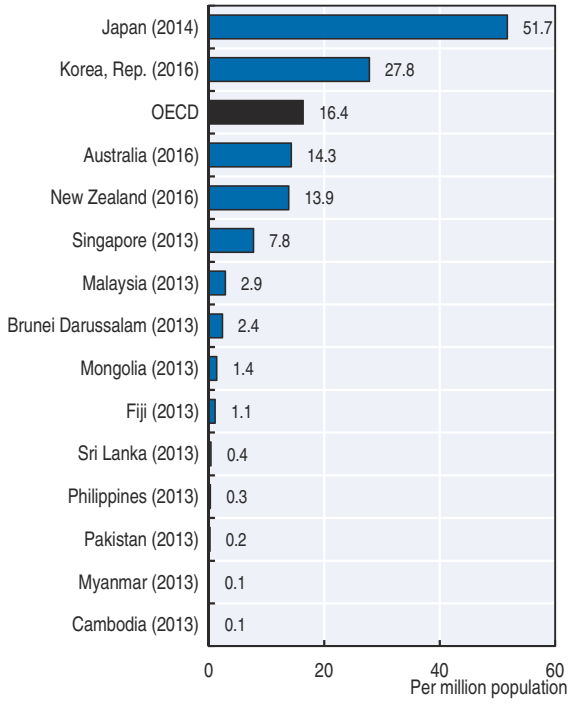
5.8. Computed tomography scanners, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868690

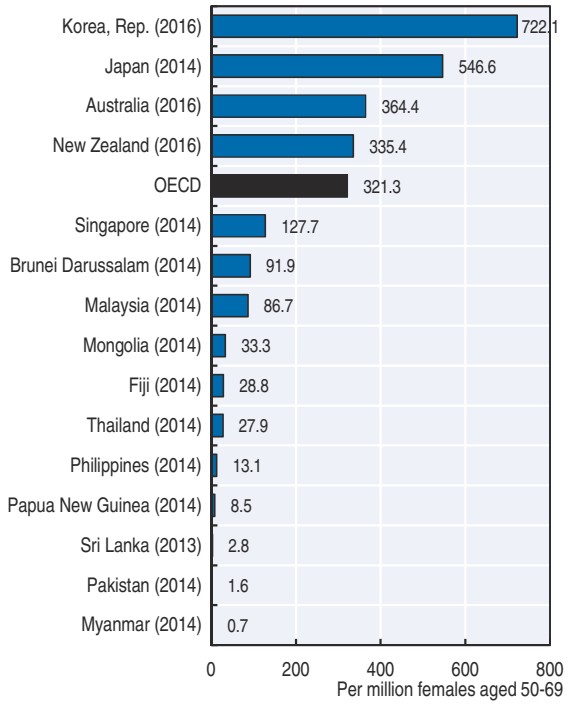
5.9. MRI units, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868709

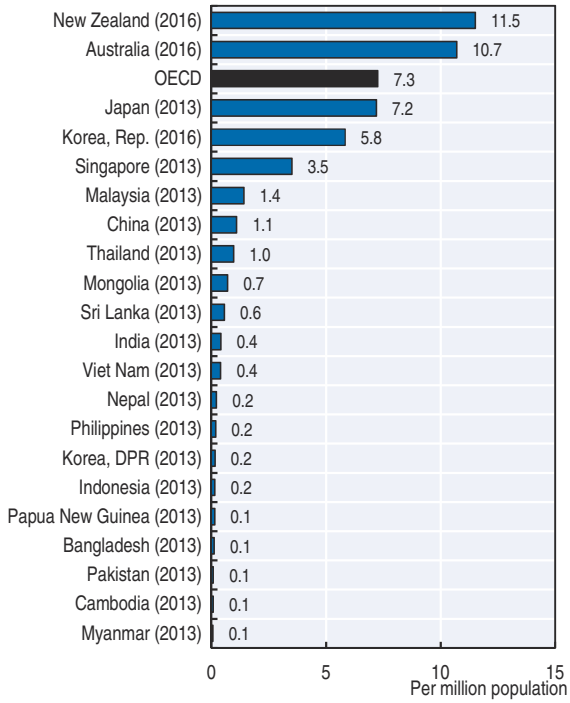
5.10. Mammographs, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868272

5.11. Radiation therapy equipment, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868291

HOSPITAL CARE

Hospitals in most countries account for the largest part of overall fixed investment. Beside quality of hospital care (see indicator "In-hospital mortality following acute myocardial infarction and stroke" in Chapter 7), it is important to use resources efficiently and assure a co-ordinated access to hospital care.

Available resources in the hospital sector and access to hospital care were assessed in the report by the number of hospital beds and hospital discharge rates. Increasing the numbers of beds and overnight stays in hospitals does not always bring positive outcomes in population health. Hospital resources need to be used efficiently and effectively. Hence, the average length of stay (ALOS) is also used to assess appropriate access and use, 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 shifting care from inpatient to less expensive post-acute settings, it tends to be more service-intensive and more costly per day. Too short a length of stay could also cause adverse effects on health outcomes, reduce the comfort and recovery of the patient or increase hospital readmissions.

The number of hospital beds per capita is 2.8 and 1.8 per 1 000 population on average across upper-middle and lower-middle and low income Asia-Pacific countries respectively, lower than the OECD average of 4.7 and high-income Asia-Pacific countries average of 5.3, but it varies considerably (Figure 5.12). More than one bed per 100 population is available in Japan, the Republic of Korea and Korea DPR, whereas the stock of beds is less than one per 1 000 population in the Philippines, Bangladesh, Pakistan, Myanmar, Cambodia and India. These large disparities reflect substantial differences in the resources invested in hospital infrastructure across countries.

Hospital discharge is at 115.9 and 95.6 per 1 000 population on average in upper-middle and lower-middle and low income Asia-Pacific countries respectively, compared with the OECD average of 153.7, and there is a large variation between countries in the region (Figure 5.13). The highest rates are in Sri Lanka and Mongolia, with over 250 discharges per 1 000 population in a year, while in Nepal, Myanmar and Bangladesh discharge rates are less than 25 per 1 000 population, suggesting delays in accessing services.

In general, countries with more hospital beds tend to have higher discharge rates, and vice versa (Figure 5.14). However, there are some notable exceptions. Japan, with the highest number of hospital beds per population, has a relatively low discharge rate while Sri Lanka, with approximately average bed availability, has the highest discharge rate.

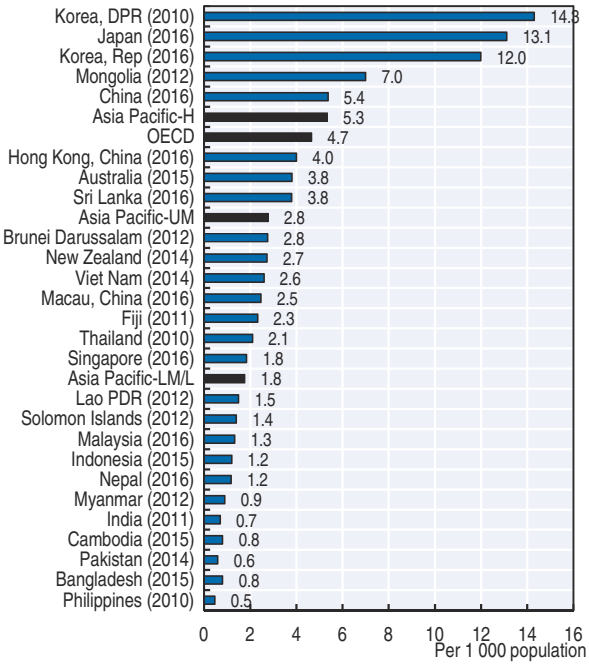
In Asia-Pacific, the variation across countries in the number of days spent – on average – in hospital is large (Figure 5.15). Lower-middle and low income countries report the lowest ALOS in Asia-Pacific at five days. The longest average length of stay is ten days or more in Japan and China, while the shortest length of stay is 2.5 days in Lao PDR and 3.0 days in Sri Lanka. 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 et al., 2018). The short ALOS, coupled with the high admission rates in Sri Lanka, suggests that inpatient services may be partly substituting for outpatient and primary care.

Definition and comparability

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

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

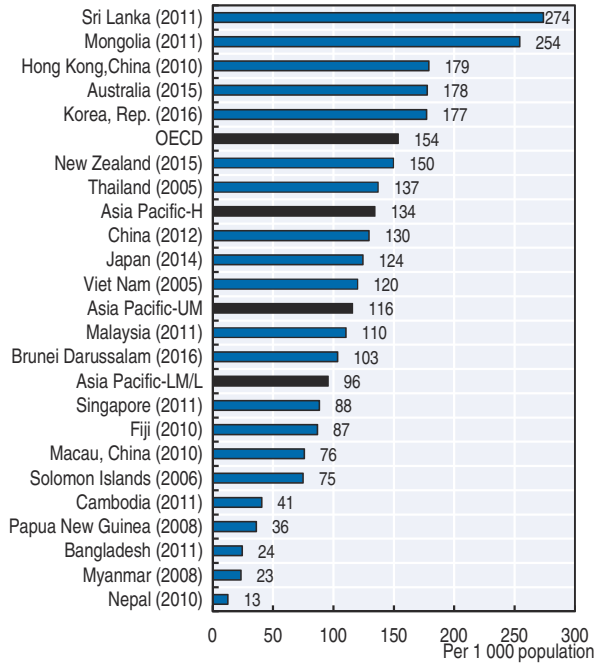
5.12. Hospital beds per 1 000 population, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868310

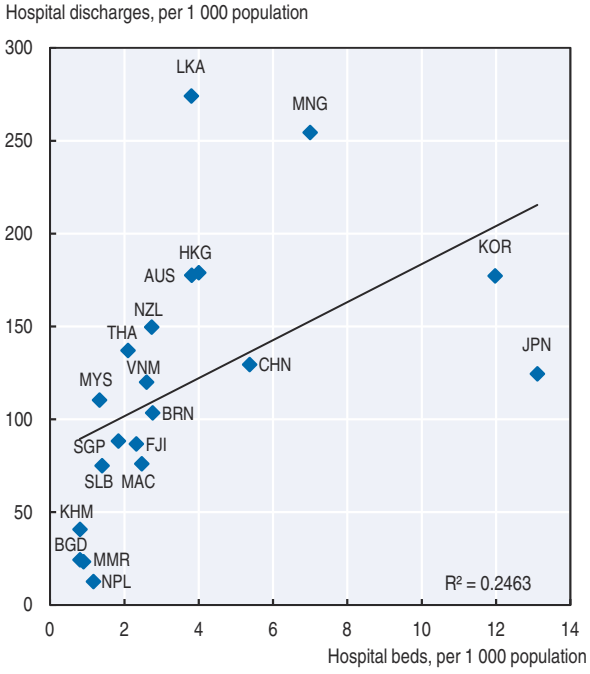
5.13. Hospital discharges per 1 000 population, latest year available



Source: OECD Health Statistics 2018; National sources (see Annex A).

StatLink http://dx.doi.org/10.1787/888933868329

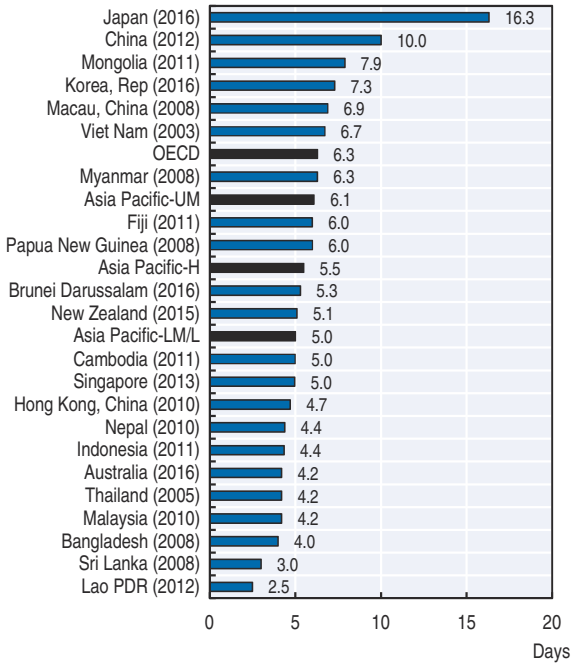
5.14. Hospital beds per 1 000 population and hospital discharges per 1 000 population, latest year available



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868348

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



Source: OECD Health Statistics 2018; WHO GHO 2018.

