Health at a Glance Asia/Pacific 2014

MEASURING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE

OECD

World Health Organization

Health at a Glance: Asia/Pacific 2014

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OECD
BETTER POLICIES FOR BETTER LIVES

World Health Organization

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Foreword

Reliable measures of health and health care enable policy makers to gauge the quality of care and generally inform efforts to improve health systems across the Asia/Pacific region.

Health at a Glance: Asia/Pacific 2014 *presents the latest comparable data and trends on key aspects of health and health systems in selected Asia/Pacific countries. The indicators provide an overview 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.*

Enhancing the quality of care is central to strengthening health care systems. The chapter on quality of care outlines policy initiatives in the region, including accreditation programmes for hospitals, the development of national quality improvement plans and improved professional development for health professionals. Programmes have also been implemented to develop guidelines, standards and indicators, measure patient experiences and improve patient safety.

Comparing health system performance across countries can highlight good practices, lead to innovation and sharing, and inspire policy makers to consider approaches and strategies.

This report offers a comprehensive framework to monitor and evaluate the performance of health care systems. We hope the data reported in this publication will help policy makers carry out evidence-based policies towards universal health coverage, improving the health of populations across the Asia Pacific region

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Executive summary

Health at a Glance: Asia/Pacific 2014 presents key indicators on health status, determinants of health, health care resources and utilisation, health expenditure and financing, and quality of care for 27 Asia/Pacific countries and economies. Countries in the Asia/Pacific region are diverse, and their health issues and health systems often differ. However, these indicators provide a concise overview of the progress of countries towards achieving universal health coverage for their population.

Life expectancy has continued to increase

- Life expectancy at birth across Asian countries reached 73.4 years in 2012, a gain of about seven years since 1990. OECD countries gained, on average, 5.3 years over the same period.
- The infant mortality rate has fallen dramatically across the region since 1990, with many countries experiencing declines of greater than 50%. At an average of 23 deaths per 1 000 live births in 2012, infant mortality is still six times the OECD rate.
- Maternal mortality averages around six deaths per 100 000 live births in OECD countries, while in Asian countries it is almost 15 times greater. Between 1990 and 2013, the average maternal mortality rate across Asian countries has been cut by 48%.
- Cardiovascular diseases cause around one third of all deaths, while tuberculosis is the leading cause of death from an infectious disease in the Asia/Pacific region. In 2012, over 6.3% of the 8.6 million people in the world suffering from tuberculosis lived in the region.
- The share of the population aged over 65 years in Asia is expected to nearly quadruple in the next four decades to reach 26% in 2050, surpassing the OECD.

Improving sanitation in rural areas is still problematic

- Across Asian countries, almost 12 babies out of 100 are born preterm on average but the rate varies across countries, ranging from 5.9 in Japan to 15.8 in Pakistan. The average rate of low birth weight is 11.6% across Asian countries, much higher than the OECD average of 6.6%.
- In the Asian countries, although safe water access for rural dwellers has improved steadily since 1990 and reached 87.7% of rural populations in 2012 compared to 97% in urban dwellings, improving sanitation in rural areas is more problematic. In the region, on average, only 56.5% of rural dwellers had access to adequate sanitation in 2012 compared to 73.6% in urban dwellings, and the coverage was very low at 25% in Cambodia and India.
- The proportion of daily smokers varies greatly across countries but the average smoking rate for men in Asian countries was significantly higher at 35% than the OECD average of 24% in 2012. There are large male-female disparities in the region and less than 5% of women in most Asian countries reporting smoking daily, compared with 16% in OECD countries.

Low supply capacity persists

- The supply of doctors and nurses in the region, at around 1.2 and 2.8 per 1 000 population respectively, is well below the OECD average of 3.2 and 8.7.
- The number of hospital beds per capita is 3.3 per 1 000 population on average across Asia, lower than the OECD average of 4.8, but varies considerably. It is highest in Japan with over 13 beds per 1 000 population, and lowest in the Philippines with 0.5 per 1 000 population. Hospital discharge is low at 115 per 1 000 population on average in Asian countries and economies, compared with the OECD average of 156, and there is also a large variation between countries in the region.
- Around 84% of pregnant women in the Asia/Pacific region receive at least one antenatal visit, and the proportion of births assisted by medical professionals increased in the last decade, reaching 81% in 2012.

Less financial burden on households out-of-pocket spending, but only half of the health spending is from public sources

- Asian economies spend just over USD 730 per person per year on health, against USD 3 510 in OECD countries. This amounts to over 4.6% of gross domestic product, on average, in the Asian region, compared to over 9.3% in OECD countries.
- The share of public spending in total health spending is much lower in Asia compared to OECD countries: 48.1% vs 72.7% respectively.
- The growth rate in per capita health spending in real terms was 5.6% per year in Asia, on average between 2000 and 2012, higher than the 4.3% observed for gross domestic product. The growth rate for China and Mongolia was even more rapid – almost twice the average rate for the region.
- Spending on pharmaceuticals accounted for almost one third of all health expenditure on average across Asian countries and economies in 2010. In Myanmar, Viet Nam, Bangladesh, China, India and Thailand more than 40% of total health expenditure was on pharmaceuticals, while this share was less than 15% in Fiji, Malaysia, New Zealand and the Solomon Islands.

Numerous policy initiatives to evaluate and improve quality of care have been undertaken

- In most Asia/Pacific countries, more than 90% of children aged around one year receive measles, diphtheria, tetanus and pertussis childhood vaccination – on a par with global best practice. India, Indonesia, Lao PDR and Papua New Guinea still fall short of this figure.
- Japan as the lowest case-fatality rates for stroke, with 3% of patients dying within 30 days after ischemic stroke. However, 12.2% of Japanese patients die within 30 days of having a heart attack, compared to 8.9% in the Republic of Korea and 4.5% in New Zealand.
- Although death rates from cancer are decreased, little is known about the quality of cancer care in the Asia/Pacific region. Cervical cancer mortality varies from 1.4 per 100 000 females in New Zealand to 21.7 in Papua New Guinea, suggesting scope to improve prevention, early detection through screening and fast access to effective treatment.
- Despite the scarcity of national statistics on quality of care, numerous policy initiatives to systematically evaluate and improve quality of health care services have been undertaken in a substantial number of countries in the region. These initiatives underscore the interest in quality of care in Asia/Pacific.

Introduction

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

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

Chapter 1, Chapter 2 and Chapter 3 were prepared by Rie Fujisawa from the OECD Health Division, with support from Mark Landry and Therese Maria Reginaldo (WHO/WPRO). Chapter 4 was written by Luca Lorenzoni, with support from Chandika Indikadahena (WHO Geneva). Chapter 5 was prepared by Ian Forde, Nicolaas Sieds Klazinga and Carol Nader, with support from Nelly Biondi (OECD Health Division).

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This publication benefited from the comments and suggestions of Vivian Lin (Director, Health Systems, WHO/WPRO), Prakin Suchaxaya (Acting Director, Health Systems Development, WHO/SEARO), Jungmi Joo (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 2014 is divided into five chapters:

- Chapter 1 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. It also includes a new indicator on ageing.
- Chapter 2 on *Determinants of health* focuses on non-medical determinants of health. It features the health of mothers and babies, through reproductive health issues, low birthweight and breastfeeding. It also includes lifestyle and behavioural indicators such as smoking and alcohol drinking, nutrition, and underweight and overweight, as well as water and sanitation.
- Chapter 3 on *Health care resources, utilisation and access* reviews some of the inputs, outputs and outcomes of health care systems. This includes the supply of doctors and nurses and hospital beds, as well as the provision of primary and secondary health care services, such as doctor consultations and hospital discharges, as well as a range of services surrounding pregnancy, childbirth and infancy. It also includes new indicators on medical technology and access to care.

- Chapter 4 on *Health expenditure and financing* examines trends in health spending across Asia/Pacific countries and economies. 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 5 on *Health care quality* builds on the indicators used in the OECD's Health Care Quality Indicator programme to examine trends in health care quality improvement across Asia/Pacific countries and economies. It also provides illustrations of quality of care initiatives in the Asia/Pacific region, drawing on a joint survey by WHO (SEARO/WPRO) and the OECD that sought to assess how countries in the region are embracing quality of care initiatives.

Annex B provides some additional tables on the demographic and economic context within which different health systems operate.

Asia/Pacific countries and economies

For this third edition of *Health at a Glance: Asia/Pacific*, 27 regional countries and economies were compared – 22 in Asia (Bangladesh; Brunei Darussalam; Cambodia; China; Democratic People's Republic of Korea; Hong Kong, China; India; Indonesia; Japan; Lao People's Democratic Republic; Macau, China; Malaysia; Mongolia; Myanmar; Nepal; Pakistan; Philippines; Republic of Korea; Singapore; Sri Lanka; Thailand and Viet Nam) and five in the Pacific region (Australia, Fiji, New Zealand, Papua New Guinea and Solomon Islands). Two additional countries – Bhutan and the Democratic Republic of Timor-Leste – reported on quality of care policies.

Selection and presentation of indicators

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

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

The cut-off date for all the data reported in this publication is Friday 29 August 2014.

Averages

In text and figures, "Asia-xx" refers to the unweighted average for Asian countries and economies, where "xx" is the number of countries for which data are available. It excludes the five Pacific countries (Australia, Fiji, New Zealand, Papua New Guinea and Solomon Islands) and the OECD average.

"OECD" refers to the unweighted average for the 34 OECD member countries. It includes Australia, Japan, New Zealand and the Republic of Korea, but excludes the Asia average. Data for OECD countries are generally extracted from OECD sources, unless stated otherwise.

Country ISO codes

Australia	AUS	Mongolia	MNG
Bangladesh	BGD	Myanmar	MMR
Brunei Darussalem	BRN	Nepal	NPL
Cambodia	KHM	New Zealand	NZL
China	CHN	Pakistan	PAK
Democratic People's Republic of Korea	PRK	Papua New Guinea	PNG
Fiji	FJI	Philippines	PHL
Hong Kong, China	HKG	Republic of Korea	KOR
India	IND	Singapore	SGP
Indonesia	IDN	Solomon Islands	SLB
Japan	JPN	Sri Lanka	LKA
Lao People's Democratic Republic	LAO	Thailand	THA
Macau, China	MAC	Viet Nam	VNM
Malaysia	MYS		

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	Millenium Development Goals
MMR	Maternal mortality ratio
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing power parities
SEARO	WHO Regional Office for South-East Asia
SHA	System of Health Accounts
TB	Tuberculosis
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDESA	United Nations, Department of Economic and Social Affairs, Population Division
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WPRO	WHO Regional Office for the Western Pacific

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Chapter 1

Health status

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Life expectancy at birth continues to increase remarkably in Asia/Pacific countries, reflecting sharp reductions in mortality rates at all ages, particularly among infants and children (UNESCAP, 2013; see Indicators 1.2 "Infant mortality" and 1.3 "Under-5 mortality"). 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 2.6 "Water and sanitation"). Improved lifestyles, increased education and greater access to quality health services also play an important role (OECD, 2004).

Life expectancy at birth for the whole population across 22 Asian countries reached 73.4 years on average in 2012, a gain of about seven years since 1990. In comparison, OECD countries gained 5.3 years during the same period (Figure 1.1.1, left panel).

However, a large regional divide persists in life expectancy at birth. The country with the longest life expectancy in 2012 was Hong Kong, China with 83.3 years for both men and women. Japan, Australia, Singapore, New Zealand, the Republic of Korea and Macau, China also exceeded 80 years for total life expectancy. In contrast, eleven countries in the Asia/Pacific region had total life expectancies of less than 70 years, and in Papua New Guinea and Myanmar, a child born in 2012 can expect to live an average of less than or equal to 65 years of life.

Japan has prolonged its life expectancy in a fairly short time through a rapid reduction in mortality rates of communicable diseases between the 1950s and the early 1960s, followed by a large reduction in stroke mortality rates (Ikeda et al., 2011). Public health action, particularly for tuberculosis control, started in the 1950s and primary care management of key risk factors such as blood pressure started in the 1960s as a result of the establishment of a universal health insurance coverage in 1961 (WHO, 2013a).

Women live longer than men (Figure 1.1.1; right panel) but the degree of disparities varies across countries. The gender gap in life expectancy stood at 5.0 years on average across Asian countries in 2012, less than the OECD country average of 5.4 years. The gender difference was particularly large in Viet Nam, Mongolia and DPR Korea with seven years or longer. Women also have greater rates of survival to age 65 (Figure 1.1.2), regardless of the economic status of the country. 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, 2013).

Higher national income (as measured by GDP per capita) is generally associated with higher life expectancy at birth (Figure 1.1.3). There were, however, some notable differences in life expectancy between countries with similar income per capita. Viet Nam and Japan had higher, and Papua New Guinea, Mongolia and Brunei Darussalam 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 1.2 "Infant mortality" and 1.3 "Under-5 mortality").

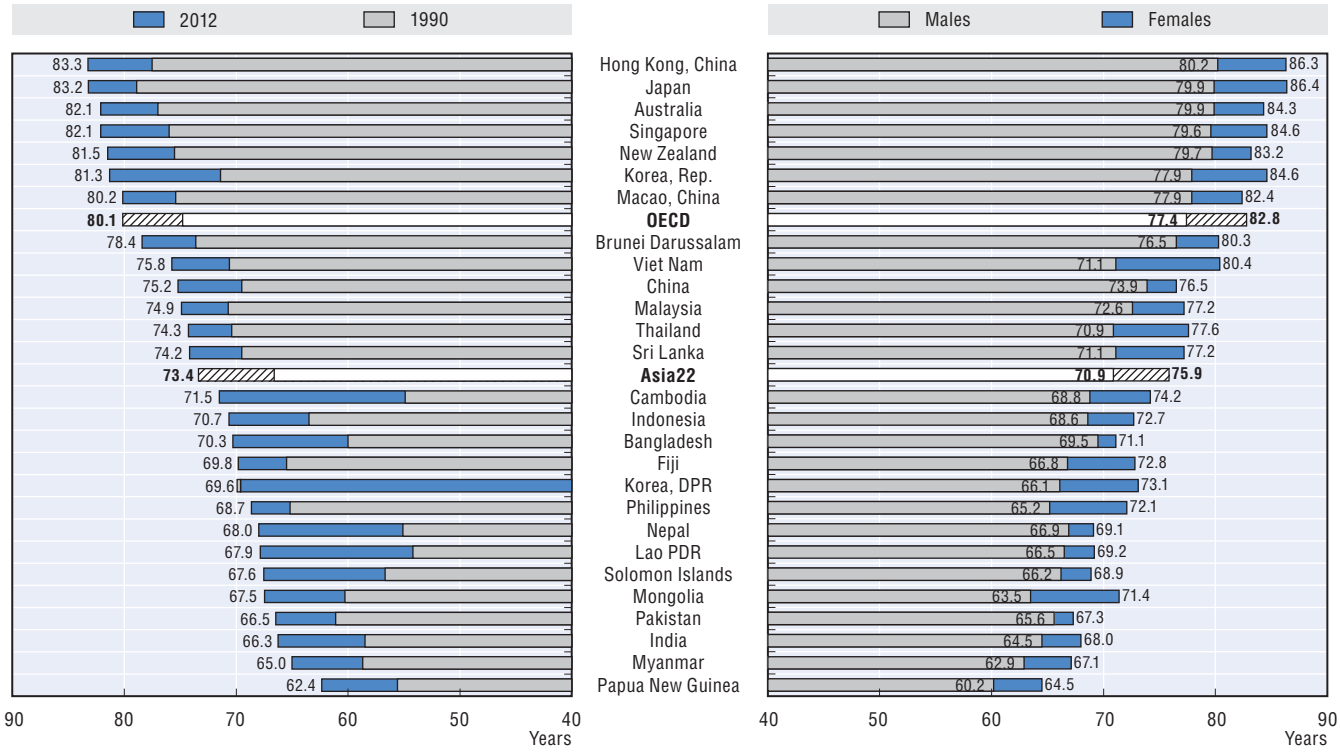
Definition and comparability

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 of time.

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.

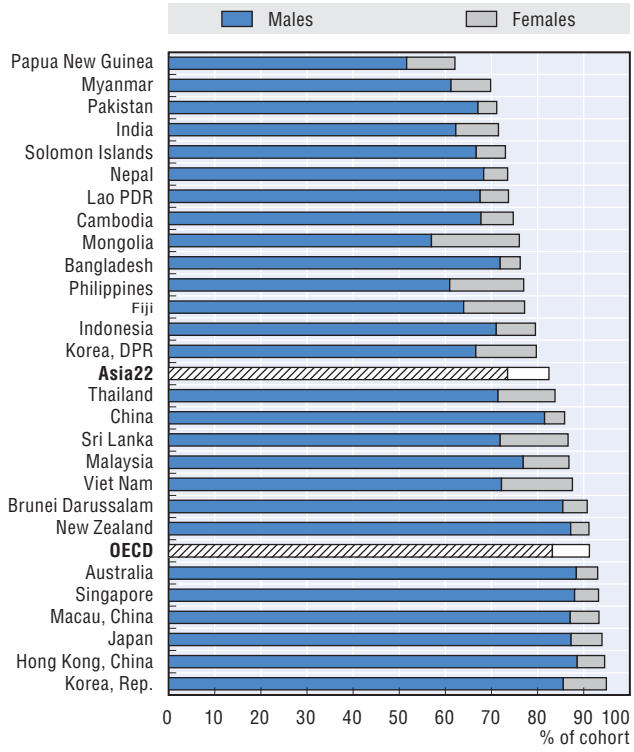
Survival to age 65 refers to the percentage of a cohort of newborn infants that would survive to age 65, if subject to current age-specific mortality rates.

1.1.1. Life expectancy at birth, 1990 and 2012, and by sex, 2012



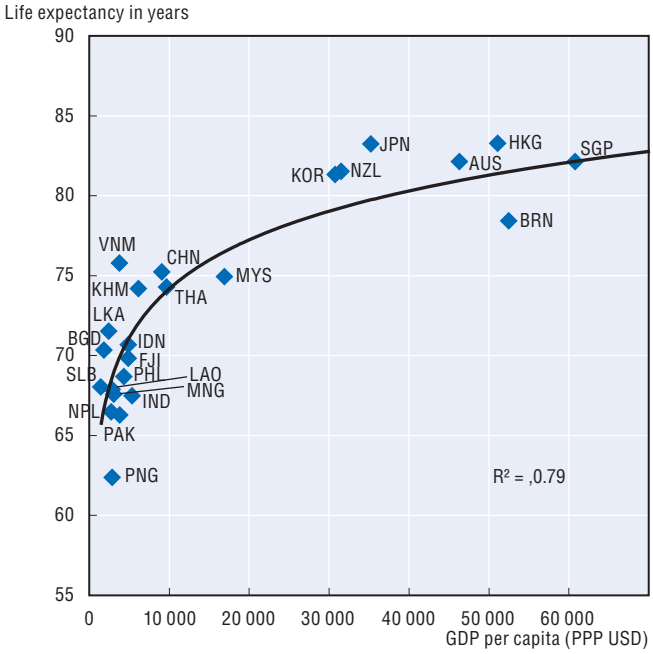
Source: *OECD Health Statistics 2014*; UN ESCAP (2014); World Bank, World Development Indicators Online.

1.1.2. Survival rate to age 65, 2012



Source: World Bank, World Development Indicators Online.

1.1.3. Life expectancy at birth and GDP per capita, 2012



Source: *OECD Health Statistics 2014*; World Bank, World Development Indicators Online.

StatLink http://dx.doi.org/10.1787/888933152514

Infant mortality, the rate at which babies and children aged less than one year die, reflects the effect of economic and social conditions on the health of mothers and newborns, as well as the effectiveness of health systems.

Factors such as the health of the mother, maternal care especially at birth, immediate newborn care, breastfeeding status, preterm birth and birth weight are important determinants of infant mortality (see Indicators 2.2 "Preterm birth and low birthweight" and 3.5 "Pregnancy and birth"), and diarrhoea, pneumonia and undernutrition of both mothers and babies are also the causes of many deaths (see Indicators 2.4 "Child malnutrition" and 2.5 "Adult malnutrition (underweight and overweight)"). Around two-thirds of the deaths that occur during the first year of life in the region are neonatal deaths (i.e. during the first four weeks of life).

Infant mortality can be reduced through cost-effective interventions such as antenatal steroid injections to women in preterm labour to strengthen the babies' lungs and kangaroo mother care, mothers holding their preterm babies with skin to skin contact and frequent breastfeeding. Early postnatal home visits promoting breastfeeding and clean cord care and care for neonatal infections provided together with treatment of childhood pneumonia, diarrhoea and malaria, also reduce neonatal deaths (UNICEF, 2013). Oral rehydration therapy is a cheap and effective means to offset the debilitating effects of diarrhoea (WHO, 2006a) and countries could also implement relatively inexpensive public health interventions including immunisation, and provide clean water and sanitation (see Indicators 2.6 "Water and sanitation" and 5.1 "Childhood vaccination programmes").

Countries with higher levels of economic development generally have lower infant mortality rates. In 2012, OECD countries averaged 4 infant deaths per 1 000 live births; among 20 Asian countries, the average was almost 24 deaths (Figure 1.2.1, left panel). Geographically, infant mortality was lower in eastern Asian countries, and higher in South and Southeast Asia. Hong Kong, China; Japan; Singapore; the Republic of Korea and Australia had rates lower than 4 deaths per 1 000 live births in 2012, whereas Pakistan, the Lao PDR, Papua New Guinea, India and Myanmar had rates greater than 40.

Infant mortality rates had fallen dramatically in the Asia/Pacific region since 1990, with many countries experiencing declines of greater than 50% (Figure 1.2.1, right panel). In China and the Republic of Korea, rates had fallen by 70% or more, but falls in the Solomon Islands, Fiji and Papua New Guinea had been less pronounced over recent decades. Although the rate was already low in 1960 in the OECD and Japan, the declining speed was much faster than China, India and Indonesia during the same period (Figure 1.2.2). Targeted interventions to address neonatal deaths may reduce infant and under-5 mortality in the region even further as most of them are preventable or treatable (UNICEF, 2013).

Across countries, infant mortality rates are higher among poor households with lower mother's education (Figure 1.2.3). In Myanmar, the Lao PDR and Cambodia, inequality in infant mortality between the highest and lowest wealth levels was largest and the poorest quintile had over three times higher infant mortality than the richest. In the Philippines, the mortality difference was six-fold between mothers with no education and those with secondary and higher education while the disparity based on mother's education was very small in the Solomon Islands. Urban-rural divides in infant mortality were smaller than the other two factors across countries and in Bangladesh and Viet Nam, the mortality rates were nearly the same between rural and urban areas. In order to have a larger societal impact, countries need to implement public health interventions to target those with poorest outcomes.

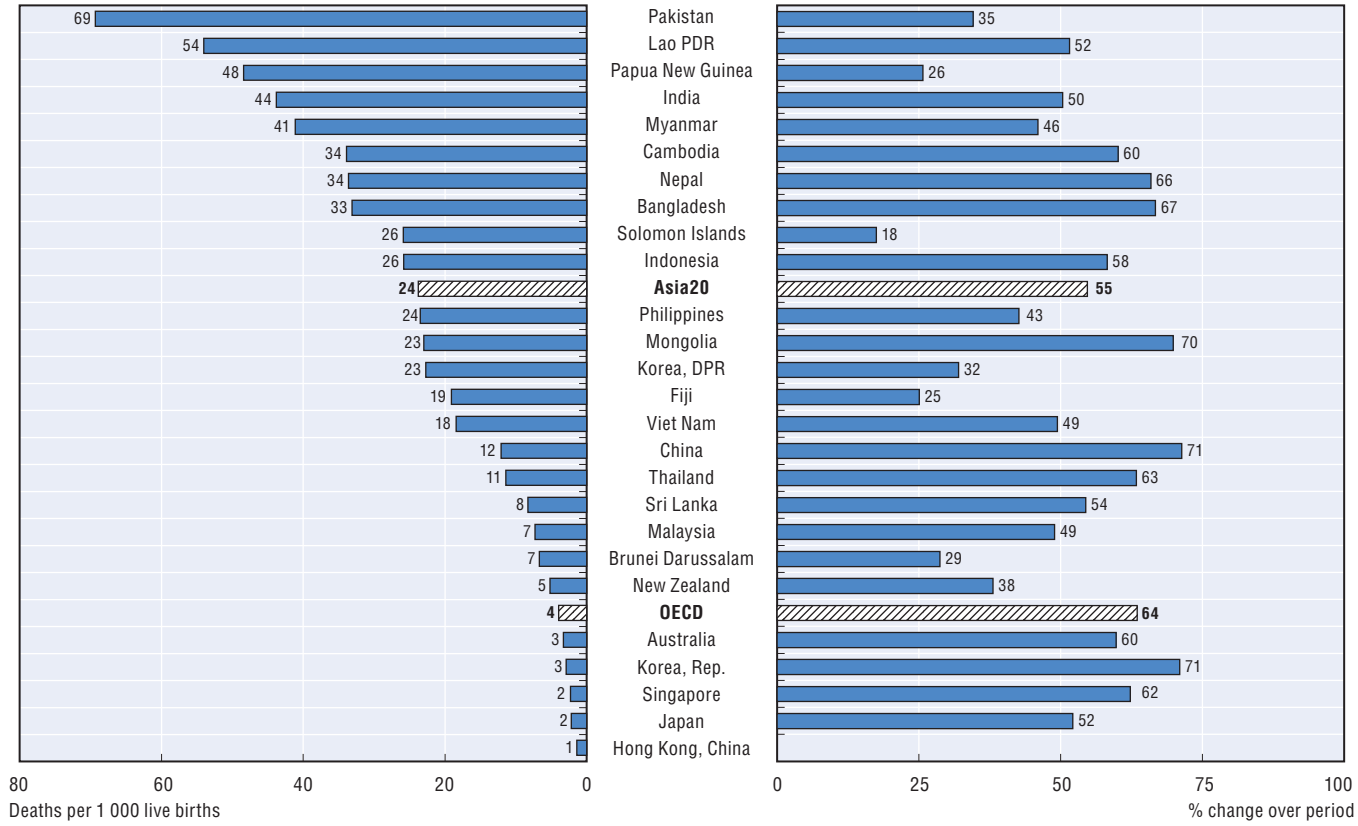
Definition and comparability

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.

The rate ratios describe the variation in infant mortality associated with a specific variable (i.e. wealth, place of residence and education level of the mother). A rate ratio related to wealth refers to the infant mortality rate for the lowest quintile divided by the one for the highest quintile in the distribution of wealth in the population in study. A rate ratio related to the place of residence is the infant mortality rate for households living in rural areas divided by the one for households living in urban areas. A rate ratio related to the education level of mother is the infant mortality rate for mothers with lowest education level divided by the value for mothers with highest education level in the country.

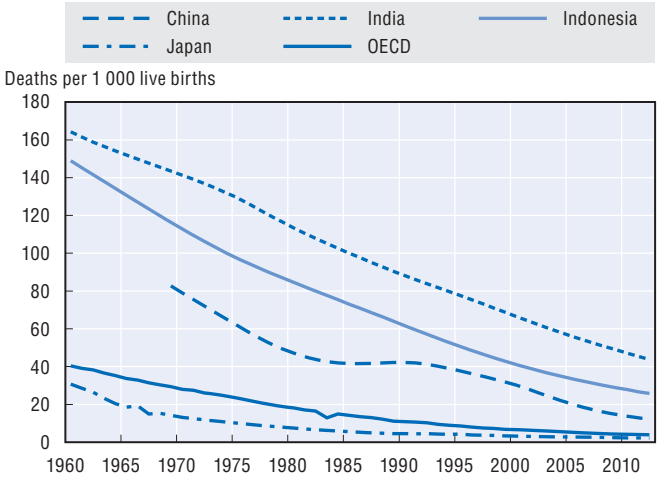
Some countries base their infant mortality rates on estimates derived from censuses, surveys and sample registration systems, and not on accurate and complete registration of births and deaths. Differences among countries in registering practices for premature infants may also add slightly to international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

1.2.1. Infant mortality rates, 2012 and decline,1990-2012



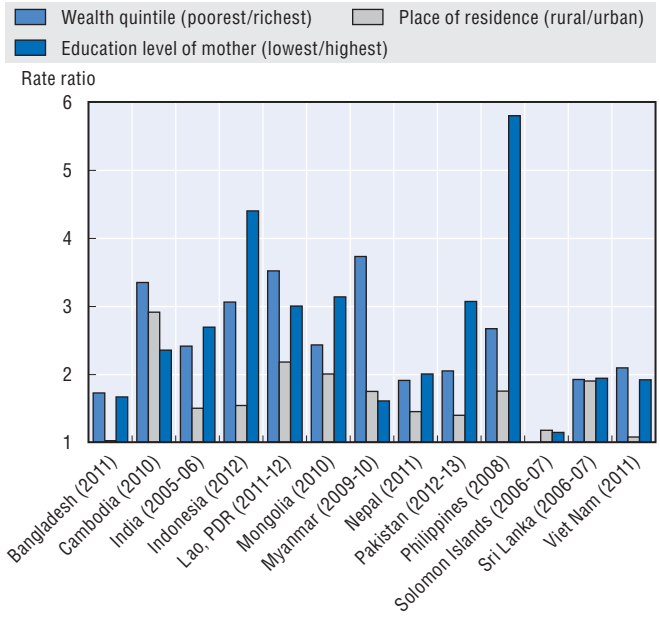
Source: *OECD Health Statistics 2014*; UN Inter-agency Group for Child Mortality Estimation (IGME) Childinfo; UN Demographic Yearbooks.

1.2.2. Infant mortality rates, selected countries, 1960-2012



Source: *OECD Health Statistics 2014*; UN IGME Childinfo.

1.2.3. Infant mortality rate ratios by socio-economic and geographic factor, selected countries and years



Source: Demographic and Health Survey (DHS) and Multiple Indicator Cluster Survey (MICS) 2005-13.

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The under-5 mortality rate is an indicator of both the level of child health and the development and well-being of a population. As part of their Millennium Development Goals (MDG), the United Nations has set a target of further reducing under-5 mortality by two-thirds between 1990 and 2015 (United Nations, 2012).

The main causes of death among children under five include pneumonia (17%), preterm birth complications (15%), intrapartumrelated complications (10%), diarrhoea (9%) and malaria (7%). Globally, about 45% of under-5 deaths are attributable to undernutrition (UNICEF, 2013).

In 2012, 6.6 million children died worldwide before their fifth birthday and slightly less than 40% of these deaths (2.6 million) occurred in the Asia/Pacific region (UNICEF, 2013). The average under-5 mortality rate across 20 Asian countries was 30 deaths per 1 000 live births (Figure 1.3.1, left panel). Hong Kong, China; Singapore; Japan; the Republic of Korea and Australia achieved very low rates of five or under, below the average across OECD countries. Mortality rates in Pakistan, the Lao PDR, Papua New Guinea, India, and Myanmar were high, in excess of 50. These countries also had the highest infant mortality in the region. Due to the size of the countries, India alone accounted for 21% of total under-5 deaths in the world while the global share was also high in China with 4%.

Since 1990, the under-5 mortality in Asian countries has declined by 59% on average (Figure 1.3.1, right panel), faster than the global decline of 47%, but the progress varied across countries. Countries such as Myanmar, China, Bangladesh and Nepal achieved the MDG target and Cambodia is close to achieving it. According to a study (WHO, 2014e), 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 an 86% decline in maternal mortality between 1990 and 2013 (Indicator 1.8 "Maternal Mortality"). Japan continued to reduce the under-5 mortality even after a dramatic decline between 1950 and 1965 through the control of intestinal or respiratory infections and vaccine-preventable diseases (Ikeda et al., 2011; Figure 1.3.2). On the other hand, the Solomon Islands, Fiji and Papua New Guinea need to further reduce the mortality as the decline of less than 30% between 1990 and 2012 was far from the MDG target. Across countries, much of the fall occurred among infants older than four weeks, with very little reduction in the neonatal period. In order to achieve the MDG target, countries need to accelerate their efforts, for example by expanding effective preventive and curative interventions, targeting the main causes of post-neonatal deaths, namely pneumonia, diarrhoea, malaria and undernutrition, and the most vulnerable newborn babies and children (UNICEF, 2013).

As is the case for infant mortality (see Indicator 1.2 "Infant mortality"), inequalities in under-5 mortality rates exist within countries (Figure 1.3.3). Across countries, the difference in the under-5 mortality rates was consistently observed based on the level of household wealth and maternal education, and to a certain extent by region. For example, in the Philippines, under-5 mortality was more than seven times higher if their mothers had no education compared with those with more than secondary education. Inequality by education was also large in Indonesia and Mongolia. In the Lao PDR, Myanmar and the Philippines, inequality based on wealth was also large and children in the poorest 20% of the population were more than three times more likely to die before their fifth birthday than those in the richest 20%. But the inequalities in mortality rates based on geographic locations were relatively small. To accelerate the decline in under-5 mortality in a country as a whole, populations in need should be identified in each national context and health interventions need to target them effectively.

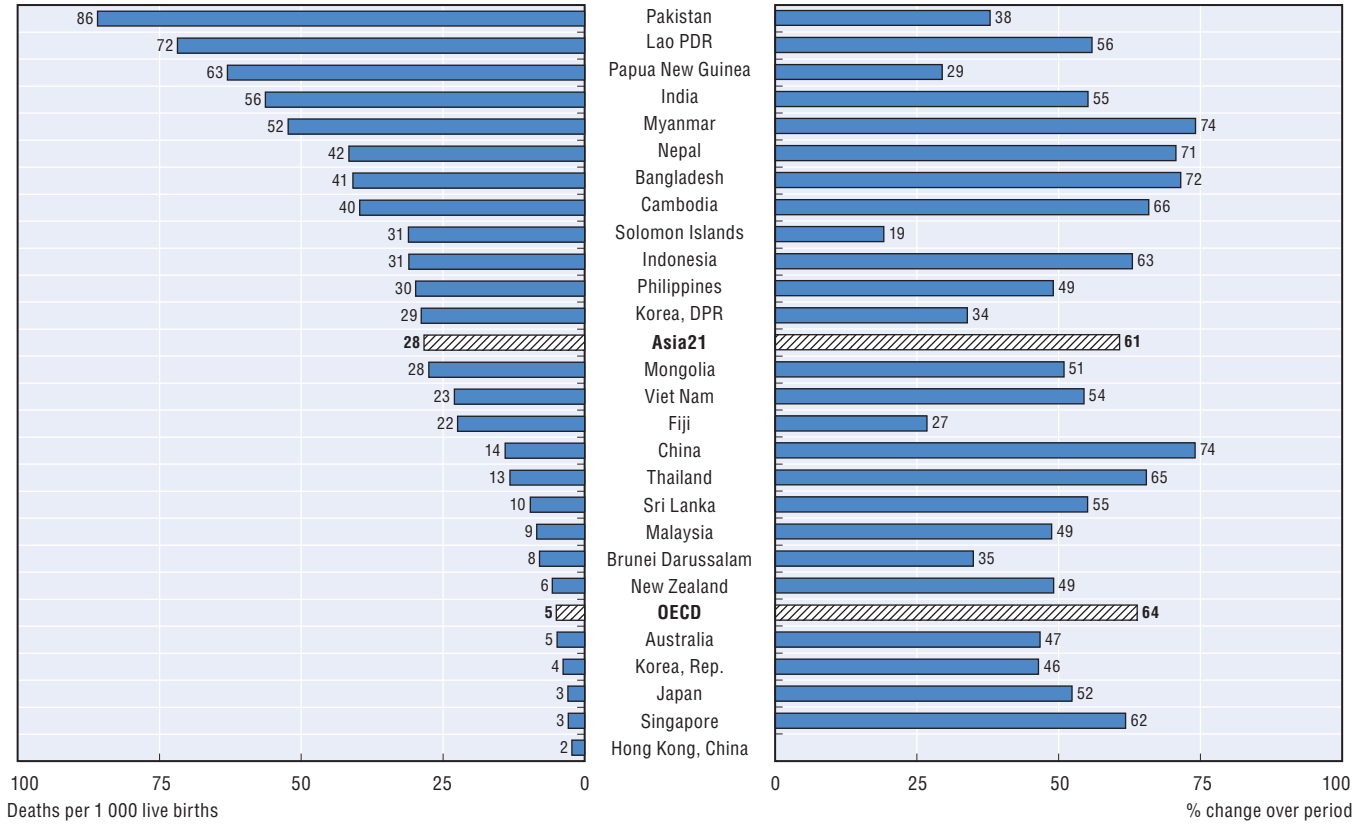
Definition and comparability

Under-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-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-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.

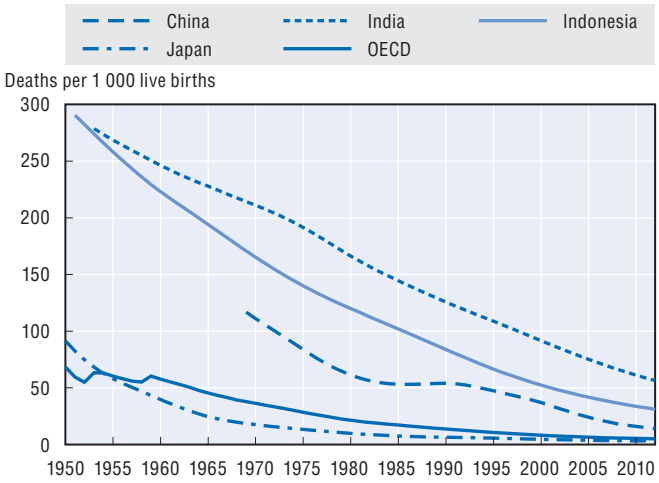
See Indicator 1.2 "Infant mortality" for definition of rate ratios.

1.3.1. Under-5 mortality rate, 2012 and decline,1990-2012



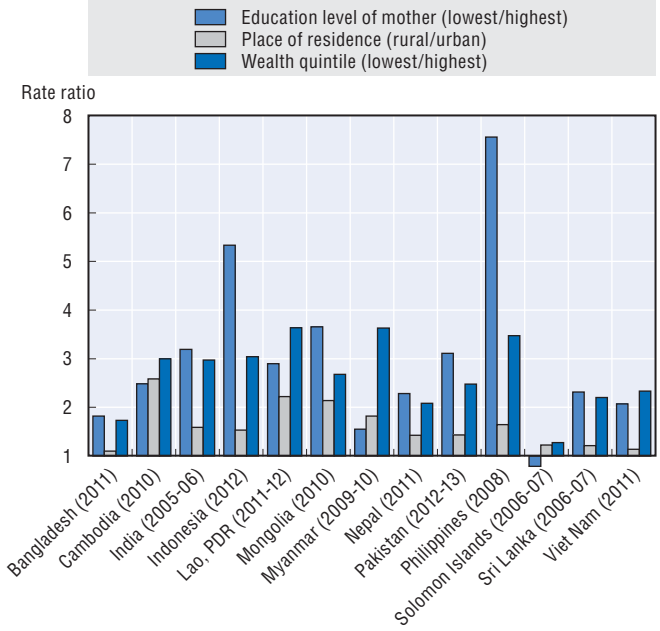
Source: UN IGME Childinfo; Department of Health, Hong Kong, China, 2014.

1.3.2. Under-5 mortality rates, selected countries and OECD, 1950-2012



Source: UN IGME Childinfo.

1.3.3. Under-5 mortality rate ratios by socio-economic and geographic factor, selected countries and years



Source: DHS and MICS 2005-13.

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The burden from non-communicable diseases among adults – the most economically productive age group – is rapidly increasing in the Asia/Pacific region. Increasing development in countries is bringing an "epidemiological transition", whereby early deaths are replaced by late deaths, and communicable diseases by non-communicable diseases (WHO, 2008a). 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 2012, the probability of dying between ages 15 and 60 ranged from a low of 68 per 1 000 population in Singapore to 321 per 1 000 in Papua New Guinea (Figure 1.4.1). It also exceeded 300 per 1 000 population in Mongolia, and was less than 100 also in Australia, New Zealand, Japan and the Republic of Korea. Among females, the probability ranged from 40 per 1 000 population in the Republic of Korea to a high of 245 in Papua New Guinea. Probabilities were also less than 50 in Singapore, Japan and Australia. Mortality was higher among men than women across countries and in Vietnam, Sri Lanka, the Republic of Korea, Mongolia and Thailand, rates for men were more than twice as high as those for females. Across 20 Asian countries, the average probability of dying was 179 per 1 000 population for adult men and 112 per 1 000 population for adult women, still much higher than the average adult mortality in OECD countries (107 per 1 000 population for men and 54 per 1 000 population for women).