StatLink http://dx.doi.org/10.1787/888933868367

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 "Reproductive health", "Preterm births and low birthweight" and "Infant and young child feeding" in Chapter 4). WHO currently recommends a minimum of four antenatal visits, and antenatal care coverage has been monitored to ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes by 2030 (Sustainable Development Goal 3.7).

In Asia-Pacific, only two in three pregnant women – on average – received the recommended four visits in lower middle and low income countries, but access to antenatal care varies across countries (Figure 5.16, left panel). DPR Korea, Sri Lanka, Brunei Darussalam, Fiji, Thailand and the Republic of Korea have nearly complete coverage of over 90% of four antenatal visits. At the other end, in Bangladesh, Pakistan and Lao PDR, the coverage of four antenatal care visits is less than 40%.

Only three women in four had births attended by a skilled health professional in lower-middle and low income Asia-Pacific countries, whereas almost all births were attended by a skilled health professional such as a doctor, nurse or midwife in high and upper-middle income countries (Figure 5.16, right panel). Less than one birth in two in Bangladesh, Lao PDR and Papua New Guinea is attended by a skilled health professional, with most deliveries assisted by *dais* or untrained birth attendants. Traditional birth attendants are important in several other countries including Cambodia, India, Indonesia, Myanmar, Pakistan and the Philippines, especially in rural settings.

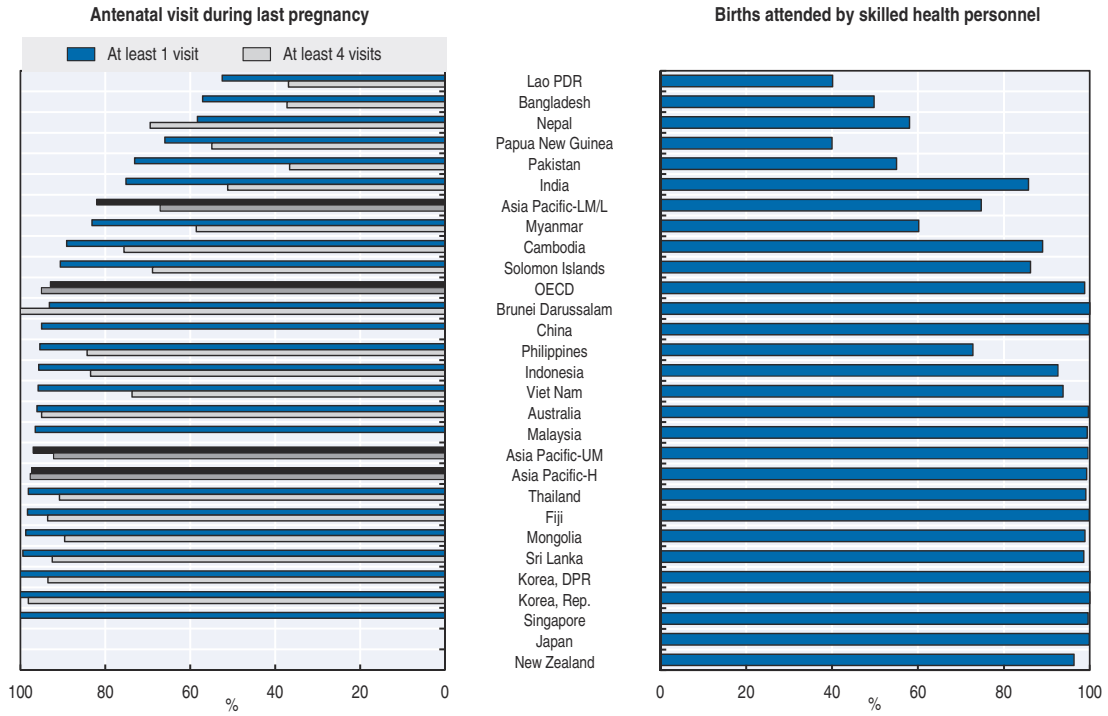
Delivery in health facilities varies across countries (Figure 5.17). In Australia, Thailand, Mongolia, Sri Lanka and Viet Nam, almost all deliveries take place at a health facility. On the other hand, in Bangladesh and India, most deliveries occur at home and only less than 40% of births take place in a health facility. Across countries, deliveries in health facilities are more common among mothers giving birth for the first time, or those who have had at least four antenatal visits, as well as among mothers living in urban regions and those with higher education and wealth.

Access to skilled birth attendants varies by socio-economic factors (Figure 5.18). Mongolia, Thailand and Sri Lanka have a high coverage of births attended by skilled health professionals among mothers with different education and income levels, and living in different geographical locations. However, in other countries, the coverage of births attended by skilled health professionals is highly unequal among women of different income and education levels. For example, in the Philippines and Lao PDR, access differs by more than five-fold between mothers of the lowest education level versus mothers of the highest levels. Disparity by household income is largest in Lao PDR, with a 8-fold difference between the highest and lowest income quintiles respectively, and in Pakistan with a 4-fold difference. In contrast, differences in access to skilled care at birth remain relatively small between urban and rural areas across countries (except for Lao PDR).

Definition and comparability

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

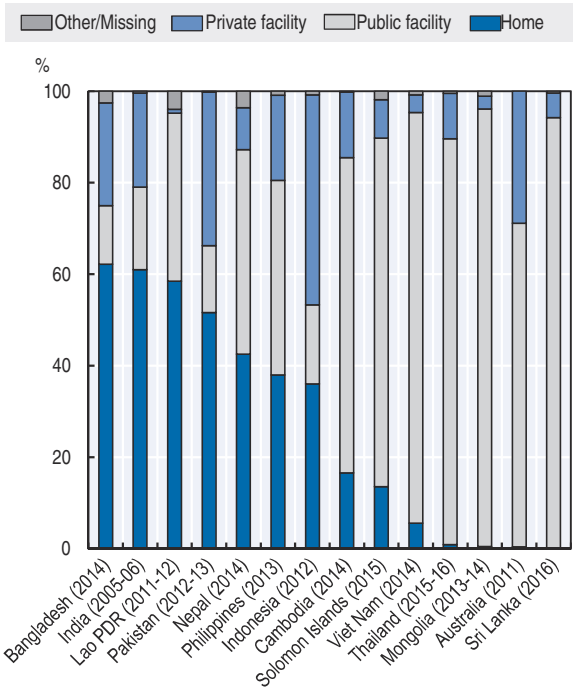
5.16. Provision of care during pregnancy and birth, 2016 or latest year available



Source: WHO GHO (2018).

StatLink http://dx.doi.org/10.1787/888933868386

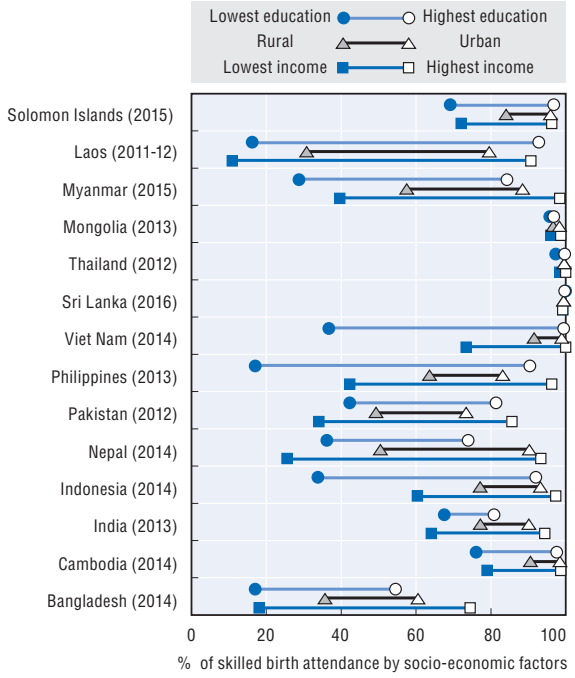
5.17. Place of delivery, latest year available



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933868405

5.18. Births attended by skilled health professionals, by socio-economic and geographic factor, latest year available



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933868424

INFANT AND CHILD HEALTH

Basic care for infants and children includes promoting and supporting early and exclusive breastfeeding (see indicator "Infant and young child feeding" in Chapter 4), 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 worldwide. These include vitamin A supplementation, measles vaccination, oral rehydration therapy (ORT) for diarrhoea, and antibiotic treatment for acute respiratory infection (ARI). Access to these services leads to better infant and child health.

As part of prevention, supplementation with vitamin A is considered important for children because it reduces the risk of disease and death from severe infections. A safe and effective vaccine is available for measles, so 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 and it is also considered a marker of access to child health services.

Appropriate treatment could also prevent deaths from diarrhoea and pneumonia. Dehydration caused by severe diarrhoea can be easily treated with ORT, and early diagnosis and treatment with antibiotics can also prevent a large proportion of deaths from pneumonia.

Access to preventive care varies across Asia-Pacific as shown by the intake of vitamin A supplements (Figure 5.19) and vaccination coverage (see indicator "Childhood vaccination programmes" in Chapter 7). Access to vitamin A supplementation is markedly low in the Solomon Islands at 37% and India at 46%, whereas DPR Korea and the Republic of Korea have nearly complete coverage.

Less than 50% of children with diarrhoea received zinc supplement in Bangladesh (41%), India (20%), Korea DPR (19%), Nepal (18%), Viet Nam (17%), and the coverage is less than 10% in Mongolia, Myanmar, the Philippines, Cambodia, with as little as less than 2% in Pakistan, Indonesia and Lao PDR (Figure 5.20). Furthermore, less than 50% of children with diarrhoea receive ORT in India (26%), Cambodia (35%), Pakistan (42%) and Indonesia (47%). The coverage is as high as 92% in Korea DPR and the Republic of Korea (Figure 5.21).

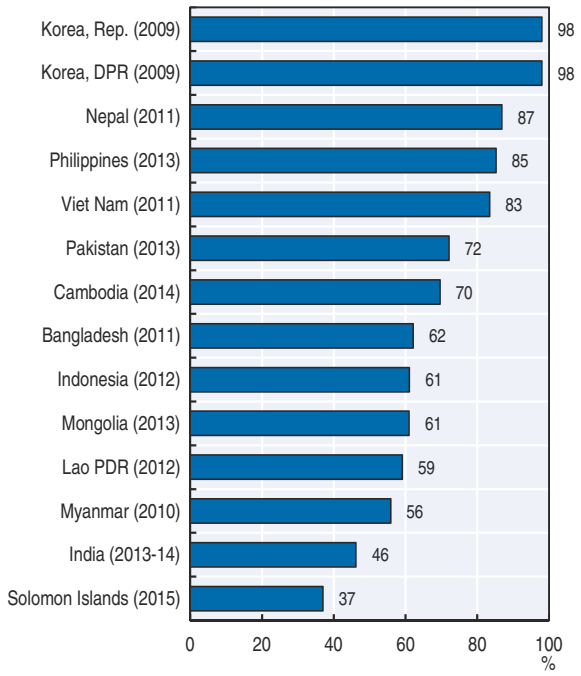
Access to appropriate medical care for children with ARI can also be improved in many countries in the region. Although more than two-thirds of children with symptoms are taken to a health facility, only half of them receive antibiotic treatment (Figure 5.22). There is a correlation between treatment coverage for diarrhoea and ARI. Antibiotic treatment for ARI is particularly low in India, Cambodia, Pakistan and Myanmar, where the treatment for diarrhoea is also low. This suggests a need to expand access to care to treat leading causes of child mortality in these countries.

Definition and comparability

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

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

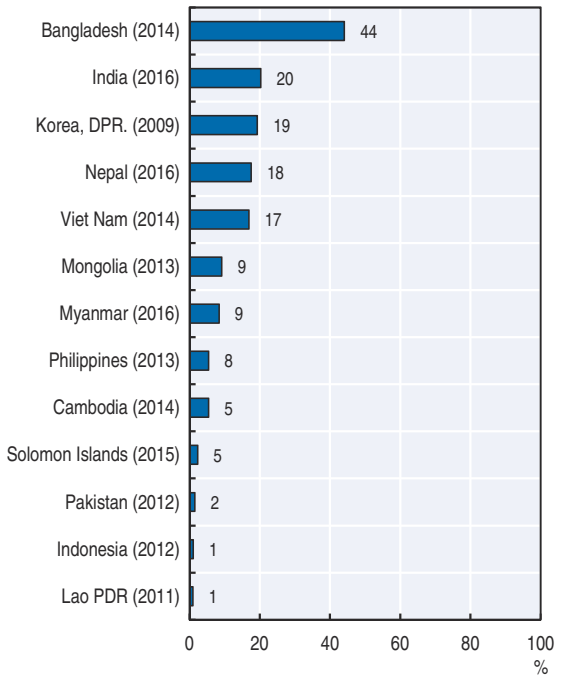
5.19. Children aged 6-59 months who received vitamin A supplementation, latest year available



Source: DHS and MICS surveys, various years

StatLink http://dx.doi.org/10.1787/888933868443

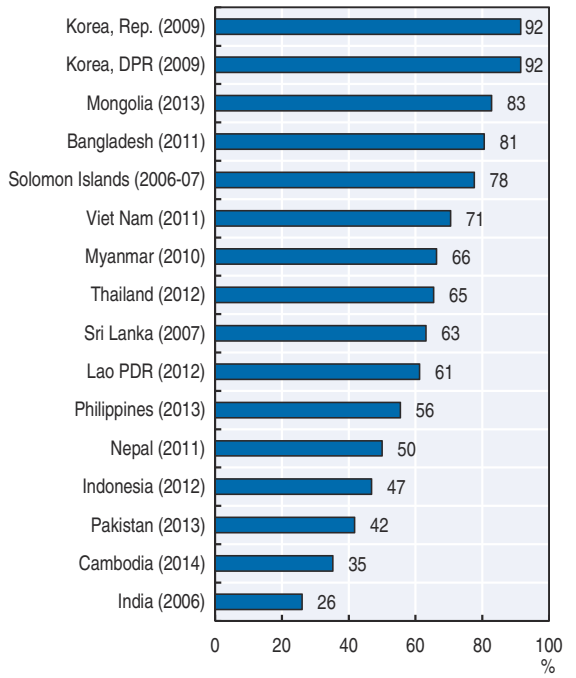
5.20. Children aged under 5 years with diarrhoea receiving zinc supplements (%), latest year available



Source: Unicef 2018.

StatLink http://dx.doi.org/10.1787/888933868481

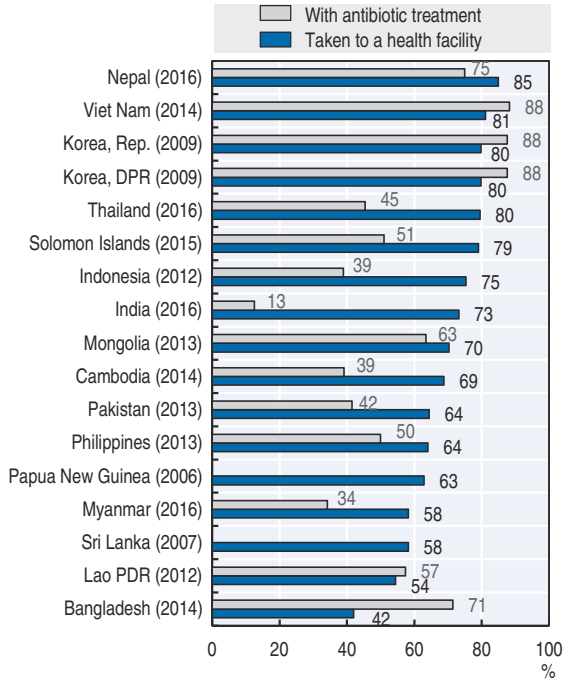
5.21. Children aged under 5 years with diarrhoea receiving ORT (%), latest year available



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933868500

5.22. Care seeking and antibiotic treatment among children aged under 5 years with ARI



Source: DHS and MICS surveys, various years.

StatLink http://dx.doi.org/10.1787/888933868519

MENTAL HEALTH CARE

For the first time, world leaders have recognized the promotion of mental health and well-being, and the prevention and treatment of substance abuse, as health priorities within the global development agenda. The inclusion of mental health and substance abuse in the Sustainable Development Agenda, which was adopted at the United Nations General Assembly in September 2015, is likely to have a positive impact on communities and countries where millions of people will receive much needed help. A particular prevention priority in the area of mental health concerns suicide, which accounted for an estimated 793 000 deaths in 2016 (WHO, 2018a). Target 3.2 of the Mental Health Action Plan 2013-2020, 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 not be assured for people with mental ill health. 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 in Asia-Pacific than the OECD average of 16.8 per 100 000 population (Figure 5.23). Developed OECD countries in the region such as New Zealand, Japan, Australia and the Republic of Korea, have the highest number of psychiatrists, but in middle and low income Asia-Pacific countries there is fewer than one psychiatrist per 100 000 population. This suggests that many countries in the region may underinvest in mental health care. As is the case for many other medical specialties (see indicator "Doctors and nurses" in Chapter 5), psychiatrists are not distributed evenly across regions within each country. For example, in Australia, the number of psychiatrists per capita was two times greater in South Australia than in the Northern Territory (AIHW, 2018).

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, the number is still very low (Figure 5.24). Japan has the highest rate with over 100 mental health nurses per 100 000 population, followed by New Zealand and Australia with more than 70 mental health nurses per 100 000 population. But there are fewer than four mental health nurse – on average – per 100 000 population in middle and low income Asia-Pacific countries, and less than one mental health nurse in India, Myanmar, Nepal, Lao PDR, Bangladesh, the Philippines and Cambodia, suggesting again the need for an appropriate supply of professionals in mental health care to assure access.

Some countries, such as Australia, have introduced new 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. A recent 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 (Happell et al., 2010).

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

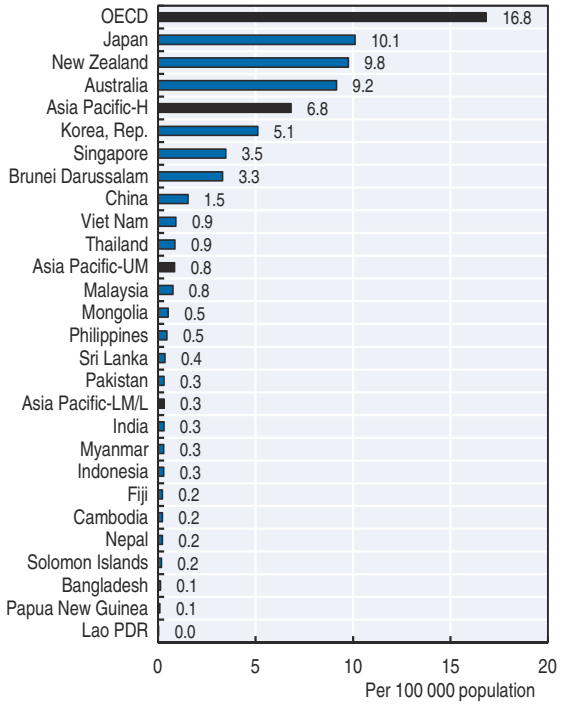
There are five and twelve mental health beds per 10 000 population in lower-middle and low income, and upper middle income Asia-Pacific countries respectively, with Lao PDR and Cambodia reporting less than one psychiatric bed (Figure 5.25). The large majority of beds in middle and low income countries are available in mental health hospitals.

Definition and comparability

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

Data are based on head counts.

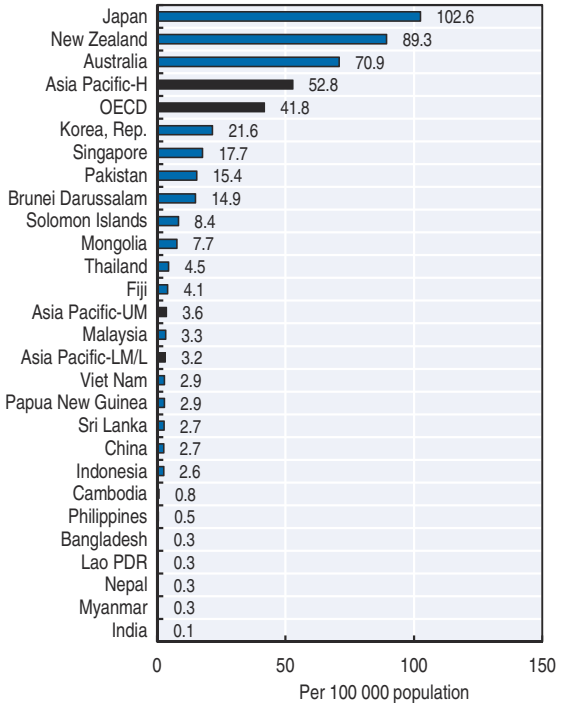
5.23. Psychiatrists, per 100 000 population, 2016 or last available year



Source: OECD Health Statistics 2018; WHO GHO, 2018.

StatLink http://dx.doi.org/10.1787/888933868538

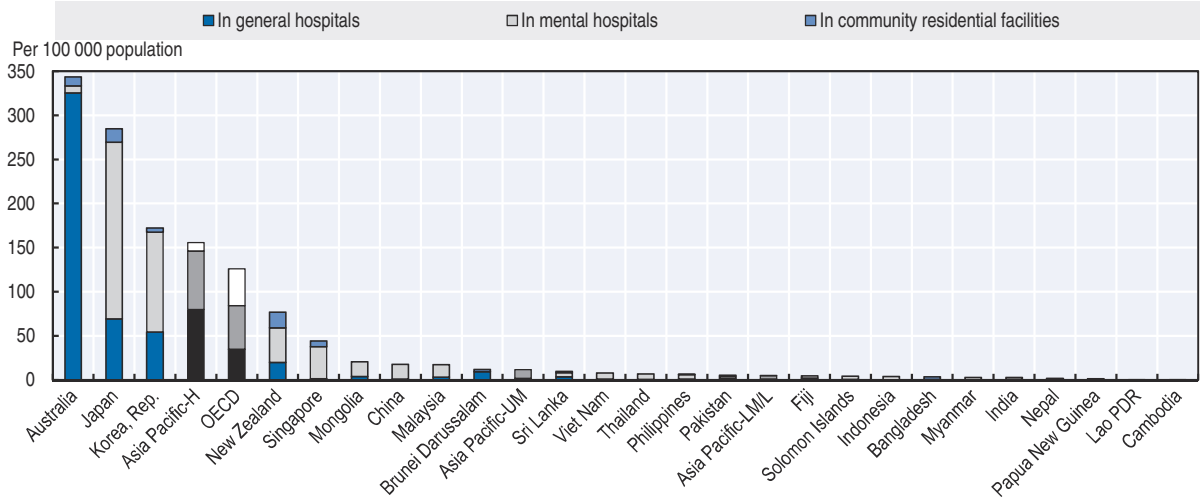
5.24. Nurses working in mental health sector, per 100 000 population, 2016 or last available year



Source: OECD Health Statistics 2018; WHO GHO, 2018.

StatLink http://dx.doi.org/10.1787/888933868557

5.25. Mental health beds, per 100 000 population, 2014 or last available year



Source: WHO GHO, 2018.

StatLink http://dx.doi.org/10.1787/888933868576

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Chapter 6

Health expenditure and financing

HEALTH EXPENDITURE PER CAPITA AND IN RELATION TO GDP

Much variation in per capita health care spending levels can be observed in Asia-Pacific countries and territories in 2015 (Figure 6.1), ranging from Bangladesh health spending per capita of only 88 international dollars (USD PPP) to Australia's 4 491 international dollars (USD PPP). The average OECD current health spending per capita in 2015 was around twenty times that of the low-income countries and territories in Asia-Pacific (3 800 versus USD PPP 193). The higher the income level of a country the higher the share of health spending per capita funded by government/compulsory sources in Asia-Pacific: 71.6% in high-income countries versus 36.8% in low and lower-middle income countries.