All-cause mortality for the entire population ranged from less than 400 per 100 000 population in Macau, China; Hong Kong, China; Japan; Singapore; the Republic of Korea and Australia, to over 1 000 in Papua New Guinea, Myanmar, Mongolia and the Lao PDR (Figure 1.4.2). The average rate in 20 Asian countries was 745, one and a half times higher than that of the OECD. Nonetheless, mortality for the entire population had declined in the Asia/Pacific region with a notable exception of the Philippines, Brunei Darussalam and Viet Nam in recent years, and the gap with OECD countries had narrowed.

Overall mortality for all populations is highly related with adult mortality across countries in the region. Singapore, Australia, New Zealand, Japan and the Republic of Korea, with the lowest adult mortality, also had the lowest all-cause mortality, while Papua New Guinea and Mongolia had the highest mortality for both adults and the entire population.

The share of deaths due to non-communicable diseases is increasing in the Asia/Pacific region. Non-communicable diseases such as cardiovascular diseases and cancers were the most common causes of death, being responsible for over 70% of all deaths, on average, across 20 Asian countries (Figure 1.4.3; see also Indicator 1.5, "Mortality from cardiovascular diseases", and Indicator 1.6, "Mortality from cancer"). In OECD countries, the average was higher 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 many countries in the Asia/Pacific region, and injuries were responsible for about 9% of all deaths, on average in the region (see Indicator 1.7, "Mortality from injuries").

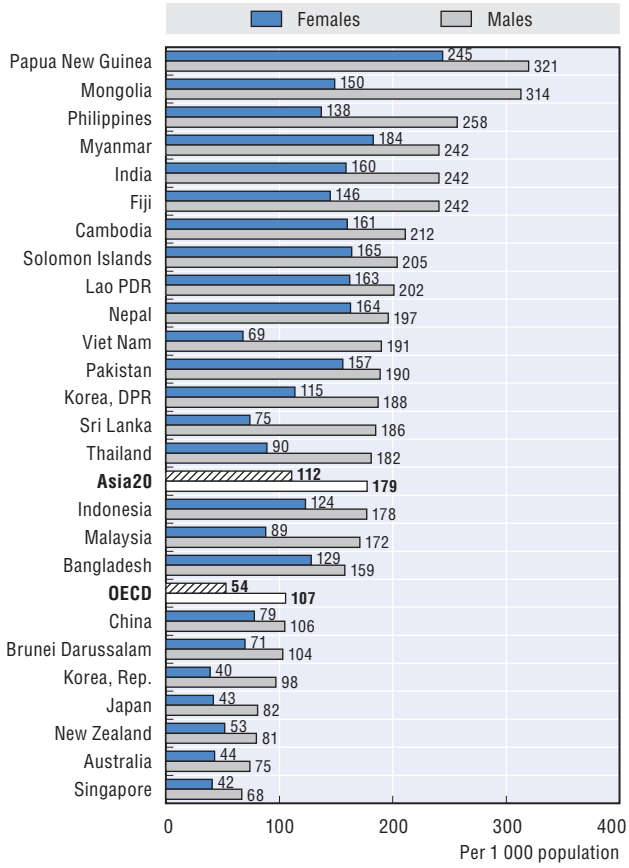
Definition and comparability

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 (WHO, 2008a). 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).

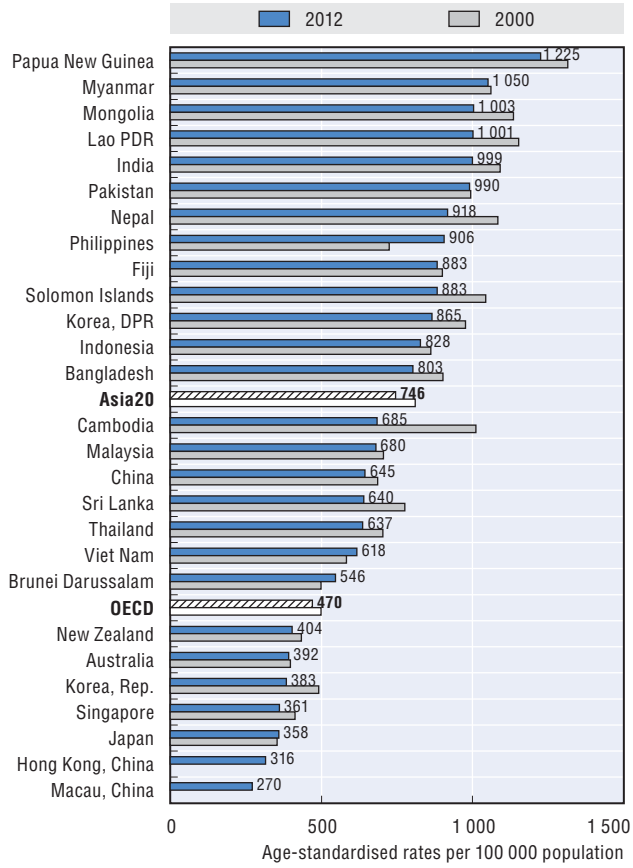
The WHO Global Burden of Disease (GBD) project draws on a wide range of data sources to quantify global and regional effects of diseases, injuries and risk factors on population health. WHO has also developed life tables for all member states, based on a systematic review of all available evidence on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

1.4.1. Adult mortality rate, 2012 (probability of dying between 15 and 60 years per 1 000 population)



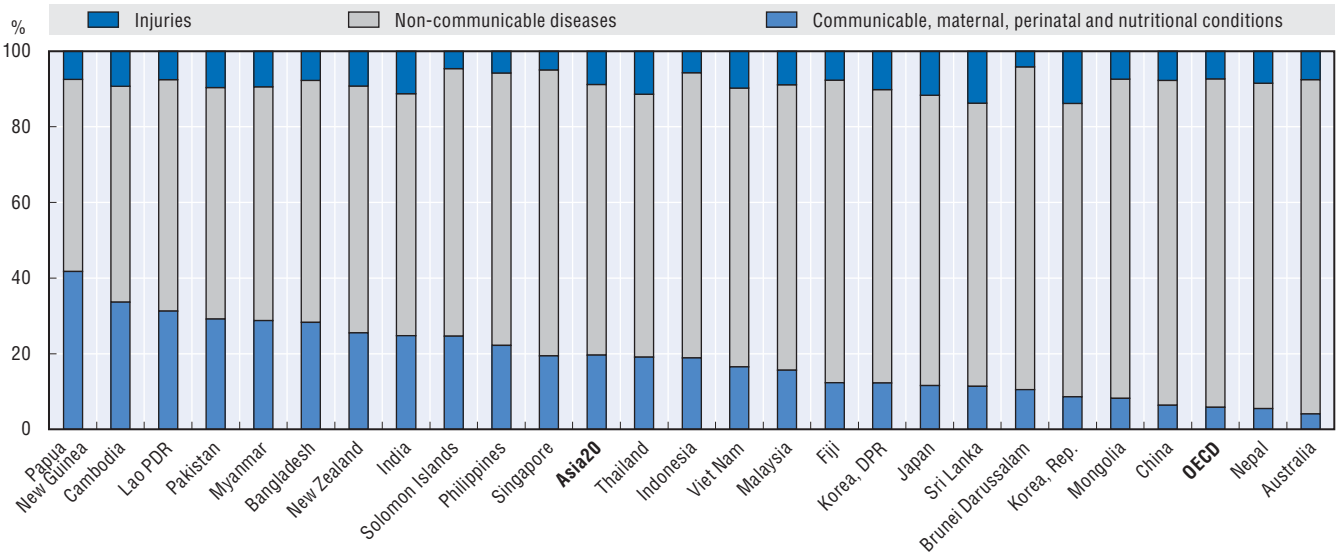
Source: WHO Global Health Observatory (GHO) 2014.

1.4.2. All cause-mortality rates for all populations, 2000 and 2012



Source: WHO Global Burden of Disease, 2014; Department of Health, Hong Kong, China, 2014; Statistics and Census Service, Macau, China, 2014.

1.4.3. Proportions of all cause deaths, 2012



Source: WHO Global Burden of Disease, 2014.

StatLink http://dx.doi.org/10.1787/888933152546

Cardiovascular disease (CVD) is the leading cause of death in the Asia/Pacific region, although they are highly preventable. CVD was the cause of an estimated 9.3 million deaths in the region and accounted for about one-third of all deaths in 2012.

CVD covers a range of diseases related to the circulatory system, including ischaemic heart disease (known as IHD, or heart attack) and cerebrovascular disease (or stroke). Ischemic heart disease (IHD) is caused by the accumulation of fatty deposits lining 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 surface of the brain. Together, IHD and stroke comprise 83% of all cardiovascular deaths in Asian countries (WHO, 2014i).

The majority of CVD is caused by risk factors that can be controlled, treated or modified, such as high blood pressure, cholesterol, obesity (see Indicator 2.5 "Adult malnutrition (underweight and overweight)", lack of physical activity), tobacco use (see Indicator 2.7 "Tobacco") and excessive alcohol consumption.

Mortality from cardiovascular disease varied across countries with a notably high level, exceeding 500 deaths per 100 000 population in Mongolia in 2012 (Figure 1.5.1). This was in contrast to a group of developed countries (Republic of Korea, Japan, Singapore, Australia, and New Zealand) and Macau, China and Hong Kong, China where death rates were below 120 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 5.2 "In-hospital mortality following acute myocardial infarction and stroke") across countries.

Mortality rates from CVD were 50% higher in Asian countries – including Japan and the Republic of Korea – than in OECD countries (242 versus 161 deaths per 100 000 population). While OECD countries had decreased mortality from CVD, the rate was increasing in Asian countries.

Success 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 based on universal health coverage (OECD, forthcoming). In Japan, population-based interventions such as salt reduction campaigns and an increased use of cost-effective health technologies such as 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). Countries in the Asia/Pacific region also need to promote healthy lifestyles because in many countries smoking is still high and salt-intake is high compared with WHO's recommendation of 5g or less.

The types of CVD that are fatal differ across countries in the region. In China, Indonesia, DPR Korea, Japan, the Republic of Korea, Myanmar, Solomon Islands and Viet Nam, morbidity and mortality from stroke was greater than ischaemic heart disease (Figure 1.5.2). In Brunei Darussalam, Fiji, Singapore and Sri Lanka in particular, and many other countries in the region, the trend was similar to European and North American countries and the opposite was true (Ueshima et al., 2008).

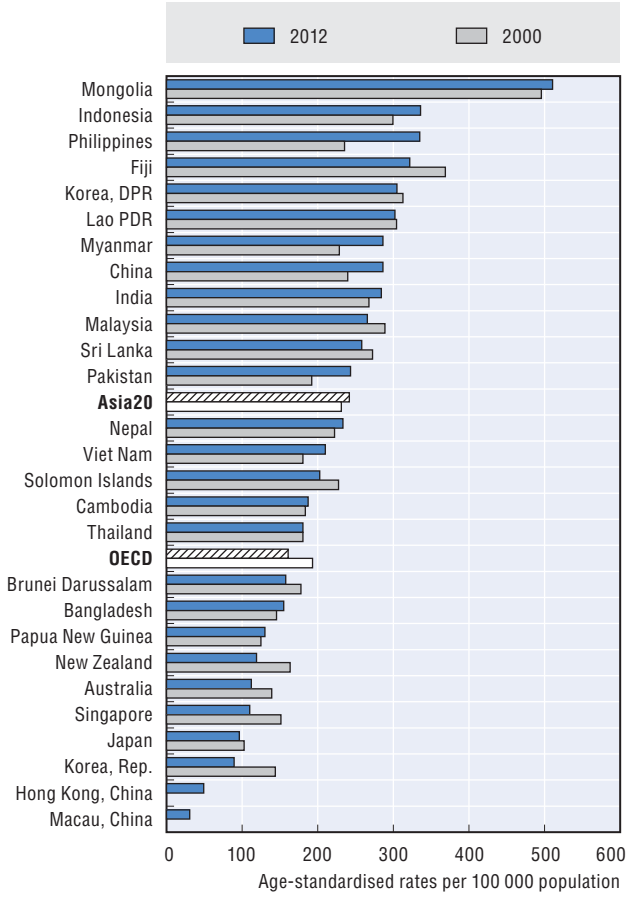
Rates of CVD increase with age but they were low for all age groups in Japan (Figure 1.5.3). Although unclear for those under 5, however, CVD affected all other age groups in China, India and Indonesia, more than OECD countries.

As the proportion of aged persons increases in the Asia/Pacific region (see Indicator 1.13 "Ageing"), 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 diabetes (see Indicator 1.12 "Diabetes") highlight the need for management of risk factors to forestall an epidemic of CVD. Besides efforts to improve lifestyles, primary care needs to be strengthened and quality of acute care also needs to improve through better emergency care and improved professional skills and training capacity (OECD, forthcoming).

Definition and comparability

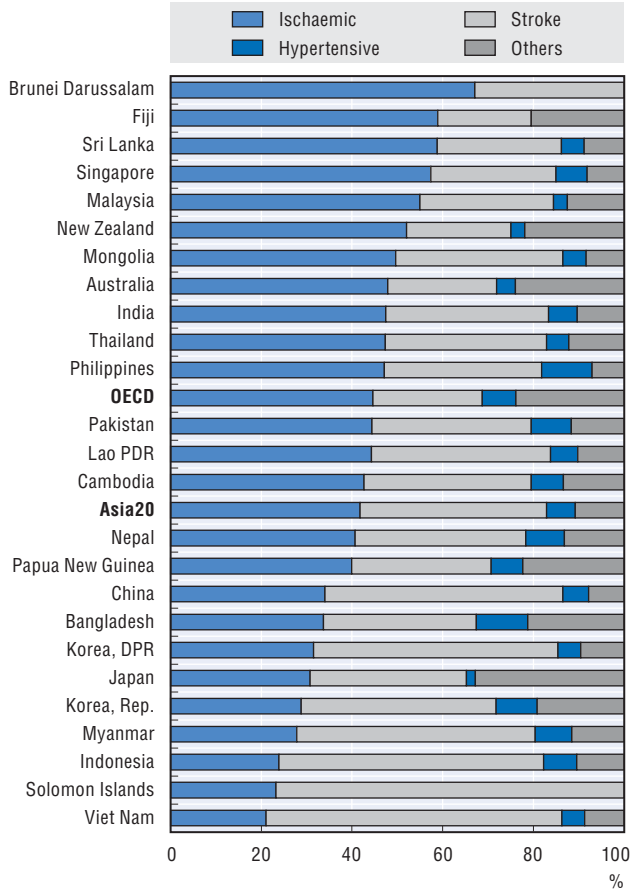
See Indicator 1.4 "Mortality from all causes" for definition, source and methodology underlying mortality rates.

1.5.1. Cardiovascular disease, estimated mortality rates, 2000 and 2012



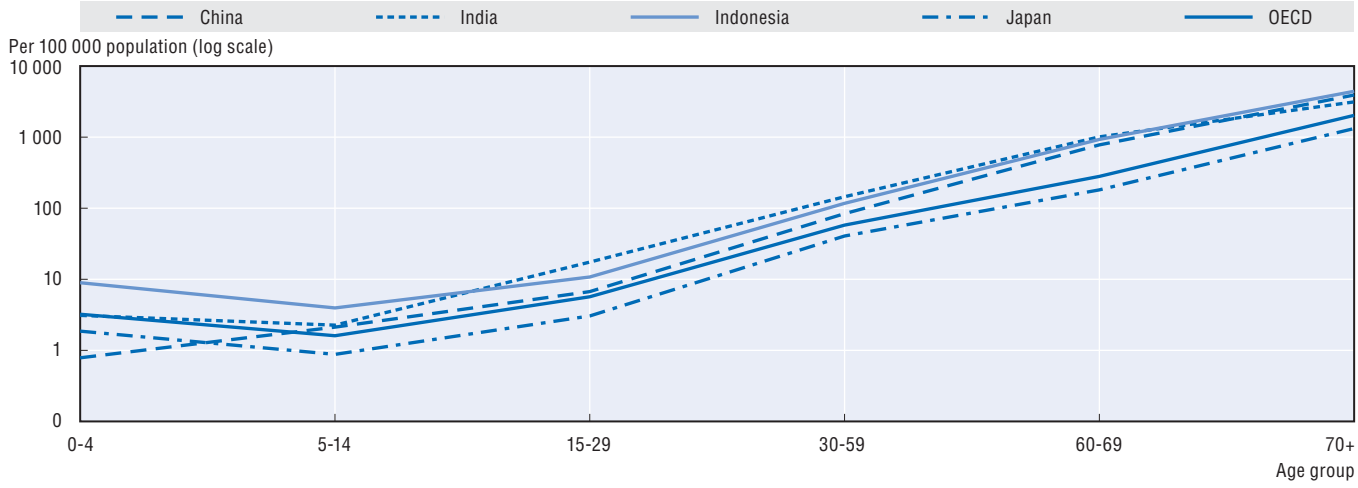
Source: WHO Global Burden of Disease, 2014; Department of Health, Hong Kong, China, 2014; Disease Registry, Macau, China, 2014.

1.5.2. Proportions of cardiovascular disease deaths, 2012



Source: WHO Global Burden of Disease, 2014.

1.5.3. Cardiovasular disease, age-specific mortality rates, selected countries and OECD, 2012



Source: WHO Global Burden of Disease, 2014.

StatLink http://dx.doi.org/10.1787/888933152558

Cancer is the second leading cause of death after CVD in the Asia/Pacific region. Cancer was the cause of an estimated 4.1 million deaths (or 14% of total deaths) in Asia/Pacific countries in 2012 (WHO, 2014i).

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 (Anand et al., 2008). 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, 2013a).

Mongolia; DPR Korea; China; Hong Kong, China; Papua New Guinea and the Lao PDR had higher cancer mortality rates, all with over 125 deaths per 100 000 population in 2012 (Figure 1.6.1). Cancer deaths were less common in Sri Lanka, India, Nepal, Bangladesh, Fiji and Pakistan, and they had less than 90 deaths per 100 000 population.

The average rate of death in 20 Asian countries was lower than that of OECD countries (106 versus 129 deaths per 100 000 population in 2012). But cancer mortality had increased faster in the Asia/Pacific region than OECD countries since 2000, narrowing the gap with OECD countries. There was a substantial increase of 33% for prostate cancer deaths, 26% increase for pancreas cancer deaths, 23% increase for colorectal cancer deaths, 22% increase for lung cancer deaths and 21% increase for breast cancer deaths between 2000 and 2012. During the same period, there was a decline of 11% for stomach cancer deaths and 3% for oesophagus cancer deaths (WHO, 2014i).

Lung and liver cancer were two leading types of cancer in the region (Figure 1.6.2). Lung cancer accounted for 17% of all cancer deaths on average in 20 Asian countries in 2012. Rates were high in DPR Korea with 46 deaths per 100 000 population, followed by China with 38 deaths per 100 000 population, while the average was 17 deaths per 100 000 population in Asian countries. It is anticipated that rates will continue to rise if strong and multifaceted anti-smoking initiatives are not undertaken. Liver cancer accounted for 16% of cancer deaths in Asian countries in 2012. 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, China and Thailand. Incidence is expected to fall in coming decades, with increased immunisation for hepatitis B (see Indicator 5.1 "Child vaccination programmes").

Other main causes of cancer deaths were stomach, colorectal and breast cancer. Mortality from stomach cancer accounted for 8% of all cancer deaths, linked to *Helicobactor pylori* infection, with deaths more prevalent in Mongolia, China, the Republic of Korea and Viet Nam. Colorectal cancer deaths were higher in New Zealand, Singapore, Japan, DPR Korea and the Republic of Korea. Breast cancer deaths, the most common cause among women, were responsible for over 15% of all cancer deaths in Pakistan and the mortality rate was also high in Papua New Guinea, Fiji, the Philippines and New Zealand.

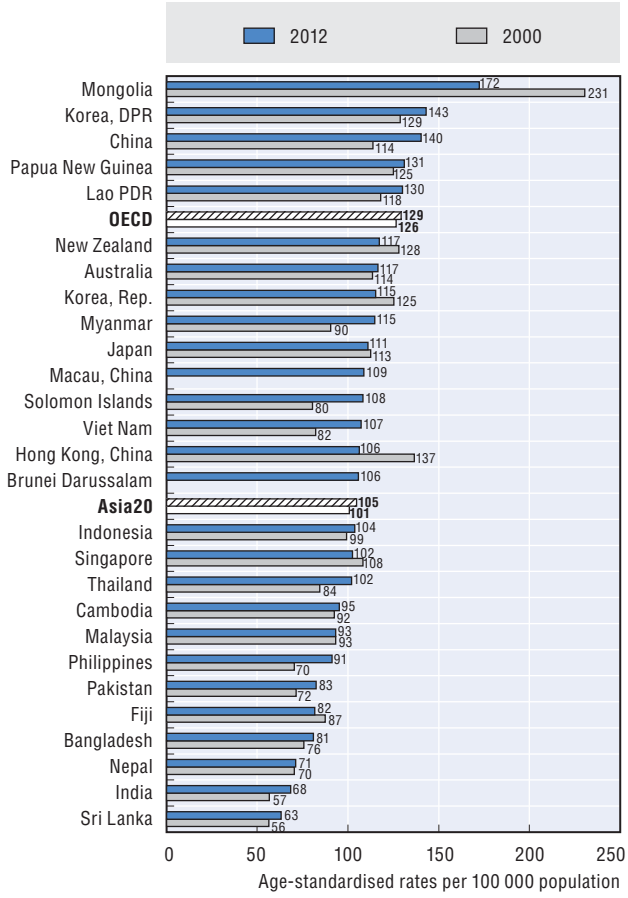
Cancer causes the highest economic loss among top causes of death worldwide as a large proportion of cancer deaths occur in the economically productive age group, and for a group aged 30-59, the age-specific mortality rate in Japan was lower than China, India and Indonesia (Figure 1.6.3). China had high mortality rates among the older people while the rate was less than one-third of the Chinese level for the older people in India. For a large number of cancers, the risk of developing the disease rises with age but in India, life expectancy is considerably lower than other countries, so the older people die of other diseases.

As with cardiovascular disease, an ageing 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, 2013a).

Definition and comparability

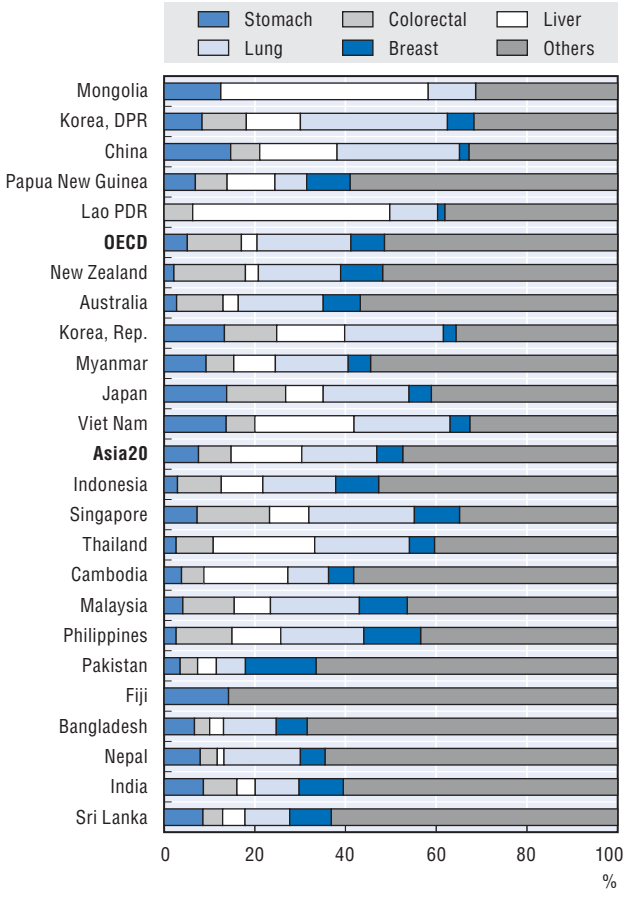
See Indicator 1.4 "Mortality from all causes" for definition, source and methodology underlying mortality rates.

1.6.1. All cancers, estimated mortality rates, 2000 and 2012



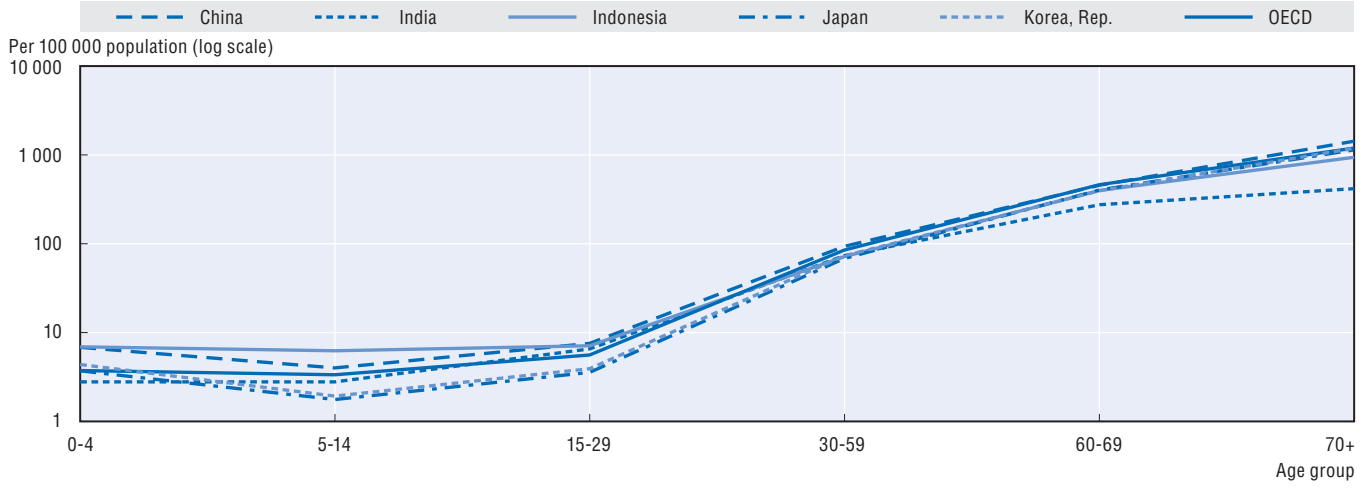
Source: WHO Global Burden of Disease, 2014; Department of Health, Hong Kong, China, 2014; Disease Registry, Macau, China, 2014.

1.6.2. Proportions of cancer deaths, 2012



Source: WHO Global Burden of Disease, 2014.

1.6.3. All cancers, age-specific mortality rates, selected countries and OECD, 2012



Source: WHO Global Burden of Disease, 2014.

StatLink http://dx.doi.org/10.1787/888933152560

Injuries are a leading cause of death and disability for all age groups and took 2.7 million lives in 2012 in the Asia/Pacific region, accounting for 9% of all deaths. 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 deaths from injury, both intentional and unintentional, are largely preventable events.

Mortality from injuries was highest in India, Myanmar, Pakistan and Papua New Guinea with greater than 90 deaths per 100 000 populations, while the rate was lowest in Hong Kong, China; Singapore; Brunei Darussalam; Australia and New Zealand with 40 deaths per 100 000 population or less in 2012 (Figure 1.7.1). Asian countries had higher rates with 64 deaths per 100 000 population than OECD countries with 35 deaths per 100 000 population.

Deaths from injury have declined in Asian countries since 2000. Between 2000 and 2012, there was a 30% reduction in deaths due to poisoning and a 24% reduction in deaths from both drowning and violence in the region. The large decrease in deaths from injury in Sri Lanka was due to the end of armed conflict in 2009.

Deaths due to road traffic crashes have slightly increased in Asian countries from 2000 to2012 (+1.7%), while a large decreased was observed in OECD countries during the same period (-45.4%). However, the figure for Asian countries 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, 2013c). OECD countries improved a safe systems approach to road safety, which includes education and prevention campaigns as well as vehicle design and safety, and also adopted new laws and regulations and the enforcement of these laws to improve compliance with speed limits, seatbelt use and drink-driving rules (OECD/ITF, 2013). With the support of Bloomberg Philanthropies, 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 including China, Cambodia, India, and Viet Nam which combined represent 50% of the global burden of fatal road traffic injuries. 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).

Main causes of deaths from injury are different across countries in the region (Figure 1.7.2). In Thailand, Malaysia and Indonesia, 40% or more of all deaths from injury 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. In the Republic of Korea, Singapore, Japan and DPR Korea, self-inflicted injuries were the leading cause of injury mortality, accounting for over 40% of all deaths from injury. Over 90% of people who had attempted or committed suicide were diagnosed with psychiatric disorders such as severe depression, bipolar disorder and schizophrenia (Nock et al., 2008) but mental disorders are still under-treated or ineffectively treated (OECD, 2014a). Interpersonal violence is the main cause of deaths from injury in the Philippines. Apart from road traffic injuries, drowning and fire-related burns are also leading causes of injury-related deaths among children in the region (Peden et al., 2008).

Age-specific mortality was consistently higher in India than China, Indonesia, Japan and the OECD average across all age groups (Figure 1.7.3). In India, suicide and road traffic crashes were the main causes of deaths from injury among the population aged 15-59, and falls were the leading cause for older populations aged 60 and over.

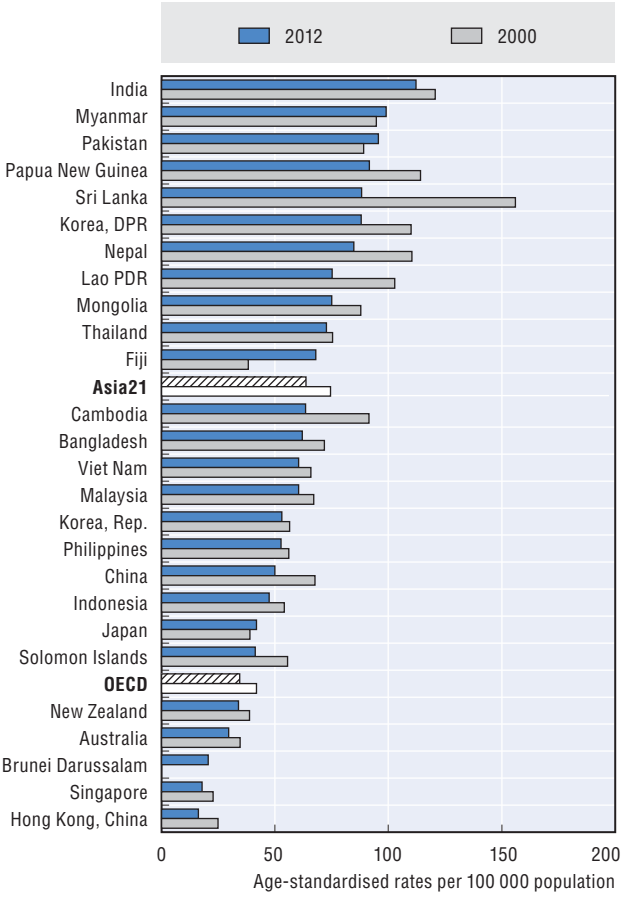
Definition and comparability

See Indicator 1.4 "Mortality from all causes" for definition, source and methodology underlying mortality rates.

Deaths from injury where the intent is not determined are distributed proportionately to all causes below the group level for injuries.

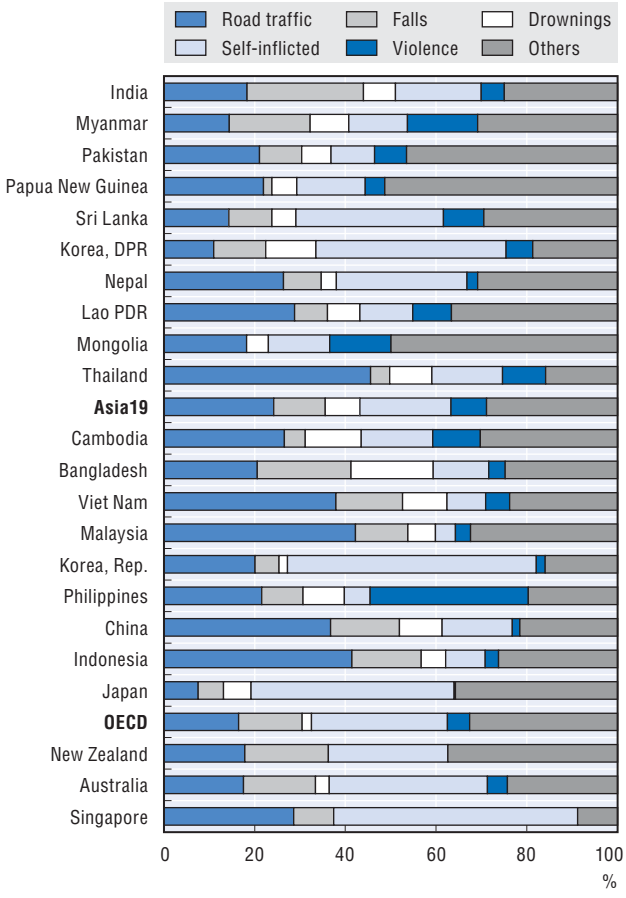
Estimates for deaths from road injury drew on death registration data, reported road traffic deaths from official road traffic surveillance systems and revised regression model for countries without usable death registration data (WHO, 2014i).

1.7.1. Injuries, estimated mortality rates, 2000 and 2012



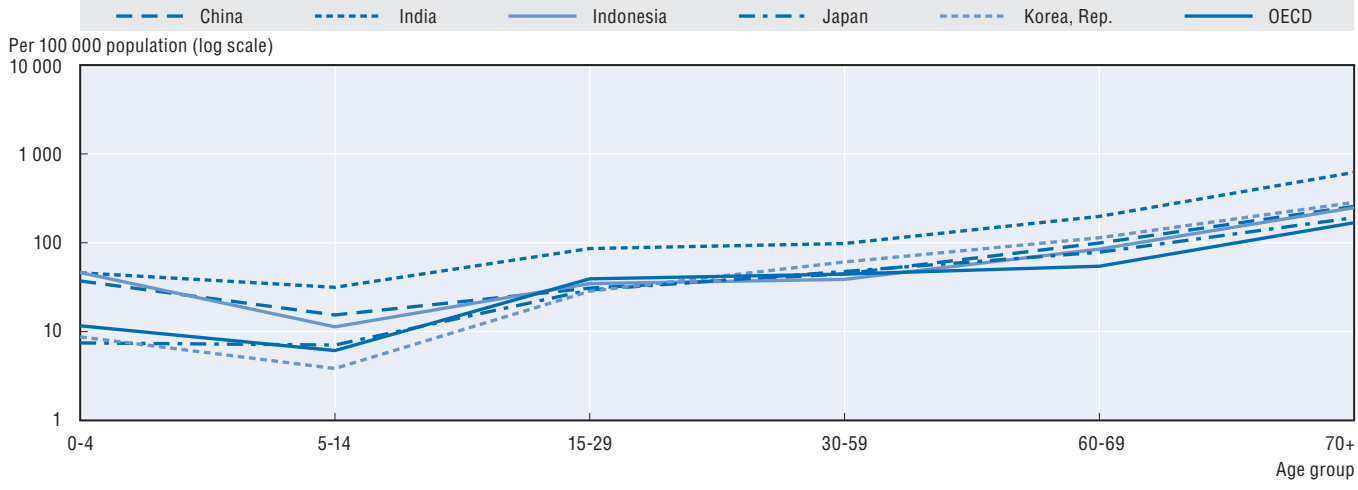
Source: WHO Global Burden of Disease, 2014; Department of Health, Hong Kong, China, 2014.

1.7.2. Proportions of deaths from injury, 2012



Source: WHO Global Burden of Disease, 2014.

1.7.3. Injuries, age-specific mortality rates, selected countries and OECD, 2012



Source: WHO Global Burden of Disease, 2014.

StatLink http://dx.doi.org/10.1787/888933152572

Pregnancy and childbearing offer women opportunities for personal development and fulfilment. But in different countries and to varying extents, they also have inherent risks. Maternal mortality – the death of a woman during pregnancy, childbirth, or in the weeks after delivery – is an important indicator of a woman's health and status. The United Nations set a MDG target of reducing maternal mortality ratios (MMR) by three-quarters between 1990 and 2015 and achieving universal access to reproductive health by 2015.

The main causes that lead to deaths are severe bleeding after childbirth, infections, high blood pressure during pregnancy or unsafe abortion. It shows clearly the differences between rich and poor, rural and urban, with the vast majority of deaths occurring in resource-poor settings, and most being preventable (WHO, 2011a). Fertility and maternal mortality have strong associations with economic development and GDP. Risks of maternal deaths can be reduced through family planning, better access to high-quality health care, and greater education and status for women.

In OECD countries, MMR averages around 6 deaths per 100 000 live births while in Asian countries, it is almost 15 times greater (Figure 1.8.1, left panel). Estimates for 2013 show a small group of countries (Hong Kong, China; Australia; Japan; Singapore; New Zealand and the Republic of Korea) with very low MMR of less than ten, but a group of countries including Lao PDR, Papua New Guinea and Myanmar had high MMR at above 200 deaths per 100 000 live births.

Almost 289 000 maternal deaths were estimated to have occurred worldwide in 2013 and a woman's lifetime risk of maternal death – the probability that a 15 year old woman will eventually die from a maternal cause – is 1 in 190. About one-quarter of the world's maternal mortality burden occurred in India, Indonesia, Pakistan and China alone. Large numbers of maternal deaths also occurred in Bangladesh (Figure 1.8.2).

However, significant progress in reducing maternal mortality occurred in the region over the last two decades (Figure 1.8.1, right panel). Globally, MMR declined by 45% between 1990 and 2013 while the average MMR across 20 Asian countries has been cut by 48% during the same period. Cambodia, the Lao PDR and Nepal have attained MDG targets already. According to a study (WHO, 2014e), Cambodia's success is related to reduced fertility through wider use of contraceptives and better coverage of antenatal care visits and professional birth attendants through increased numbers of midwives and wider availability of facilities for delivery, providing emergency obstetric and newborn care. Although progress was also made, Lao PDR needs a further reduction as MMR remains still high. Bangladesh, China, India and Myanmar all had a decline of over 65% while New Zealand, the Philippines and DPR Korea experienced an increase in MMR in recent years.

Across countries, maternal mortality is negatively related to the coverage of skilled births attendance (Figure 1.8.3). Although almost all births are attended by skilled health professionals in many countries in the region, there are several countries including Bangladesh, Nepal, the Lao PDR and Papua New Guinea where skilled professionals assisted less than one in two live births (see Indicator 3.5 "Pregnancy and birth") and these countries also had relatively high MMR, suggesting the need for access to high-quality care during childbirth.

Definition and comparability

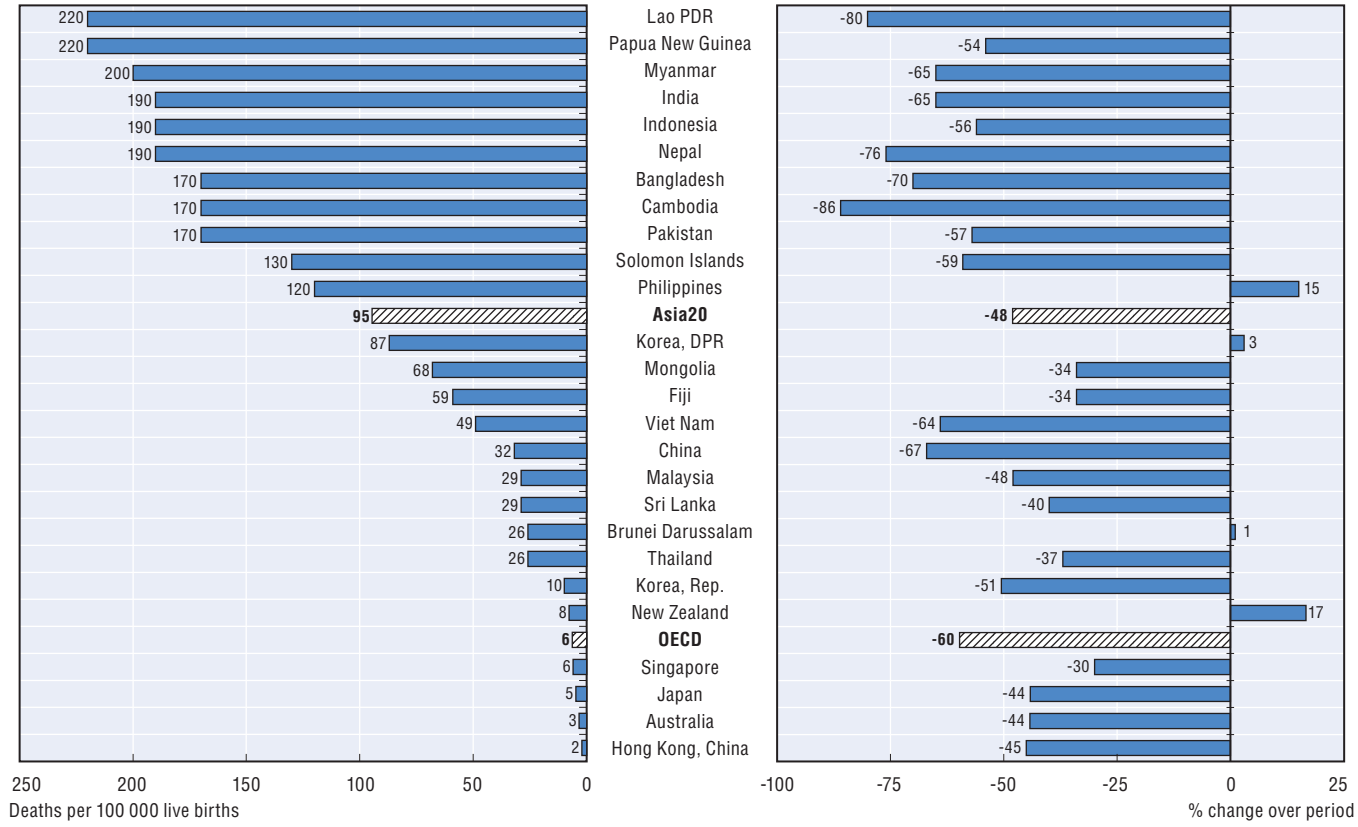
Maternal mortality is defined as the death of a woman while pregnant or during childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from unintentional or incidental causes (WHO, 2014f).