On average, between 2010-15, the growth rate in per capita health spending in real terms was 5.3% per year in Asia-Pacific, higher than the 3.9% observed for gross domestic product (GDP) (Figure 6.2). The growth for China was even more rapid – more than twice the average rate for the region. Brunei Darussalam and New Zealand reported the lowest growth rate in per capita health spending in real terms between 2010-15 at 1.3% and 0.9% respectively. Health spending growth in many Asia-Pacific countries has exceeded economic growth over the past five years, resulting in an increasing share of the economy devoted to health in most countries. All territories above the diagonal line in Figure 6.2 report that health expenditure has grown faster than income. This means that the share of health care expenditure in total expenditure has continued to increase. In all territories below the line, the increase in health spending – on average – was lower than the increase in GDP. Hence the share of health spending in total spending declined in those countries and territories.

How much countries spend on health care over time can be ascribe to overall health spending growth and economic performance. Health expenditure accounted for 4.3% and 7.3% of GDP in low- and middle-income and high-income Asia-Pacific countries respectively in the Asia-Pacific region in 2015, an increase of 0.4 and 0.8 percentage points respectively from 2010. This indicator varied from 2.6% in Bangladesh and Brunei Darussalam to up to 10.9% in Japan (Figure 6.3). Generally, the richer a country is, the more it spends on health. The percentage of GDP spent on health across OECD countries is – on average – twice that of the Asia-Pacific low- and middle-income countries (8.9 versus 4.3). Between 2010 and 2015, the share of health in relation to GDP declined of around one percentage point Cambodia, whereas it increased in Nepal, Singapore and Japan of more than 1 percentage point (Figure 6.3).

Although health systems remain a highly labour-intensive sector, capital has been an increasingly important factor of production of health services over recent decades, as reflected for example by the growing importance of diagnostic and therapeutic equipment or the expansion of information and communications technology (ICT) in health care. Capital investments in health tends to fluctuate more with economic cycles than current spending on health care. However, slowing down investments in health infrastructure and equipment will affect service delivery. As a proportion of GDP, Japan was the highest spender on capital investment in 2015 with more than 1% of its GDP going on construction, equipment and technology in the health and social sector (Figure 6.4). However, capital spending can be significantly lower. On average, it represents 0.3% of GDP across reporting non-OECD Asia-Pacific countries, and accounts for less than 0.2% in Bangladesh, Brunei Darussalam, Malaysia, Cambodia and the Philippines in 2015.

Definition and comparability

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

Health care financing can be analysed from the point of view of financing schemes (financing arrangements through which health services are paid for and obtained by people, e.g. social health insurance), financing agents (organisations managing the financing schemes, e.g. social insurance agency), and types of revenues (e.g. social insurance contributions). Here "financing" is used in the sense of financing schemes as defined in the System of Health Accounts (OECD, Eurostat and WHO, 2011) 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.

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

To make useful comparisons of real growth rates over time, it is necessary to deflate (i.e. remove inflation from) nominal health expenditure through the use of 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.

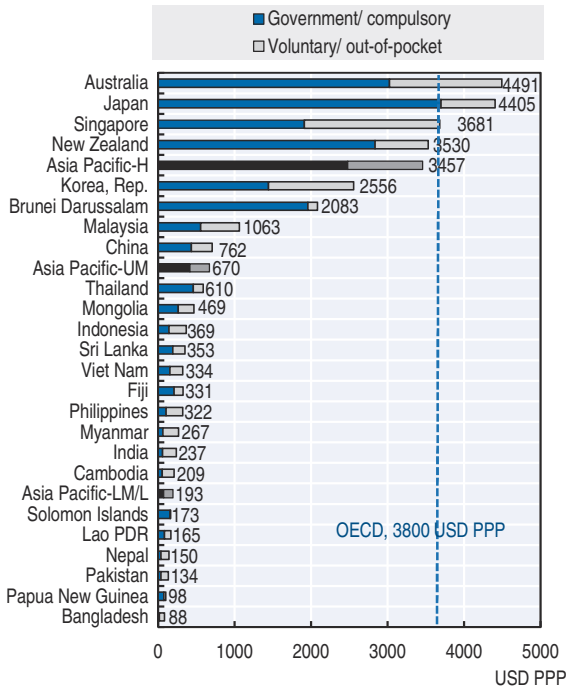
To take into account the timing of the government budget allocation process, comparison over time look at the latest five years for which expenditure data are available.

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

$(\sqrt{((2015\ \text{value})/(2010\ \text{value}))}-1)*100$

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

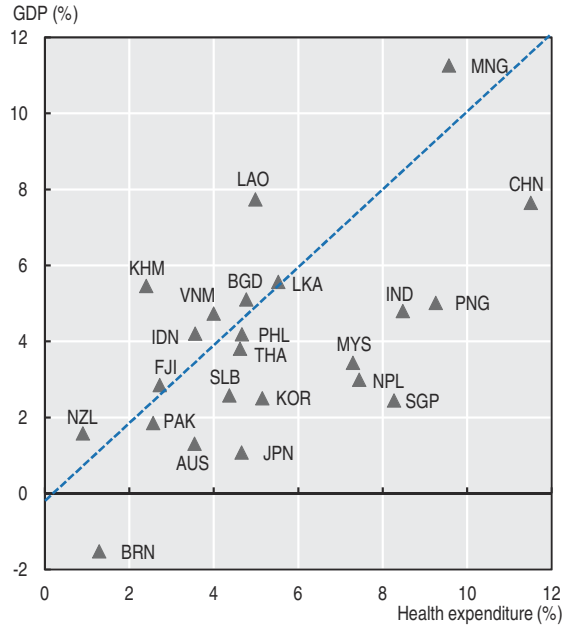
6.1. Health expenditure per capita, 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

StatLink http://dx.doi.org/10.1787/888933868728

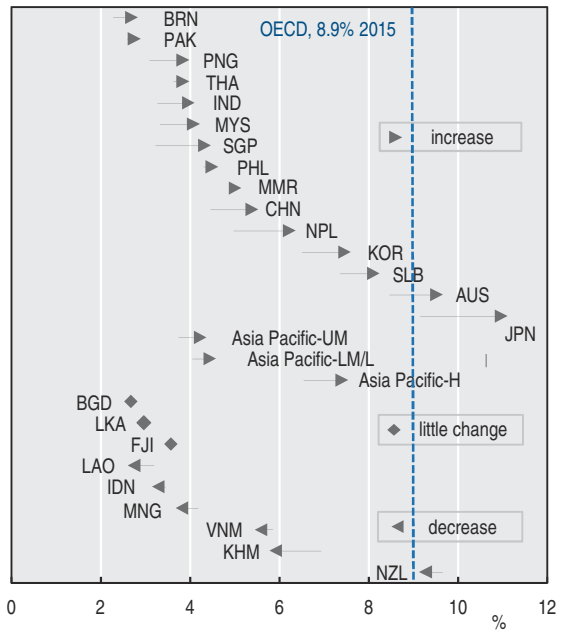
6.2. Annual average growth rate in per capita health expenditure and GDP, real terms, 2010 to 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

StatLink http://dx.doi.org/10.1787/888933868823

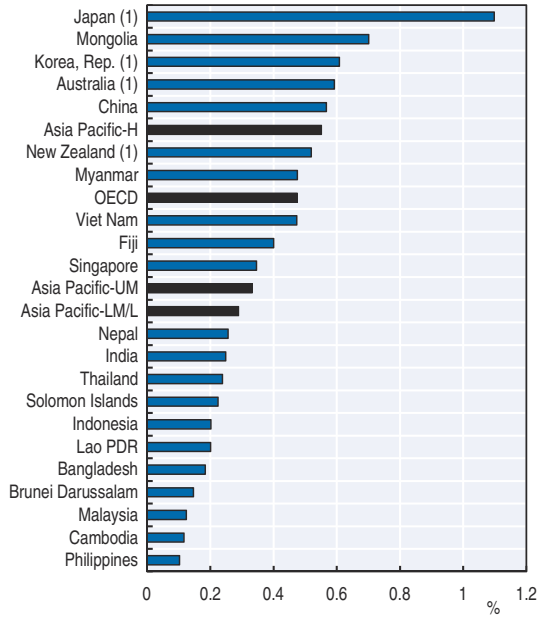
6.3. Change in health expenditure as a share of GDP, 2010 to 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

StatLink http://dx.doi.org/10.1787/888933868842

6.4. Gross fixed capital formation in the health care sector as a share of GDP, 2015



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

Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

StatLink http://dx.doi.org/10.1787/888933868861

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 care based on their residency. In other cases, compulsory health insurance schemes (either through public or private entities) linked to the payment of social contributions or health insurance premiums finance the bulk of health spending. In addition to these, a varying proportion of health care spending consists 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.

Figure 6.5 reports the change in the government and compulsory health insurance schemes as a share of GDP between 2010-15. On average, there was a slight increase in low and middle-income countries and territories in Asia-Pacific from 1.7% and 2.3% in 2010 to 1.9% and 2.6% in 2015 respectively. Solomon Islands reported an increase of more than 1 percentage point in the period in study, whereas Viet Nam showed a decrease of around 1 percentage point. The increase for high-income countries was higher than that observed for low and middle-income countries: from 4.7% in 2010 to 5.3% in 2015. Japan reported an increase of more than 1 percentage point, whereas New Zealand showed a decrease of 0.3 percentage point.

In 15 Asia-Pacific countries, government schemes and compulsory health insurance constitute the main health care financing arrangements. The higher the income level the higher the share of health care spending financed through government and compulsory health insurance schemes (Figure 6.6). In Thailand, New Zealand, Japan, Solomon Islands and Brunei more than 75% of all health expenditure was paid for through government schemes and compulsory health insurance. By contrast, in Myanmar, Bangladesh, India and Nepal less than 25% of health spending was paid for via government and compulsory insurance schemes.

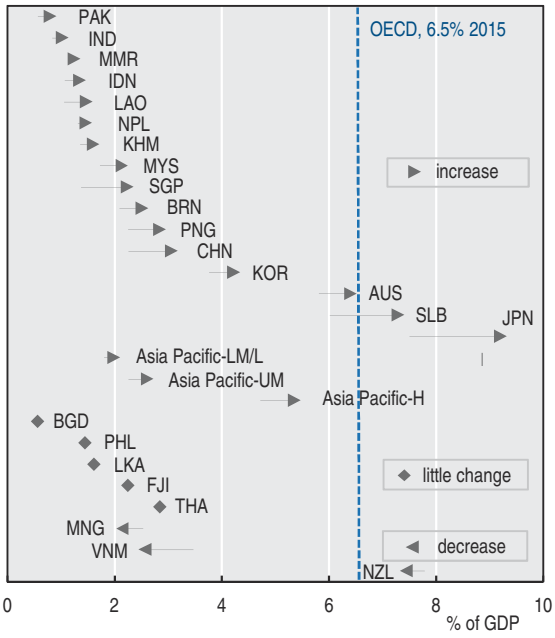
Governments provide a multitude of public services out of their overall budgets. Hence, health care is competing with many other sectors such as education, defence and housing. A number of factors including, among others, the type of system in place, the fiscal space and the capacity of health ministers 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 as a result of political decision-making and economic effects. In 2015, health spending by government schemes and compulsory insurance stood at around 7% of total government expenditure across low and low-middle income countries, whereas it represented 10.4% of total government expenditure in upper-middle income countries in Asia-Pacific (Figure 6.7). In Japan, Australia, New Zealand and Thailand more than 15% of public spending was dedicated to health care. On the other hand, less than 4% of government expenditure was allocated to health care in India, Pakistan and Bangladesh.

Definition and comparability

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

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

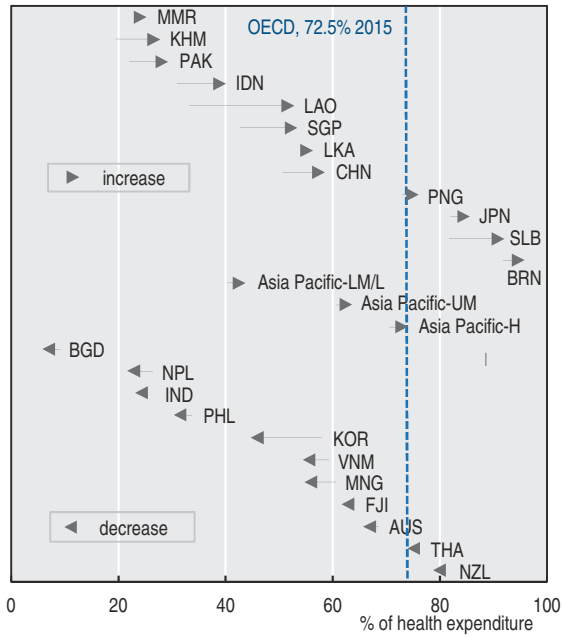
6.5. Change in health expenditure by government scheme and compulsory insurance scheme as a share of GDP, 2010 to 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

StatLink http://dx.doi.org/10.1787/888933868880

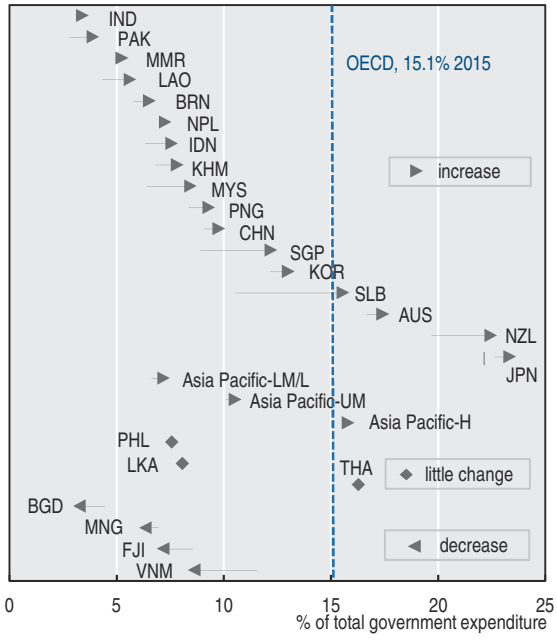
6.6. Change in health expenditure by government scheme and compulsory insurance scheme as a share of health expenditure, 2010 to 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

StatLink http://dx.doi.org/10.1787/888933868899

6.7. Change in health expenditure by government and compulsory health insurance schemes as a share of total government expenditure, 2010 to 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

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FINANCING OF HEALTH CARE FROM HOUSEHOLDS' OUT-OF-POCKET PAYMENTS, VOLUNTARY PAYMENT SCHEMES AND EXTERNAL RESOURCES

On average, the share of health spending paid out-of-pocket has fallen by around 2 percentage points to 21.4% and 25.6% in high- and upper-middle income Asia-Pacific countries since 2010, whereas it has increased from 47.1% to 48.2% in low and lower-middle income Asia-Pacific countries (Figure 6.8). The trend is quite diverse across the countries and the territories in the study. However, more than two thirds of the Asia-Pacific countries and territories reported a decrease, including between 7 and 10 percentage points for Papua New Guinea, Singapore and Indonesia, while Mongolia and Lao PDR reported a growth of around 10 percentage points in the same period. For each dollar spent on health, more than 60 centimes were "out-of-pocket" in Nepal, Bangladesh, Pakistan, India and Myanmar in 2015.

Figure 6.9 shows that health expenditure by voluntary payment schemes represented – on average – less than 10% of current expenditure on health in all country income groups in Asia-Pacific. This share increased in high-income countries, whereas it decreased in low and middle-income Asia-Pacific countries from 2010-15. Less than 3% of current health expenditure was from voluntary payment schemes in Bangladesh and Myanmar in 2015, while it was 14.5% or more in Singapore, Cambodia and the Philippines in the same year.

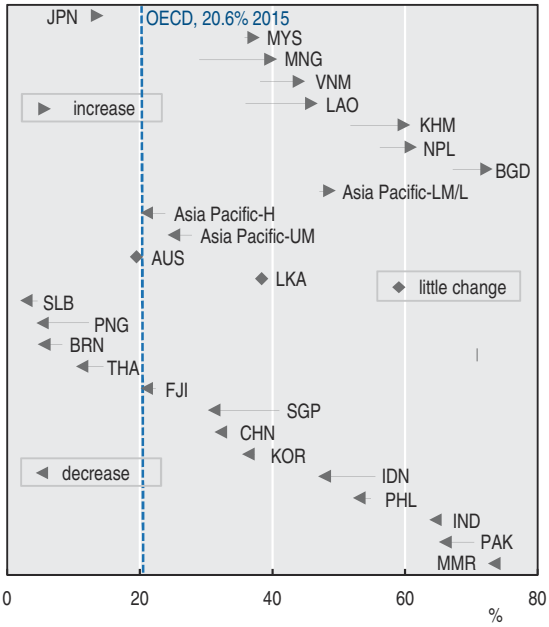
External funding for health care is quite relevant in many developing countries and territories in Asia-Pacific. In Solomon Islands more than one third of funds spent on health were from external resources in 2015 (Figure 6.10), whereas external resources accounted for between 15 and 25% of total health expenditure in Lao PDR, Cambodia and Papua New Guinea.

Definition and comparability

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

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

6.8. Change in health expenditure by households' out-of-pocket as a share of health expenditure, 2010 to 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

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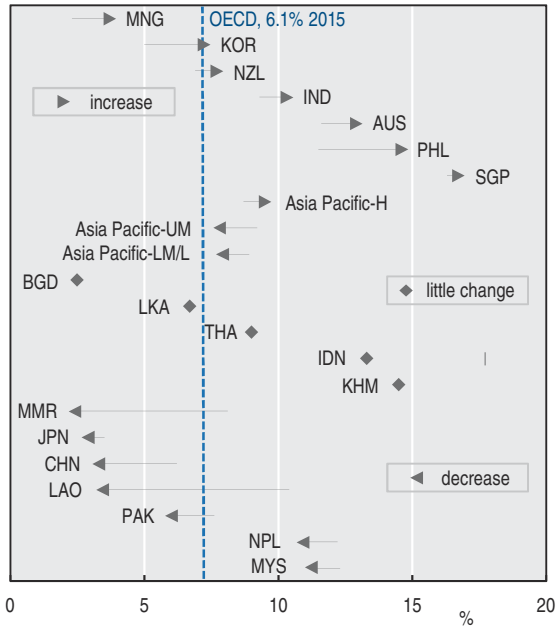
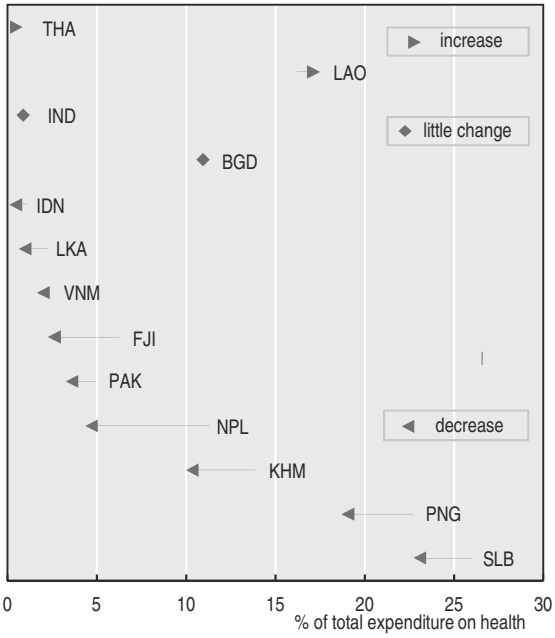
6.9. Change in health expenditure by voluntary health care payment schemes as a share of health expenditure, 2010 to 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

StatLink http://dx.doi.org/10.1787/888933868956

6.10. Change in external resources as a share of health expenditure, 2010 to 2015



Source: WHO Global Health Expenditure Database (2018f); OECD Health Statistics (2018).

StatLink http://dx.doi.org/10.1787/888933868747

PHARMACEUTICAL EXPENDITURE

Despite the commitment to a national medicines policy in many countries in the Asia-Pacific region, progress on the implementation of these policies has been slow (Asia-Pacific Conference on national medicine policies, 2012). For millions of people in those countries, problems of access to essential medicines remain. Medicines are often not available or affordable and they may be low quality products which may also be inappropriately used in practice. Household out-of-pocket expenses on medicines account for a substantial proportion of total health care expenditures, and for many people on lower incomes, these out-of-pocket expenses push them below the poverty line and further their financial hardship (WHO Office for South-East Asia, 2017).

Per capita pharmaceutical spending varies a lot among the countries and territories under study. In 2015, several Asia-Pacific countries and territories reported spending below USD PPP 50 per capita, with Pakistan, Lao PDR and Solomon Islands spending less than USD PPP 30 per capita (Figure 6.11). China and Bangladesh reported a per capita annual average growth rate of pharmaceutical spending in real terms of more than 8% from 2010-15 (Figure 6.12). A decrease in expenditure (or a limited increase over time) does not necessarily mean a drop in use, but may be due to an increase in the use of generics, a more efficient public procurement process and a rational use of drugs.

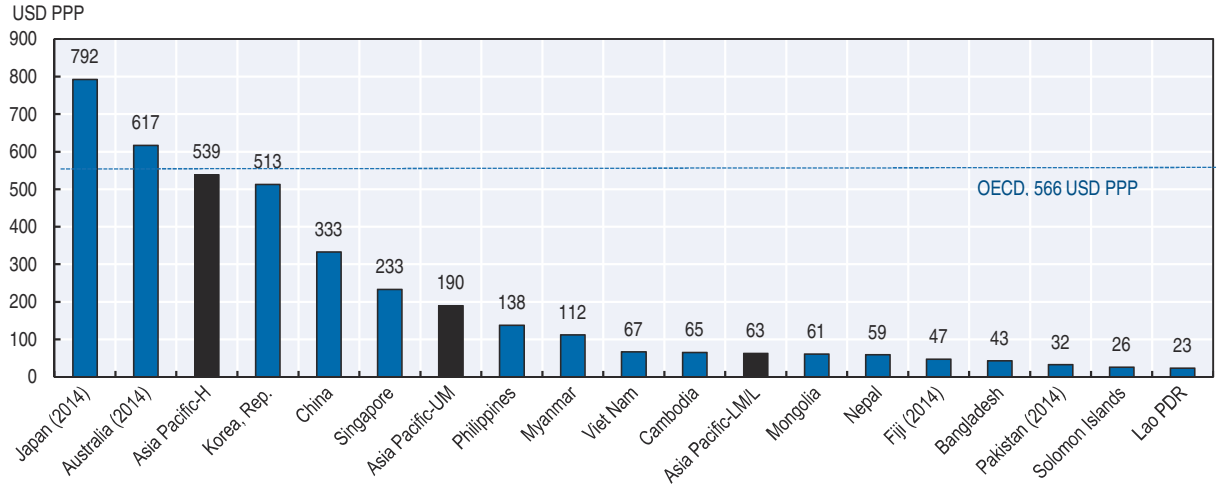
In China and Bangladesh more than 40% of health expenditure was on pharmaceuticals, while this share was less than 15% in Fiji, Australia and Singapore. Pharmaceutical share of health expenditure increased by more than 3 percentage points from 2010-15 in Bangladesh, whereas it decreased by more than 4 percentage points in the Republic of Korea, Nepal and China (Figure 6.13).

Definition and comparability

See indicator "Health expenditure per capita and in relation to GDP" in Chapter 6for the PPP conversion rate and the formula and deflator used to compute annual average growth rate.

Pharmaceutical expenditures include pharmaceuticals, medicinal chemicals and botanical products used for health uses, prescribed or not. They comprise outlays during episodes of hospital care and in out-patient clinics – that is intermediate consumption in national income and product account, as well as over-the-counter sales.