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.

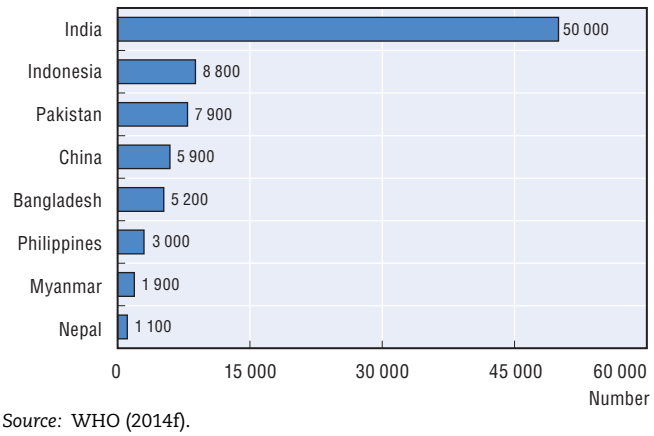
There are difficulties in identifying maternal deaths precisely. Many countries in the region do not have accurate or complete vital registration systems, and so the MMR is derived from other sources including censuses, household surveys, sibling histories, verbal autopsies and statistical studies. Because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

1.8.1. Estimated maternal mortality ratio, 2013 (or latest year available), and percentage change since 1990



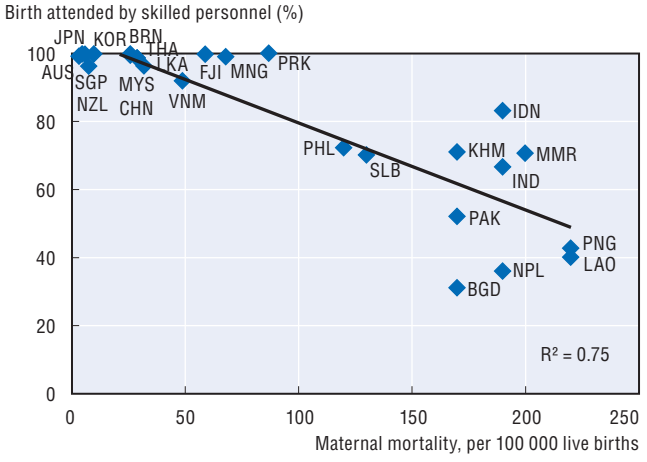
Source: *OECD Health Statistics 2014*; WHO (2014f).

1.8.2. Estimated number of maternal deaths in eight countries, 2013



Source: WHO (2014f).

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



Source: *OECD Health Statistics 2014*; WHO (2014f); WHO GHO 2014.

StatLink http://dx.doi.org/10.1787/888933152589

Tuberculosis (TB) is the leading cause of death from an infectious disease in the Asia/Pacific region. In 2012, there were 5.5 million new TB cases in the region, out of 8.6 million new cases worldwide, 1.3 million including people with HIV died of TB globally. 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 preventable if diagnosed and the right treatment is provided. The internationally recommended Stop TB Strategy is recognised as being efficient and cost-effective.

TB was declared a global health emergency by WHO in 1993 and the UN set a MDG target to halt the spread and to begin to reverse its incidence by 2015. The WHO co-ordinated Stop TB Partnership also set targets of halving TB prevalence and deaths by 2015, compared with a baseline of 1990.

Four of the five countries in the world with the largest number of incident cases in 2012 were in the Asia/Pacific region: India (2.2 million), China (1.0 million), Indonesia (0.46 million) and Pakistan (0.41 million) (Figure 1.10.1, left panel). Slightly less than half of the world's burden of tuberculosis was found in the region and India and China accounted for 26% and 12% of the total number of cases, respectively.

Prevalence rates were highest in Cambodia, Papua New Guinea, the Lao PDR and DPR Korea, with over 500 cases per 100 000 population in 2012 (Figure 1.9.1, right panel). The unweighted average prevalence rate across 22 Asian countries in 2012 was 286, more than 15 times the OECD average. In Australia and New Zealand, TB prevalence rates were lowest at less than ten.

Tuberculosis claims the lives of 940 000 people without HIV every year (WHO, 2013i). In the Asia/Pacific region, mortality rates were high in Cambodia, Papua New Guinea, Myanmar and Bangladesh with over 40 deaths per 100 000 populations (Figure 1.9.1, right panel). In the Asia/Pacific region, high-quality TB services have expanded and many cases are treated, reaching the treatment success rate of 86% in 2011 (Figure 1.9.2). Although the average detection rate in the region is generally high, there were a large number of undetected cases in some countries such as Lao PDR and Bangladesh in 2012. The detection rate was as low as 30% in the former and slightly less than one in two cases were detected in the latter, suggesting that they are lagging behind in achieving effective coverage.

The Asia/Pacific region is rising to the challenges presented by TB, with incidence, prevalence and mortality declining steadily since 1990. In about half of the countries, incidence and prevalence rates have been halved since 1990 (Figure 1.9.3). However, these indicators suggest that DPR Korea, Bangladesh and Papua New Guinea need to make more progress in stopping TB, and despite the MDG target achievement, further efforts are still needed in Cambodia, the Lao PDR, Mongolia and the Philippines as the prevalence rates are still high.

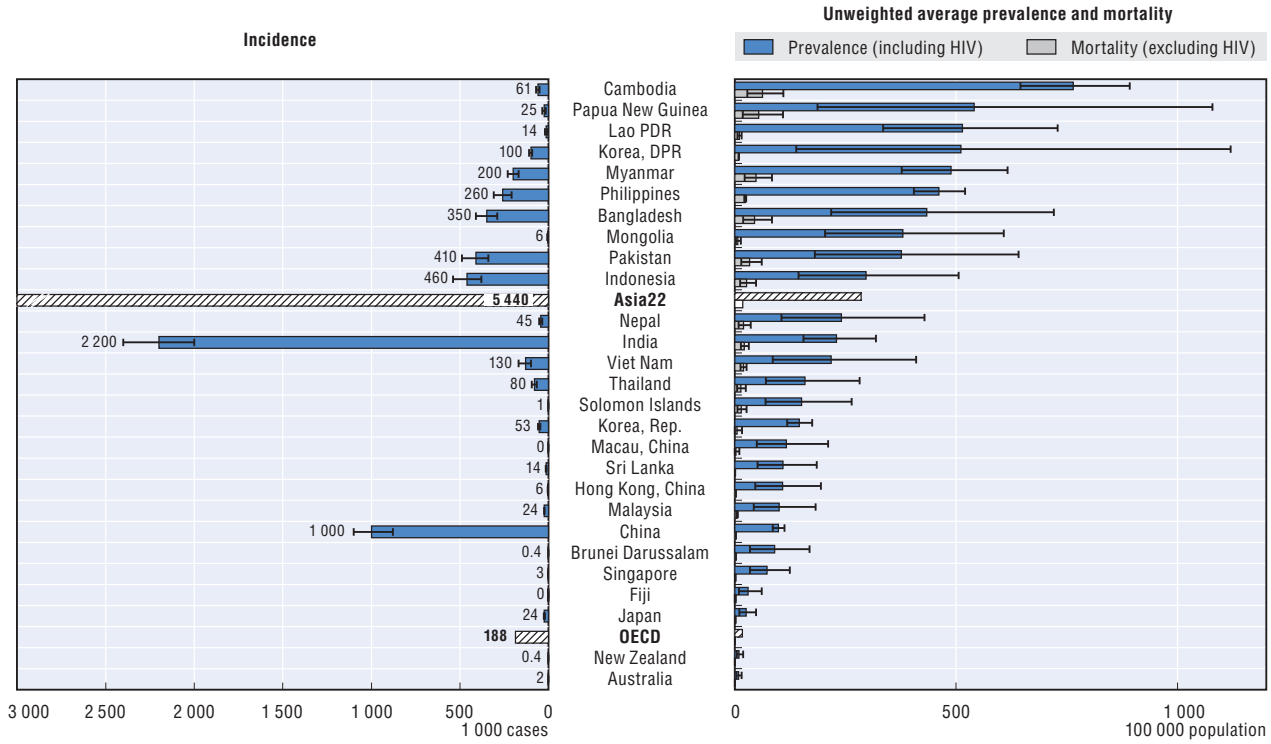
The region still faces important challenges in TB control, including providing services to those in greatest need, especially the poor and vulnerable. HIV-TB co-infection, the emergence of drug-resistant strains, funding gaps and the need for greater technical expertise all remain threats to progress (WHO, 2011b, 2012a). With regards to multidrug-resistant TB (MDR-TB), the burden is high in China with 5.7% of new cases with MDR-TB. This proportion is also high in Myanmar and the Philippines, at above 4%, Pakistan (3.5%) and Viet Nam (2.7%) (WHO, 2013i). Treatment of MDR-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.

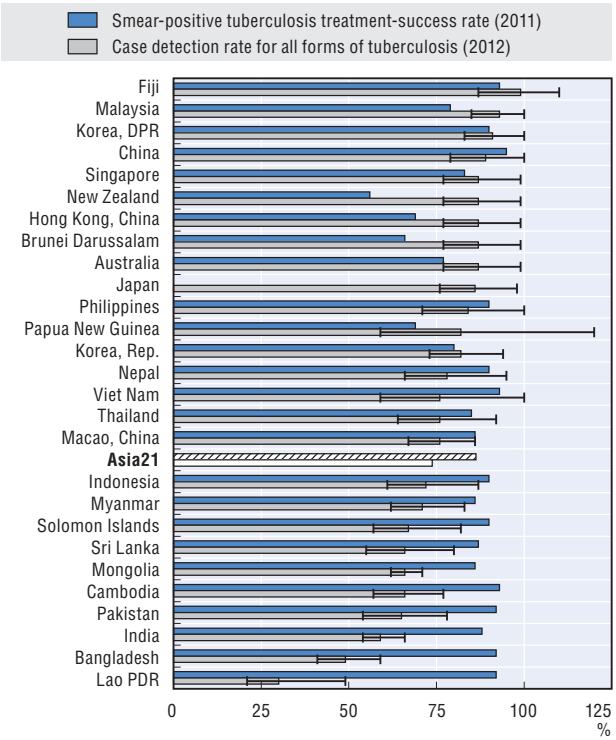
The TB incidence rate is the number of new cases of the disease estimated to occur in a year, per 100 000 population. The TB prevalence rate is the total number of persons with the disease at a particular time, per 100 000 population. TB mortality does not include TB/HIV as per ICD-10.

1.9.1. Estimate of the burden of disease caused by tuberculosis, 2012



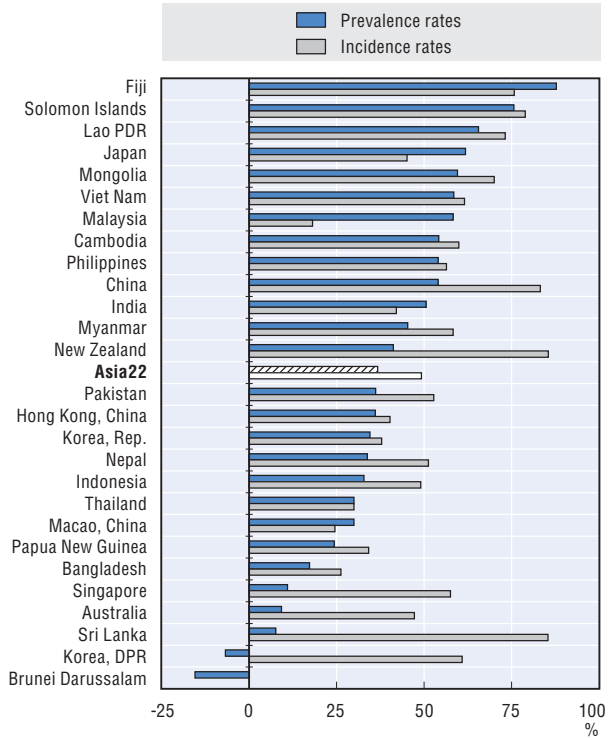
Note: 95% confidence intervals or 2.5th and 97.5th centiles of distribution represented by H.
Source: WHO GHO 2014.

1.9.2. Tuberculosis treatment success for new smear-positive cases and case detection, 2011-12



Note: 95% confidence intervals or 2.5th and 97.5th centiles of distribution represented by H.
Source: WHO GHO 2014.

1.9.3. Tuberculosis incidence and prevalence rates, change over 1990-2012



Source: WHO GHO 2014.

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Although the first cases of AIDS in Asia were reported in 1984 and 1985, the more extensive spread of HIV began late compared with the rest of the world, occurring in Cambodia, India, Myanmar and Thailand in the early 1990s (Ruxrungtham 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 MDG target to halt the spread of HIV by 2015.

In the Asia/Pacific region, the prevalence of HIV infection was 217 per 100 000 population in 2012 (Figure 1.10.1, left panel). Prevalence in Pacific countries was generally very low, although Papua New Guinea was an exception at 349 per 100 000 population. Thailand and Cambodia had an HIV prevalence exceeding 500 per 100 000 population. Myanmar also has a comparatively high rate of close to 400 per 100 000 population. This is in contrast to countries where rates are less than one-tenth of that figure – Bangladesh, Japan, Sri Lanka, the Philippines and the Republic of Korea – with the rate less than 40 per 100 000 population.

Although the prevalence of HIV is low, the absolute number of HIV infections was high at 4.8 million in 2012, because of Asia's large population (Figure 1.10.1, right panel). More than 40% of them (about 2.1 million people) were in India. China, Indonesia, Thailand, Viet Nam and Myanmar also face significant disease burdens. In 2012, there were about 350 000 new infections and 260 000 deaths in the region and a high number of new cases and deaths were observed in India (130 000 and 140 000, respectively) and Indonesia (76 000 and 27 000) (UNAIDS, 2013b).

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, 2013a). Among people living with HIV eligible for ART, less than 20% in Pakistan and Indonesia received ART treatment in 2012 (Figure 1.10.2). In India, the country with the greatest disease burden, only half of the people living with HIV eligible for ART received the treatment. In Hong Kong, China; Japan; Papua New Guinea and Cambodia, however, ART coverage was high at over 80%.

Over the past decade, many countries in the Asia/Pacific region responded to HIV/AIDS successfully and incidence rates have declined. Between 2001 and 2012, new incidence cases were reduced by half in Nepal, Cambodia, Myanmar, Thailand and India and these countries also reduced prevalence rates (UNAIDS, 2013b; Figure 1.10.3). However, prevalence rates had increased rapidly in Pakistan, and also in Indonesia, the Lao PDR and the Philippines during the same period.

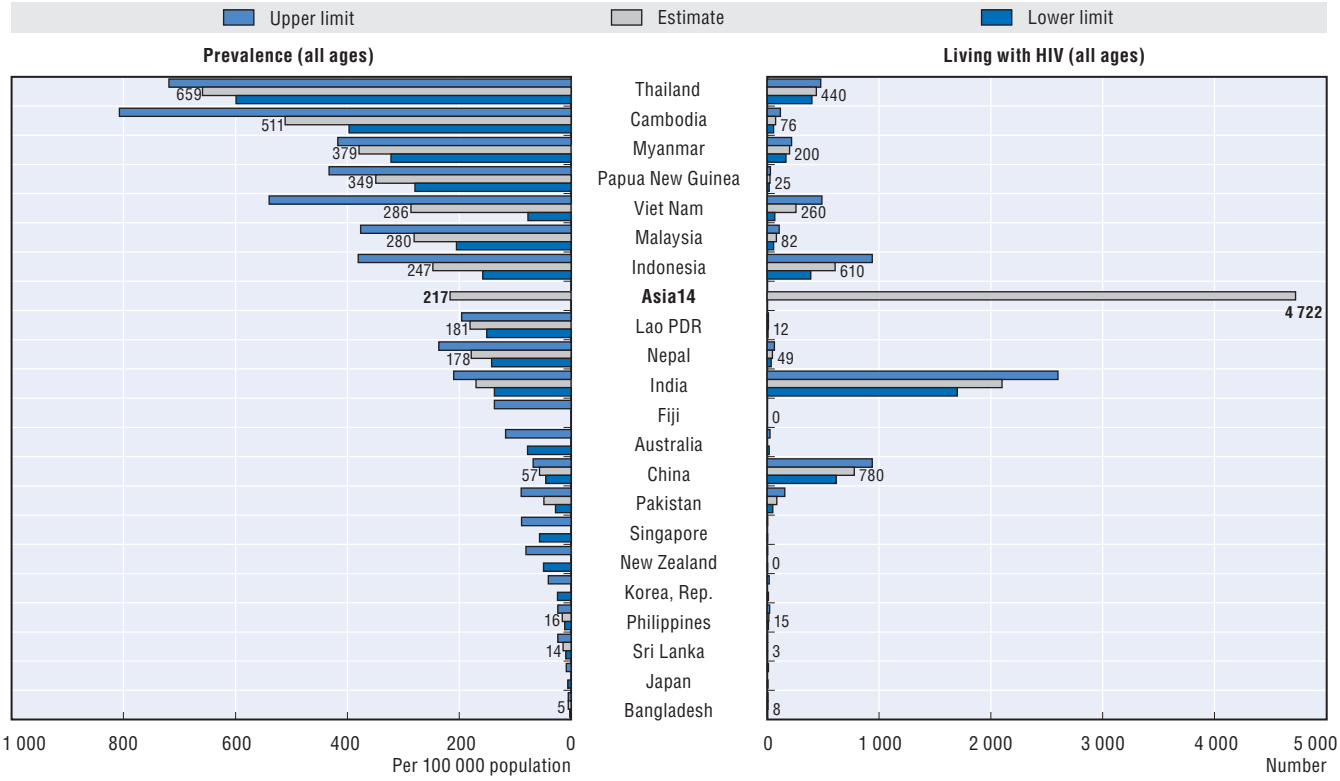
Targeted efforts are needed to contain the spread of HIV in the region as most of Asia's epidemics occur among sex workers and their clients, men who have sex with men, transgender persons and injecting drug users. In Cambodia and Thailand, the majority of female sex workers have reported the consistent use of condoms since the early 2000s, and this wide coverage has contributed to substantial reductions in new HIV cases in these countries in recent years (UNAIDS, 2013b). HIV is also spreading through transmission to the sexual partners of those at risk, often unknowingly. Hence, HIV testing and counselling need to be expanded in countries.

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.

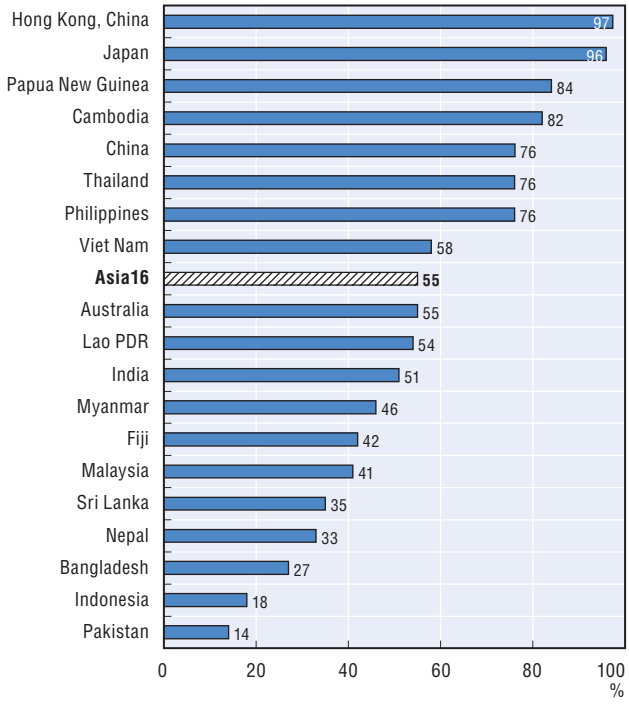
The HIV prevalence rate is the total number of persons estimated to be living with the disease at a particular time, per 100 000 population. In some countries, only upper and lower limit estimates are available.

1.10.1. Estimated persons living with HIV, 2012



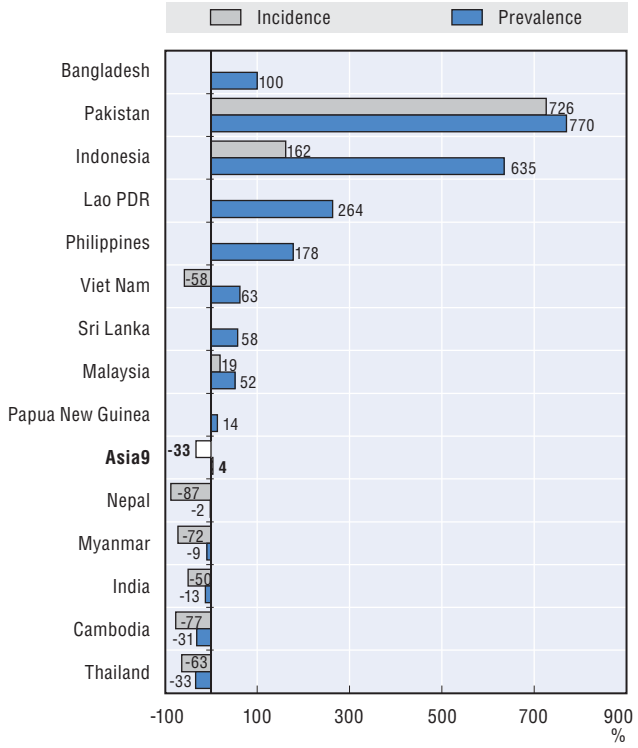
Source: UNAIDS (2013a).

1.10.2. Estimated antiretroviral therapy coverage among people with advanced HIV infection, 2012



Source: UNAIDS (2013a); Ministry of Health, China (2012).

1.10.3. Changes in estimated new cases of HIV infections and people living with HIV, 2001-12



Source: UNAIDS (2013a).

StatLink http://dx.doi.org/10.1787/888933152606

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. But if left untreated, malaria can become life-threatening by disrupting the blood supply to vital organs.

As part of the MDG targets, the UN set a goal to halt the spread of malaria by 2015 and begin to reverse the incidence and death rates. The Global Malaria Action Plan also set several targets, including the reduction of malaria cases by 75% from 2000 levels by 2015, and the reduction of malaria deaths to near zero by 2015.

About 2.3 billion people live at some risk of malaria and 1 billion people are at high risk in the Asia/Pacific region. 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, Sri Lanka, Bangladesh, the Republic of Korea and Malaysia. Malaria transmission is intense in most of Papua New Guinea and the Solomon Islands, and it is also intense in focal areas in the Greater Mekong Subregion, including in parts of Cambodia, Yunnan province (China), the Lao PDR and Viet Nam. In several countries such as Cambodia, Viet Nam and Lao PDR, malaria is mainly found in remote forest areas, where it disproportionately affects ethnic minorities and migrant workers. Malaria is also restricted in its distribution in Malaysia, the Philippines and the Republic of Korea. Mobile and indigenous populations as well as infants, young children and pregnant women are especially vulnerable.

In 2012, there were 152 million suspected cases and 8 million probable or confirmed cases in Asian countries (WHO, 2013h) and they were concentrated in Pakistan, India and Indonesia (Figure 1.11.1, left panel). Death rates are estimated to be highest in Papua New Guinea, the Solomon Islands, Myanmar and the Lao PDR (Figure 1.11.1, right panel).

Many countries made substantial progress to control malaria cases and deaths in recent years. Since 2000, malaria cases have been reduced by over 75% in countries including Bangladesh, Cambodia, China, DPR Korea, Malaysia, Nepal, the Philippines, the Republic of Korea, the Solomon Islands, Sri Lanka and Viet Nam. Based on the recent progress, Lao PDR and Thailand are also expected to achieve this goal by 2015. The mortality was also reduced by over 75% in countries such as Bangladesh, Cambodia, the Lao PDR, the Philippines, the Solomon Islands, Sri Lanka and Thailand between 2000 and 2012. However, the progress has been slow in Papua New Guinea, which has the highest mortality rate (WHO, 2013h).

Successful control was achieved by the national commitment to fight against malaria. In Sri Lanka, for example, the national malaria control programmes include active case detection (including mass screening), compulsory notification of cases within 24 hours using text messaging (SMS), case and focus investigation and quality-assured microscopic diagnosis of cases (WHO, 2013h).

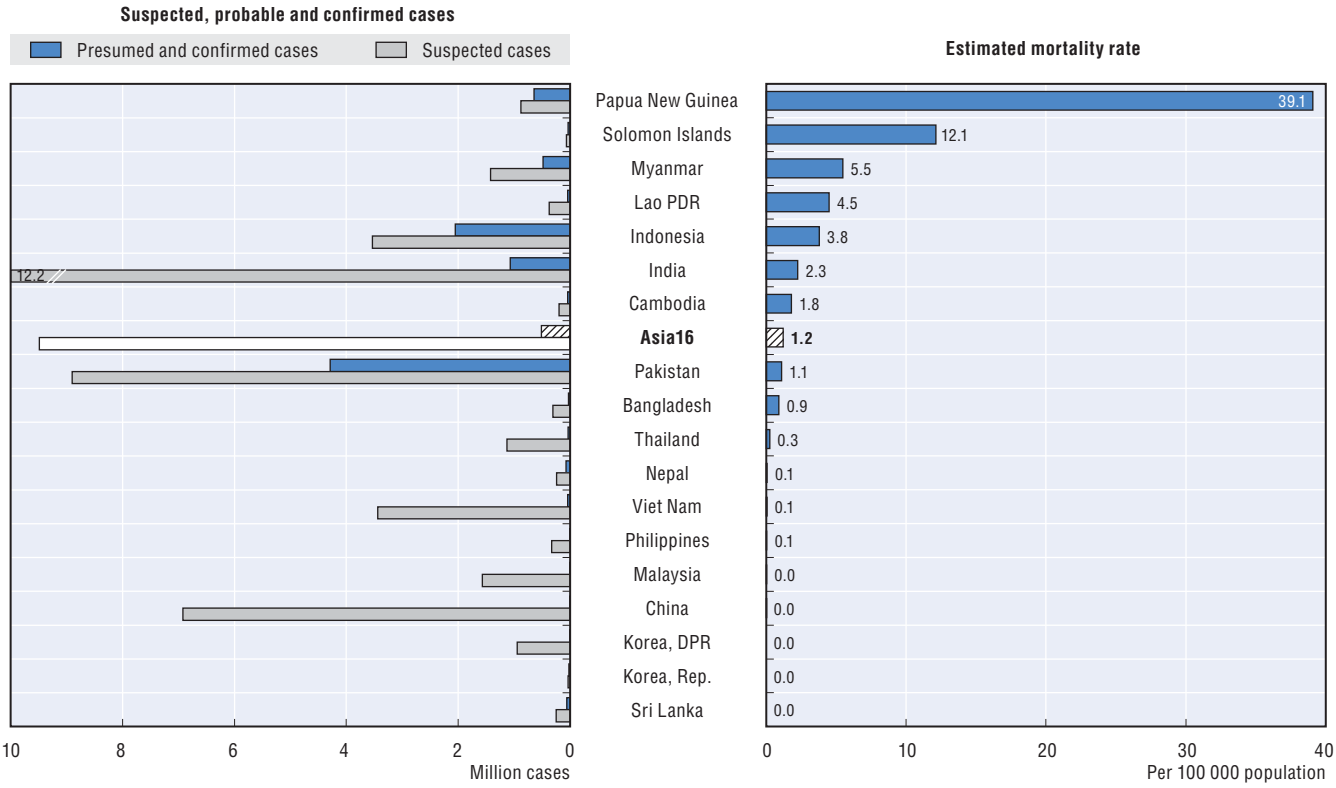
The use of insecticide-treated nets (ITN) by people at risk and indoor residual spraying (IRS) with insecticides are important preventive measures for at-risk populations to avoid mosquito bites, but the coverage is still low in a few countries (Figure 1.11.2). Despite the high prevalence, Pakistan, India and Indonesia had low ITN and IRS coverage, and the Republic of Korea and Viet Nam had not distributed sufficient ITNs or IRS to cover half of the population at high risk in 2012 (WHO, 2013h).

Prompt treatment with artemisinin-based combination therapies could save people with malaria. But China, Indonesia, Papua New Guinea, Pakistan and the Republic of Korea reported delivering insufficient quantities of antimalarial medicines in 2012 (WHO, 2013h) (Figure 1.11.3).

Definition and comparability

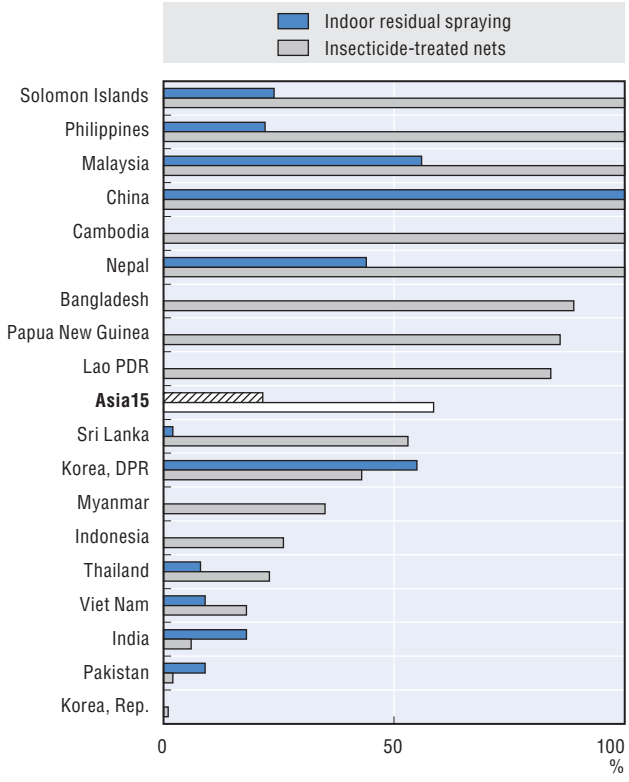
Underreporting of malaria cases and deaths remain a major challenge in countries with inadequate and limited access to health services and weak surveillance systems (WHO, 2008a). The number of deaths were estimated by adjusting the number of reported malaria cases for completeness of reporting, the likelihood that cases are parasite positive, and the extent of health service use.

1.11.1. Malaria cases and deaths, 2012



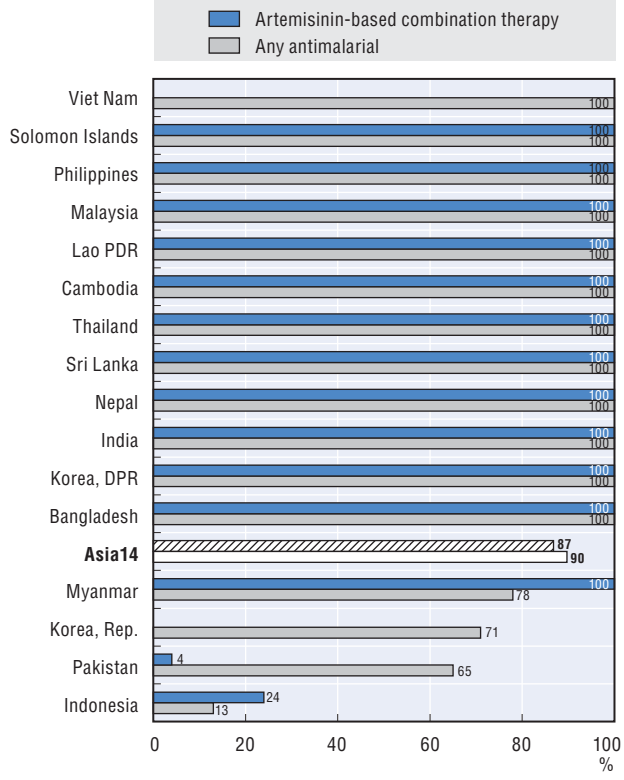
Source: WHO (2013h); WHO GHO 2014.

1.11.2. Malaria prevention, estimated coverage, 2012



Source: WHO (2013h).

1.11.3. Estimated coverage of at-risk persons with malaria control interventions, 2012



Source: WHO (2013h).

StatLink http://dx.doi.org/10.1787/888933152610

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), which regulates blood sugar, or through a reduced ability to produce insulin (type-2 diabetes). People with diabetes are at a greater risk of developing cardiovascular diseases such as heart attack and stroke. They also have elevated risks for sight 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 382 million people in 2013. In the Asia/Pacific region, about 215 million people live with diabetes and half of them are undiagnosed and unaware of developing long-term complications. In 2013, diabetes caused 5.1 million deaths worldwide and over 60% of them occurred in the Asia/Pacific region.

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 2.4 "Child malnutrition (underweight and overweight)" and 2.5 "Adult malnutrition (underweight and overweight)"] and diet. The cause of type-1 diabetes is not known and it is not preventable with current knowledge.

Among 22 Asian countries, the prevalence of diabetes was 7.1% of the adult population, higher than the OECD average in 2013, but there was a large variation across countries (Figure 1.12.1, left panel). The Solomon Islands, Fiji, Malaysia, and Singapore had an adult diabetes prevalence of 10% or more and the prevalence is also high in India and China, at 9.1% and 9.0%, respectively. Conversely, less than 5% of the adult population in Cambodia and Nepal had diabetes.

Given the population size, China and India accounted for a large share of people living with diabetes in the Asia/Pacific region in 2013 (Figure 1.12.1, right panel). In China, 98.4 million people had diabetes, more than the affected people in the entire OECD, and in India, there were over 65.1 million people with diabetes in 2013. More than 5 million people had diabetes in Indonesia, Japan, Pakistan and Bangladesh.

Diabetes disproportionally affects the poor and disadvantaged. In Australia, for instance, indigenous people have been found to be three times more likely than other Australians to report having diabetes (AIHW, 2012a). Despite the predominantly urban impact of the disease, type-2 diabetes is increasing in rural areas due to lifestyle changes.

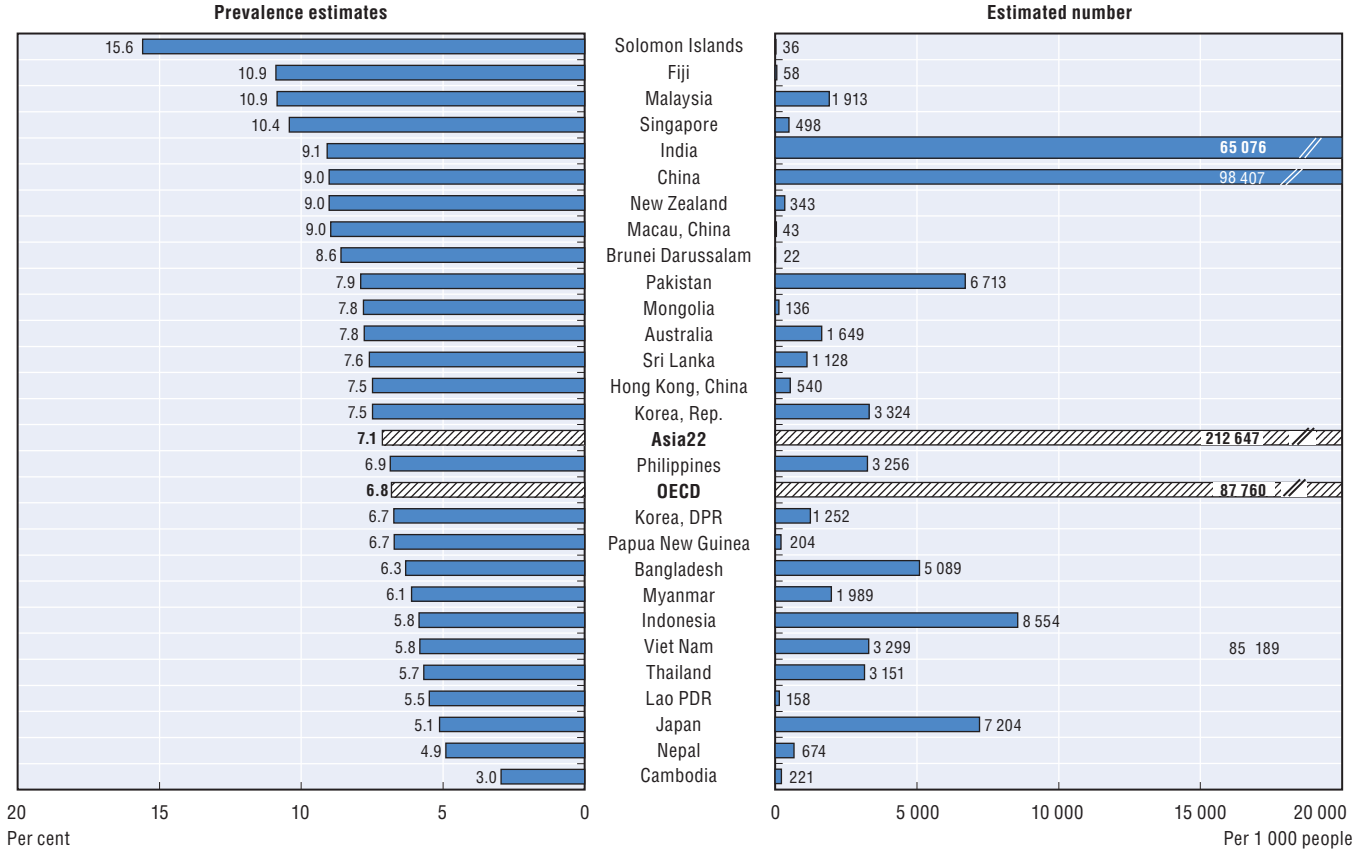
Diabetes is no longer a disease of the wealthy and it is expected to increase more rapidly in developing countries than OECD countries. In Asian countries, the prevalence is expected to increase by 0.6% between 2013 and 2035 while the increase will be only by 0.1% in the OECD during the same period (Figure 1.12.2). Developing countries are undergoing epidemiological transitions with rapid changes in lifestyle and diet and demographic transitions with population ageing (see Indicator 1.13 "Ageing"). Countries must cope with a double burden of infectious diseases and an epidemic of non-communicable diseases such as diabetes. To combat diabetes endemic effectively, governments need to create an environment that fosters healthy living, particularly among children and adolescents. There is also a need to strengthen the capacity of those on the front line against diabetes, such as primary care practitioners, by providing adequate and appropriate training (IDF, 2013).

Definition and comparability

The sources and methods used by the International Diabetes Federation for publishing national prevalence estimates of diabetes are outlined in its *Diabetes Atlas, 6th Edition* (IDF, 2013).

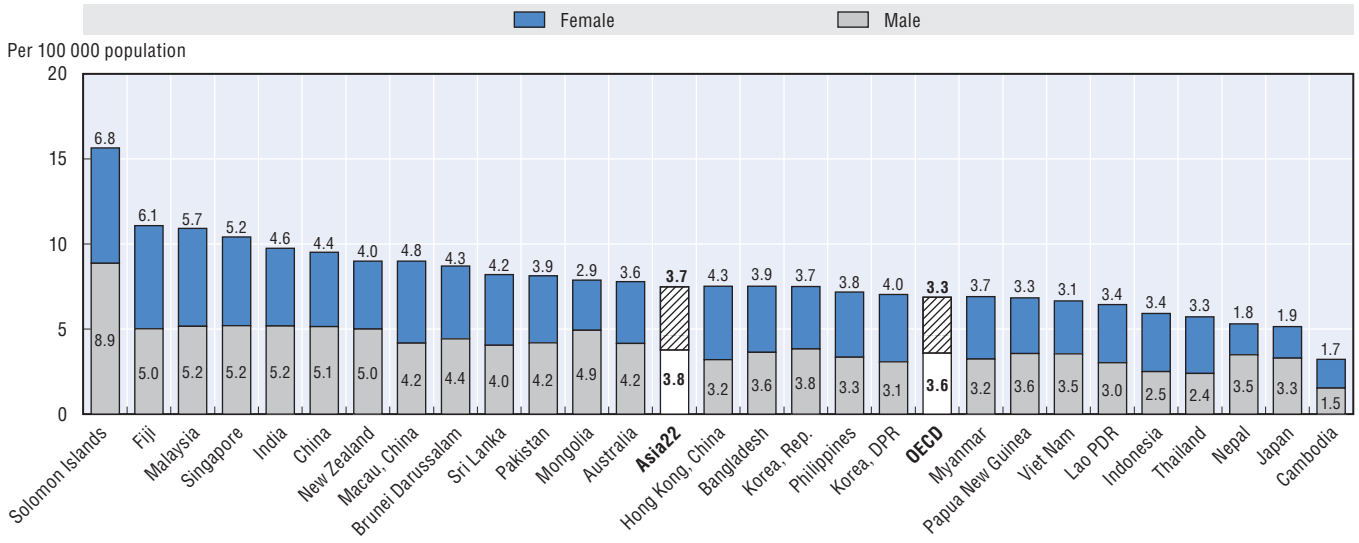
Rates were adjusted to the world standard population to facilitate cross-national comparisons.

1.12.1. Diabetes among adults aged 20-79 years, 2013



Source: IDF (2013).

1.12.2. Diabetes among adults aged 20-79 years, prevalence estimates, 2035



Source: IDF (2013).

StatLink http://dx.doi.org/10.1787/888933152623

Population ageing is characterised by a rise in the share of the older people resulting from longer life expectancy (see Indicator 1.1 "Life expectancy at birth") and declining fertility rates (OECD, 2011b; UN ESCAP, 2013). In Asian countries, since 1990, life expectancy has increased by about seven years and fertility has decreased from 3.4 children per woman of reproductive age, to slightly below 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 2.1 "Reproductive health"). Population ageing reflects the success of health and development policies over the last few decades.

The share of the population aged over 65 years in Asian countries was 7%, less than half the level in OECD countries in 2012. But it is expected to nearly quadruple in the next four decades to reach 26% in 2050, surpassing the OECD average of 25% (Figure 1.13.1, left panel). The share of older people will be particularly large in Hong Kong, China; Japan; Thailand; the Republic of Korea and Macau, China where nearly 40% of the population will be aged 65 and over. Singapore, China and Viet Nam will also face serious population ageing, with over 30% of the population over 65.

Globally, the speed of ageing in the region will be unprecedented. It is particularly fast in Brunei Darussalam, India and Mongolia, where the share of the population over 65 is expected to increase by seven-, six- and four-fold respectively between 2012 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 1.13.1, right panel). On average across Asian countries, 1% of the population were aged 80 years and over in 2012 but in 2050, the percentage is expected to increase to 6%. In Japan, the proportion is expected to more than double from 7% to 16% between 2012 and 2050, but several other countries are likely to experience faster growth. The proportion is expected to grow by over nine times in Brunei Darussalam, over six times in Korea, and more than five times in Singapore, Thailand, Fiji, Malaysia and Macau, China over the next four decades.

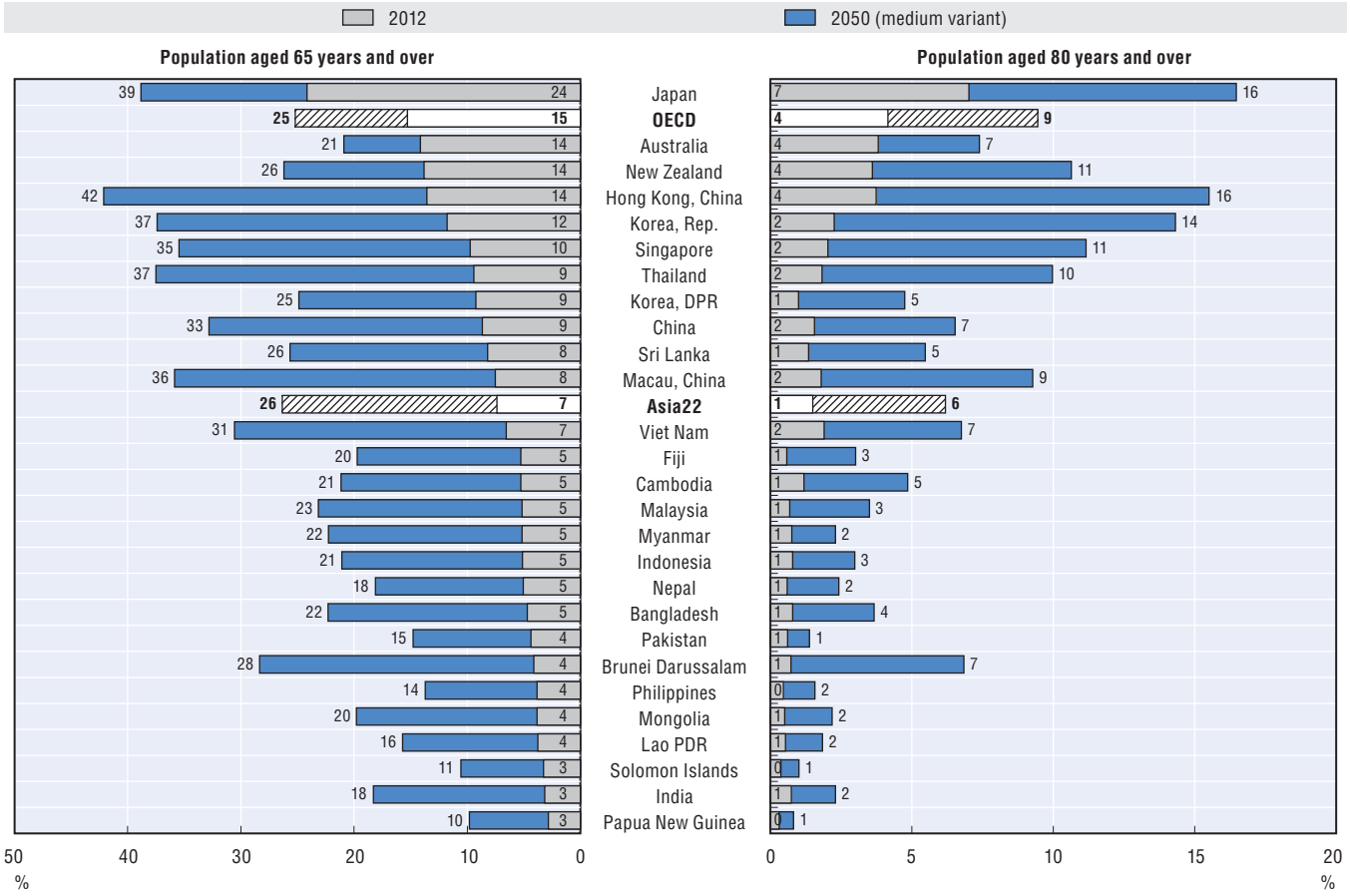
Although the pressure of population ageing will depend on the health status of people as they become older, there is likely to be a greater demand for health care that meets the need of older people in the Asia/Pacific region in coming decades. Health systems will need to be reoriented to be responsive to older people's needs. In OECD countries, close to 13% of the population aged 65 years and over received long-term care either in institutions or at home in 2011, and the prevalence of dementia was almost 6% of the population aged 60 years and over in 2009 (OECD, 2013c). In this context, a number of OECD countries have introduced and established long-term care systems in recent years (OECD, 2010b). For instance, in Japan, the Long-Term Care Insurance System was introduced in 2000 to address the care needs of its ageing populations who often have multiple morbidities. The country also tries to strengthen its care integration and primary and community care (OECD, forthcoming). All countries in the region will urgently need to address drastic changes in demographic structures and subsequent changes in health care needs, and the development of long-term care systems as seen in OECD countries may be worth noting. Increasingly, there is a need to invest in integrated and person-centered service delivery that includes innovative home- and community-based care pathways tailored to older people's specific needs.

Over the next few decades, the share of the economically active population is expected to decline across countries in the Asia/Pacific region (Figure 1.13.2). 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 cross sectors to address the underlying determinants of health of older people, including housing, transport and the built environment.

Definition and comparability

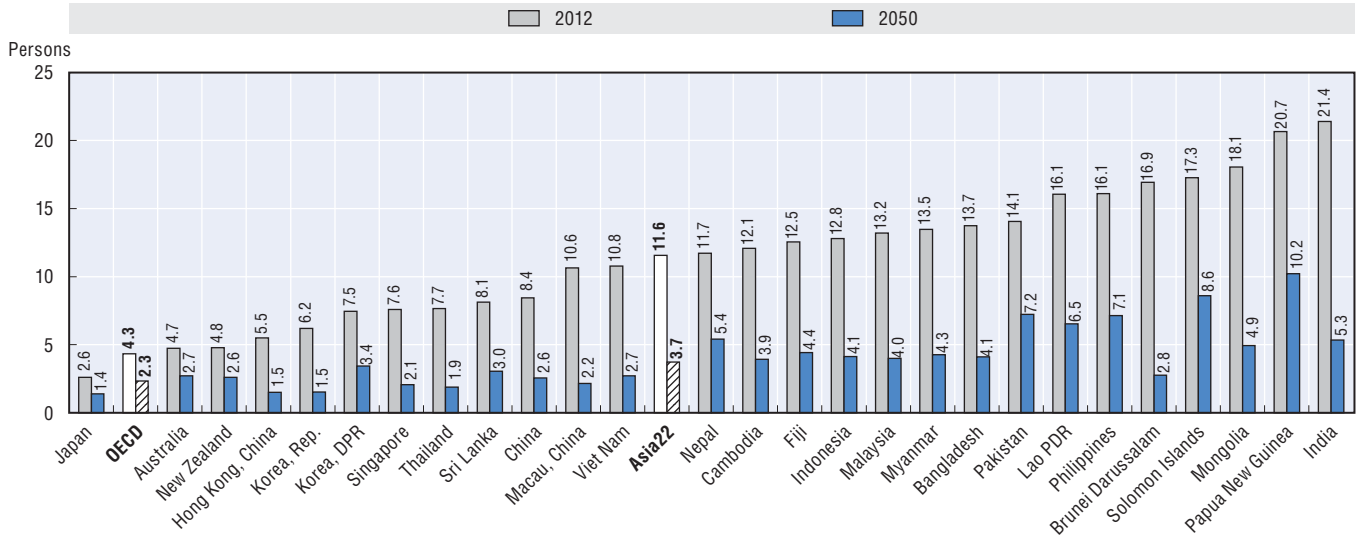
Data on the population structure have been extracted from the OECD historical population data and projections (1950-2050). The projections are based on the most recent "medium-variant" population projections from the United Nations, World Population Prospects – 2012 Revision.

1.13.1. Share of the population aged over 65 and 80 years, 2012 and 2050



Source: *OECD Historical Population Data and Projections Database 2013*; UNESCAP (2014).

1.13.2. Ratio of people aged 15-64 to people aged over 65 years, 2012 and 2050



Source: *OECD Historical Population Data and Projections Database 2013*; UNESCAP (2014).

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Chapter 2

Determinants of health

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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, and lower the risk of abortion-related deaths and disability. 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 provision of medical care and counselling during antenatal care visits with trained health professionals are also key determinants of the health of mother and child as many of their health problems can be prevented, detected or treated. WHO recommends a minimum of four antenatal visits, comprising pregnancy monitoring, managing problems such as anaemia, counselling and advice on preventive care, diet, and delivery by skilled health personnel.

The UN set a target of achieving universal access to reproductive health by 2015 and progress towards this MDG has been monitored through contraceptive prevalence, unmet needs of family planning and antenatal care coverage (see Indicator 3.5 "Pregnancy and birth").

The prevalence of contraceptive use varies across countries in the Asia/Pacific region. In China; the Republic of Korea; Thailand; Hong Kong, China; Macau, China and Viet Nam, more than three-quarters of married women of reproductive age report using contraceptives (Figure 2.1.1, left panel). This proportion is higher than the OECD average of 74%. But across all Asian countries, only 60% of married women with reproductive age report using contraceptives, and this includes around 7% who use traditional methods such as rhythm, withdrawal and folk methods. In Pakistan, Papua New Guinea, the Solomon Islands, the Lao PDR, Myanmar, the Philippines, Malaysia and Nepal, less than half of married women report using any method of contraception.

Countries with lower contraceptive prevalence report higher rates of unmet need for family planning, suggesting further progress is needed to increase access to reproductive care in these countries (Figure 2.1.1, right panel). In Nepal, Papua New Guinea, the Lao PDR and Pakistan, one-quarter or more of married women not using contraceptives also report wanting to delay or cease having any more children. Unmet needs are lowest in countries such as China, Thailand and Viet Nam, in which contraceptive use is most prevalent.

Unmet need for family planning is generally high among women with lower wealth and education levels living in rural areas in the Asia/Pacific region (Figure 2.1.2). In the Solomon Islands, the difference in unmet need by wealth and education level is highest and over twice as many women in the poorest quintile claim unmet need as women in the richest quintile. The difference by wealth is also large in Cambodia and India but within-country differences are smaller between women with highest and lowest education and also between those living in rural and urban areas. Unmet need is also high among adolescents and youth in countries with a young age of marriage and high gender inequality in the Asia/Pacific region (UN ESCAP, 2013).

Higher coverage of antenatal care (at least four times) is associated with lower maternal mortality, indicating the effectiveness of antenatal care across countries (Figure 2.1.3). 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 (UN ESCAP, 2013).

Definition and comparability

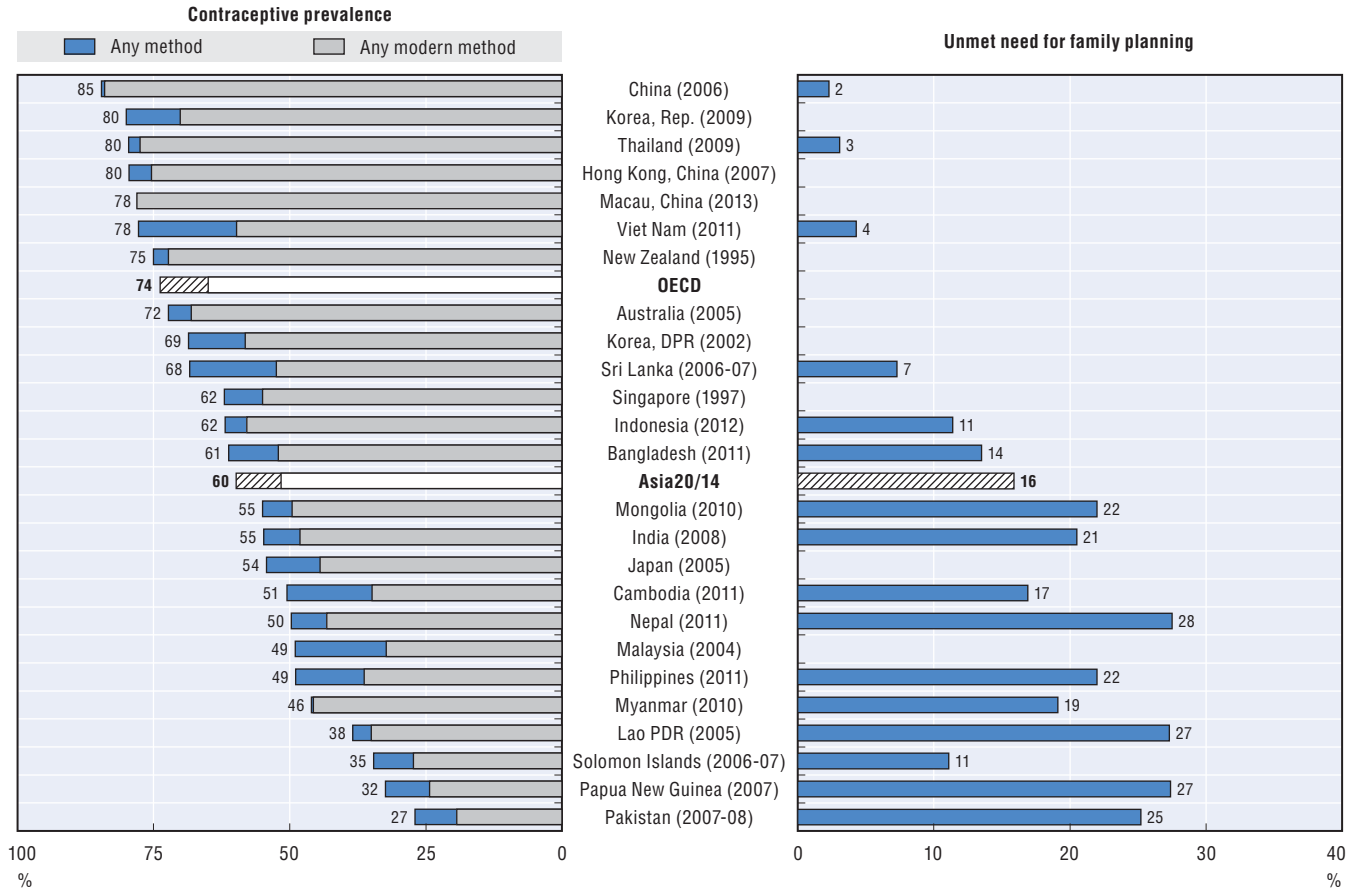
Contraceptive prevalence is the percentage of women who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used. It is usually reported as a percentage of married or in union women aged 15 to 49.

Women with an unmet need for family planning are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the birth of their next child. It is also reported as a percentage of married or in union women aged 15 to 49.

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

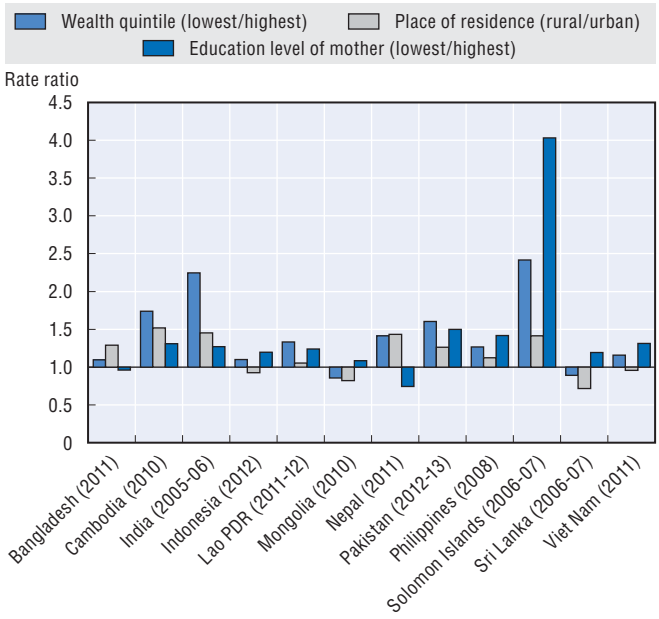
See Indicator 1.2 "Infant mortality" for definition of rate ratios.

2.1.1. Contraceptive prevalence and unmet need for family planning, latest available estimate



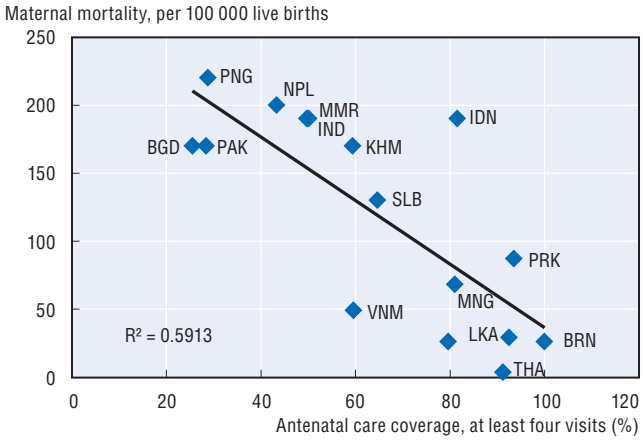
Source: WHO GHO 2014; Bureau of Health, Macau, China, 2014.

2.1.2. Unmet needs by socio-economic and geographic factor, selected countries and years



Source: DHS & MICS surveys 2005-13.

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



Source: WHO GHO 2014.

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Preterm birth (i.e. before 37 completed weeks of gestation) is the single most important determinant of neonatal deaths (i.e. during the first four weeks of life) and the second leading cause of death in children under 5 (see Indicator 1.3 "Under-5 mortality"). Many survivors of preterm births also face a lifetime of disability, including learning disabilities and visual and hearing problems. 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 warmth (skin to skin contact within the first minute of birth) and early initiation of breastfeeding (within the first hour of birth) and basic care for infections and breathing difficulties (WHO, 2013f; see Indicator 1.2 "Infant mortality"). 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 during pregnancies (see Indicator 2.1 "Reproductive health").

Low birthweight 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, exposure to second hand smoke and excessive alcohol consumption, previous in-vitro fertilisation treatment and a history of low weight births.

Every year, an estimated 15 million babies are born preterm worldwide and over 1 million babies die annually from preterm birth complications. 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 20 Asian countries, almost 12 babies out of 100 are born preterm on average but the rate varies across countries, ranging from 5.9 in Japan to 15.8 in Pakistan (Figure 2.2.1, left 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 (WHO et al., 2012).

The average rate of low birthweight is 11.6% across 22 Asian countries, much higher than the OECD average of 6.6% (Figure 2.2.1, right 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 birthweight at 2.3% while in Pakistan, there are 32 low birthweight infants per 100 live births. 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.

The incidence of low birthweight has declined over the past decade in many countries in the Asia/Pacific region while it increased in the Republic of Korea, Pakistan, Japan, Malaysia and Fiji (Figure 2.2.2). A substantial decline of over 25% was observed in Myanmar, Viet Nam, Bangladesh, Sri Lanka and Thailand. In Sri Lanka, for example, its impressive progress was attributable to investment in primary care initiatives as well as the expansion of health coverage. In particular, recent advances included reinvigoration of community-based health care, including maternity clinics, and strengthening of referral and transportation networks, additional investment in tertiary care centres equipped with neonatal intensive care and training of specialists (WHO et al., 2012).

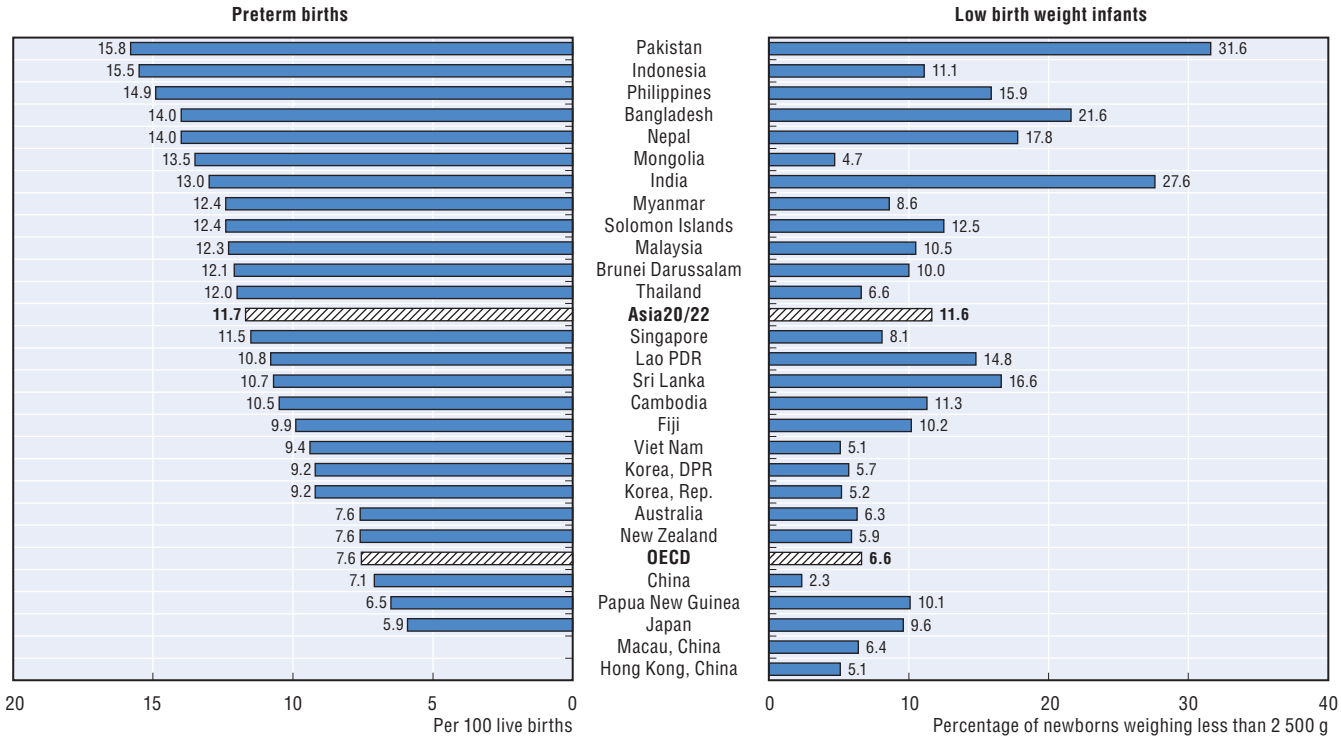
Higher coverage of antenatal care, which is important for maternal health, is also associated with lower infant mortality, suggesting the significance of antenatal care over infant health across countries (Figure 2.2.3).

Definition and comparability

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.

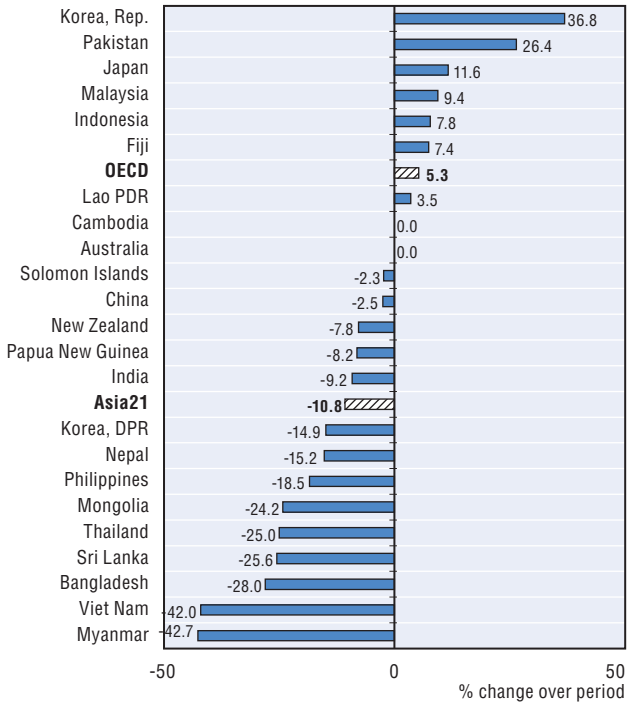
In developed countries, the main information sources are national birth registers. For developing countries, low birthweight estimates are primarily derived from mothers participating in national household surveys, as well as routine reporting systems (UNICEF and WHO, 2004).

2.2.1. Preterm births and low birth weight infants, 2011 (or nearest year available)



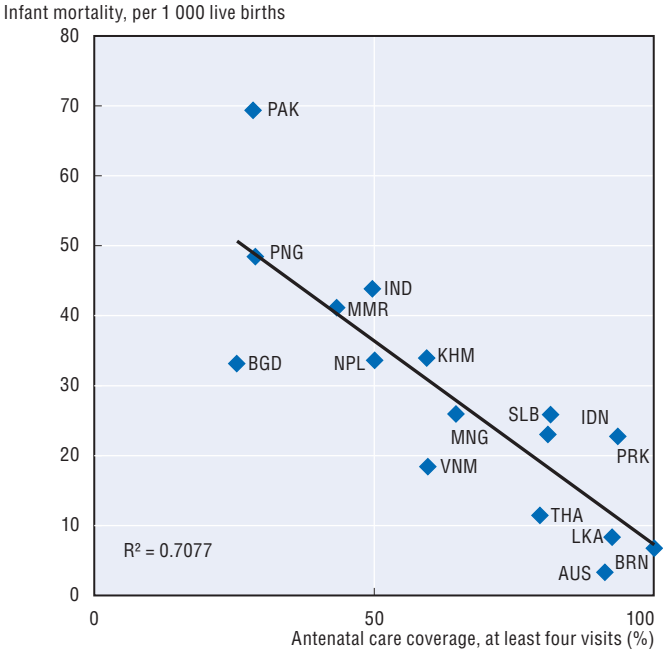
Source: *OECD Health Statistics 2014*; UNICEF Childinfo; World Bank WDI; Department of Health, Hong Kong, China, 2014; Statistics and Census Service, Macau, China, 2014.

2.2.2. Low birthweight, percentage change, 2000-11



Source: March of Dimes Foundation 2014.

2.2.3. Antenatal care coverage and infant mortality, latest year available



Source: *OECD Health Statistics 2014*; UNICEF Childinfo; World Bank WDI 2014.

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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.

Especially, 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. Breastfeeding is an unequalled way of providing ideal food 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 later good health. 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. About 800 000 lives among children under 5 can be saved every year globally, if all children 0–23 months are optimally breastfed (WHO, 2014g). Breastfeeding also benefits mothers through assisting in fertility control, reducing the risk of breast and ovarian cancer in later life and lowering rates of obesity.

The Global Strategy for Infant and Young Child Feeding, 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. WHO also recommends continued breastfeeding up to two years and beyond.

Globally, 38 % of infants under six months of age are exclusively breastfed (WHO, 2014g). In the Asia/Pacific region, more than half of the countries that report data have exclusive breastfeeding rates greater than the global average, but there are variations across countries (Figure 2.3.1). More than three-quarters of infants are exclusively breastfed in DPR Korea and Sri Lanka, followed by above 70% in Cambodia and the Solomon Islands, while exclusive breastfeeding rates are less than 20% in Hong Kong, China; Thailand and Viet Nam. 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.

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 next 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). Bangladesh also carried out intensive mass media campaigns that focused on maternal health, newborn care and child health, resulting in the increase of exclusive breastfeeding for the first six months from 43% in 2007 to 64% in 2011 (DHS, 2011).

In most countries in the Asia/Pacific region, exclusive breastfeeding is slightly more common among poorer women with lower education living in rural areas than richer women with higher education living in urban areas, but there are some exceptions (Figure 2.3.2). 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. In Thailand and Myanmar, women with the highest education level are much more likely to follow exclusive breastfeeding recommendations than those with the lowest education.

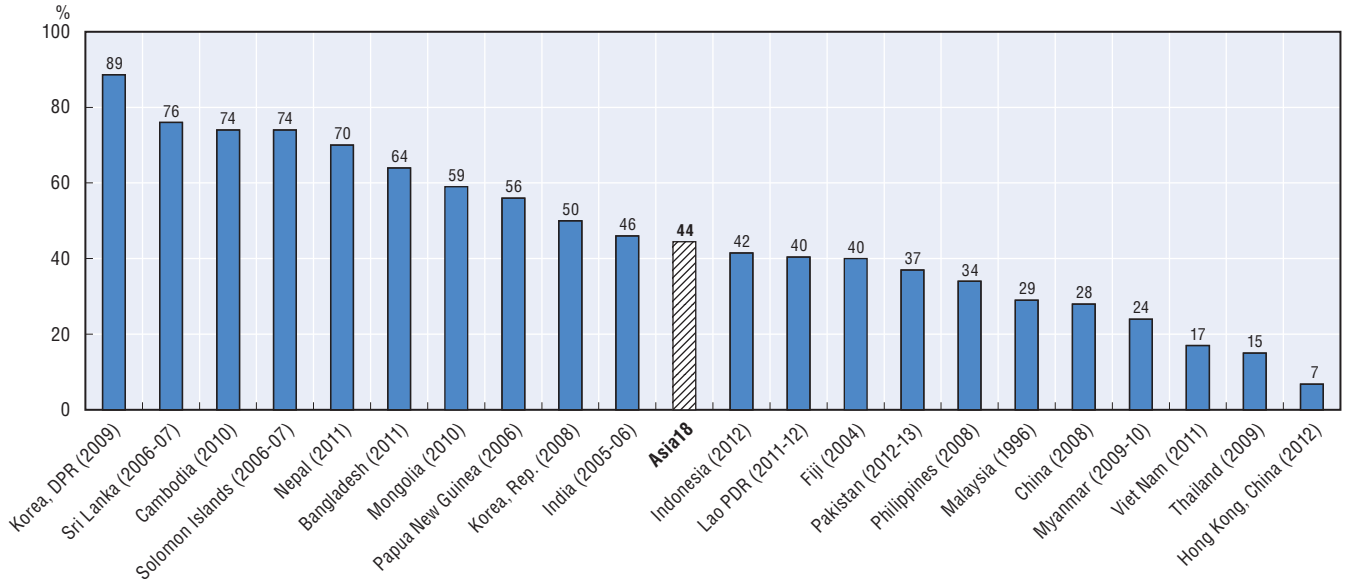
Considering the remaining high levels of childhood malnutrition (see Indicator 2.4), infant and young child feeding practices must be further improved. Even though complementary foods are introduced to a majority of infants after six months in countries with available data and most young children continue to be breastfed at 12-15 months (Figure 2.3.3), early initiation and exclusive breastfeeding rates remain low in most countries. Less than half of all infants under six months in Asia are exclusively breastfed. Complementary foods are not introduced to the majority of children in DPR Korea, Thailand and China between 6-8 months, and less than 40% of young children are continuously breastfed through the first year of life in Thailand and China.

Definition and comparability

Exclusive breastfeeding is defined as no other food or drink, not even water, than breast milk (including milk expressed or from a wet nurse) for the first six months of life, but allows the infant to receive oral rehydration salts, drops and syrups (vitamins, minerals and medicines). Thereafter, infants should receive complementary foods with continued breastfeeding up to two years of age or beyond.

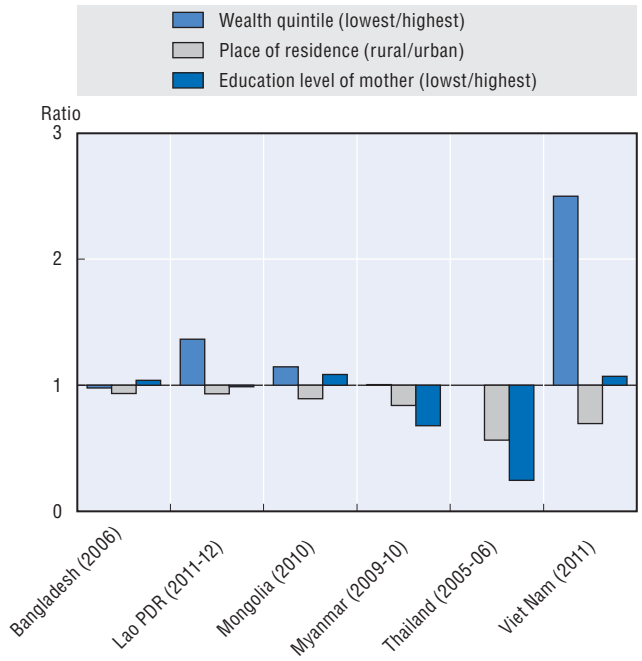
The usual sources of information on the percentage of infants and young child feeding practices are household surveys.

2.3.1. Infants exclusively breastfed for first six months of life



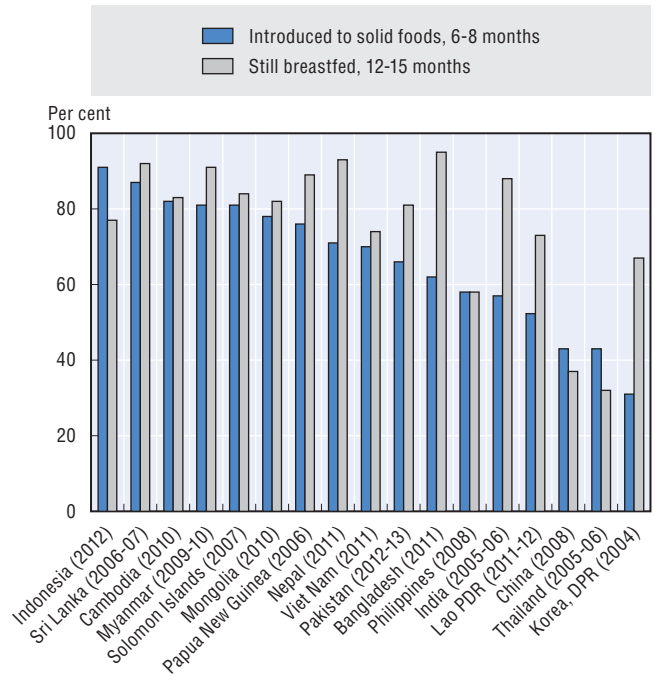
Source: DHS & MICS surveys 2005-13, WHO GHO 2014, and Survey on Diet and Nutrient intake, Hong Kong, China, 2012.

2.3.2. Exclusive breastfeeding of infants during first six months, by socio-economic and geographic factor, selected countries and years



Source: DHS & MICS surveys 2005-13.

2.3.3. Feeding after age six months, selected countries and years



Source: DHS & MICS surveys 2005-13 and UNICEF Childinfo.

StatLink http://dx.doi.org/10.1787/888933152664

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, an active and healthy life. Malnutrition is an important determinant of poor child health and is estimated to contribute to more than one-third of all child deaths worldwide. 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. Children who are overweight or obese are at greater risk of poor health and reduced quality of life not only in adolescence, but also in adulthood.

Stunted growth (low height-for-age) reflects failure to reach linear growth potential as a result of long-term sub-optimal health and/or nutritional conditions. 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, 2014g). Wasting or thinness (low weight-for-height) indicates in most cases a recent and severe weight loss, which is often associated with inadequate food intake and/or a severe disease. Wasting may also be the result of a chronic unfavourable condition.

Many countries in the Asia/Pacific region have a high prevalence of stunting and wasting among children. Stunting prevalence is high at around 50% in India, the Lao PDR and Papua New Guinea, while it is below 10% in Hong Kong, China; Singapore; Fiji and China (Figure 2.4.1, left panel). As for wasting, if there is no severe food shortage, the prevalence is usually below 5% even in poor countries, but it is much higher than this threshold in some countries such as India, Papua New Guinea, Bangladesh and Pakistan (Figure 2.4.1, right panel).

Underweight (low weight-for-age) is related to both low height and low weight of a child, so unsurprisingly countries in the Indian continent with higher prevalence of stunting and wasting have a higher proportion of underweight children (Figure 2.4.2).

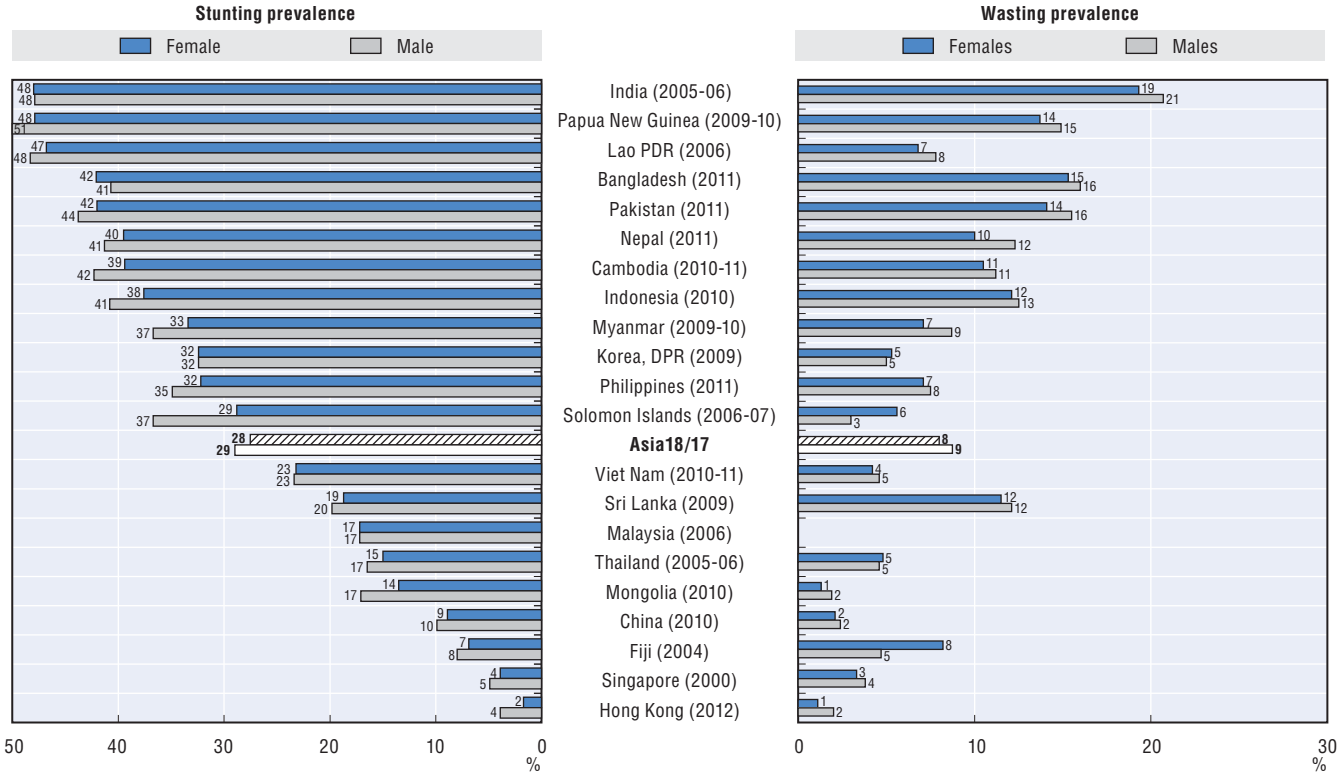
Countries with a lower under-5 underweight prevalence have a lower under-5 mortality (Figure 2.4.2), reflecting the fact that about 45% of under-5 deaths are attributable to undernutrition (UNICEF, 2013; see Indicator 1.2 "Infant mortality"). In order to reduce under-5 mortality, countries need to not only implement effective preventive and curative interventions for newborns, children and their mothers during and after pregnancy, (see Indicator 3.6 "Infant and child health") but also to promote optimal feeding practice (see Indicator 2.3 "Infant and young child feeding").