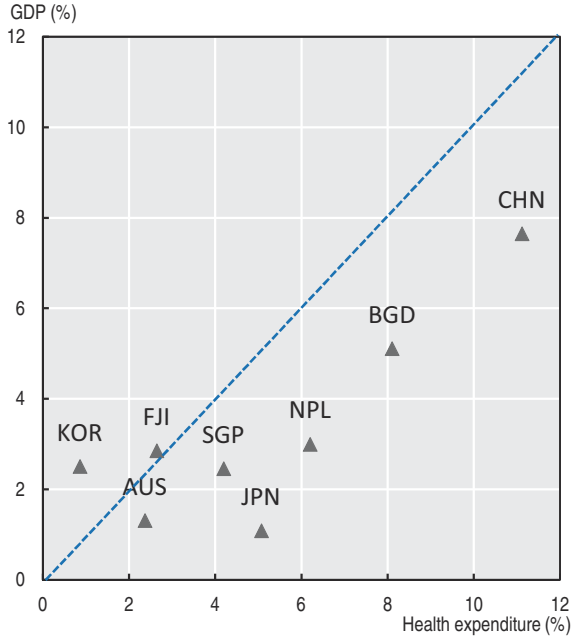
6.11. Pharmaceutical expenditure per capita, 2015



Source: WHO unpublished data; OECD Health Statistics.

StatLink http://dx.doi.org/10.1787/888933868766

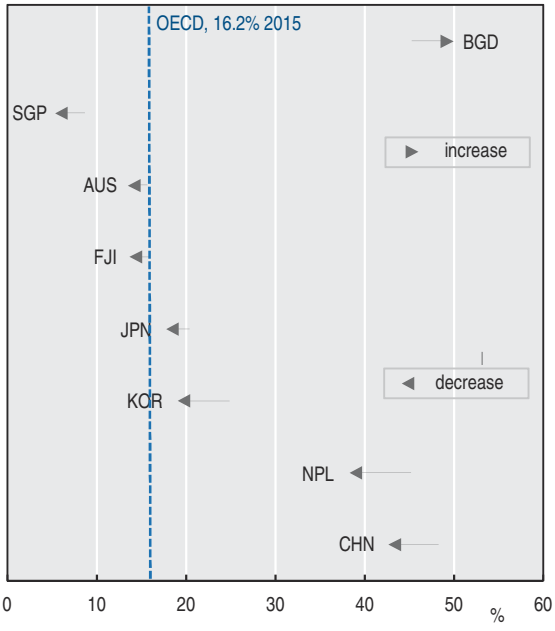
6.12. Annual average growth rate in per capita pharmaceutical and health expenditure, real terms, 2010 to 2015



Source: WHO unpublished data, OECD Health Statistics 2018.

StatLink http://dx.doi.org/10.1787/888933868785

6.13. Change in pharmaceutical expenditure as a share of health expenditure, 2010 to 2015



Source: WHO unpublished data, OECD Health Statistics 2018.

StatLink http://dx.doi.org/10.1787/888933868804

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Chapter 7

Quality of care

CHILDHOOD VACCINATION PROGRAMMES

Childhood vaccination continues to be one of the most cost-effective health policy interventions (Chan et al., 2017). All countries have established vaccination programmes including a minimum number of routine vaccines (i.e. against polio, diphtheria, tetanus, pertussis, measles); additional vaccines (i.e. against pneumococcus, rotavirus and human papilloma virus) are included at national or subnational level based on local morbidity, mortality and cost-effectiveness analysis. Coverage of these programmes and reduction of burden of vaccine preventable diseases can be considered as a quality of care indicator. Polio, pertussis, measles and hepatitis B are taken here as examples as they represent, in timing and frequency of vaccination, the full spectrum of organisational challenges related to routine vaccination.

Reviews of the evidence supporting the efficacy of vaccines included in routine immunisation programmes have concluded that they are safe and highly effective against mortality and morbidity caused by diseases they are treating.

A vaccination for hepatitis B has been available since 1982 and is considered to be 95% effective in preventing infection and its chronic consequences, such as cirrhosis and liver cancer. In 2015, hepatitis B resulted in 887 000 deaths, mostly from complications (including cirrhosis and hepatocellular carcinoma) (WHO, 2018e). In 2007, more than 170 countries had adopted the WHO recommendation to incorporate hepatitis B vaccine including birth dose as an integral part of their national infant immunisation programme. Hepatitis B vaccination is recommended for all children worldwide, and reaching all children with at least three doses of hepatitis B vaccine should be the standard for all national immunisation programmes (WHO, 2017f). Recent data revealed that hepatitis B vaccination across the Western Pacific has averted 7 million deaths and 37 million chronic infections that would have occurred among children born between 1990 and 2014 (Wiesen et al., 2016)

Figure 7.1 and Figure 7.2show that the overall vaccination of children against pertussis (provided through combined vaccines containing also diphtheria and tetanus) and measles was high in most Asia-Pacific countries and economies in 2016. Almost all children aged around one year received the recommended measles and pertussis vaccination in high and upper-middle income Asia-Pacific countries in 2016, whereas the vaccination rate was at 89% and 86% in lower-middle and low income Asia-Pacific countries for pertussis and measles respectively which, although high, is insufficient to ensure interruption of disease transmission and protection of the whole population. Exceptions were Pakistan and Papua New Guinea where less than three children in four were vaccinated against pertussis and measles in 2016.

Figure 7.3 shows that the average percentage of children aged one who are vaccinated for hepatitis B across Asia-Pacific countries and economies was slightly lower than for measles and pertussis. Rates for most countries are above 80%, with lower coverage among lower-middle and low income countries, and particularly low coverage in Pakistan and Papua New Guinea.

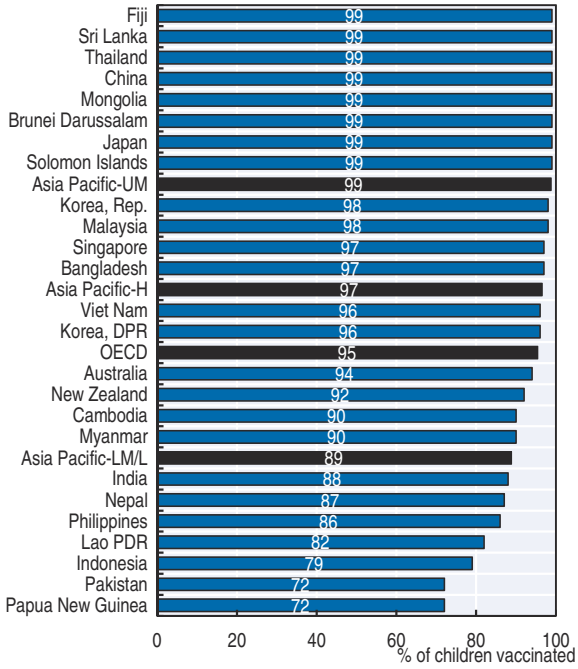
Although vaccination rates have plateaued at a high level in many countries in Asia-Pacific, some countries with historically low rates continue to make substantial progress. In 2007, hepatitis B immunisation in India was only 6%, and measles immunisation in the Lao PDR only 40% of the target population, but as of 2016 their respective vaccine coverage was 88% and 76%, for example. Nevertheless some countries still show slow progress in vaccination rates.

Even though vaccines are designed to be both safe and effective, adverse events following immunisation do occur and need to be reported in order to identify problems and take appropriate corrective actions. Vaccine safety surveillance is progressing in WHO member states and by 2016, 107 of 184 countries globally reporting adverse events following immunisation (AEFI) registered 10 or more annual reports per 100 000 surviving infants. Both regions are gradually improving the vaccine safety surveillance, reaching 75% of countries reporting AEFI and 49% of countries meeting adequate AEFI surveillance performance (Global Vaccine Action Plan, 2017).

Definition and comparability

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

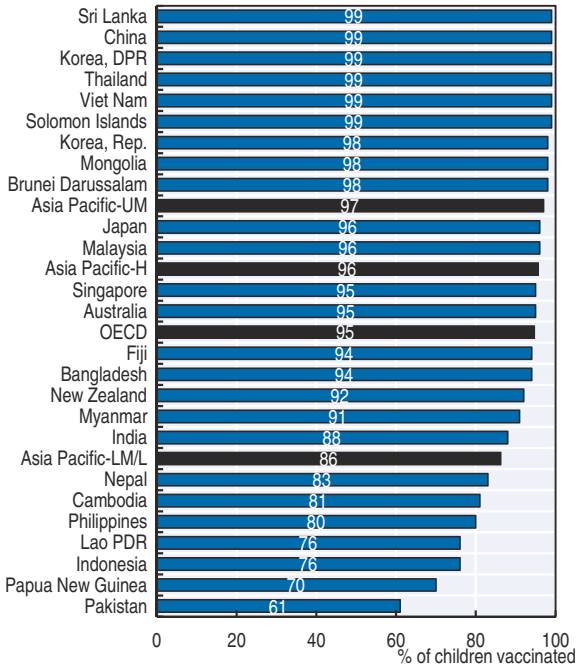
7.1. Vaccination rates for diphtheria tetanus toxoid and pertussis (DTP3), children aged around 1, 2016



Source: WHO, Global Health Observatory 2018.

StatLink http://dx.doi.org/10.1787/888933868975

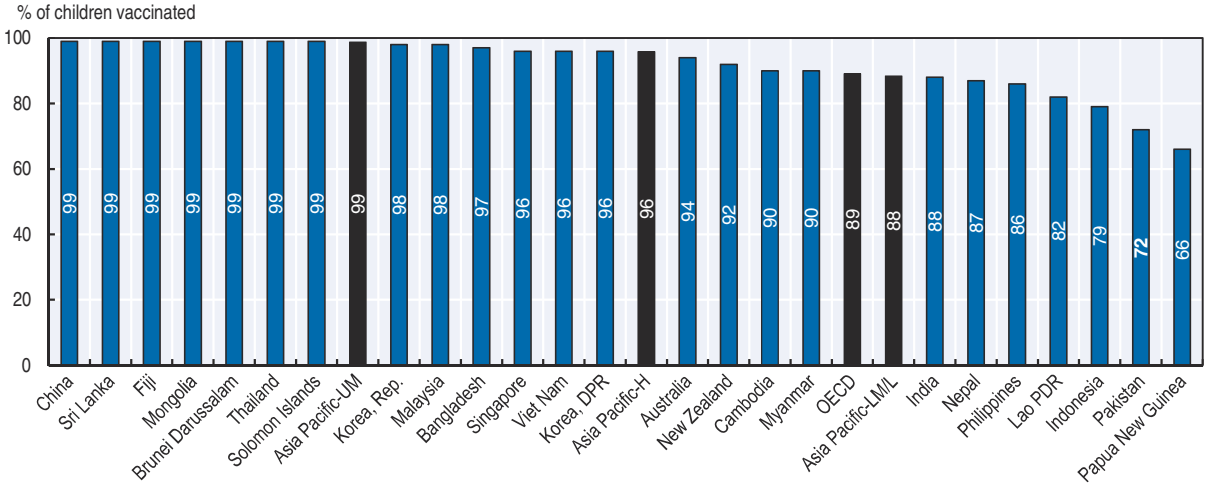
7.2. Vaccination rates for measles (MCV), children aged around 1, 2016



Source: WHO, Global Health Observatory 2018.

StatLink http://dx.doi.org/10.1787/888933869013

7.3. Vaccination rates for hepatitis B (Hep3), children aged around 1, 2016



Source: WHO, Global Health Observatory 2018.

StatLink http://dx.doi.org/10.1787/888933869032

IN-HOSPITAL MORTALITY FOLLOWING ACUTE MYOCARDIAL INFARCTION AND STROKE

Ischaemic heart diseases and stroke were the two major causes of death in Asia-Pacific in 2016, accounting for 34.7% and 25.2% of total deaths (WHO, 2018a). Additionally, both are associated with significant health, social and non-financial costs, because of the persistent disabilities suffered by many survivors. Treatment following acute myocardial infarction (AMI) and stroke has advanced greatly over the past decade. Until the 1990s, treatment focused on prevention of complications and rehabilitation. But following the great improvements in AMI survival rates that were achieved with thrombolysis (Gil et al., 1999), clinical trials also demonstrated the benefits of thrombolytic treatment provided within six hours after acute ischemic stroke (O'Rourke et al., 2010; Wardlaw et al., 2014). Dedicated cardiac care and stroke units offering timely and proactive therapy achieve better survival than conservative care (Seenan et al., 2007), although studies have shown that a considerable number of patients fail to receive high-quality, evidence-based care (Eagle et al., 2005).