Overweight refers to high weight-for-height. The prevalence of childhood overweight is increasing in most OECD countries (OECD, 2013c), as well as in low and middle income countries. It varies across the Asia/Pacific region (Figure 2.4.3). It is low in countries in the Indian continent but high in Indonesia, with three times the Asian average, and Mongolia and Thailand, with about twice the average. Overweight is generally more prevalent among male children across countries.

Definition and comparability

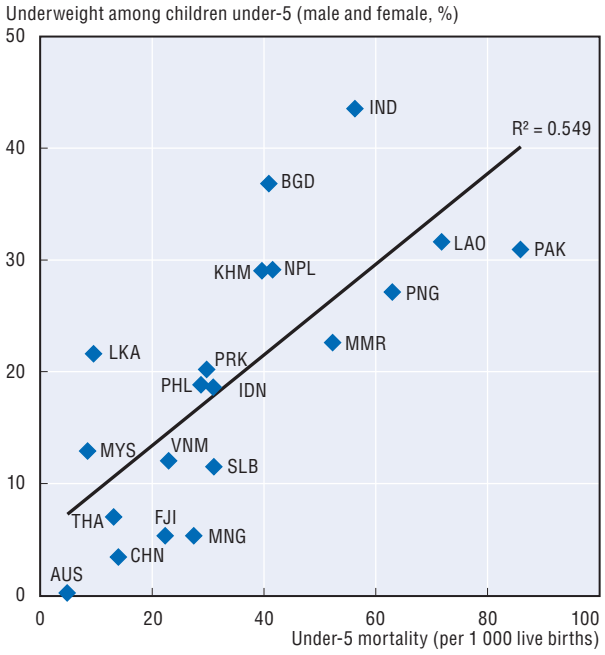
The WHO Global Database on Child Growth and Malnutrition uses a Z-score cut-off point of two standard deviations and preschool children lower than this international reference median value is classified as low weight-for-age, low height-for-age and low weight-for-height (moderate and severe undernutrition) and those higher than this is classified as high weight-for-height (overweight).

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



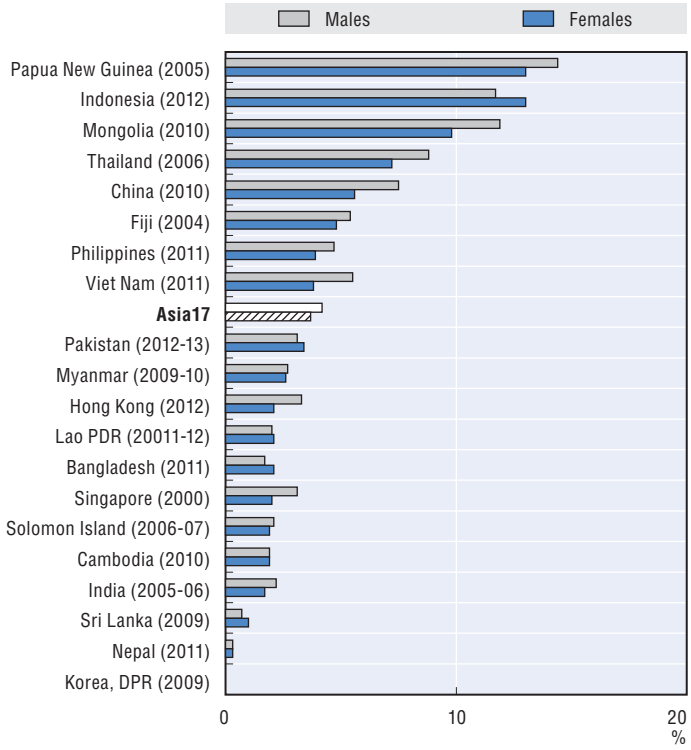
Source: DHS and MICS 2005-13; WHO GHO 2014.

2.4.2. Under-5 mortality and underweight prevalence, latest year available



Source: DHS and MICS 2005-13; WHO GHO 2014; UN IGME Childinfo.

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



Source: DHS and MICS 2005-13 and WHO GHO 2014.

StatLink http://dx.doi.org/10.1787/888933152678

Poor nutrition intake among adults, leading to either underweight or overweight, is closely associated with ill health. More than one-third of all deaths worldwide are due to ten main risk factors, and seven of these are related to nutrition (WHO, 2002b).

In developing countries, underweight is the risk factor most closely associated with early death. Undernutrition in pregnant women also leads to low birthweight babies (see Indicator 2.2 "Preterm birth and low birthweight"). 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 readily available and often cheaper than healthier alternatives.

Globally, the rise in overweight and obesity is becoming a major public health concern. 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).

Across 15 Asian countries, 17% of females and 13% of males were underweight on average, compared to an average of 4% and 2% in OECD countries (Figure 2.5.1, left panel). A significant proportion of adults in southern Asia are underweight and in India, Pakistan, Bangladesh and Viet Nam, more than one-quarter of adults have a BMI of less than 18.5, while in New Zealand and Australia, less than 5% of male and female populations are underweight. It should be noted that some Asian populations may have different associations between BMI, percentage of body fat and health risks than other populations (WHO Expert Consultation, 2004).

The average rates of overweight are similar between Asian and OECD countries (Figure 2.5.1, right panel). Although the average rate for male in the OECD is much higher than 20 Asian countries, the rate for female in Asian countries slightly exceeds the OECD average. Countries such as the Lao PDR, the Philippines, Malaysia and Thailand face a double burden of under- and overnutrition occurring simultaneously among different population groups.

The prevalence of overweight is growing rapidly in the Asia/Pacific region (Figure 2.5.2). Since 1990, the share of overweight people has increased by about 5% for both male and female populations on average in Asian countries. The speed was much slower but the share has also grown at 3% for men and 4% for women in OECD countries during the same period.

However, up to now, obesity is still more prevalent in OECD countries than in countries in Asia, but a sizeable share of overweight adults is obese in the several countries of the Pacific (Figure 2.5.3). 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).

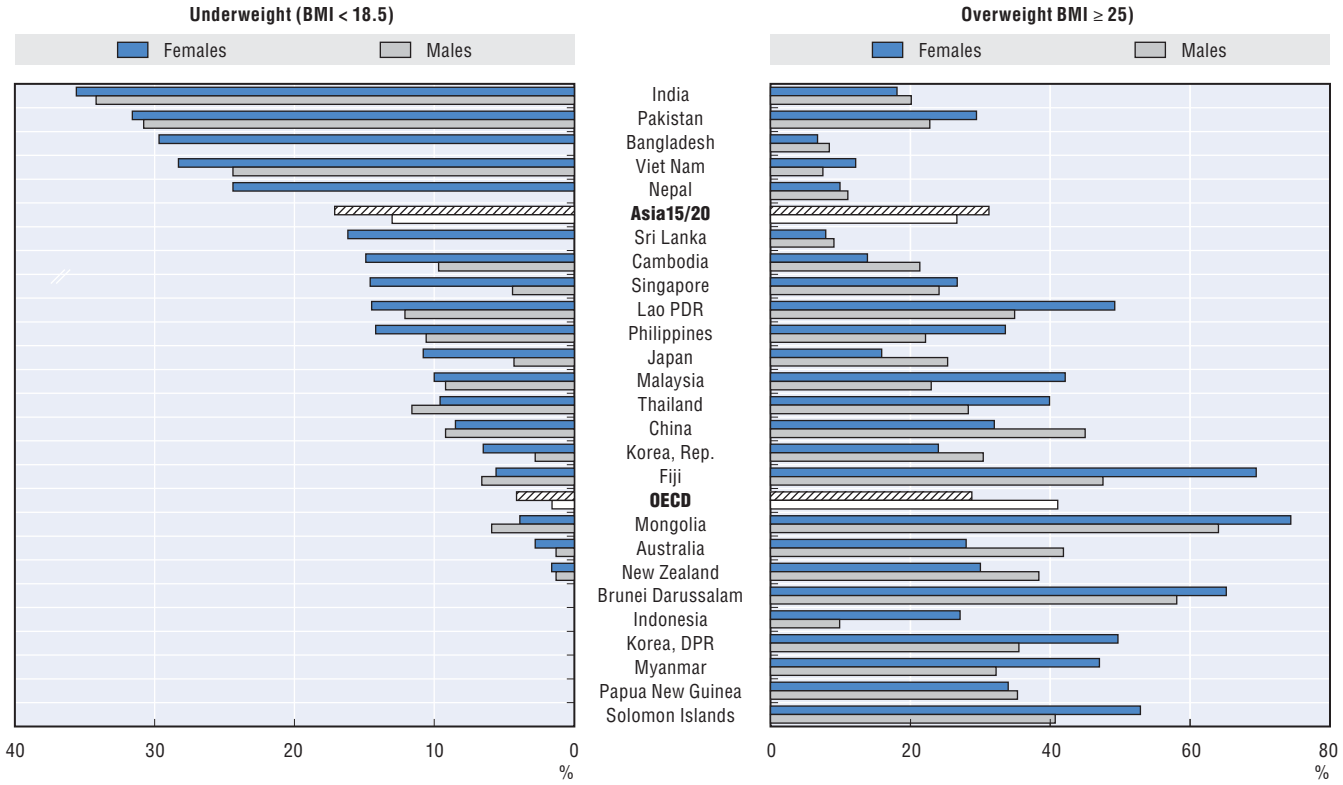
Definition and comparability

The most frequently used measure of underweight, overweight and obesity 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 and 25 or over are overweight. Adults who have a BMI of 30 or over are defined as obese.

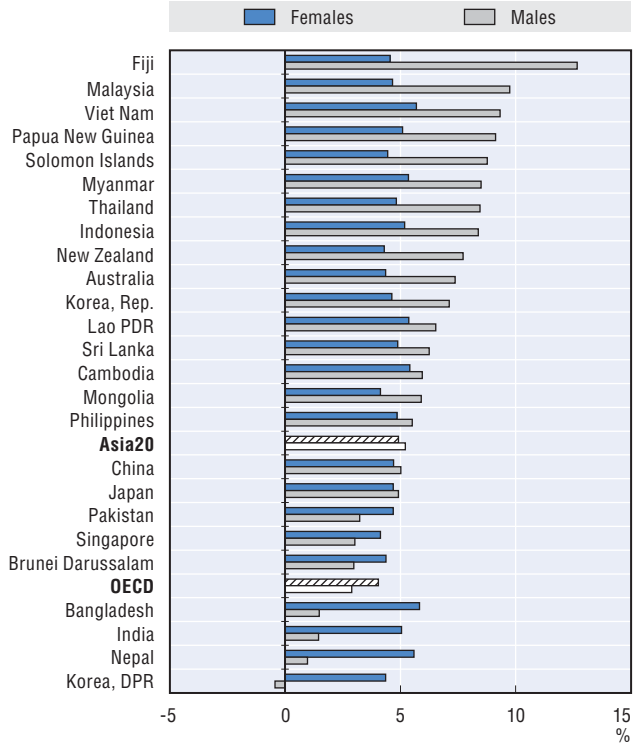
In many countries, self-reported estimates of height and weight are collected through population-based health surveys while in Australia, Japan, the Republic of Korea and New Zealand, health examinations measure actual height and weight. These differences limit data comparability. BMI estimates from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

2.5.1. Adults who are underweight or overweight, latest year available



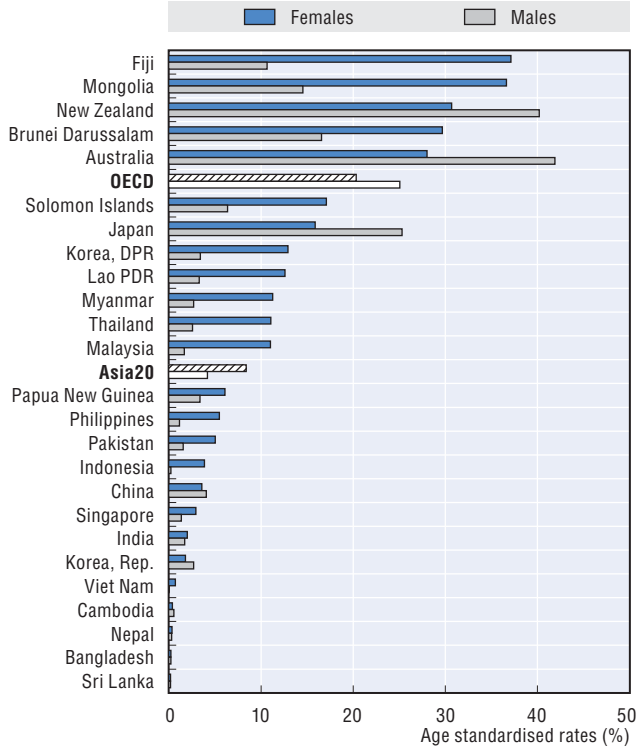
Source: *OECD Health Statistics 2014*; WHO Global Database on Body Mass Index; WHO Global Infobase.

2.5.2. Changes in overweight prevalence, 1990-2009



Source: WHO Global Database on Body Mass Index.

2.5.3. Adults who are obese, latest year available



Source: *OECD Health Statistics 2014*; WHO Infobase.

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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 1.8 million people every year (WHO, 2004). 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, 2014). 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 UN set a MDG target to halve the proportion of the population that has inadequate water and sanitation between 1990 and 2015.

The use of improved sources of drinking water is high in many countries in the Asia/Pacific region, but it is low in some countries such as Papua New Guinea, Cambodia and the Lao PDR (Figure 2.6.1, left panel). Access to adequate sanitation, however, is not as expanded in the region. Over one billion people in Asian countries, accounting for 29% of the population, do not use improved sanitation (Figure 2.6.1, right panel). In Papua New Guinea and the Solomon Islands, less than one-third of the population have facilities for adequate excreta disposal and open defecation are still common.

Between 1990 and 2012, many countries in the Asia/Pacific region improved access to drinking water (Figure 2.6.2) and over 1.2 billion additional people – mostly in India and China – gained access to improved sources, often through piped connections to their homes. Viet Nam, Sri Lanka, India, China, Fiji, Thailand, Myanmar, Nepal and the Lao PDR have already attained the MDG goal of halving the population without adequate water since 1990. 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. But the progress was slow in countries including the Solomon Islands and Pakistan. In these countries, more financial resources are needed to achieve water policy targets and also to realise the associated economic, social and environmental benefits. 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 (OECD, 2012c; WHO, 2012b).

The proportion of the population using improved sanitary facilities has also grown over recent decades (Figure 2.6.3). The progress was rapid in Cambodia, from 3% in 1990 to 37% in 2012, and Nepal, from 6% to 37% during the same period. Progress was also observed in Malaysia, Sri Lanka, Fiji, DPR Korea, Thailand, Viet Nam, Lao PDR, China and Myanmar, and these countries attained the MDG goal of halving the proportion of the population without adequate sanitation.

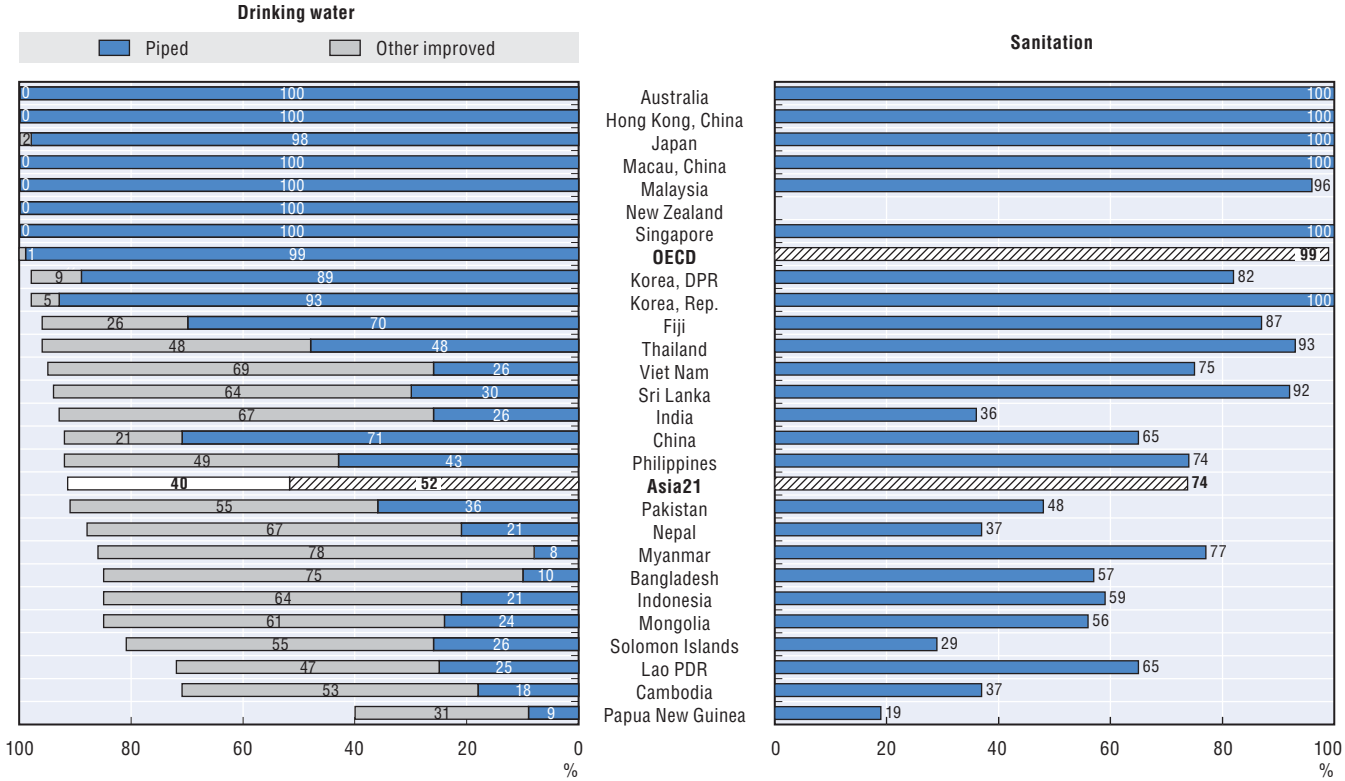
In the Asian countries, although safe water access for rural dwellers has improved steadily since 1990 and reached 87.7 % of rural populations in 2012 compared to 97% in urban dwellings, improving sanitation in rural areas is more problematic. In the region, on average, only 56.5% of rural dwellers had access to adequate sanitation in 2012 compared to 73.6% in urban dwellings, and the coverage was very low at 25% in Cambodia and India (UNICEF and WHO, 2014). Responsibilities for rural sanitation are not clearly defined in many Asian countries, and there is an urgent need to establish national frameworks, including the definition of roles and responsibilities of stakeholders (WHO, 2010).

Definition and comparability

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. 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, 2014).

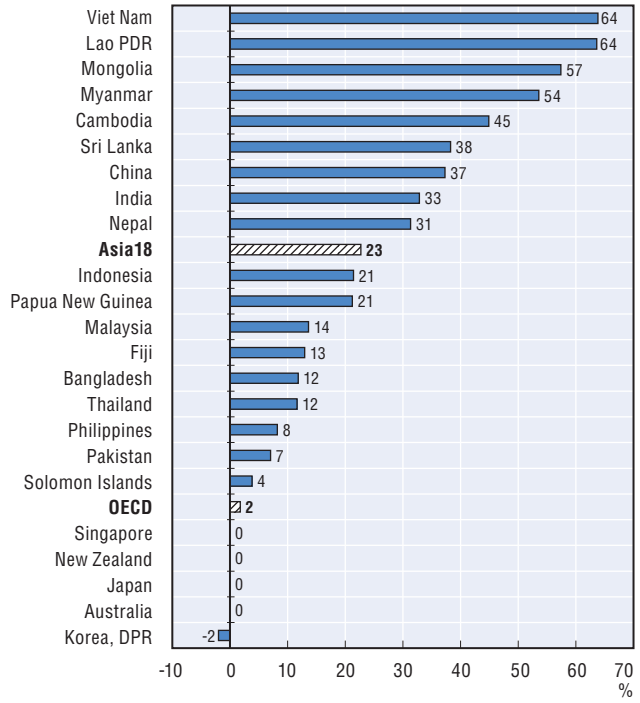
The WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) database includes nationally representative household surveys and censuses that ask questions on water and sanitation, mostly conducted in developing countries. Generally, developed countries supply administrative data.

2.6.1. Access to improved drinking water and sanitation, 2012



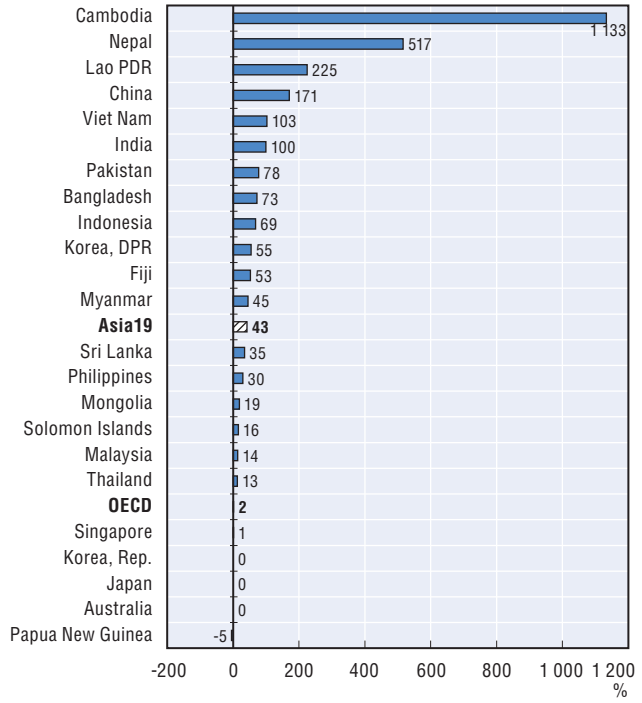
Source: WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation (2014) and WHO WPRO, 2011.

2.6.2. Changes in access to improved water sources, selected countries, 1990-2012



Source: WHO/UNICEF JMP for Water Supply and Sanitation (2014).

2.6.3. Changes in access to improved sanitation, selected countries, 1990-2012



Source: WHO/UNICEF JMP for Water Supply and Sanitation (2014).

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Tobacco use is the leading global cause of preventable deaths and kills nearly 6 million people each year, of whom more than 5 million are from direct tobacco use and more than 600 000 are non-smokers exposed to second-hand smoke (WHO, 2013g). In the Asia/Pacific region, approximately 6 000 people die prematurely from tobacco-related diseases every day, equating to 2.3 million deaths per year (WHO, 2008a).

Tobacco smoking is a major risk factor for 6 of the 8 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, and exposure to second-hand tobacco smoke may also increase the risk for dementia (McKenzie et al., 2014),

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, 2008a). Tobacco use is greatest among those who can least afford it (Hosseinpoor et al., 2012).

The proportion of daily smokers varies greatly across countries but the average smoking rate for men in Asian countries was significantly higher at 35% than the OECD average of 24% in 2012 (Figure 2.7.1, left panel). In 2012, the smoking rate among men was highest in Indonesia at 57% and several other countries had male daily smoking rates of over 40% such as Papua New Guinea, Bangladesh, Mongolia, China, Lao PDR, Malaysia, Philippines and the Republic of Korea. In Fiji; Australia; New Zealand; Singapore and Hong Kong, China, however, less than 20% of adult males smoked daily.

There are large male-female disparities in the Asia/Pacific region and less than 5% of women in most Asian countries reporting smoking daily, compared with 16% in OECD countries (Figure 2.7.1, right panel). The rates were highest in Papua New Guinea and Nepal at 22% – where it is a common practice among rural women – as well as in the developed countries of New Zealand (16%) and Australia (14%).

Although regular smoking in adolescence has both immediate and long-term health consequences, among youth aged 13-15 years, 15% of males and 6% of females report that they currently smoke (Figure 2.7.2). In OECD countries, smoking among males aged 15 is lower at 10% than the Asian average while female smoking among youth is much higher at 13%.

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. Higher taxes also assist in generating additional government revenue. However, only Brunei Darussalam has total taxes that constitute over 75% of the tobacco retail price (Figure 2.7.3).

In many countries in the Asia/Pacific region, 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, advertising is largely unrestricted and smoking bans are few (Barber et al., 2008).

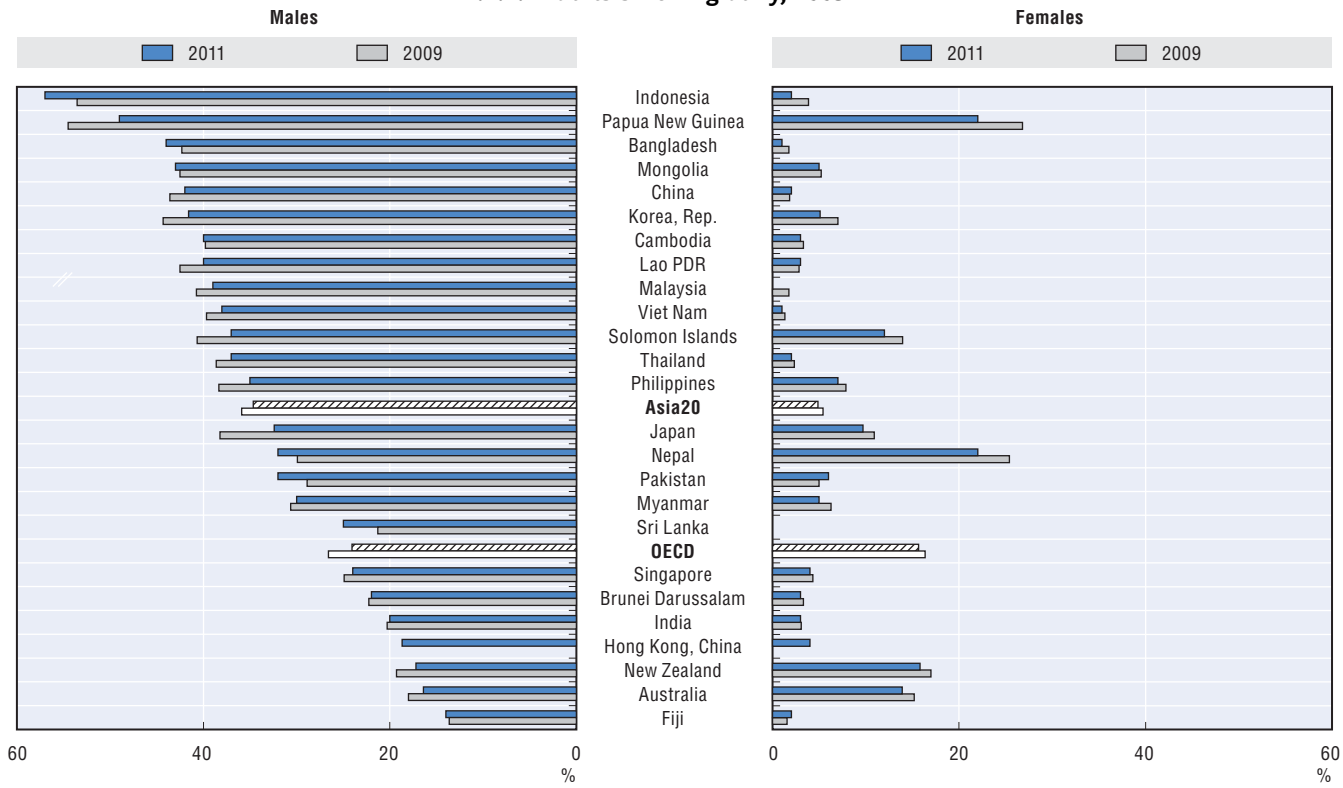
In the Asia/Pacific region, health warnings against smoking, including labels on tobacco product packaging and anti-tobacco mass media campaigns, could be used more to reduce tobacco use. Australia, Singapore and Thailand report that graphic pictorial warning labels have effectively impacted smoking-related behaviour (WHO, 2011c).

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.

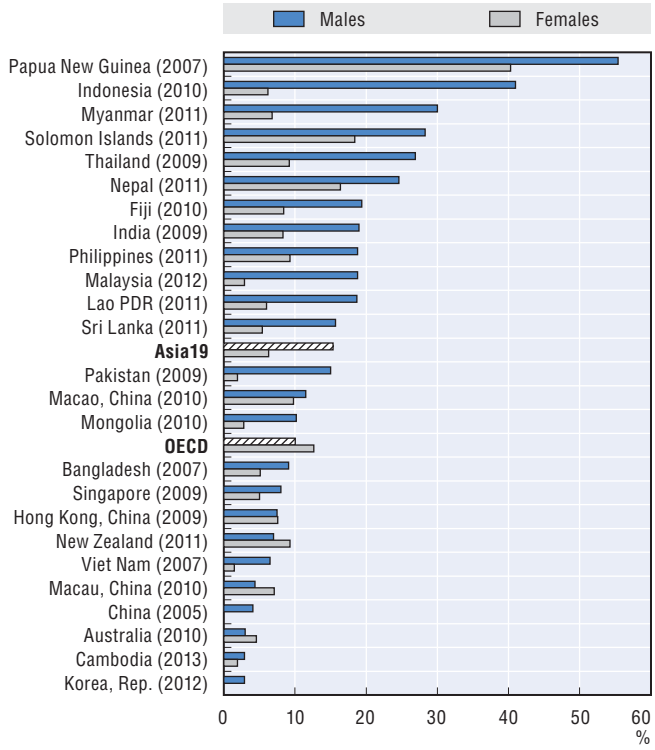
Current tobacco use among youth is derived from the Global Youth Tobacco Survey. It is defined as the percentage of young people aged 13-15 years who consumed any tobacco product at least once during the last 30 days prior to the survey.

2.7.1. Adults smoking daily, 2009-11



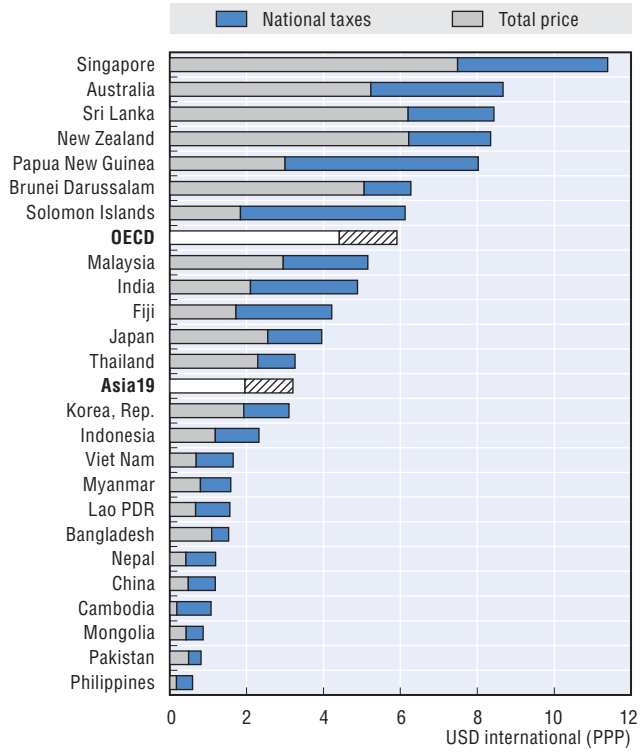
Source: *OECD Health Statistics 2014*; WHO (2013g); Thematic Household Survey, Hong Kong, China, 2012.

2.7.2. Current tobacco use among youth aged 13-15 years, 2011 (or nearest year)



Source: WHO (2013g); GYTS, Hong Kong, China, 2010; GYTS, Macau, China, 2010; GSHS, Solomon Islands, 2011.

2.7.3. Retail price of 20-cigarette pack of most-sold brand, 2012



Source: WHO (2013g).

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The health burden related to harmful alcohol consumption, both in terms of morbidity and mortality, is considerable in most parts of the world (Rehm et al., 2009; WHO, 2014j). 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). Alcohol also contributes to death and disability through injuries, assault, violence, homicide and suicide, and is estimated to cause more than 2.5 million deaths worldwide per year (WHO, 2014j). 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.

WHO estimates that 5.9% of the global burden of disease is attributable to alcohol (WHO, 2014j), 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 the Asia/Pacific region, alcohol consumption is highest among more developed countries (Figure 2.8.1, left panel). Adults aged 15 years and over in Australia, New Zealand, the Republic of Korea, and Japan consumed over 7 litres of alcohol per capita in 2009. In Macau, China; Thailand; the Lao PDR; China and the Philippines, consumption was between 4 and 7 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. The average consumption across 22 Asia/Pacific countries in 2009 was a modest 2.7 litres per capita, compared to 9.2 in OECD countries.

Average consumption in the Asia/Pacific region increased between 1990 and 2010 (Figure 2.8.1, right panel), although variations exist across countries. Among countries with significant intake, alcohol consumption declined in Japan; DPR Korea; Hong Kong, China; and New Zealand. Despite the large increase, the level of consumption in Nepal is still low but in Viet Nam, Sri Lanka and Cambodia, due to the large increase over the last decades, the national average consumption reached close to the regional average. Consumption increase was also large in Mongolia; the Solomon Islands; Macau, China; China; India; the Lao PDR and Thailand. In China, alcohol consumption increased from 3.4 litres per capita in 1990 to 5.8 in 2010, in conjunction with the rapid economic development.

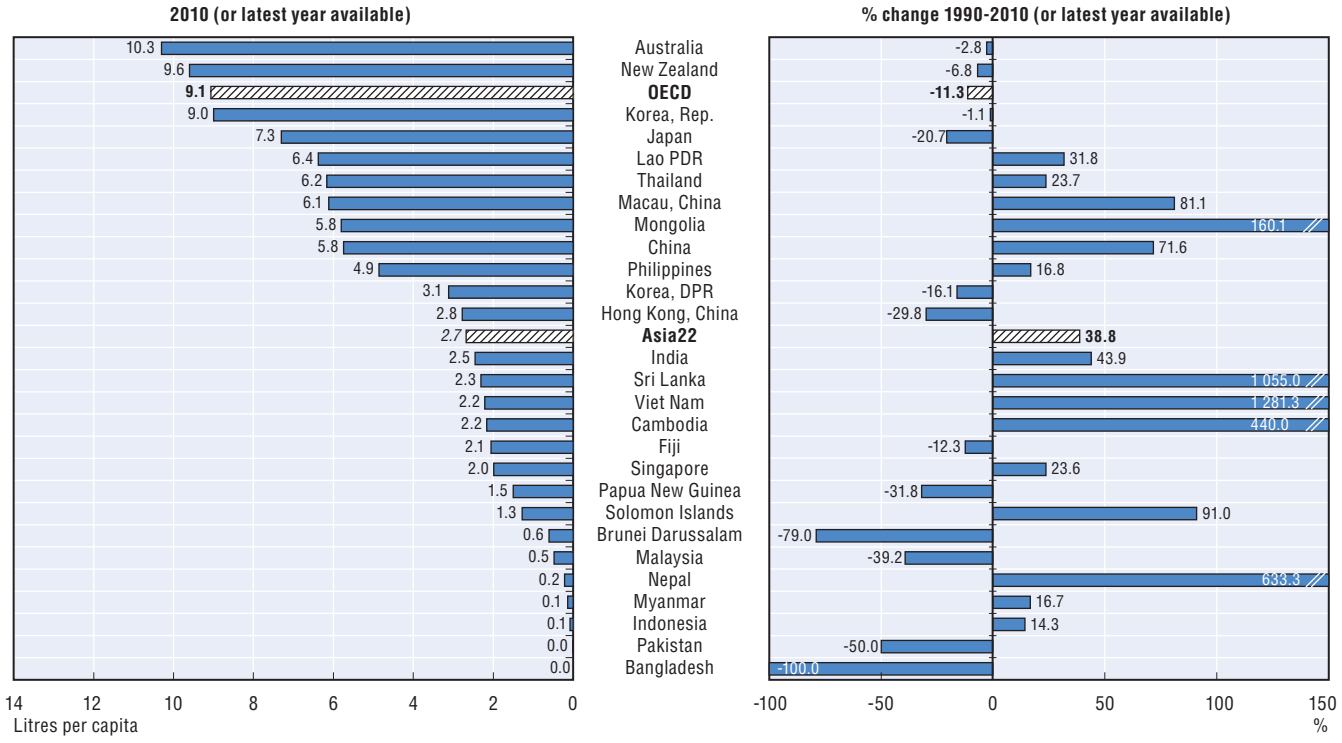
Changing patterns of drinking lead to more potential for harm through binging and heavy drinking occasions. In Asian countries, 8.3% of men and 1.2% of women reported weekly heavy episodic drinking during the last 12 months in 2005. In India, Japan and the Lao PDR more than 15% of males reported regular heavy drinking (Figure 2.8.2). In Australia in 2010, two in five people aged 14 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, 2012a). In India and Pakistan, two low alcohol-consuming countries, a high proportion of drinkers drink heavily on single occasions.

There are many road traffic deaths attributable to alcohol in the Asia/Pacific region and in the Lao PDR, New Zealand and Australia, more than 30% of road traffic deaths are associated with alcohol (Figure 2.8.3). 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 0.05 g/dl. Setting and enforcing legislation on BAC limits of 0.05 g/dl can lead to significant reductions in alcohol-related crashes. However, several countries in the region, such as Fiji, Malaysia, Singapore and Sri Lanka, still have BAC limits of 0.08 g/dl despite the crash risk being more than double compared to a driver with a BAC of zero (WHO, 2013c).

Definition and comparability

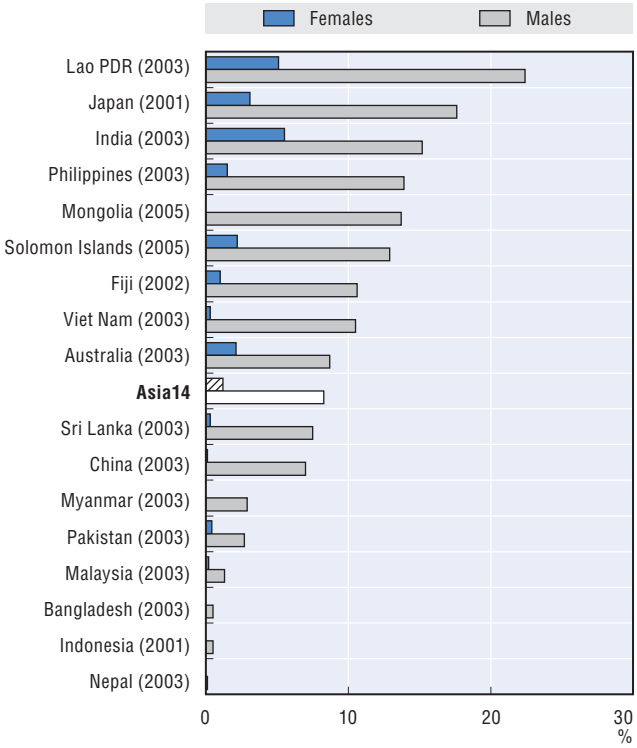
Alcohol intake is measured in terms of annual consumption of litres of pure alcohol per person aged 15 years and over. Sources are based mostly on FAO (Food and Agriculture Organization of the United Nations) data, which consist of annual estimates of beverage production and trade supplied by national 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, 2014j).

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



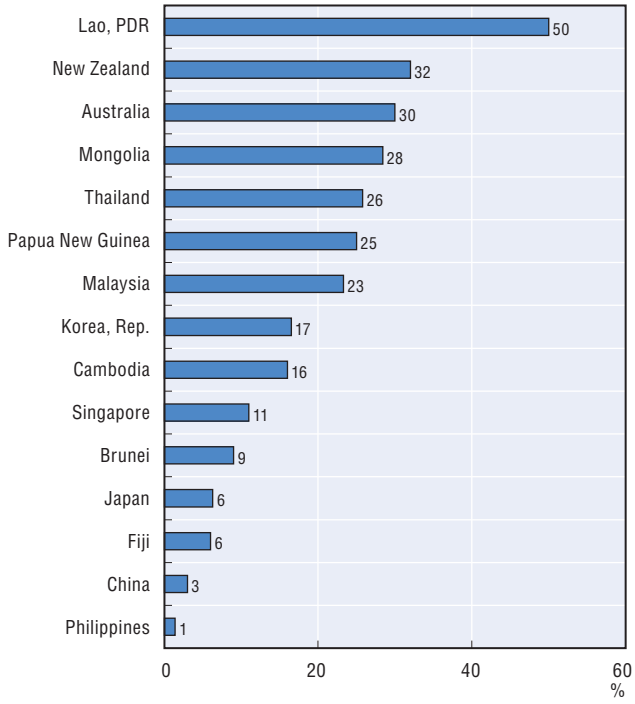
Source: WHO Global Information System on Alcohol and Health (GISAH); *OECD Health Statistics 2014*.

2.8.2. Heavy episodic drinking (drinkers only), weekly (%), 2005 (or nearest available year)



Source: WHO GISAH.

2.8.3. Proportion of road traffic deaths that are attributable to alcohol, 2010



Source: WHO (2013c).

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Chapter 3

Health care resources, utilisation and access

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Access to high-quality health services depends crucially on the size, skill-mix, 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 capita varies widely across Asia/Pacific countries and economies but it is generally lower than the OECD average (Figure 3.1.1). Australia and DPR Korea have the highest number of doctors per capita, with 3.3 doctors per 1 000 population, higher than the OECD average of 3.2. New Zealand and Mongolia also have a high rate of above 2.5, compared with other Asia/Pacific countries. In contrast, Papua New Guinea, Cambodia, the Solomon Islands and Nepal have the lowest number of physicians per 1 000 population at below 0.2.

The specialisation-mix and distribution of doctors needs to be improved in countries in the Asia/Pacific region. 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, 2014c). Furthermore, despite the relatively large supply, there is also a shortage of experienced doctors in rural areas (Asian Development Bank, 2008). Unequal geographic distribution of doctors is also reported in countries such as the Lao PDR and the Solomon Islands (WHO, 2013d and 2014d) but this is a challenge in many other countries in the region.

There is a large variation in the number of nurses per capita across countries and economies in the Asia/Pacific region, but in many of them, it is lower than the average of OECD countries (Figure 3.1.2). The number of qualified nurses is highest in high-income countries such as Japan, Australia and New Zealand, with over 10 nurses per 1 000 population. The supply is much lower in a number of low-income countries, including Nepal, Bangladesh and Papua New Guinea, where there are less than 0.5 nurses per 1 000 population. Nurses are not reportedly well distributed within countries such as the Lao PDR, the Philippines and the Solomon Islands (WHO, 2013d, 2013e and 2014d) and many other countries in the region also have distribution problems.

In some countries, national health human resource 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 the OECD countries but their domestic density is half of the Asian 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 (WHO, 2013e) but the density of these health professionals is kept at about the Asian average.

As seen in the OECD countries, nurses outnumber doctors and there are between two and five nurses per doctor in many Asia/Pacific countries (Figure 3.1.3). But there are some exceptions. Due to very few numbers of doctors, Papua New Guinea and the Solomon Islands have more than eight nurses per doctor. On the other hand, there is less than one nurse per doctor in Pakistan, Viet Nam and Bangladesh while in Mongolia, the ratio has been continuously going down in recent years, and these raise concerns over the allocation of tasks in health care in these countries.

Countries in the Asia/Pacific region need to respond to the changing demand for health professionals in the context of rapidly growing ageing populations (see Indicator 1.13 "Ageing"). 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 (OECD, 2011b).

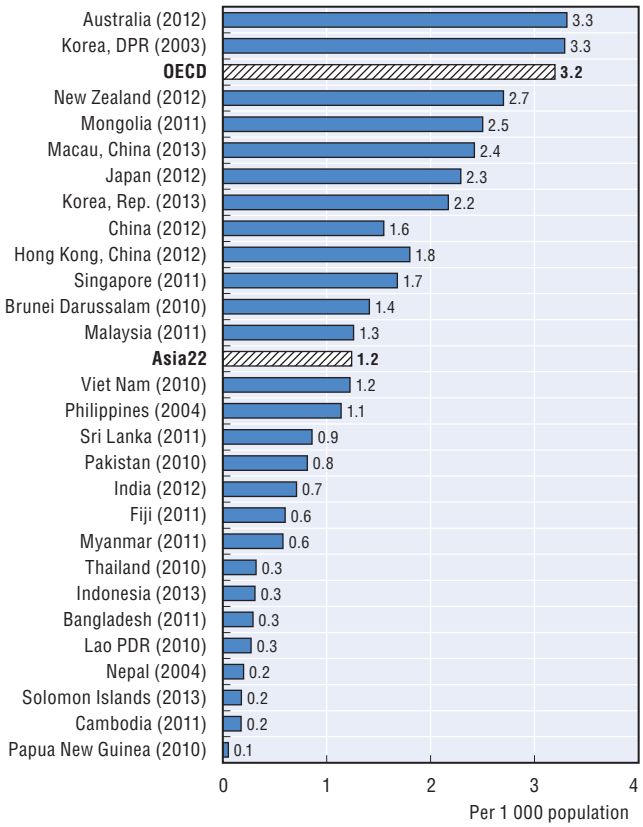
Definition and comparability

Doctors include physicians qualified in either allopathic medicine or other forms of medicine such as Chinese traditional medicine, ayurveda or homeopathy.

Nurses are defined as persons who have completed a programme of basic nursing education and are qualified to provide nursing care. Although midwives should normally be excluded from nurses, some countries in the Asia/Pacific region report midwives together with nurses.

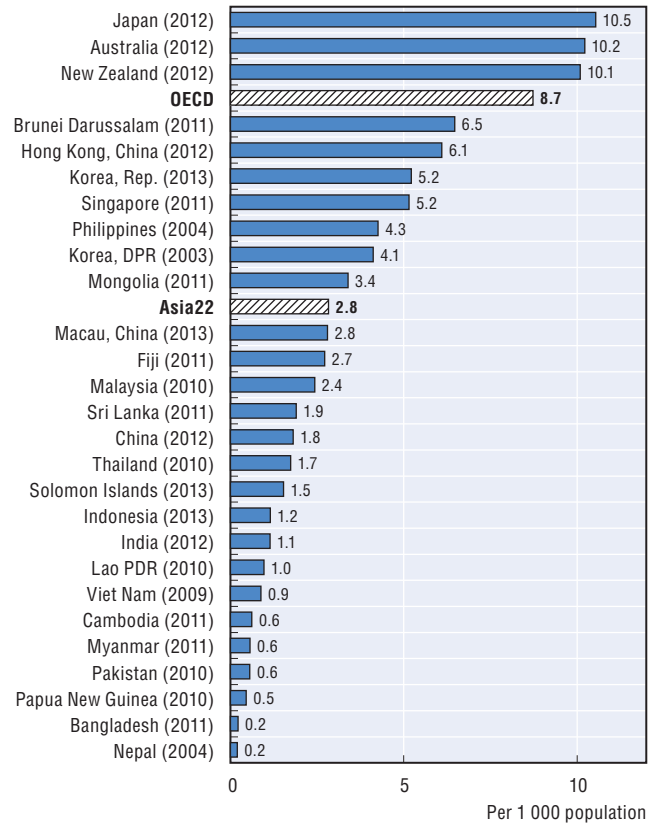
Data are based on head counts.

3.1.1. Doctors per 1 000 population, latest year available



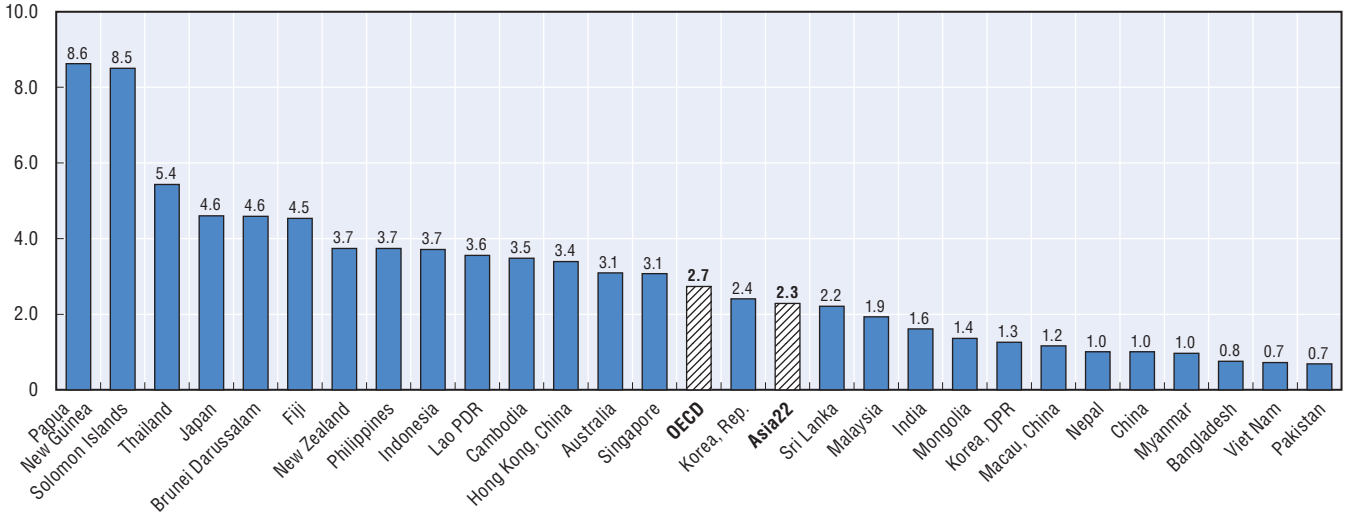
Source: OECD Health Statistics 2014; WHO GHO, 2014; national data sources (see Annex A).

3.1.2. Nurses per 1 000 population, latest year available



Source: OECD Health Statistics 2014; WHO GHO, 2014; national data sources (see Annex A).

3.1.3. Ratio of nurses to doctors, latest year available



Source: OECD Health Statistics 2014; WHO GHO, 2014; national data sources (see Annex A).

StatLink http://dx.doi.org/10.1787/888933152727

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 the Asia/Pacific region is lower than the OECD average of 6.7 but there are some cross-country variations (Figure 3.2.1). The doctor consultation rate ranges from above thirteen in the Republic of Korea and Japan – the highest in OECD countries – to fewer than two in Bangladesh, Cambodia, the Solomon Islands, Papua New Guinea and Singapore. In general, consultation rates tend to be highest in the high-income countries in the region and significantly lower in low-income countries, 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, physician assistants or nurses).

Mainly reflecting the smaller supply of doctors (see Indicator 3.1 "Doctors and nurses"), the number of consultations per doctor is high at 4 100 per year on average across Asia/Pacific countries and economies, compared with the OECD average of 2 500, but there is a large cross-country variation (Figure 3.2.2). 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 below "Definition and comparability").

There is a close relationship between doctor consultation rates and life expectancy, with consultation rates being highest in the countries with highest life expectancy (Figure 3.2.3). 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 and DPR Korea 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 economic circumstance.

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 3.2.4). Although the poorest quintiles might be expected to have the greatest need for doctor consultations, their consultation rates are typically lower than in other households, and especially so in India and Indonesia. However, there are some exceptions and people in poor households visit doctors more often than the non-poor, particularly in Hong Kong, China and the Republic of Korea.

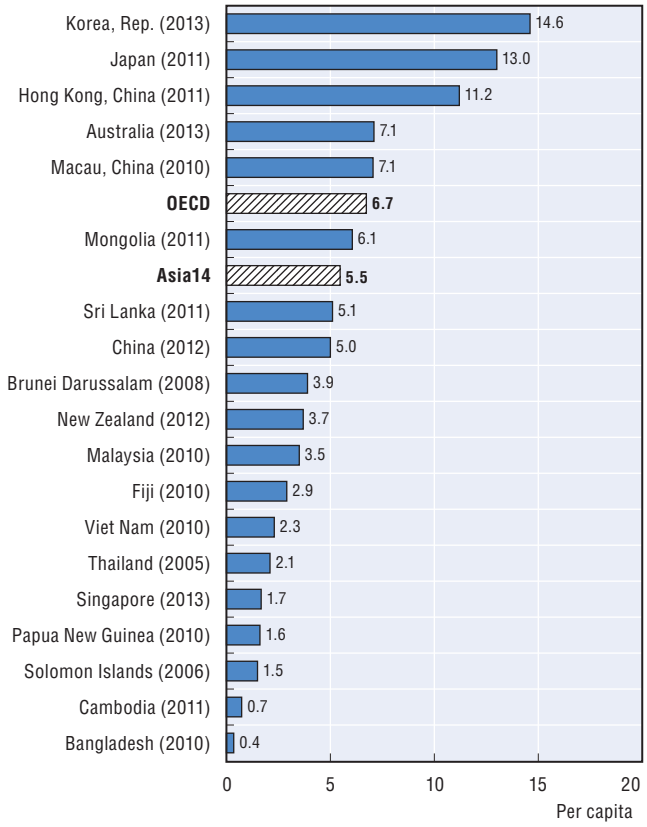
Definition and comparability

Consultations with doctors are defined as contacts with physicians (both generalists and specialists, for more details see Indicator 3.1 "Doctors and nurses"). 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.

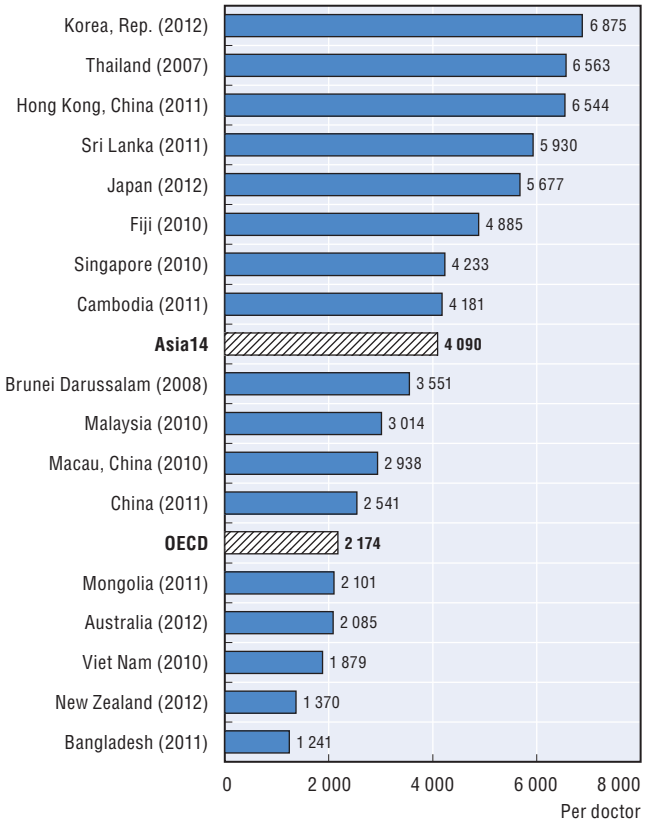
The annual number of consultations per doctor is estimated by dividing the number of total consultations in a year by the number of doctors.

3.2.1. Doctor consultations per capita, latest year available



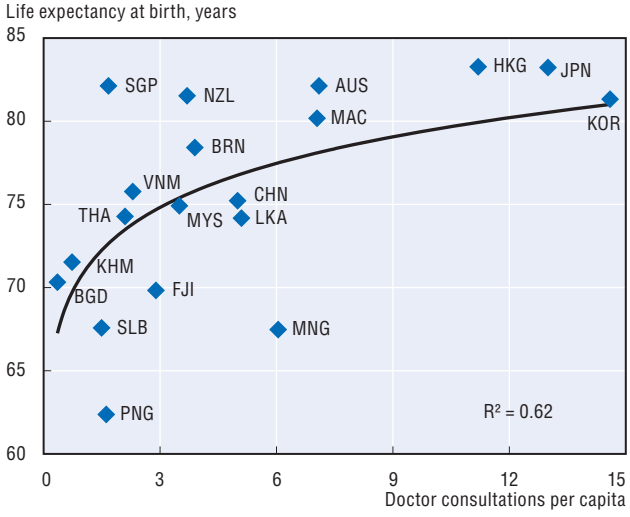
Source: *OECD Health Statistics 2014;* national data sources (see Annex A).

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



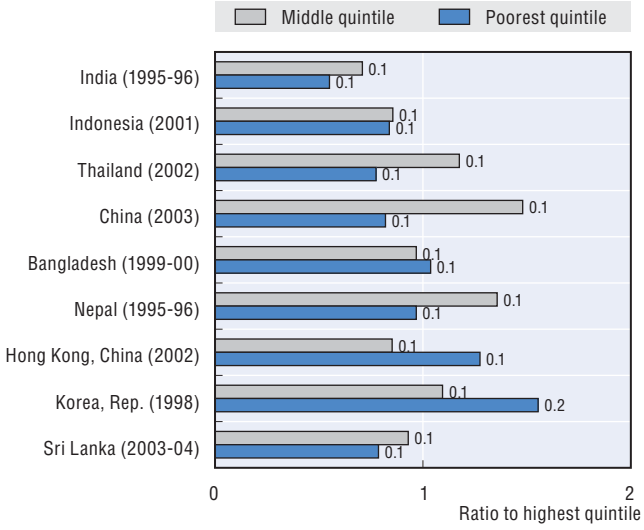
Source: *OECD Health Statistics 2014;* national data sources (see Annex A).

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



Source: *OECD Health Statistics 2014;* national data sources (see Annex A).

3.2.4. 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/10.1787/888933152738

Medical technologies are improving diagnosis and treatment. Access to these technologies is improving, while also increasing health spending. Computed tomography (CT) scanners and magnetic resonance imaging (MRI) units help physicians 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. But such equipment is expensive.

The availability of diagnostic equipment has increased in many countries in the Asia/Pacific region. Japan has by far the highest number of MRI and CT scanners per capita, followed by Australia and the Republic of Korea (Figures 3.3.1 and 3.3.2). The Republic of Korea has the highest number of mammography per female aged 50-69, followed by other OECD countries such as Japan, New Zealand and Australia (Figure 3.3.3). The availability of these diagnostic medical technologies is high in OECD countries but also in Brunei Darussalam, Malaysia, Mongolia and Singapore. On the other hand, Lao PDR, Myanmar and Papua New Guinea have the lowest numbers.

The availability of treatment equipment is also much higher in OECD countries than non-OECD countries in the Asia/Pacific region. New Zealand and Australia have over 10 radiation therapy units per million population, much higher than the OECD average of 7.2, and Japan and the Republic of Korea also have more than five per million people. But there is less than one per 10 million people in Myanmar, Cambodia, Pakistan and Sri Lanka, and no radiation therapy unit in Fiji and Lao PDR.

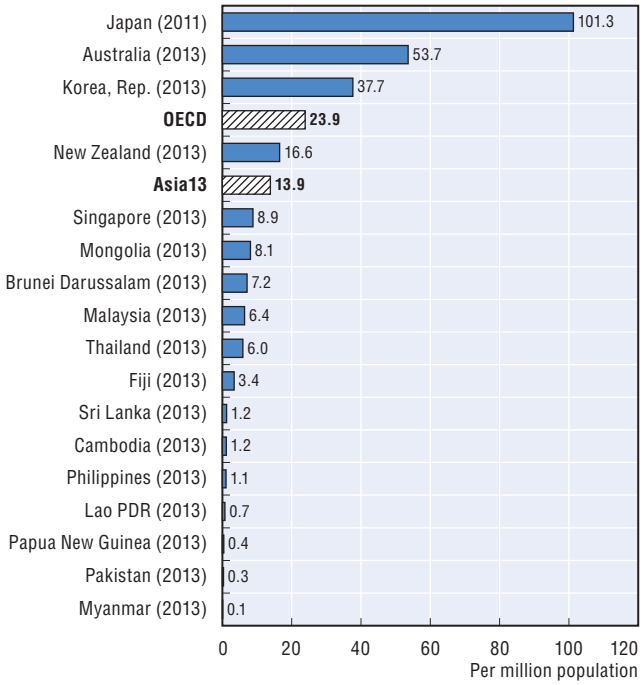
General guidelines or benchmarks regarding the ideal number of medical technologies per population are not available. However, if there are too few units, this may lead to access problems in terms of geographic proximity or waiting times. If there are too many, this may result in an overuse of these costly diagnostic procedures, with little, if any, benefits for patients (OECD, 2013c). 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 as Greece and the United States, also have a higher number of diagnostic exams per population, suggesting some degree of overuse (OECD, 2013c).

Clinical guidelines have been developed in some OECD countries to promote a more rational use of diagnostic technologies (OECD, 2010b). 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

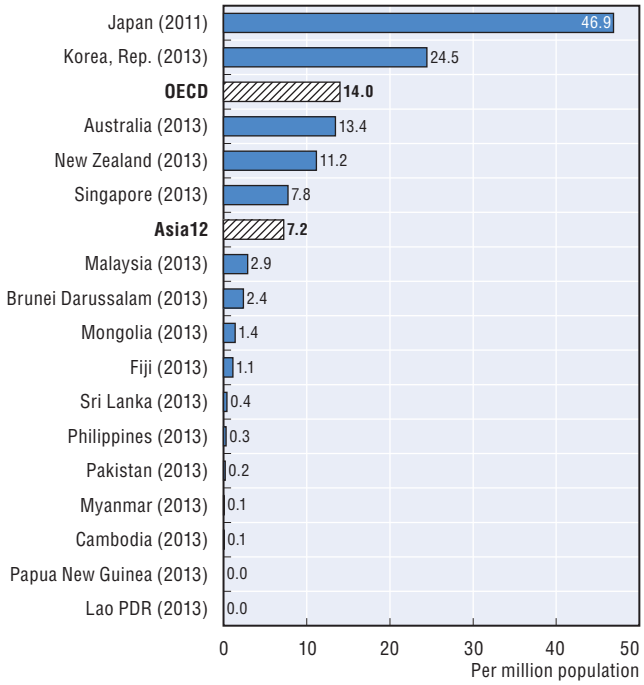
The data cover equipment installed both in hospitals and the ambulatory sector and public and private sectors in most countries. However, there is only partial coverage for some countries. In Myanmar, data refer to equipment in the public sector. MRIs in Brunei Darussalam refer to those in the private 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).

3.3.1. Computed tomography scanners, latest year available



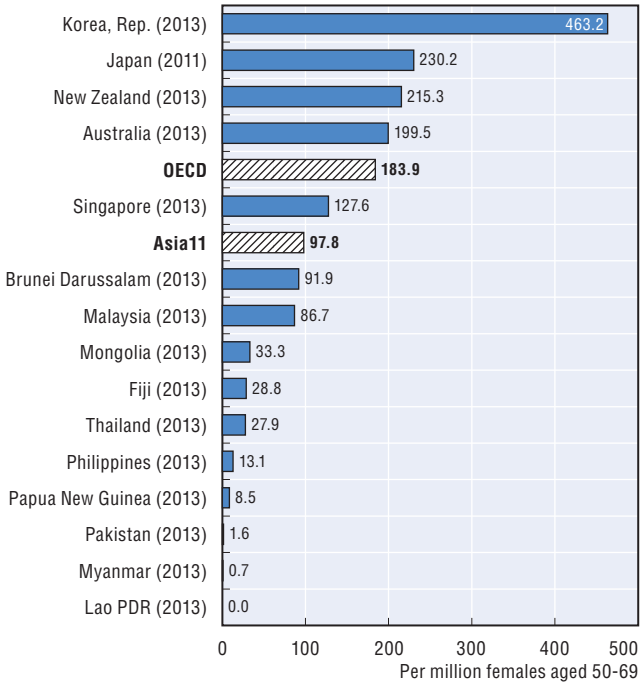
Source: *OECD Health Statistics 2014*; WHO GHO 2014.

3.3.2. MRI units, latest year available



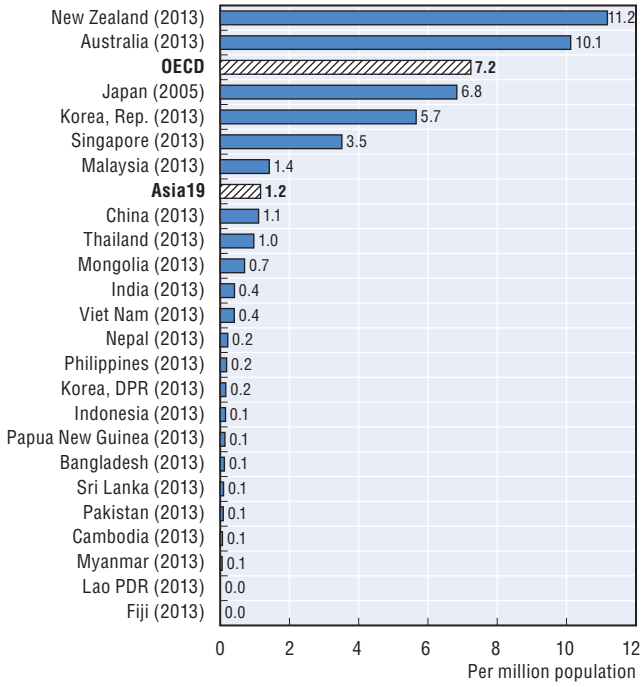
Source: *OECD Health Statistics 2014*; WHO GHO 2014.

3.3.3. Mammography units, latest year available



Source: *OECD Health Statistics 2014*; WHO GHO 2014.

3.3.4. Radiation therapy units, latest year available



Source: *OECD Health Statistics 2014*; WHO GHO 2014.

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Hospitals in most countries account for the largest part of overall fixed investment. Beside quality of hospital care (see Indicator 5.2 "In-hospital mortality following acute myocardial infarction and stroke"), it is important to provide adequate resources for hospitals and assure appropriate access to hospital care.

Available resources in the hospital sector and access to hospital care are assessed by the number of hospital beds and hospital discharge rates. Higher numbers of beds and overnight stays in a hospital do 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 3.3 per 1 000 population on average across Asian countries and economies, lower than the OECD average of 4.8, but varies considerably (Figure 3.4.1). It is highest in Japan with over 13 beds per 1 000 population, followed by the Republic of Korea and DPR Korea. At the other end, in the Philippines, Bangladesh, Pakistan and Indonesia, the stock of beds is less than 0.6 per 1 000 population. These large disparities reflect substantial differences in the resources invested in hospital infrastructure across countries.

Hospital discharge is low at 115 per 1 000 population on average in Asian countries and economies, compared with the OECD average of 156, and there is also a large variation between countries in the region (Figure 3.4.2). The highest rates are in Sri Lanka and Mongolia, with over 250 discharges per 1 000 population in a year, which is significantly higher than the OECD average. But in Nepal, Myanmar and Bangladesh, discharge rates are less than 25, suggesting difficulties in accessing hospital care.

In general, countries with more hospital beds tend to have higher discharge rates, and vice versa (Figure 3.4.3). 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. This suggests there is room to improve the efficiency of hospital care in these countries.

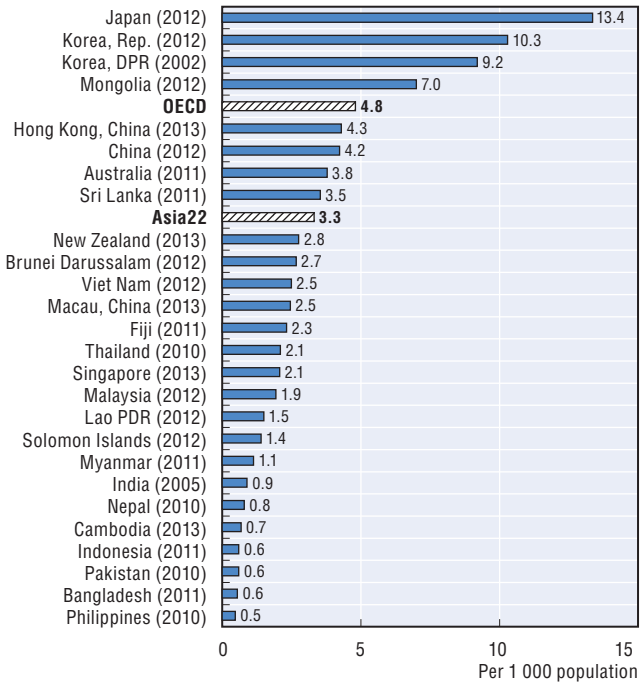
In the Asia/Pacific region, ALOS for acute care is 6.2 days on average, slightly lower than the OECD average of 6.5 days, but the cross-country variation is large (Figure 3.4.4). The longest ALOS is over 10 days in Japan, the Republic of Korea and China, while the shortest length of stay is 2.5 days in Lao PDR and 3.0 days in Sri Lanka. In Japan and the Republic of Korea, "social admission", in that some "acute care" beds are devoted to long-term care, partly explains the large number of beds and long ALOS (Hurst, 2007). The short ALOS, coupled with the high admission rates in Sri Lanka, suggests that inpatient services may be partly substituting for outpatient care, with patients being admitted for minor conditions that other countries mostly manage in 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.

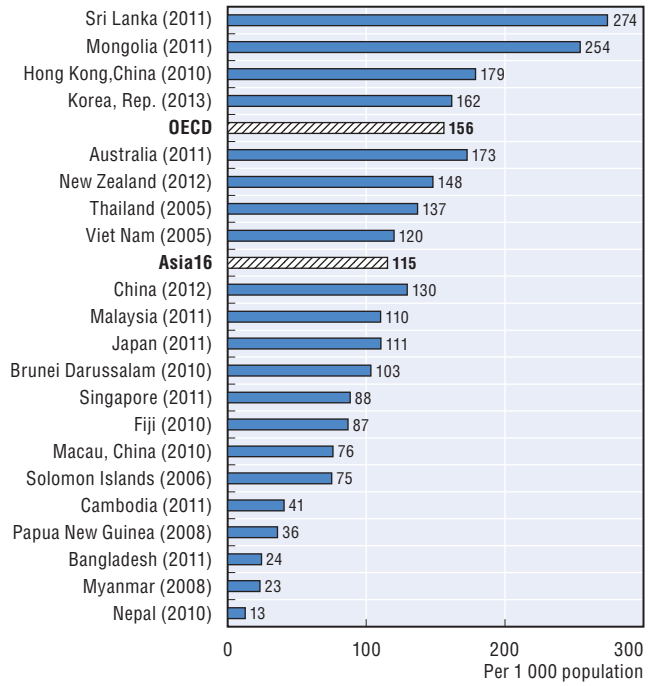
The figures reported for ALOS refer to the number of days that patients spend overnight in an acute-care inpatient institution. ALOS is generally measured by dividing the total number of days stayed by all patients in acute-care inpatient institutions during a year by the number of admissions or discharges. 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.

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



Source: *OECD Health Statistics 2014*; WHO GHO 2014.

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

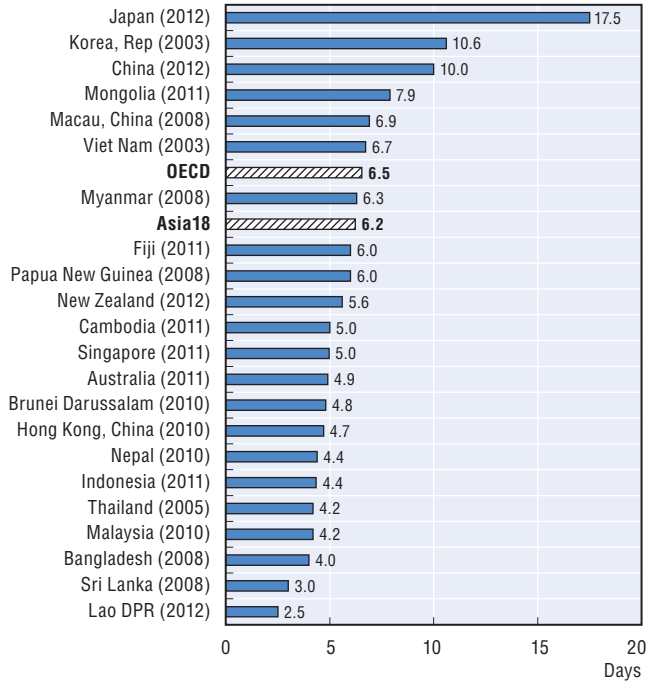


Source: *OECD Health Statistics 2014*; national data sources (see Annex A).

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

Source: *OECD Health Statistics 2014*; WHO GHO 2014.

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



Source: *OECD Health Statistics 2014*; WHO GHO 2014.

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Antenatal care, delivery attended by skilled 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 2.1, "Reproductive health", 2.2 "Preterm births and low birthweight" and 2.3 "Infant and young child feeding"). WHO recommends a minimum of four antenatal visits, and antenatal care coverage has been monitored to ensure the progress towards universal access to reproductive health, set in the UN's MDG.

In 15 Asian countries, 84% of pregnant women on average received at least one antenatal visit. The coverage of the recommended four visits is about 64%, but access to antenatal care varies across countries (Figure 3.5.1, left panel). The coverage of one antenatal visit is complete in Fiji, DPR Korea, the Republic of Korea, and Singapore. Brunei Darussalam also has full coverage of four antenatal visits, while DPR Korea, Sri Lanka and Australia have nearly complete coverage of over 90%. At the other end, in Bangladesh and Nepal, over 40% of pregnant women do not access any antenatal care, and in Bangladesh, Pakistan and Papua New Guinea, the coverage of four antenatal care visits is less than 30%.

In many countries and economies in the Asia/Pacific region, almost all births are attended by a skilled health professional such as a doctor, nurse or midwife, but there are several countries where access to skilled care is low (Figure 3.5.1, right panel). Only 31% of births in Bangladesh are attended by a medically trained professional, with most deliveries assisted by *dais* or untrained birth attendants. The coverage is also low at 36% in Nepal, 40% in Lao PDR and 43% in Papua New Guinea. Traditional birth attendants maintain some important role in several other countries including Cambodia, India, Indonesia, Myanmar, Pakistan and the Philippines, especially in rural settings. Across countries in the region, access to skilled birth attendants is generally lower among pregnant girls aged 15-19 than older pregnant women, and the difference is as large as 20% in Cambodia, Indonesia and India (WHO, 2014i).

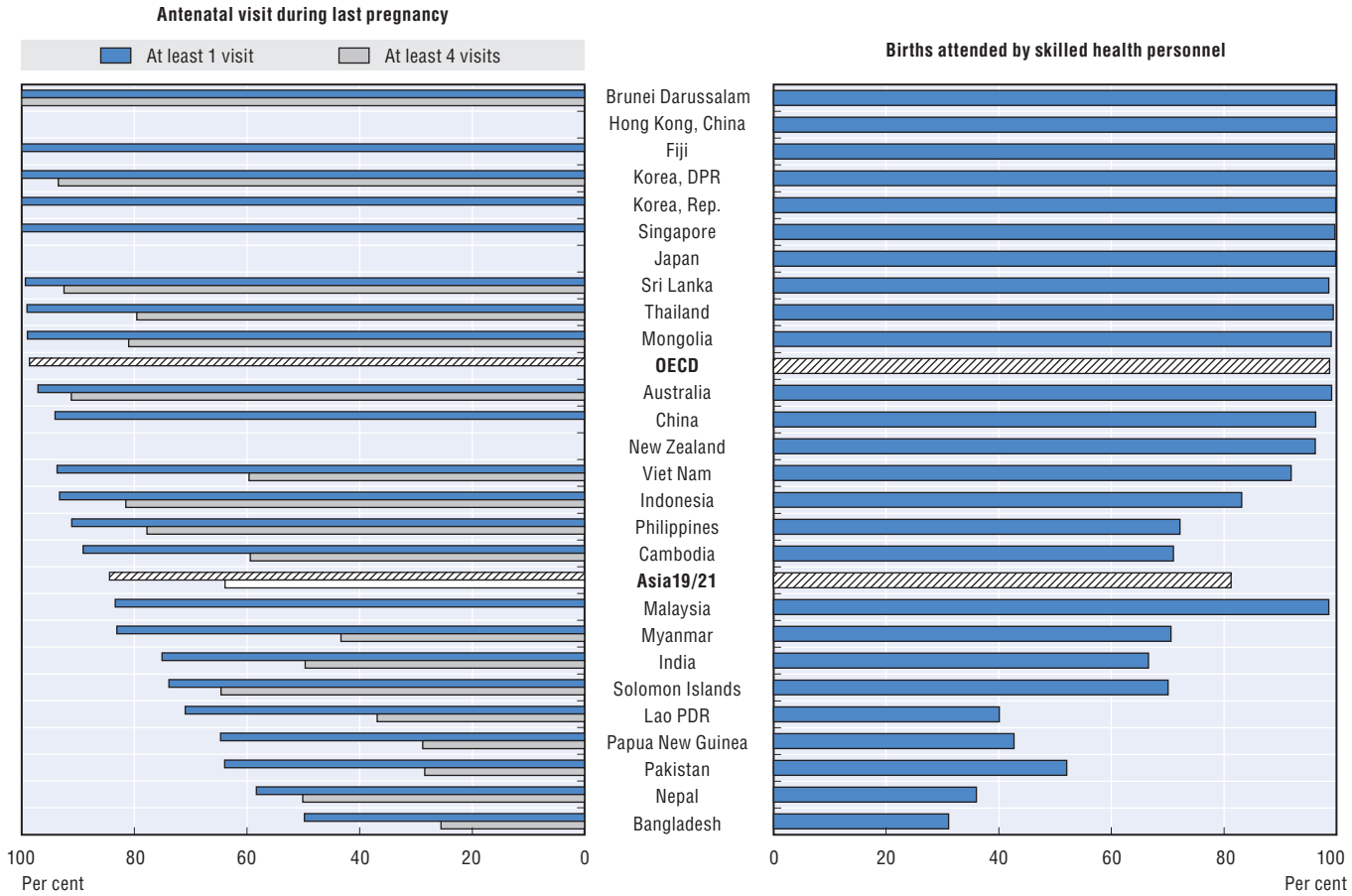
Access to health facilities for delivery varies across countries (Figure 3.5.2). In Australia, all deliveries take place at a health facility and access is also high at over 90% in Sri Lanka and Mongolia. On the other hand, in Bangladesh, most deliveries occur at home and only 27% of births take place in a health facility. In Nepal, Lao PDR and India just over one-third of deliveries occur 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 (NIPS and Macro International Inc., 2008) and those with higher education and wealth.

Access to skilled birth attendants varies by socio-economic background (Figure 3.5.3). Mongolia, Sri Lanka and Thailand have a high overall coverage of skilled birth attendants and more equitable access to care during birth among mothers with different backgrounds. But in other countries, access to skilled birth attendants is unequal among women with different wealth and education levels. For example, in the Lao PDR and Nepal, access differs by more than eight- and seven-fold respectively between mothers with lowest and highest education levels. The disparity by household wealth is largest in the Philippines, with an eight-fold difference, followed by a five-fold difference in the Lao PDR and Bangladesh. In many countries, however, within-country disparity is relatively small between urban and rural areas.

Definition and comparability

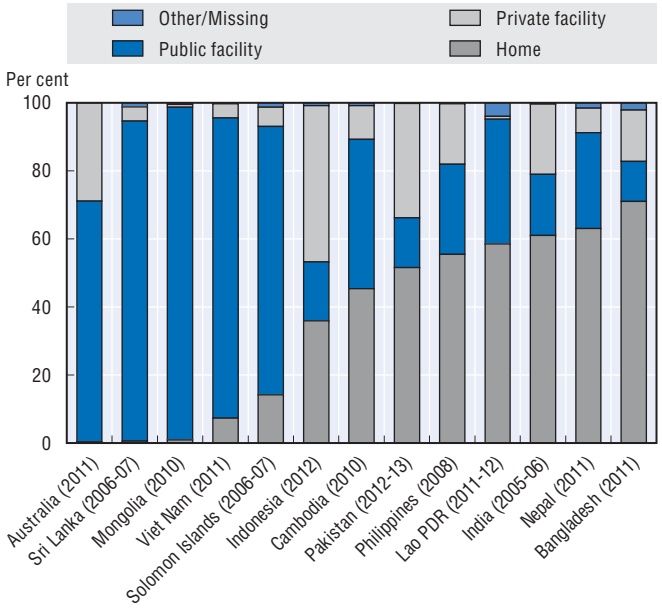
The major source of information on care during pregnancy and birth are health interview surveys. Demographic and Health Surveys (DHS), for example, are nationally-representative household surveys that provide data for a wide range of indicators in the areas of population, health, and nutrition. Standard 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.