For both AMI and stroke, the case-fatality rate is a useful measure of acute care quality. It reflects the processes of care, such as effective medical interventions, including early thrombolysis or treatment with aspirin when appropriate, and co-ordinated and timely transport of patients. For AMI, crude and age-sex standardised in-hospital case-fatality rates within 30 days of admission vary widely, with the lowest rates reported in Australia (4%) and New Zealand (4.7%) (Figure 7.4). Japan had the highest reported case-fatality rate at 11.7%. Beyond the quality of care provided in hospitals, differences in hospital transfers, average length of stay, emergency retrieval times and average severity of AMI and stroke may influence reported 30 day-case fatality.

For ischemic stroke, the lowest case-fatality rates were reported in Japan (3.1%) and the Republic of Korea (3.9%), while New Zealand reported the highest rate of 7.7% (Figure 7.5). Fatality rates for haemorrhagic stroke are significantly higher than for ischemic stroke, and countries that achieve better survival for one type of stroke also tend to do well for the other. Again, the lowest case-fatality rates for haemorrhagic stroke were reported in Japan (11.2%) and the Republic of Korea (17.1%), with New Zealand reporting the highest rate of 23.6% (Figure 7.6). Given the initial steps of care for stroke patients are similar, this suggests that system-based factors play a role in explaining the differences across countries.

Data presented here do not take account of patients that are transferred to other hospitals during their care or reflect patients dying out of hospitals within 30 days. Through the use of a unique patient identifier patient data can be linked across hospitals and with death registers to generate more robust indicators for national monitoring and international comparison. Currently, very few countries in Asia-Pacific are able to track patients in this way and hence this form of indicator is not shown here.

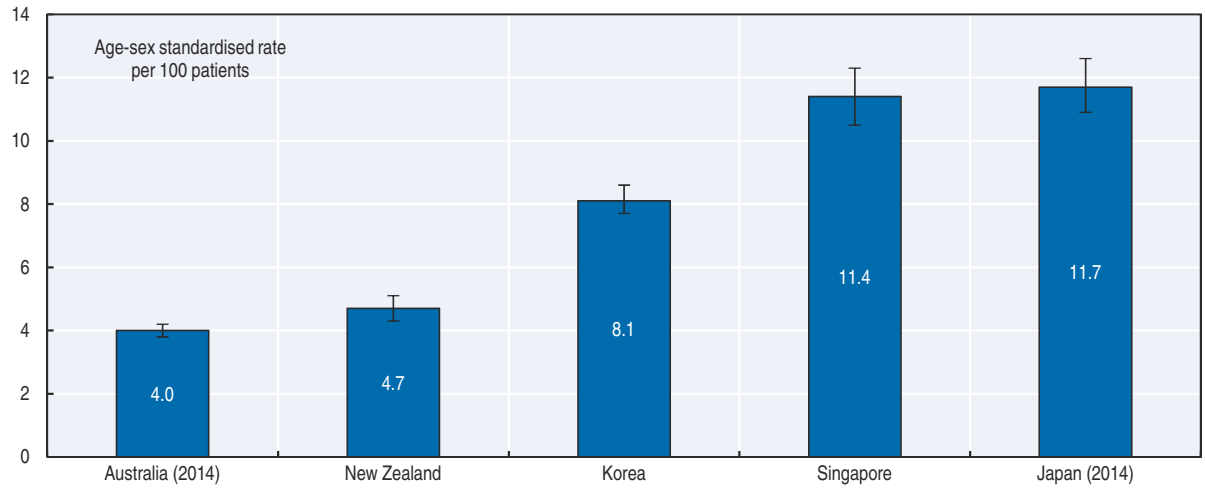
Definitions and comparability

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

Standardised rates adjust for differences in age (45+ years) and sex, and facilitate more meaningful international comparisons.

H represents lower and upper bounds.

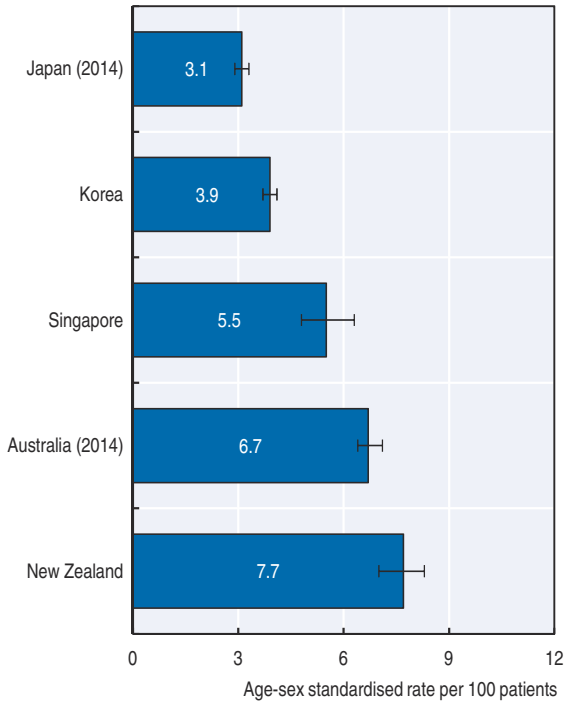
7.4. In-hospital case-fatality rates within 30 days after admission for AMI, patients 45 years old and over, 2015 (or nearest year)



Source: OECD Health Statistics 2018.

StatLink http://dx.doi.org/10.1787/888933869051

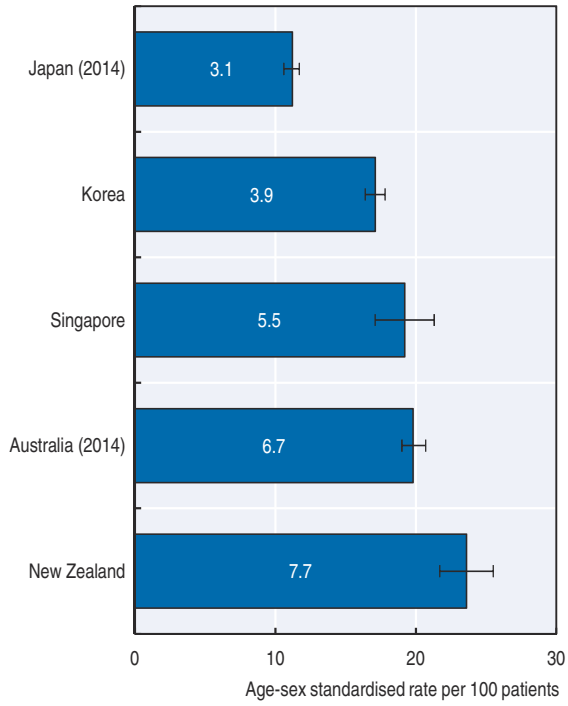
7.5. In-hospital case-fatality rates within 30 days after admission for ischemic stroke, patients 45 years old and over, 2015 (or nearest year)



Source: OECD Health Statistics 2018.

StatLink http://dx.doi.org/10.1787/888933869070

7.6. In-hospital case-fatality rates within 30 days after admission for haemorrhagic stroke, patients 45 years old and over, 2015 (or nearest year)



Source: OECD Health Statistics 2018.

StatLink http://dx.doi.org/10.1787/888933869089

FIVE-YEAR NET SURVIVAL FOR BREAST, CERVICAL AND COLORECTAL CANCER

Breast cancer accounts for over 200 000 deaths per year in Asia-Pacific (WHO, 2018). There are a number of factors that increase the risk of breast cancer, such as age, family history, oestrogen replacement therapy and alcohol use, while breastfeeding and physical activity have a protective effect (World Cancer Research Fund, 2018; Gonzales-Jimenez et al., 2014).

Cervical cancer, which causes nearly 150 000 deaths per year in Asia-Pacific, is also preventable and curable if detected early. The main cause of cervical cancer, which accounts for approximately 95% of all cases, is sexual exposure to the human papilloma virus, HPV. Pap-smear and HPV DNA testing increases the probability of detecting premalignant lesions which can then be effectively treated (WHO, 2014f). In addition, primary prevention by prophylactic vaccines has been shown to be highly effective and offers new potential in controlling the disease (Arrossi et al., 2017).

Colorectal cancer is the third most commonly diagnosed form of cancer after prostate and lung cancers, for men, and the second most common cancer after breast cancer, for women, across OECD countries (OECD, 2017). Colorectal cancer causes approximately 350 000 deaths per year in Asia-Pacific (WHO, 2018a). There are several factors that place certain individuals at increased risk of colorectal cancer including a diet high in fat, sedentary lifestyles and family history. Colorectal cancer incidence and mortality rates vary by human development across countries, with an increasing burden in countries undergoing socio-economic transition such as China and the Philippines (Arnold et al., 2017). The secondary prevention of colorectal cancer by faecal occult blood test, sigmoidoscopy or colonoscopy screening is increasingly being recommended (Centers for Disease Control and Prevention, 2016).

Five-year net survival reflects the quality of cancer treatment. For the most recent estimations on breast cancer, Australia (89.5%) and Japan (89.4%) reported the highest five-year net survival, whereas in India, Malaysia and Thailand the probability that breast cancer patients survive their cancer for at least five years is less than 70% (Figure 7.7).

For cervical cancer, the Republic of Korea (77.3%) and Japan (71.4%) reported the highest five-year net survival, while Thailand (53.9%) and Malaysia (57.1%) reported the lowest one (Figure 7.8). As well as reflecting differences in the effectiveness of population screening programmes and access to high quality treatment, these figures also reflect incidence rates. Fiji has a relatively high incidence of cervical cancer (37.8 cases per 100 000 females per year), as does Papua New Guinea (34.5), compared to Australia (5.5) and New Zealand (5.3) (Ferlay et al., 2013).

For colon cancer, the Republic of Korea (71.8%) and Australia (70.7%) reported the highest five-year net survival, while India (38.9) reported the lowest one (Figure 7.9). Similar probabilities were reported for rectal cancer, with the Republic of Korea (71.1%) and Australia (71.0%) reporting the highest survival probability, and India (30%) the lowest one.

Definitions and comparability

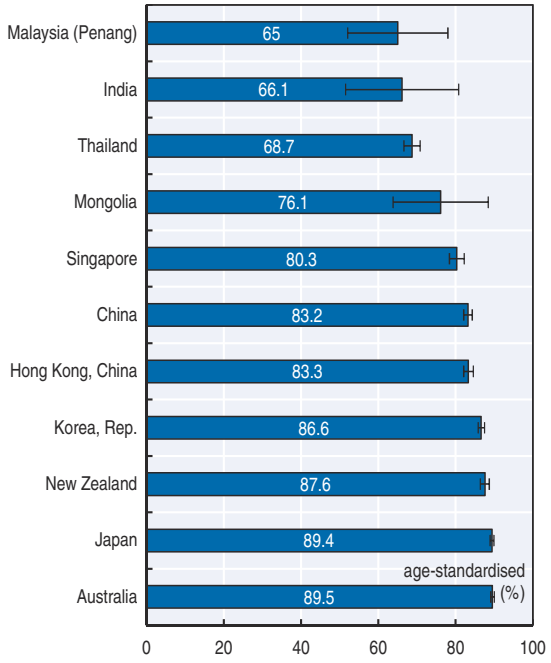
Five-year net survival is the cumulative probability that cancer patients survive their cancer for at least five years, after controlling for the risks of death from other causes. Net survival is expressed as a percentage. Net survival for patients diagnosed during 2000-04 is based on a cohort approach, since all patients had been followed up for at least five years by the end of 2014. For patients diagnosed during 2010-14, the period approach is used, which allows estimation of five-year survival, though five years of follow-up are not available for all patients. Cancer survival estimates are age-standardised with the International Cancer Survival Standard (ICSS) weights.

Data collection, quality control and analysis were performed centrally as part of the CONCORD programme, the global programme for the surveillance of cancer survival, led by the London School of Hygiene and Tropical Medicine (Allemani et al., 2015). In some countries, not all regional registries participated, but survival estimates from the CONCORD programme are considered the best available data from those countries for international comparisons.

Mongolia, Singapore, Hong-Kong, China, the Republic of Korea, New Zealand and Australia report a 100% coverage of the national population, whereas data for Malaysia cover only one province (Penang). Five-year net survival for breast and cervical cancer for Malaysia and Thailand are preliminary estimates.

H represents lower and upper bounds.