3.5.1. Provision of care during pregnancy and birth, 2011 or latest year available



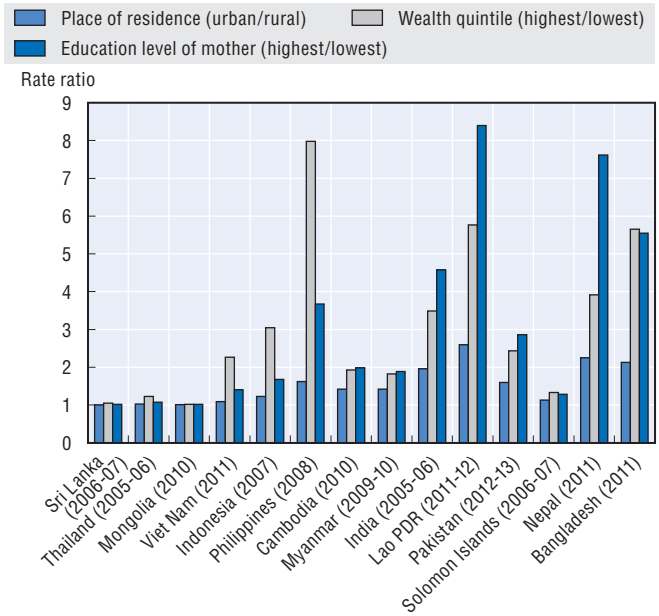
Source: WHO GHO (2014).

3.5.2. Place of delivery, latest year available



Source: DHS & MICS 2005-13; Li et al. (2013).

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



Source: DHS & MICS 2005-13.

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Basic care for infants and children includes promoting and supporting early and exclusive breastfeeding (see Indicator 2.3 "Infant and young child feeding"), 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 child survival-related MDG, and it is also considered a marker of access to child health services.

Appropriate treatment could also save many affected by diarrhoea and ARI, primarily 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 caused by ARI, particularly deaths resulting from pneumonia.

Access to preventive care varies across Asia/Pacific countries as shown by the intake of vitamin A supplements (Figure 3.6.1) and vaccination coverage (see Indicator 5.1 "Childhood vaccination programmes"). Access to vitamin A supplementation is markedly low in the Solomon Islands at 7% and India at 16%, followed by 56% in Myanmar and 59% in Lao PDR. Meanwhile, DPR Korea and the Republic of Korea have nearly complete coverage. Measles vaccination coverage is negatively related to child mortality and countries with a low coverage, such as Papua New Guinea, the Lao PDR and India, have high under-5 mortality, suggesting the importance of measles vaccination in reducing child mortality (Figure 3.6.2, see Indicator 5.1 "Childhood vaccination programmes").

With regards to curative care, most children are not receiving appropriate care for diarrhoea in some countries in the Asia/Pacific region and the treatment coverage can be improved in many other countries (Figure 3.6.3). Only 26% of under-5 children with diarrhoea receive ORT in India, and the treatment coverage is low at less than 35% in Nepal and Cambodia, and less than 50% in Pakistan and Indonesia. The coverage is as high as 92% in DPR Korea and the Republic of Korea.

Access to appropriate medical care for children with ARI can also be improved in many countries in the region (Figure 3.6.4). Although most children with symptoms are taken to a health facility except for Bangladesh, many children in the region do not receive antibiotic treatment.

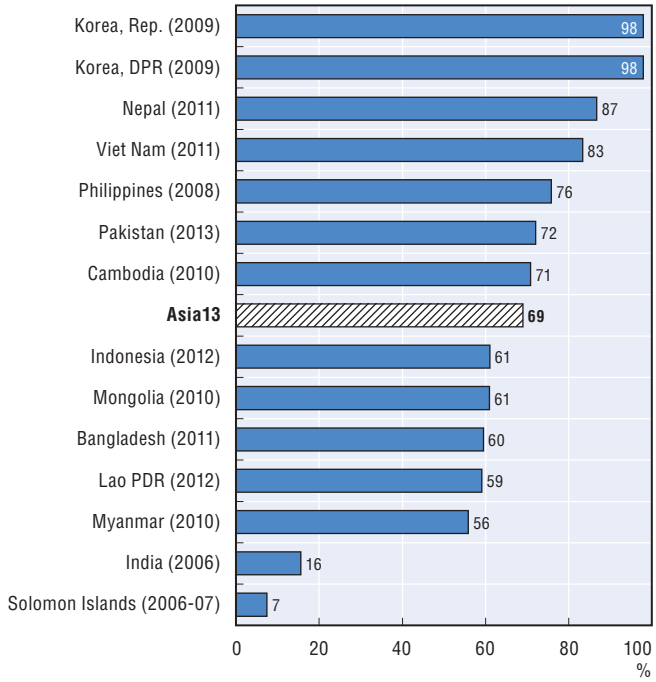
There is a correlation between treatment coverage for diarrhoea and ARI. Antibiotic treatment for ARI is particularly low in India and Nepal, where the treatment for diarrhoea is also low. This suggests a need to expand access to care to treat leading causes of child mortality in these countries.

Definition and comparability

Prevention and treatment coverage data are usually collected through household surveys and the 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.

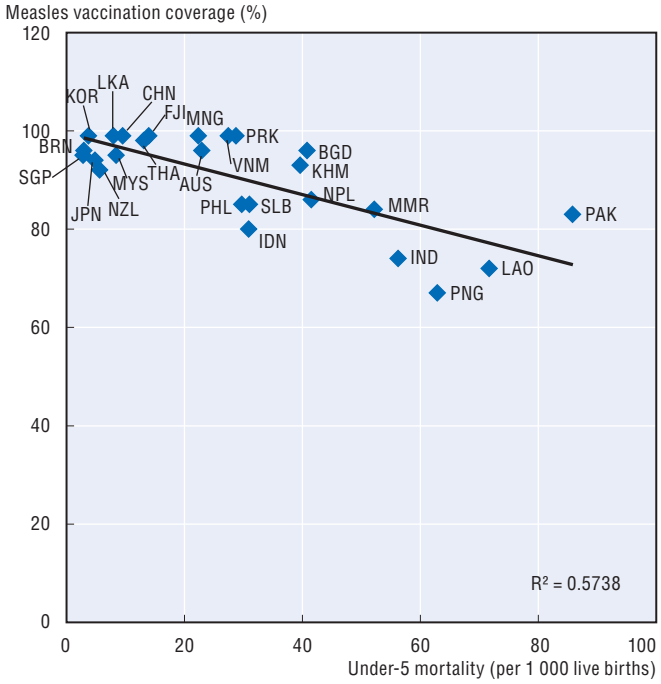
The prevalence of ARI is estimated by asking mothers whether their children under five had been ill with a cough accompanied by short, rapid breathing in the two weeks preceding a survey, as these symptoms are compatible with ARI.

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



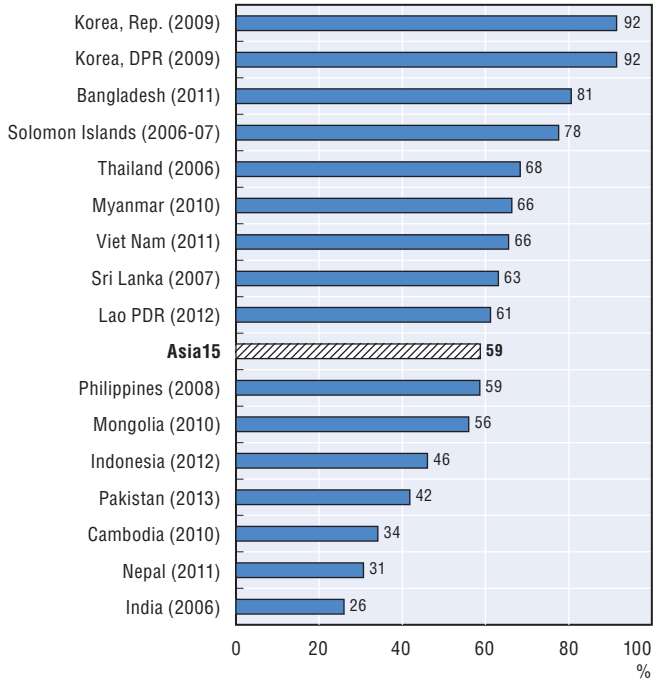
Source: WHO GHO (2014); DHS 2006-07.

3.6.2. Under-5 mortality and measles vaccination coverage, latest year available



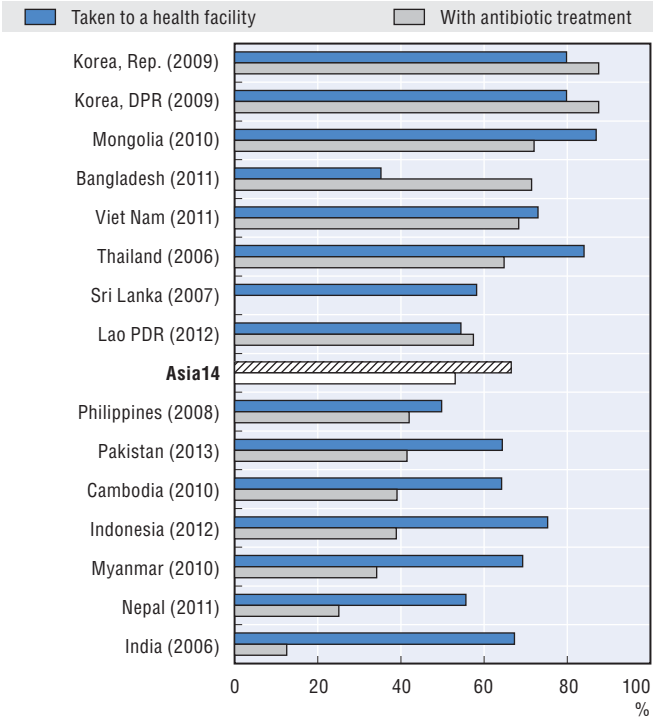
Source: UN Inter-agency Group for Child Mortality Estimation.

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



Source: WHO GHO (2014); DHS 2006-07.

3.6.4. Children aged under 5 years with ARI symptoms who took antibiotic treatment (%), latest year available



Source: WHO GHO (2014); DHS 2006-07.

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Despite the enormous epidemiological, social and economic burden of mental ill-health, mental health care is still not a priority in most health systems and access to mental health care is often not adequate. At any point in time, about 10% of the adult population report having some type of mental or behavioural disorder (WHO, 2001) and in some countries, over 90% of people who have attempted or committed suicide had been diagnosed with psychiatric disorders such as severe depression, bipolar disorder and schizophrenia (Nock et al., 2008). 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 the Asia/Pacific region than the OECD average of 15.6 per 100 000 population (Figure 3.7.1). It is highest in developed OECD countries in the region such as New Zealand, Japan, Australia and the Republic of Korea, but there is less than one psychiatrist per million population in Indonesia, Lao PDR, Bangladesh, Myanmar and Papua New Guinea. This suggests that many countries in the region underinvest in mental health care.

As is the case for many other medical specialties (see Indicator 3.1 "Doctors and nurses"), 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 certain states and territories compared with others in 2009 (AIHW, 2012b).

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 non-OECD countries in the Asia/Pacific region, the number is still very low (Figure 3.7.2). Japan has the highest rate with over 100 mental health nurses per 100 000 population, followed by New Zealand, Viet Nam and Australia with more than 50 mental health nurses per 100 000 population. But there are fewer than three mental health nurses per 1 million population in India, Myanmar, Bangladesh, Nepal and Lao PDR, 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).

Japan and the Republic of Korea have the highest number of psychiatric beds per population (Figure 3.7.3). In Japan, it is 294 psychiatric beds per 100 000 population, almost three-times higher than the OECD average of 104, and in the Republic of Korea, it is almost twice as high as the OECD average. In these countries, inpatient care is still dominant, while Australia and New Zealand have made progress in reorganising mental health care delivery, moving people out of psychiatric hospitals towards care in the community.

The number of psychiatric beds per population is much lower and less than 20 per 100 000 population in other countries in the Asia/Pacific region than the OECD average, where community services are not developed or limited as well. More investment is needed to strengthen mental health care and improve its access and quality.

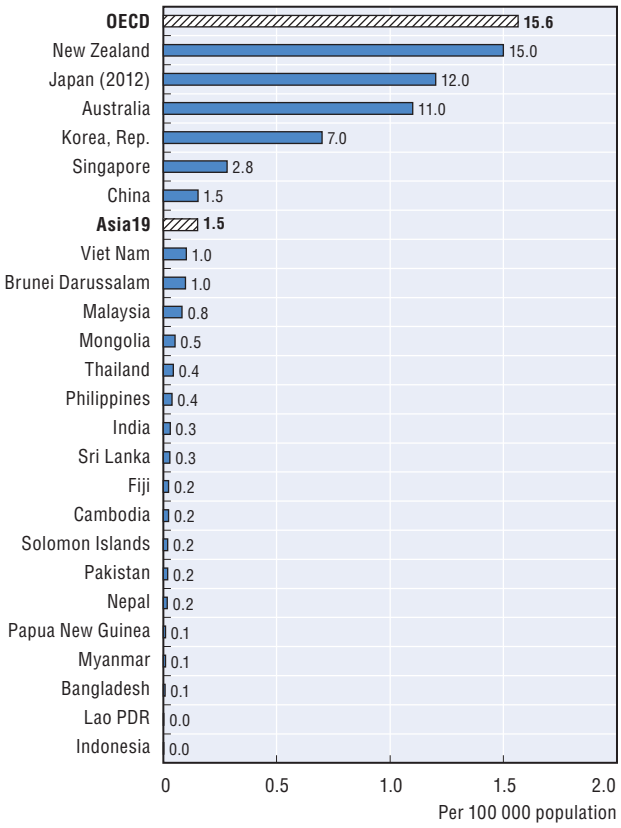
Definition and comparability

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.

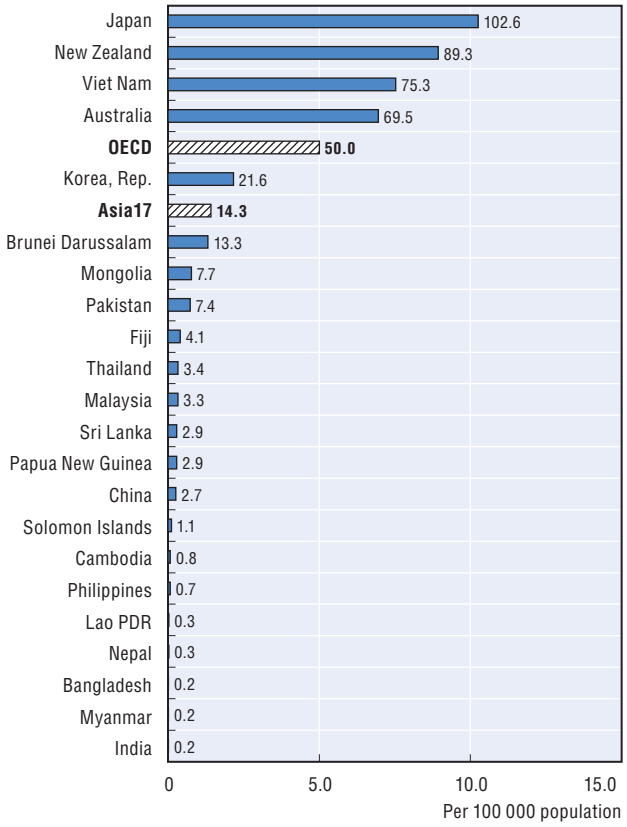
Data are based on head counts.

3.7.1. Psychiatrists, per 100 000 population, 2011



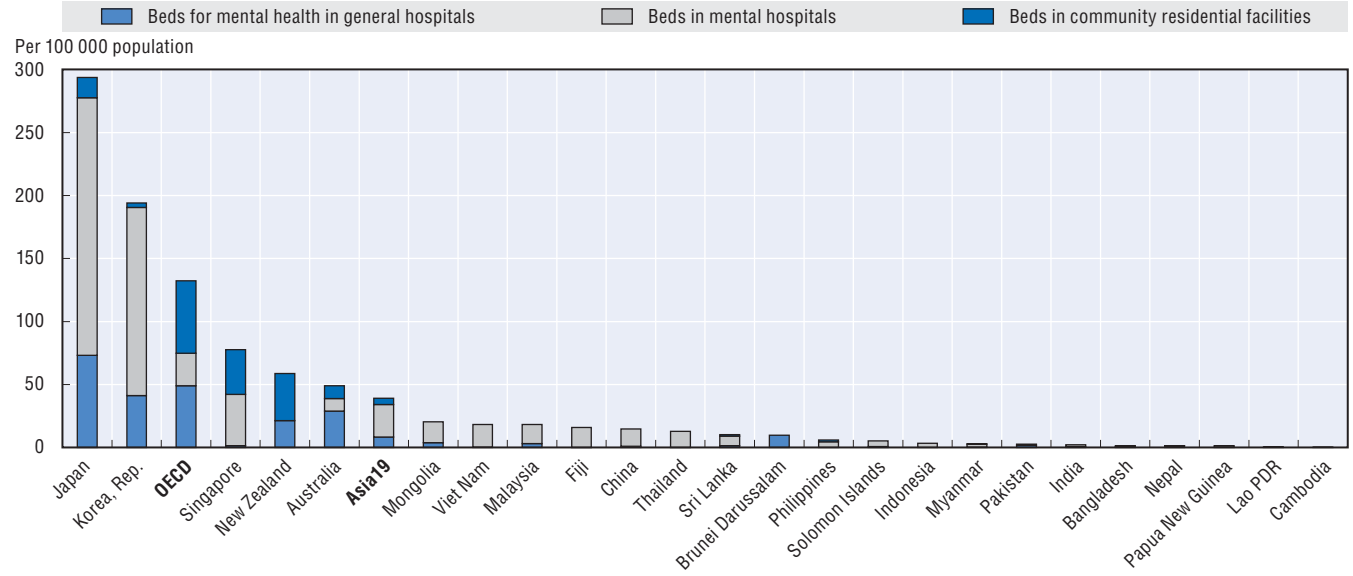
Source: *OECD Health Statistics 2014*; WHO GHO 2014.

3.7.2. Nurses working in mental health sector, per 100 000 population, 2011



Source: *OECD Health Statistics 2014*; WHO GHO 2014.

3.7.3. Mental health beds, per 100 000 population, 2011



Source: WHO GHO 2014.

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Evidence suggests that certain socially excluded 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 excluded groups typically face multiple barriers to access to services. This includes financial barriers, such as direct and indirect costs of accessing services.

Health care coverage through health insurance promotes access to medical goods and services, and provides financial security against unexpected or serious illness (OECD, 2004). The insurance coverage, however, may not guarantee access to all essential health services because certain services may not be covered and cost-sharing rules may still result in high costs for patients and their families.

There is a huge divide in health insurance coverage between OECD and non-OECD countries in the Asia/Pacific region (Figure 3.8.1). OECD countries have achieved universal coverage of health care for a set of services, which usually include consultations with doctors and specialists, tests and examinations, surgical and therapeutic procedures and pharmaceutical drugs, while dental care is not covered in Australia and New Zealand (Paris et al., 2010). These countries have maintained universal health coverage already for over a few decades; for example, Japan attained universal health coverage in 1961. On the other hand, health insurance coverage is still low in non-OECD countries in the region and it is less than 10% in the Solomon Islands, India and Cambodia.

Access to care may also be influenced by socio-cultural factors, such as ethnicity and gender. A significant proportion of women reported unmet needs for health care in non-OECD countries in the Asia/Pacific region. In Cambodia, the Solomon Islands, the Philippines and Nepal, more than 70% of women with the lowest household wealth have difficulties in accessing health care due to financial reasons when they are sick (Figure 3.8.2). In Cambodia and the Solomon Islands, over 40% of women with the highest wealth also have problems with access to care due to financial reasons, while in India, Sri Lanka, Indonesia and Pakistan, less than 10% of rich women have unmet care needs due to cost. These data are not available for many countries in the Asia/Pacific region but given the large share of out-of-pocket payments (see Indicator 4.2 "Financing of health care"), access to care may also be problematic due to cost in some other countries such as Myanmar, Bangladesh and Pakistan. There are also other reasons for not seeking care. A notable share of women reported that they do not access health care because of difficulties in getting permission (Figure 3.8.3). The proportion is high in Cambodia, and in the Solomon Islands and Pakistan, about a third of poor women do not receive care because of difficulties in getting permission. Furthermore, in some countries such as India and the Philippines, about 20% of women do not seek care when needed due to concerns about not having female health care professionals (DHS, 2006 and 2013).

A third area relates to geographical access barriers: adequate numbers and appropriate distribution of health care providers are also needed to ensure access to health care for a country's entire population. But the distance to providers is an issue for accessing health care among many women in non-OECD countries in the Asia/Pacific region (Figure 3.8.4). The share of women with unmet care needs due to distance is consistently larger in rural areas than urban areas, suggesting that health care resources are less adequate in rural areas. Many women with the lowest household wealth also have serious problems with health care access due to distance. In Nepal, the Solomon Islands and Pakistan, about 70% of poor women reported having unmet care needs due to distance.

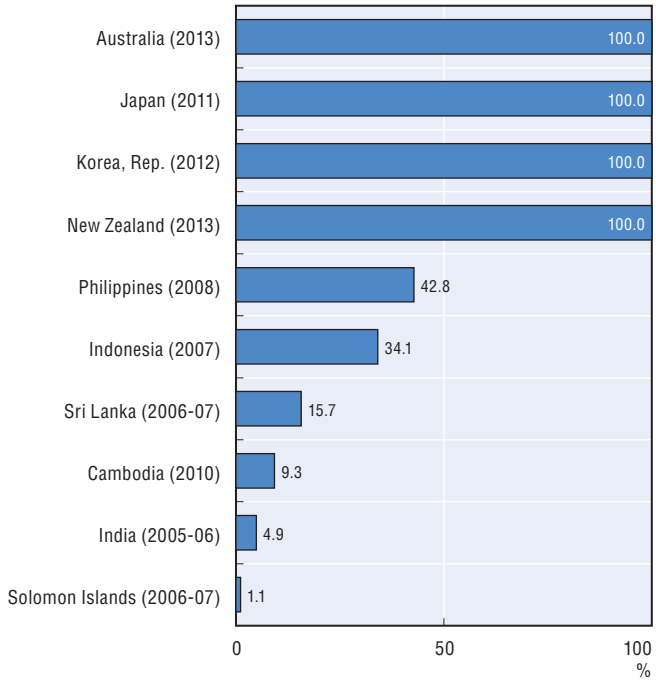
In addition, lack of knowledge and awareness can hinder groups from accessing care. Poor quality or lack of responsiveness of the health system may also present barriers. An important starting point to identify and tackle access barriers to care is to collect appropriately disaggregated health information to inform equity-focused analysis and action.

Definition and comparability

Data on health insurance coverage are available only for a limited number of countries. For several countries, national averages are estimated based on the data for males and females, and female coverage is used as the national average if data are not available for male. The range of services covered by health insurance and the degree of cost-sharing applied to these services vary across countries, so it should be noted that the insurance coverage *per se* does not guarantee the same level of access to health care across countries.

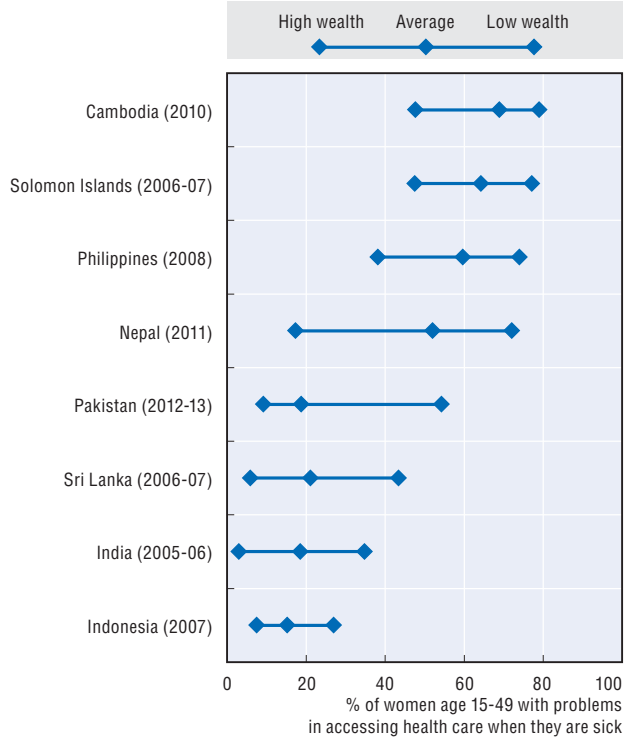
Data on problems with access to care are based on data collected through DHS. These questions were asked of women aged 15-49, who reported that they had serious problems in accessing health care when they were sick. Equivalent data for men are not collected in the survey.

3.8.1. Health care insurance coverage, latest year available



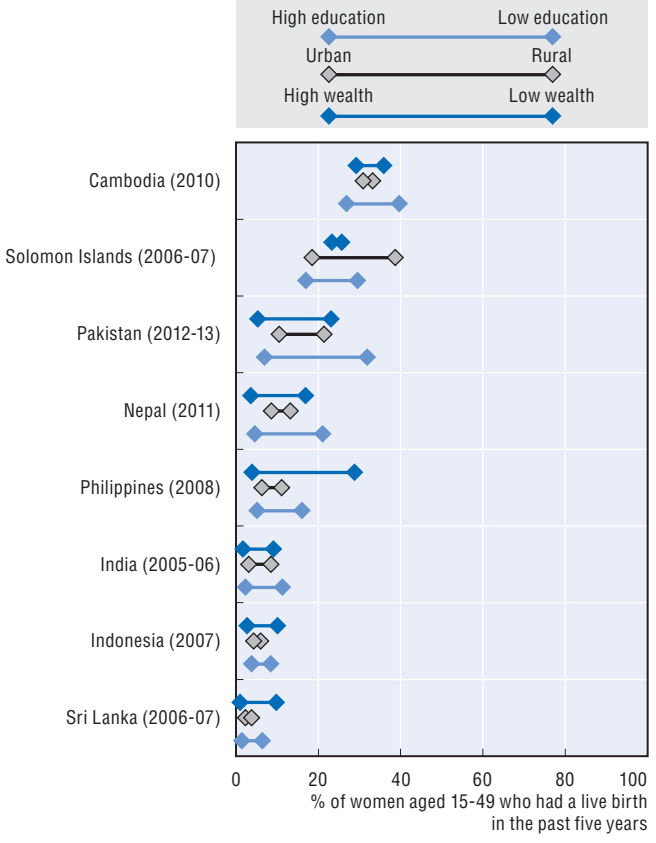
Source: *OECD Health Statistics 2014*; DHS & MICS surveys 2005-13.

3.8.2. Problems in accessing care due to financial reason, latest year available



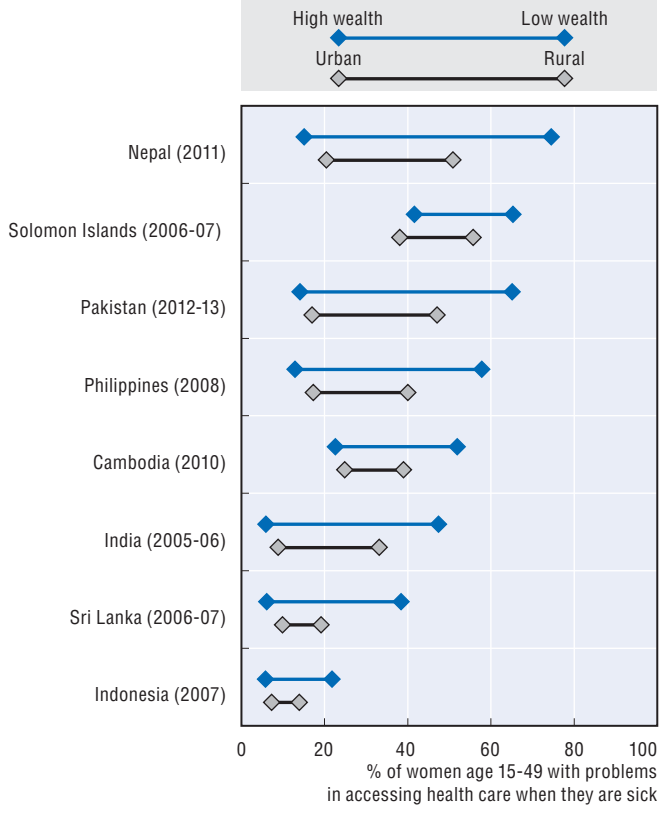
Source: DHS & MICS surveys 2005-13.

3.8.3. Problems in accessing care due to difficulties in getting permission, latest year available



Source: DHS & MICS surveys 2005-13.

3.8.4. Problems in accessing care due to distance, latest year available



Source: DHS & MICS surveys 2005-13.

StatLink http://dx.doi.org/10.1787/888933152790

Persistent and growing inequities in health are increasingly evident, both between and within countries. Inequities in access to essential health services result in a poorer health status of underserved populations and increase health inequities. Inequities in health outcomes are observed for children (see Indicators 1.2 "Infant mortality" and 1.3 "Under-5 mortality") and access to family planning and skilled birth attendants is unequal (see Indicators 2.1 "Reproductive health" and 3.5 "Pregnancy and birth"). Inequities also exist in access to health services during and after pregnancies, prevention and also treatment in several countries in the Asia/Pacific region, but degrees of disparities are different by types of services.

Access to antenatal care by skilled professionals is equally high in countries in the region but varies by economic background in some countries (Figure 3.9.1). In Sri Lanka, Thailand and Mongolia, antenatal care coverage is equally high for women aged 15-49 who had a recent live birth. In Lao PDR, Nepal and Bangladesh, however, access to antenatal care by professionals is more than 50% higher for mothers with the highest wealth than those with the lowest wealth.

Inequities in access to postnatal care vary by the socio-economic background of mothers across countries (Figure 3.9.2). In Sri Lanka and the Philippines, access is equally high for women with different socio-economic backgrounds, while disparities in access to postnatal care are large in countries such as Bangladesh, Nepal and India. In the Solomon Islands, postnatal care is not available to most women regardless of their education, household wealth and geographic location.

Universal coverage of children against vaccine-preventable diseases is crucial in reducing infant and child mortality (see Indicator 5.1 "Childhood vaccination programmes") but in several Asian countries, immunisation coverage varies by socio-economic factors (Figure 3.9.3). Sri Lanka and Myanmar achieved high immunisation coverage for both poor and rich, but in countries such as Pakistan, Lao PDR and India, inequities are large with the coverage difference of almost 50% between children from rich and poor families. In these three countries, immunisation coverage also greatly differs by the mother's education background.

Access to treatment is high for children with diarrhoea in general but in some Asian countries, access is low among certain population groups (Figure 3.9.4). In Indonesia and Pakistan, access to diarrhoea treatment is relatively high at over 80% across population groups and disparities are small. But in Myanmar and Nepal, around 40% of children with diarrhoea from poor families do not get any treatment. In Myanmar and Lao PDR, disparities by geographic location are larger than other countries and gender inequities are large in Nepal, Bangladesh, Mongolia and the Solomon Islands with the coverage difference of over 5%.

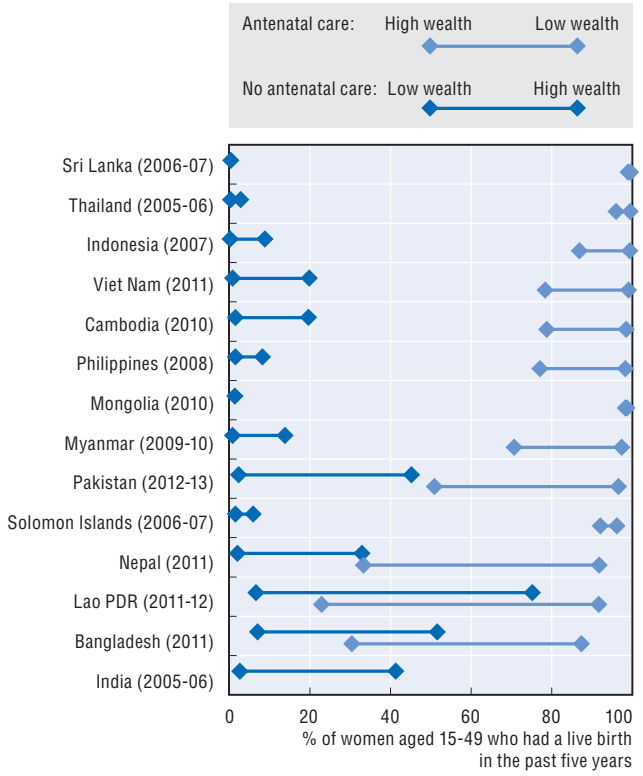
Many other services are important for population health, so reported data cannot be used alone to generalise access to essential services. Beyond inequities based on income, it should be noted that there are many other forms of social exclusion – such as gender, race, ethnicity, age, place of residence, employment status, sexual orientation and health status – that often interact with poverty, acting as strong determinants of inequities in health and access to care for marginalised groups. Hence, a targeted approach is needed to ensure that underserved populations get access to essential health services.

Definition and comparability

Data are based on DHS and are subject to recall bias. In some cases, the sample size is too small to report access by socio-economic background.

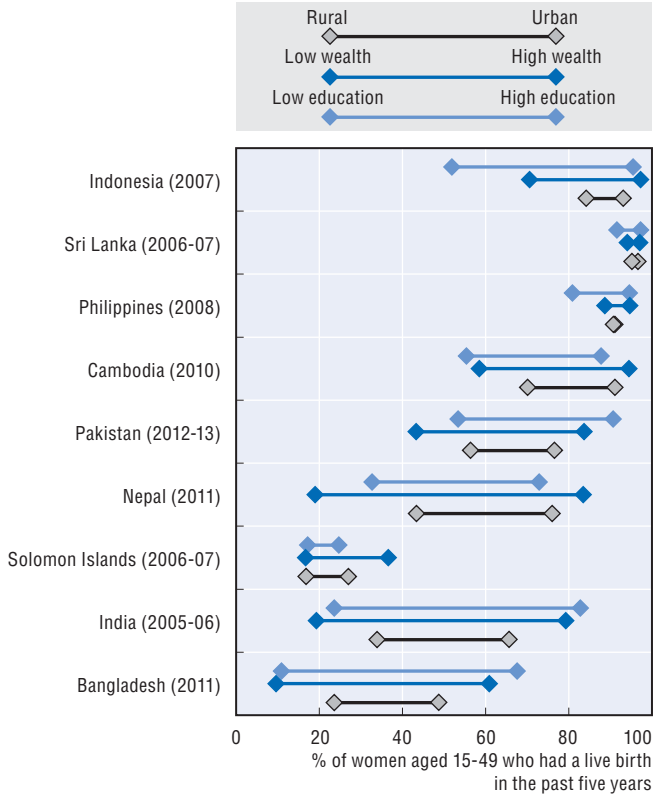
DHS questions are asked of women aged 15-49 about their and their children's experiences in accessing health care, and access to care relating to other population groups are not collected.

3.9.1. Antenatal care from a skilled provider and no antenatal care among women, latest year available



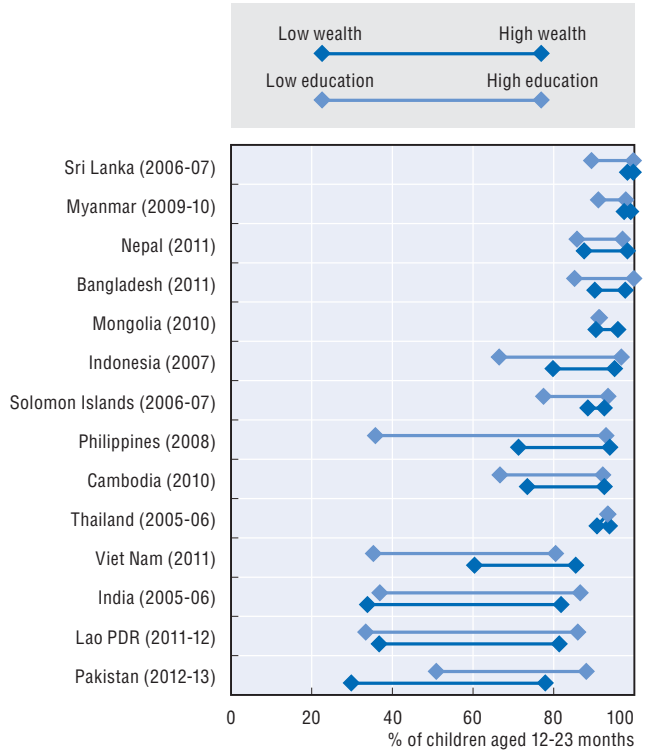
Source: DHS & MICS surveys 2005-13.

3.9.2. Postenatal care among women, latest year available



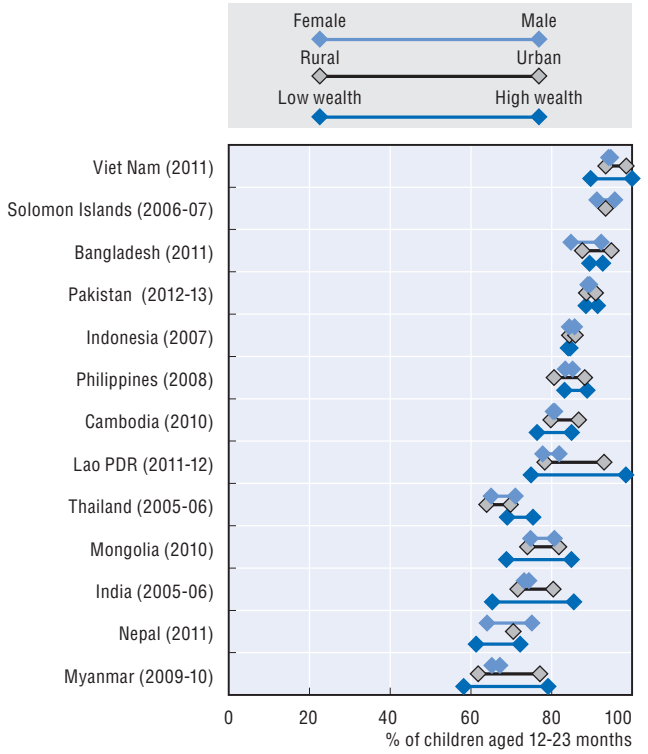
Source: DHS & MICS surveys 2005-13.

3.9.3. DPT immunisation coverage among children aged 12-23 months, latest year available



Source: DHS & MICS surveys 2005-13.

3.9.4. Children with diarrhoea, who received treatment, latest year available



Source: DHS & MICS surveys 2005-13.

StatLink http://dx.doi.org/10.1787/888933152806

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Chapter 4

Health expenditure and financing

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The descriptive analyses presented in this chapter are based on available data for 24 Asia/Pacific countries and economies. Much variation in health spending levels can be observed in Asia-Pacific countries in 2012 (Figure 4.1.1), ranging from Myanmar's total health spending per capita of only 25 USD PPP to Australia's 3 985 USD PPP. The average OECD health spending per capita in 2012 was around five times that of the Asian economies (3 514 versus 738).

On average, between 2000 and 2012, the growth rate in per capita health spending in real terms was 5.6% per year in Asia, higher than the 4.3% observed for gross domestic product (GDP) (Figure 4.1.2). The growth for China and Mongolia was even more rapid – almost twice the average rate for the region. Brunei Darussalam reported a negative growth rate in health spending between 2000 and 2012.

Health spending growth in many Asia-Pacific countries has exceeded economic growth over the past twelve years, resulting in an increasing share of the economy devoted to health in most countries. All economies above the diagonal line in Figure 4.1.2 report that health expenditure has grown faster than income on a per capita basis . This means that the share of health care expenditure in total expenditure has continued to increase. In all economies below the line, the increase in health spending – on average – was lower than the increase in GDP.

Health expenditure as a percentage of GDP in 2012 was 4.6 % in the Asian region, an increase of 0.7 percentage points from 2000. This indicator varied from 1.8% in Myanmar to up to 10.3% in New Zealand (Figure 4.1.3). Generally, the richer a country is, the more it spends on health as a percentage of GDP. The percentage of GDP allocated to health across OECD countries is – on average – twice that of the Asian countries and economies (9.3 versus 4.6).

Between 2000 and 2012, the share of GDP allocated to health declined up to one percentage point in India, Myanmar, Lao PDR, Sri Lanka, Brunei Darussalam and Cambodia, while it slightly increased in Pakistan, Fiji, Nepal, Thailand, China, Bangladesh, Malaysia and Australia (< 1 percentage point). During the same period, the Solomon Islands and the Republic of Korea reported an increase higher than 3 percentage points.