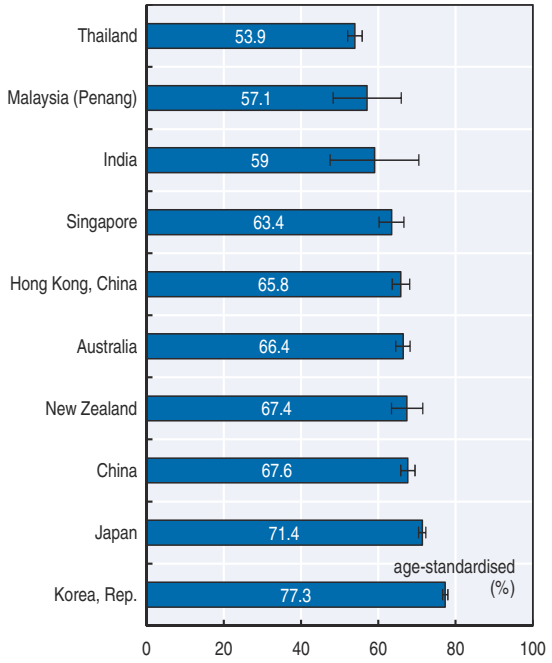
7.7. Breast cancer 5-year net survival (%), adults (15-99 years), 2010-14



Source: Global surveillance of trends in cancer survival 2000-14 (CONCORD-3).

StatLink http://dx.doi.org/10.1787/888933869108

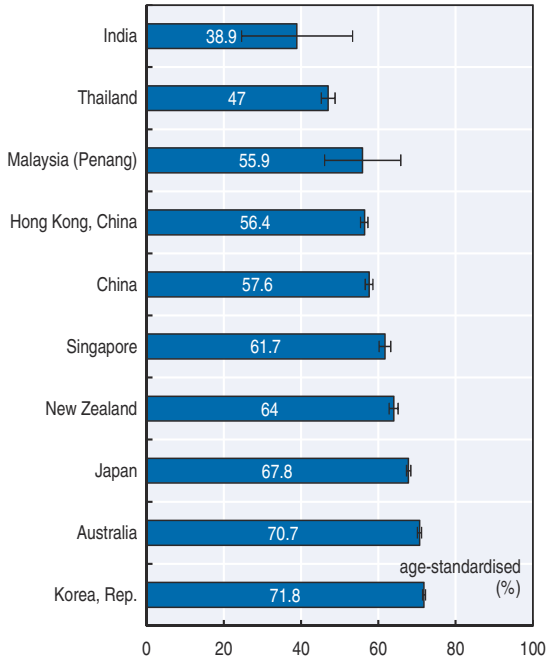
7.8. Cervical cancer 5-year net survival (%), adults (15-99 years), 2010-14



Source: Global surveillance of trends in cancer survival 2000-14 (CONCORD-3).

StatLink http://dx.doi.org/10.1787/888933869127

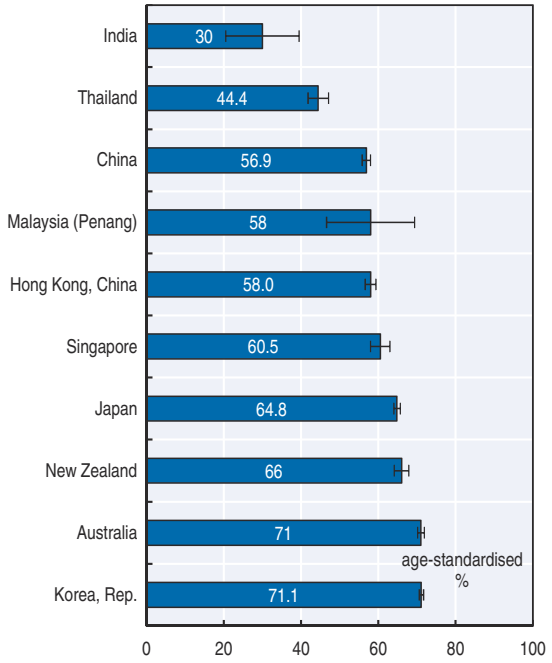
7.9. Colon cancer 5-year net survival (%), adults (15-99 years), 2010-14



Source: Global surveillance of trends in cancer survival 2000-14 (CONCORD-3).

StatLink http://dx.doi.org/10.1787/888933869146

7.10. Rectum cancer 5-year net survival (%), adults (15-99 years), 2010-14



Source: Global surveillance of trends in cancer survival 2000-14 (CONCORD-3).

StatLink http://dx.doi.org/10.1787/888933868994

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ANNEX A

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ANNEX B

Additional information on demographic and economic context

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

	1970	1980	1990	2000	2010	2020
Australia	12 843	14 649	17 041	19 066	22 120	25 398
Bangladesh	65 048	81 471	106 189	131 581	152 149	169 775
Brunei Darussalam	130	194	259	333	389	445
Cambodia	6 995	6 692	8 973	12 152	14 309	16 716
China	824 788	993 877	1 172 445	1 283 199	1 359 755	1 424 548
Fiji	521	635	729	811	860	925
Hong Kong, China	3 873	4 915	5 781	6 664	7 025	7 548
India	553 579	696 784	870 133	1 053 051	1 230 981	1 383 198
Indonesia	114 835	147 490	181 437	211 540	242 524	272 223
Japan	104 926	117 827	124 516	127 534	128 552	126 496
Korea, DPR	14 410	17 472	20 293	22 929	24 592	25 841
Korea, Republic	32 209	38 050	42 923	47 386	49 553	51 507
Lao PDR	2 688	3 258	4 258	5 329	6 246	7 165
Macau, China	246	238	344	428	537	652
Malaysia	10 804	13 798	18 038	23 186	28 112	32 869
Mongolia	1 279	1 690	2 184	2 397	2 713	3 209
Myanmar	26 381	33 370	40 626	46 095	50 156	54 808
Nepal	11 998	14 902	18 749	23 741	27 023	30 260
New Zealand	2 818	3 147	3 398	3 859	4 370	4 834
Pakistan	58 091	78 068	107 679	138 523	170 560	208 362
Papua New Guinea	2 528	3 304	4 313	5 572	7 108	8 756
Philippines	35 805	47 397	61 947	77 992	93 727	109 703
Singapore	2 072	2 412	3 013	3 914	5 074	5 935
Solomon Islands	160	231	312	413	528	647
Sri Lanka	12 486	15 036	17 330	18 782	20 198	21 084
Thailand	36 885	47 385	56 583	62 958	67 209	69 411
Viet Nam	43 407	54 373	68 210	80 286	88 473	98 360

Source: UNDESA, 2018, World Population Prospects: The 2017 Revision.

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

	1970	1980	1990	2000	2010	2020
Australia	8.2	9.6	11.1	12.3	13.4	16.3
Bangladesh	2.7	3.1	3.1	3.8	4.7	5.2
Brunei Darussalam	3.6	2.9	2.6	2.4	3.4	5.6
Cambodia	2.6	2.7	2.9	3.1	3.7	4.9
China	3.8	4.7	5.7	6.9	8.4	12.2
Fiji	2.2	2.6	2.9	3.4	4.8	6.9
Hong Kong, China	4.1	6.4	8.8	11.0	13.0	18.1
India	3.3	3.6	3.8	4.4	5.1	6.6
Indonesia	3.3	3.6	3.8	4.7	4.9	5.8
Japan	6.9	8.9	11.9	17.0	22.5	28.2
Korea, DPR	3.2	3.6	4.3	5.9	8.7	9.3
Korea, Rep.	3.5	4.1	5.2	7.2	10.7	15.7
Lao PDR	3.1	3.5	3.5	3.6	3.7	4.3
Macau, China	4.7	7.6	6.5	7.4	6.8	11.9
Malaysia	3.3	3.6	3.6	3.8	4.9	7.0
Mongolia	4.8	4.5	4.1	3.7	3.8	4.4
Myanmar	3.8	4.0	4.0	4.8	4.9	6.4
Nepal	2.9	3.3	3.5	3.8	4.9	6.2
New Zealand	8.5	9.8	11.1	11.8	13.1	16.3
Pakistan	3.8	3.8	3.9	4.1	4.4	4.5
Papua New Guinea	2.6	2.7	2.9	3.2	3.4	4.1
Philippines	3.0	3.2	3.1	3.3	4.1	5.2
Singapore	3.3	4.7	5.6	7.3	9.0	15.0
Solomon Islands	3.5	3.1	2.8	2.8	3.3	3.6
Sri Lanka	3.7	4.4	5.5	6.2	7.3	11.2
Thailand	3.5	3.7	4.5	6.5	8.9	12.9
Viet Nam	5.4	5.3	5.7	6.4	6.6	8.1

Source: UNDESA, 2018, World Population Prospects: The 2017 Revision.

Table 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	12.8
Bangladesh	42.2	33.0	26.0	20.2	18.5
Brunei Darussalam	30.7	28.3	19.2	16.7	15.4
Cambodia	50.6	38.0	26.5	24.5	22.7
China	21.6	17.9	12.5	12.6	11.6
Fiji	33.1	28.1	24.0	20.7	18.9
Hong Kong, China	15.3	12.4	8.4	10.5	11.1
India	35.5	30.0	25.3	20.0	18.7
Indonesia	31.7	24.4	22.0	20.2	18.4
Japan	12.8	9.8	8.9	8.4	8.1
Korea, DPR	21.7	20.7	16.8	14.0	13.8
Korea, Republic	20.1	16.0	10.5	8.9	8.9
Lao PDR	42.9	41.5	29.7	25.5	23.2
Macau, China	21.2	15.1	7.5	11.3	12.2
Malaysia	31.1	27.2	19.4	17.2	17.0
Mongolia	38.2	27.5	18.9	26.0	22.4
Myanmar	34.4	25.7	24.3	18.7	17.6
Nepal	41.2	37.2	29.7	20.9	19.5
New Zealand	15.8	16.6	14.2	13.7	13.1
Pakistan	42.1	38.2	30.3	29.7	27.4
Papua New Guinea	38.3	34.5	33.0	28.8	27.2
Philippines	35.7	31.9	28.8	24.1	22.9
Singapore	17.0	17.6	11.3	9.3	8.7
Solomon Islands	42.4	38.8	35.1	30.8	27.9
Sri Lanka	25.8	19.8	18.6	16.4	14.9
Thailand	24.2	18.2	13.6	11.3	10.0
Viet Nam	31.4	26.7	16.9	17.4	16.2

Source: UNDESA, 2018, World Population Prospects: The 2017 Revision.

Table B.4. **Fertility rate, number of children per women 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	1.6
Fiji	3.8	3.4	3.0	2.6	2.5
Hong Kong, China	1.7	1.2	1.0	1.2	1.3
India	4.7	3.8	3.1	2.4	2.3
Indonesia	4.1	2.9	2.5	2.5	2.3
Japan	1.8	1.5	1.3	1.4	1.5
Korea, DPR	2.8	2.3	2.0	2.0	1.9
Korea, Republic	2.2	1.7	1.2	1.2	1.3
Lao PDR	6.4	5.9	3.9	2.9	2.8
Macau, China	2.1	1.4	0.8	1.2	1.3
Malaysia	4.0	3.4	2.5	2.1	2.0
Mongolia	5.8	3.3	2.1	2.8	2.7
Myanmar	4.7	3.2	2.9	2.3	2.2
Nepal	5.6	5.0	3.6	2.3	2.1
New Zealand	2.0	2.1	1.9	2.0	2.0
Pakistan	6.4	5.7	4.2	3.7	3.4
Papua New Guinea	5.5	4.7	4.4	3.8	3.6
Philippines	4.9	4.1	3.7	3.1	2.9
Singapore	1.7	1.7	1.3	1.2	1.3
Solomon Islands	6.4	5.5	4.6	4.1	3.8
Sri Lanka	3.2	2.4	2.3	2.1	2.0
Thailand	2.9	2.0	1.6	1.5	1.5
Viet Nam	4.6	3.2	1.9	2.0	1.9

Source: UNDESA, 2018, World Population Prospects: The 2017 Revision.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
(81 2018 74 1 P) ISBN 978-92-64-30623-3 – 2018

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ISBN 978-92-64-30623-3
81 2018 74 1 P