Definition and comparability

Total 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 – plus capital formation in the health care provider industry. 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.

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.

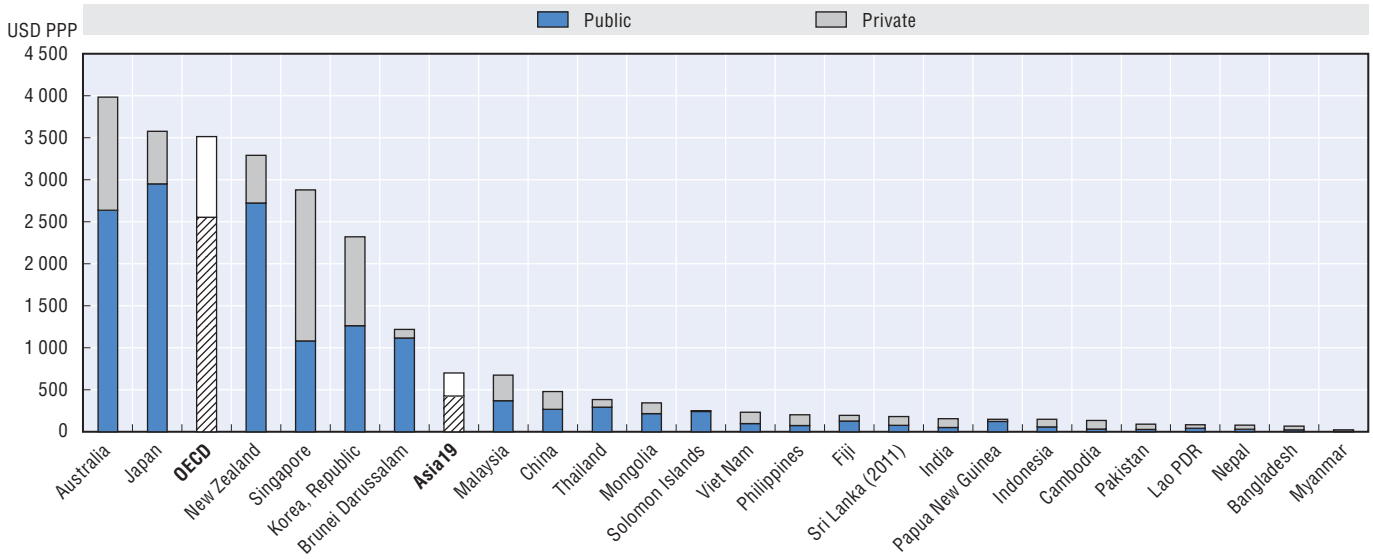
To make useful comparisons of real growth rates over time, it is necessary to deflate (i.e. remove inflation from) nominal health expenditure through the use of a suitable price index, and also to divide by the population, to derive real spending per capita. Due to the limited availability of reliable health price indices, an economy-wide (GDP) price index is used in this publication, at 2005 GDP price levels (from IMF).

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

$$\left(\sqrt[12]{2012value \big/ 2000value} - 1\right) * 100$$

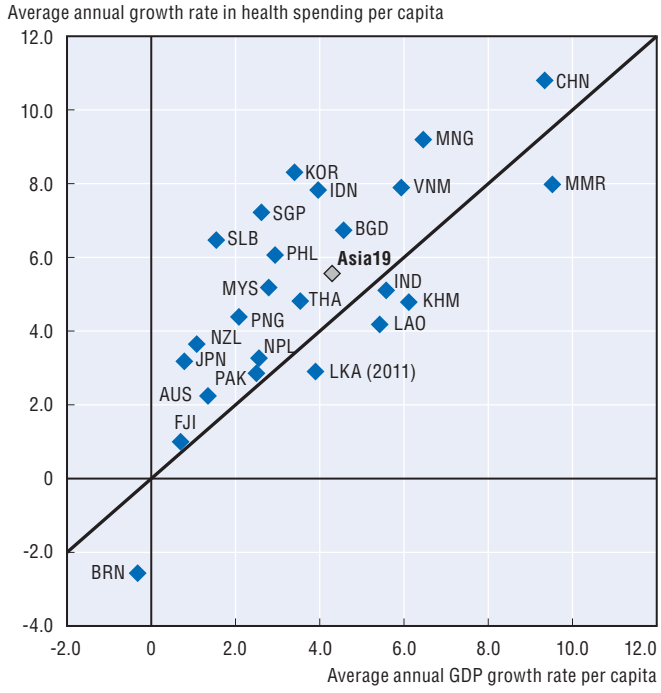
Gross Domestic Product (GDP) = final consumption + gross capital formation + net exports.

4.1.1. Total expenditure on health per capita, public and private, USD PPP, 2012



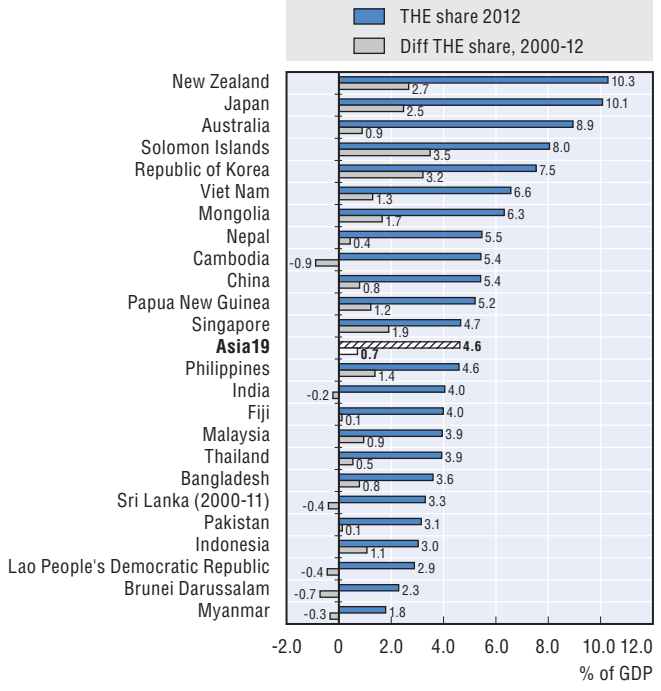
Source: WHO GHO 2014, *OECD Health Statistics 2014*.

4.1.2. Average annual growth rate in real health spending and GDP per capita, 2000-12



Source: WHO GHO 2014, *OECD Health Statistics 2014*.

4.1.3. Change in total expenditure on health as a share of GDP, 2000-12



Source: WHO GHO 2014, *OECD Health Statistics 2014*.

StatLink http://dx.doi.org/10.1787/888933152818

Figure 4.2.1 shows the change in the public share of health financing between 2000 and 2012. On average, the public share of health spending has slightly increased in the Asian countries and economies, from 44.2 % in 2000 to 48.1 % in 2012. This is about the same share as in the United States, but is much lower than the average in OECD countries, where the public sector accounted for 72.7% of financing in 2012, similar to 2000. In Thailand, Japan, New Zealand, Papua New Guinea, Brunei Darussalam, and the Solomon Islands, public financing accounted for more than 75% of all health expenditure, while it accounted for less than one third of total health spending in India, Pakistan, Cambodia and Myanmar.

The public share of health spending has increased significantly over the past twelve years in Thailand, China and Lao PDR (15 points of share or more), while it has decreased substantially in Mongolia and Fiji (15 points or more).

Out-of-pocket payments represented more than 50% of total expenditure on health in the Philippines, India, Singapore, Cambodia, Pakistan and Bangladesh, while they reached 71.3% in Myanmar (Figure 4.2.2). This share was less than 20% in Japan, Thailand, New Zealand, Papua New Guinea, Brunei Darussalam, and the Solomon Islands. On average, in Asian countries and economies, the share of total health spending paid out-of-pocket has fallen by 5 percentage points to 43.9 % since 2000.

The trend is quite diverse across the countries and the economies in the study. However, two thirds of the countries and economies reported a decrease, including more than 20 percentage points between 2000 and 2012 for China, Lao PDR and Thailand. Eight reported an increase, with a growth of more than 10 percentage points in the Philippines, Fiji and Mongolia in the same period.

In general, private household out-of-pocket payments, comprising direct payments, and cost-sharing payments, form the greater part of private funding sources (Figure 4.2.3). In Mongolia, Pakistan, Myanmar, Bangladesh, Singapore and Brunei Darussalam, out-of-pocket health spending represents 90% or more of private health spending. In addition to OECD countries, private prepaid and risk pooling plans play a role in Thailand, Malaysia, the Philippines and Fiji where their share in private health spending is 10% or higher. It is worth noting that private sector also comprises health expenditure by corporations and non-profit institutions serving households.

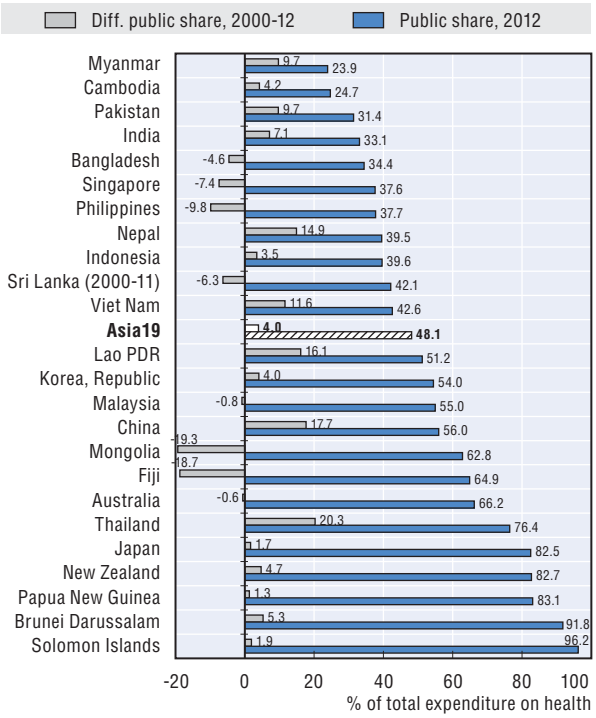
External funding for health care is quite relevant in most developing countries and economies in Asia/Pacific. In Cambodia, Lao PDR and Papua New Guinea more than 20% of funds spent on health were from external resources in 2012 (Figure 4.2.4), while external resources accounted for between around 7 and 10 % of total health expenditure in Nepal, Myanmar, Fiji and Bangladesh.

Definition and comparability

The financing classification used in the *OECD System of Health Accounts 2011* 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. 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.

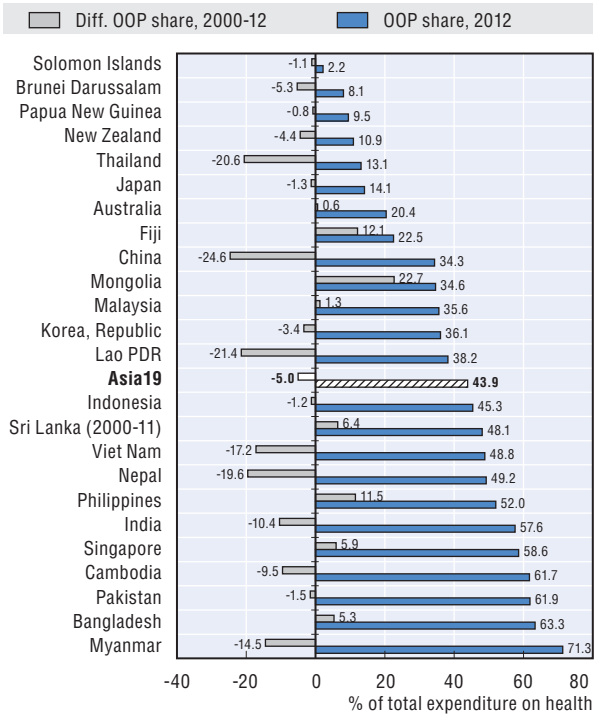
External funding for health is measured as Official Development Assistance *disbursements* for health from all donors. Disbursements represent the actual international transfer of financial resources. Disbursements for health are identified by using the classification of sector of destination codes 121 (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) (OECD, 2014a). 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.

4.2.1. Change in public share of total expenditure on health, 2000-12



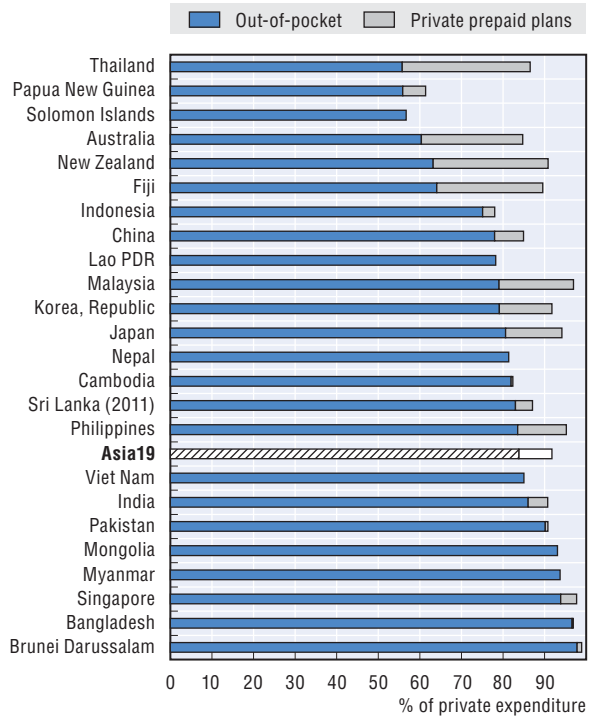
Source: WHO GHO 2014, *OECD Health Statistics 2014*.

4.2.2. Change in out-of-pocket spending as a share of total expenditure on health, 2000-12



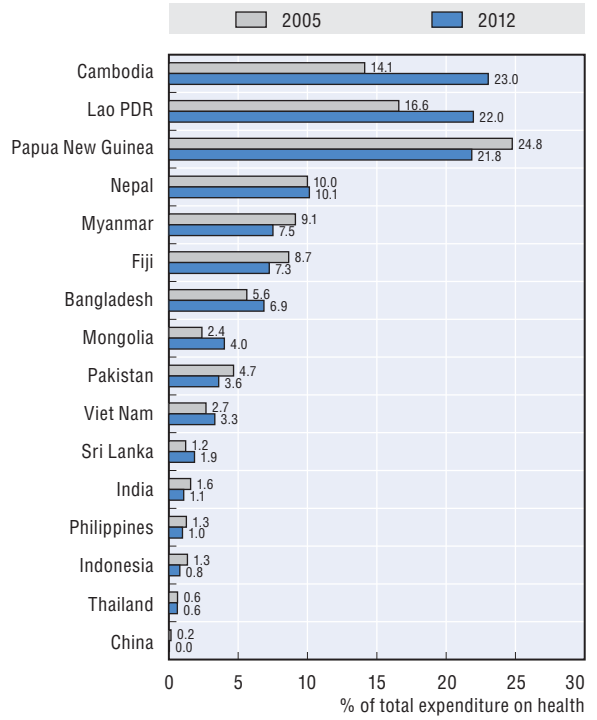
Source: WHO GHO 2014, *OECD Health Statistics 2014*.

4.2.3. Out-of-pocket and private prepaid plans spending as a share of private expenditure, 2012



Source: WHO GHO 2014, *OECD Health Statistics*.

4.2.4. External resources as a share of total expenditure on health, 2005 and 2012



Source: WHO GHO 2014, *OECD Health Statistics 2014*.

StatLink http://dx.doi.org/10.1787/888933152824

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. Consumer 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 with major consequences.

Spending on pharmaceuticals accounted for almost one third of all health expenditure on average across Asian countries and economies in 2010. Per capita pharmaceutical spending varies a lot among the countries and economies under study. In 2010, a large number of Asia-Pacific countries and economies reported spending below 60 USD PPP per capita, with Myanmar, the Solomon Islands, Pakistan, Lao PDR, Papua New Guinea and Nepal spending less than 25 USD PPP per capita. Myanmar, Singapore, China and Viet Nam reported an annual average growth rate of more than 9% from 2000-10, while Pakistan was the only country that showed a decrease over the same period (Figure 4.3.1). 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 or a decrease in prices.

In Myanmar, Viet Nam, Bangladesh, China, India and Thailand more than 40% of total health expenditure was on pharmaceuticals, while this share was less than 15% in Fiji, Malaysia, New Zealand and the Solomon Islands. Pharmaceutical share of total health expenditure increased by more than 10 percentage points from 2000-10 in Lao PDR, Thailand and Myanmar, while it decreased by more than 10 percentage points in Cambodia and Pakistan (Figure 4.3.2).

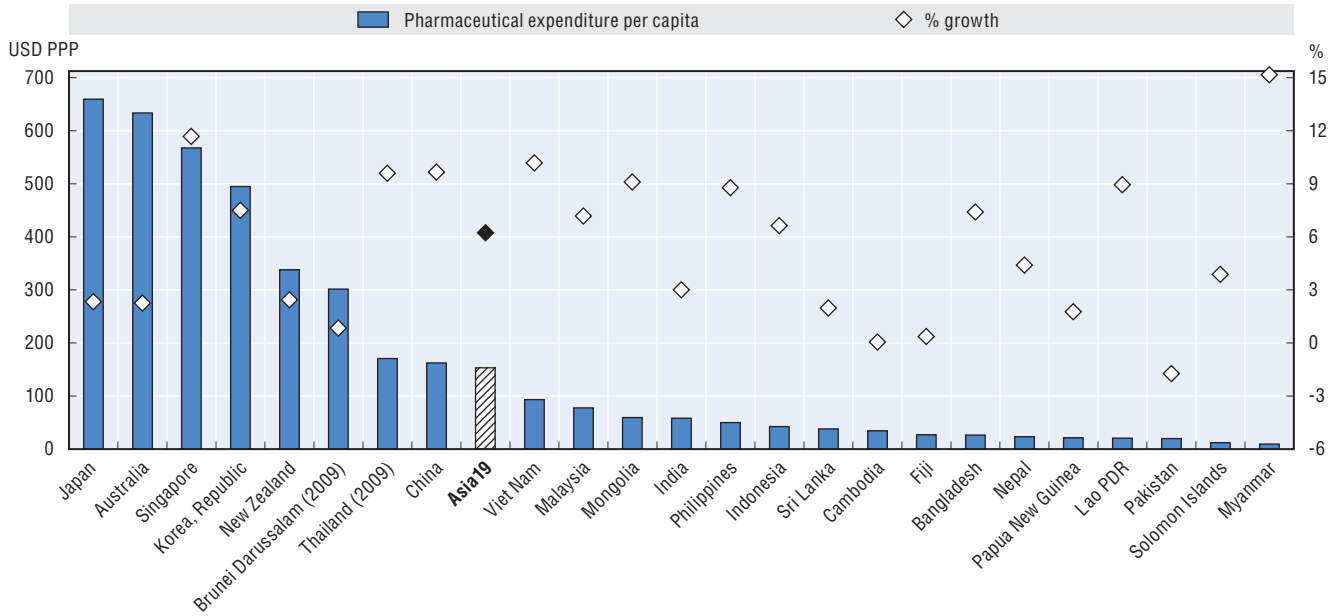
Government finances more than 70% of pharmaceutical expenditure in Japan, the Solomon Islands, Brunei Darussalam and Thailand, while the public share is less than 15% in the Philippines, Bangladesh, India and Myanmar (Figure 4.3.3). On average, in Asian countries and economies, only one third of expenditure on pharmaceuticals is publicly financed

Definition and comparability

See Indicator 4.1 for the PPP conversion rate and the formula and deflator used to compute annual average growth rate.

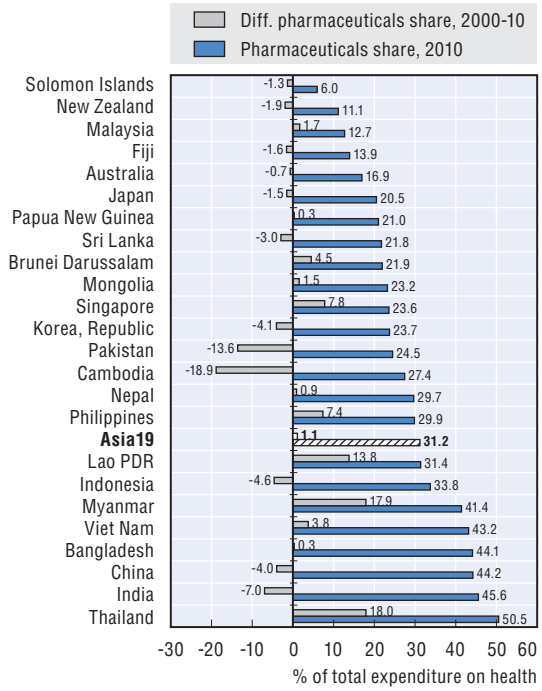
Pharmaceutical expenditures include pharmaceuticals, medicinal chemicals and botanical products used for health uses, prescribed or not. They comprise outlays during episodes of hospital care and in outpatient clinics – that is intermediate consumption in national income and product account, as well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

4.3.1. Pharmaceutical expenditure per capita 2010 (or nearest year), USD PPP, and average annual growth rate in real pharmaceutical spending per capita, 2000-10



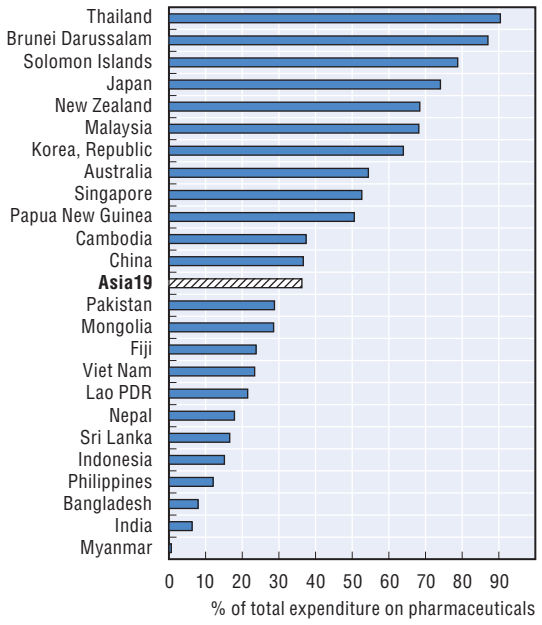
Source: WHO GHO 2014, *OECD Health Statistics 2014.*

4.3.2. Change in pharmaceutical expenditure as a share of total expenditure on health, 2000-10



Source: WHO GHO 2014, *OECD Health Statistics 2014.*

4.3.3. Public share of pharmaceutical expenditure, 2010



Source: WHO GHO 2014, *OECD Health Statistics 2014.*

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Chapter 5

Quality of care

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The measurement and improvement of quality of care has become a crucial element of health system governance worldwide. Industrialised and transition countries alike are developing ways to measure quality of care and improve policies, with reliable measurement seen as a necessary first step in establishing the value of health care, and thus the performance of health care systems (OECD, 2010b). Hence, Health System Performance Assessment, as promoted by WHO, relies heavily on the assessment of quality of health care services. The chapter on quality of care in this 2014 edition of *Health at a Glance: Asia/Pacific* builds on the indicators used in the OECD's Health Care Quality Indicator programme.

With the worldwide shift in morbidity and mortality from infectious to non-communicable diseases, the collection of statistics on health care in the Asia/Pacific region is also shifting in focus. In this chapter, quality indicators related to child vaccination (5.1) are reported by 27 countries, based on an information infrastructure on infectious diseases developed over past decades. This contrasts with information on 30 day-case fatality rates for AMI and stroke, which is currently only reported by seven and six countries respectively (5.2). A similar situation exists for cancer care. Although mortality estimates are available for breast, cervical and colon cancer for 25 countries, data on screening rates for these cancers, as well as on five-year survival rates, are not yet reported because of the lack of cancer registries in the majority of countries in the region (5.3). Despite its shortcomings, this chapter illustrates that major steps have been made or are underway, and thus it is expected that in future editions of *Health at a Glance Asia/Pacific* the number of countries and indicators for which international comparable data are reported will increase.

Despite the scarcity of national statistics on quality of care, numerous policy initiatives to systematically evaluate and improve quality of health care services have been undertaken in a substantial number of countries in the region. These are documented in Section 5.4. Accreditation programmes for hospitals and the development of national quality improvement plans are common initiatives, as is a move towards encouraging continuing professional development for health professionals – although this is not mandatory in most countries. Programmes to develop guidelines, standards and indicators as well as national initiatives to measure patient experiences and improve patient safety can also be identified. There is also a trend towards pharmacovigilance and blood safety standards. These initiatives underscore the interest in quality of care in the Asia/Pacific region.

Childhood vaccination continues to be one of the most cost-effective health policy interventions. Nearly all countries and economies have established vaccination programmes based on their interpretation of the risks and benefits of each vaccine. Coverage of these programmes can be considered as a quality of care indicator. 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 childhood vaccination.

Vaccination against pertussis (often administered in combination with vaccination against diphtheria and tetanus) and measles is part of almost all programmes, and reviews of the evidence supporting the efficacy of vaccines against these diseases have concluded that they are safe and highly effective.

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. More than 780 000 people die every year due to the acute or chronic consequences of hepatitis B (WHO, 2014h). In 2007, more than 170 countries had adopted the WHO recommendation to incorporate hepatitis B vaccine as an integral part of their national infant immunisation programme. In countries with low levels of hepatitis B (such as Australia and New Zealand), WHO indicates that routine hepatitis B vaccination should still be given high priority, since a high proportion of chronic infections are acquired during early childhood (WHO, 2004).

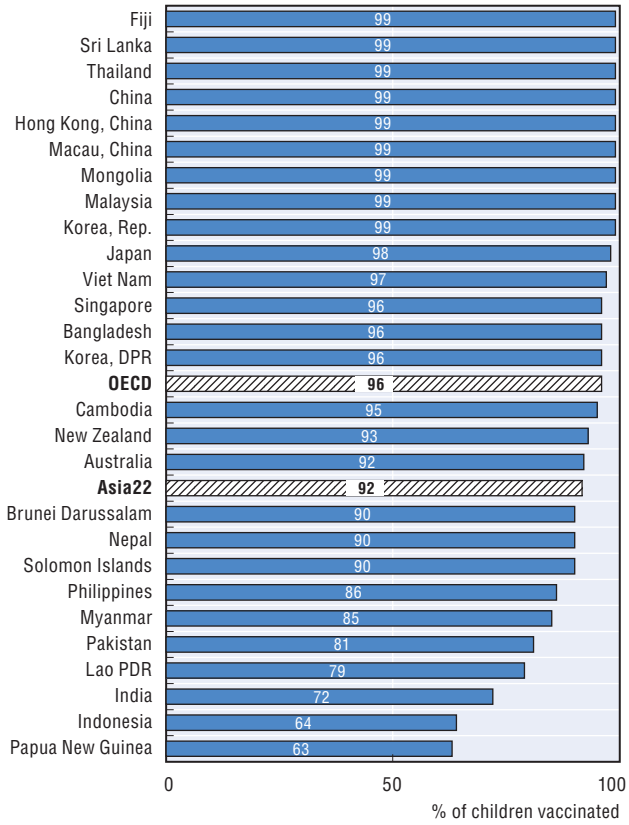
Figures 5.1.1 and 5.1.2 show that the overall vaccination of children against measles and pertussis (including diphtheria and tetanus) is high in most Asia/Pacific countries. On average, more than 90% of children aged around one year receive the recommended measles and pertussis vaccination, and rates for most countries are above 75%. The exceptions are India, Indonesia and Papua New Guinea for pertussis, and India, Lao PDR and Papua New Guinea for measles. Figure 5.1.3 shows that the average percentage of children aged one who are vaccinated for hepatitis B across Asia/Pacific countries is slightly lower than for measles and pertussis, at 88%. Again, rates for most countries are above 75%, with the exception of the Philippines, India, Indonesia, Papua New Guinea and Myanmar.

Although vaccination rates have plateaued at a high level in many countries in the Asia/Pacific region, 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 groups, for example (WHO, 2012c). Nevertheless some countries still show slow progress in vaccination rates.

Definition and comparability

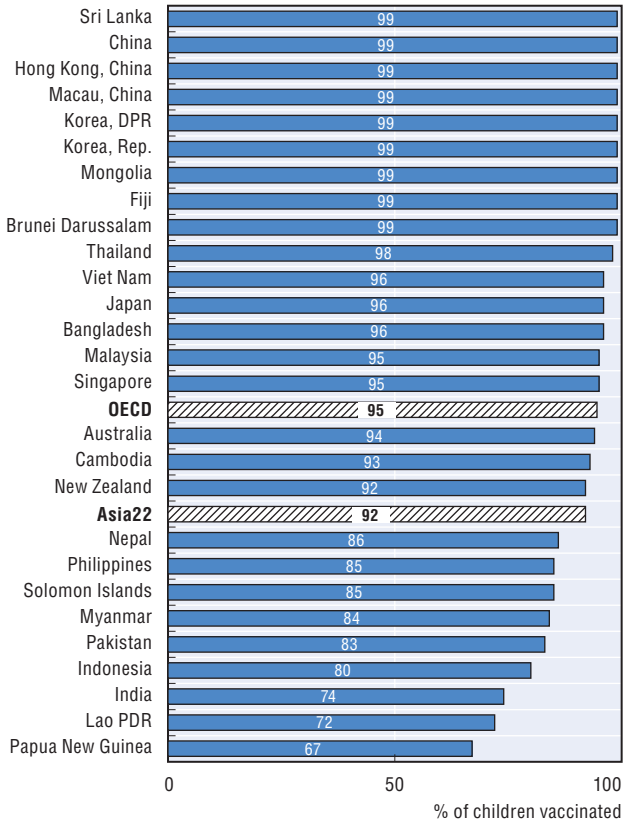
Vaccination rates reflect the percentage of children at either age one or two that receives the respective vaccination in the recommended timeframe. Childhood vaccination policies differ slightly across countries. Thus, these indicators are based on the actual policy in a given country. Some countries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

5.1.1. Vaccination rates for diphteria tetanus and pertussis (DTP3), children aged around 1, 2012



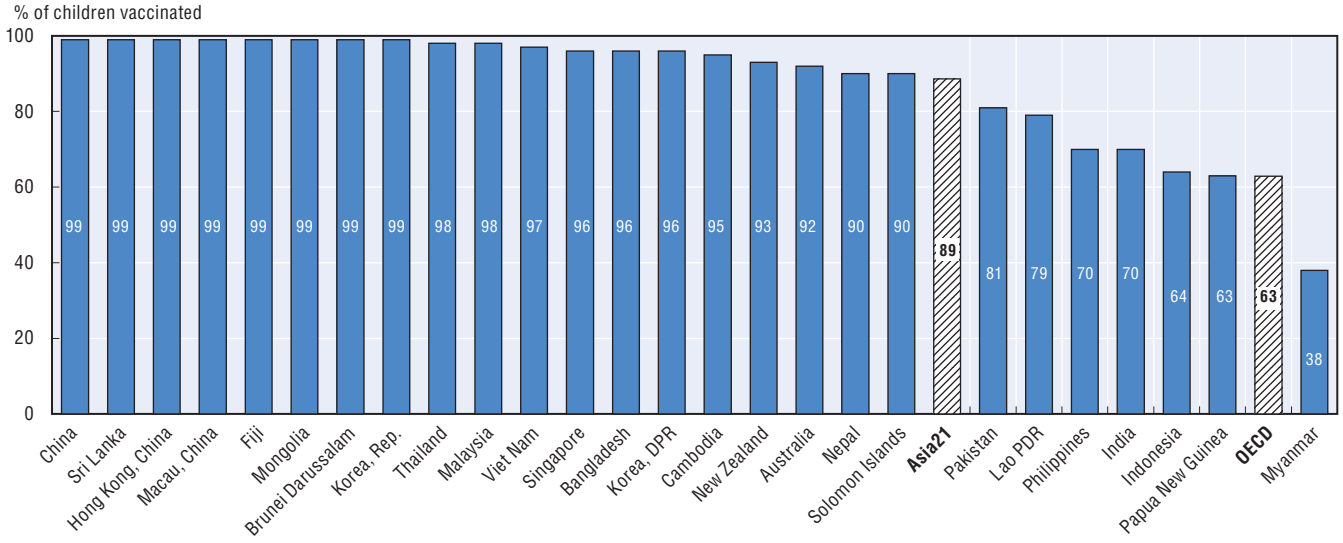
Source: WHO, Global Health Observatory 2014.

5.1.2. Vaccination rates for measles (MCV), children aged around 1, 2012



Source: WHO, Global Health Observatory 2014.

5.1.3. Vaccination rates for hepatitis B (Hep3), children aged around 1, 2012



Source: WHO, Global Health Observatory 2014.

StatLink http://dx.doi.org/10.1787/888933152841

Acute myocardial infarction (AMI) and stroke each account for around 3 million deaths a year in the Asia/Pacific region, being two of the major causes of death and disability (WHO, 2008a). Additionally, both are associated with significant health, social and non-financial costs, because of the persistent disabilities suffered by many survivors. Treatment for 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 clear benefits of thrombolytic treatment for ischemic stroke (e.g. Mori et al., 1992). 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 New Zealand (4.5%) and Australia (4.8%) (Figure 5.2.1). Singapore has the highest reported case-fatality rates of 12.5%. Beyond the quality of care provided in hospitals, differences in hospital transfers, average length of stay, emergency retrieval times and average severity of AMI may influence reported 30 day-case fatality.

For ischemic stroke, the lowest case-fatality rates are reported in Japan (3%) and Republic of Korea (3.4%), while Malaysia reports the highest crude rate of 11.7% (Figure 5.2.2). Fatality rates for haemorrhagic stroke are significantly greater 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 are reported in Japan (11.8%) and the Republic of Korea (13.7%), with Malaysia reporting the highest crude rate of 27.3% (Figure 5.2.3). 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. Other factors such as patterns of hospital transfers, average length of stay, emergency retrieval times and average severity of stroke may also influence the rates.

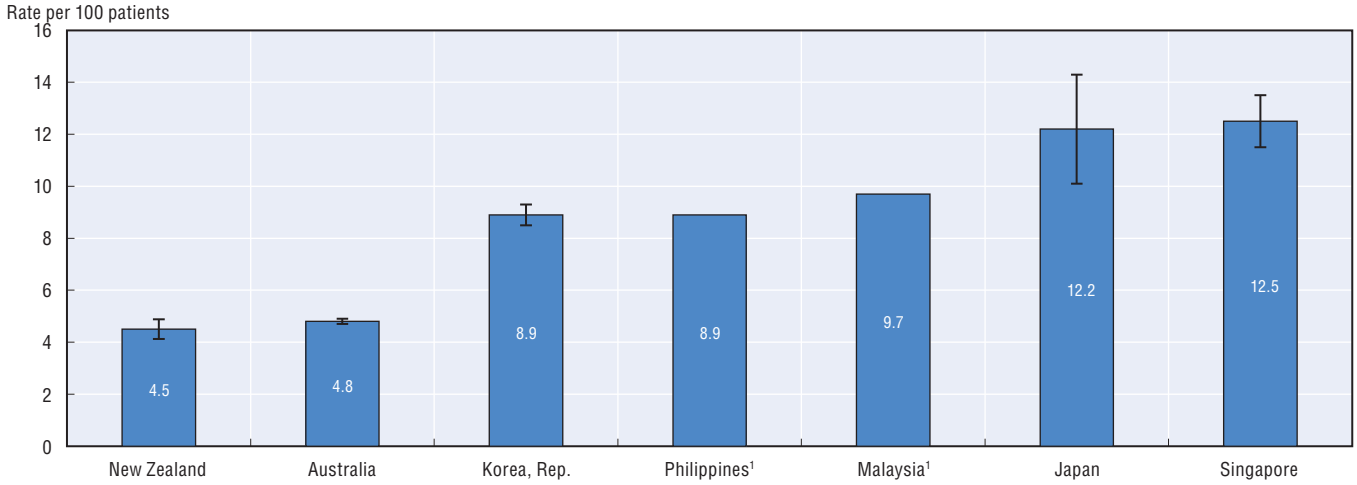
Patient-based data which follows patients in and out of hospital and across hospitals is a more robust (although administratively more complex) indicator for national monitoring and international comparison. This is because admission-based data may bias case-fatality rates downwards if unstable patients are transferred elsewhere, and the transfer is recorded as a live discharge. Currently, very few countries in the Asia/Pacific region are able to track patients and so produce patient-based data, hence this indicator is not shown here.

Definition and comparability

The in-hospital case-fatality rate following AMI, ischemic and hemorrhagic 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.

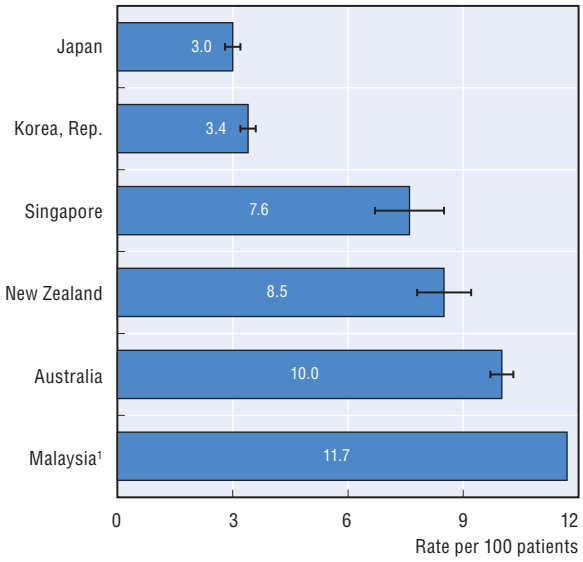
Where available, both crude and age and sex standardised rates are presented. Standardised rates adjust for differences in age (45+ years) and sex, and facilitate more meaningful international comparisons. Crude rates are likely to be more meaningful for internal consideration by individual countries.

5.2.1. In-hospital case-fatality rates within 30 days after admission for AMI, 2011 (or nearest year)



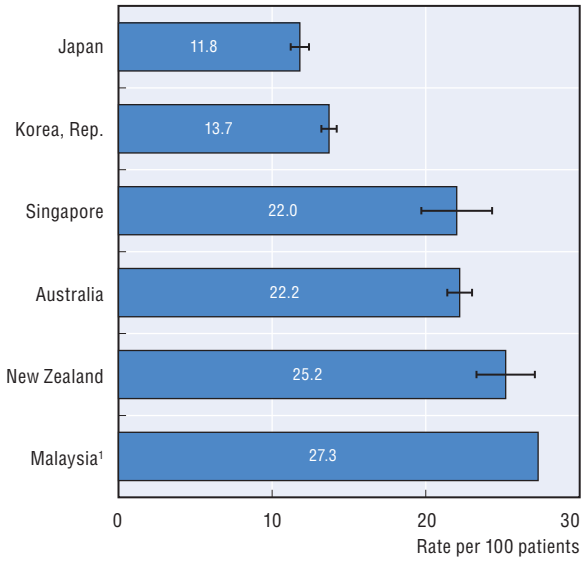
1. Data refer to crude rates. Note: 95% confidence intervals represented by H.
Source: OECD Health Statistics 2014.

5.2.2. In-hospital case-fatality rates within 30 days after admission for *ischemic stroke*, 2011 (or nearest year)



1. Data refer to crude rates.
Note: 95% confidence intervals represented by H.
Source: OECD Health Statistics 2014.

5.2.3. In-hospital case-fatality rates within 30 days after admission for *hemorrhagic stroke*, 2011 (or nearest year)



1. Data refer to crude rates.
Note: 95% confidence intervals represented by H.
Source: OECD Health Statistics 2014.

StatLink http://dx.doi.org/10.1787/888933152852

Breast cancer accounts for around 187 000 deaths per year in the Asia/Pacific region (WHO, 2008b). There are a number of factors that increase risk, such as age, family history, oestrogen replacement therapy, alcohol use and others. The promotion of screening mammography and self-examination has led to the detection of the disease at earlier stages. Most OECD countries have adopted breast cancer screening programmes as the most effective way for detecting the disease, although periodicity and population target groups vary.

Cervical cancer, which causes 138 000 deaths per year in the region, 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 (IARC Working Group, 1995; Franco et al., 1999). Pap-smear and HPV DNA testing increases the probability of detecting premalignant lesions which can then be effectively treated. As for breast cancer, population-based cancer screening programmes have been adopted by most high-income countries, but again periodicity and target groups vary. In addition, primary prevention by prophylactic vaccines has been shown to be highly effective and offers new potential in controlling the disease (Shefer et al., 2008; Koulova et al., 2008).

Colorectal cancer is the third most commonly diagnosed form of cancer worldwide, after lung and breast cancers, and causes approximately 250 000 deaths per year in the region (WHO, 2008b). There are several factors that place certain individuals at increased risk including age, the presence of polyps, ulcerative colitis, a diet high in fat, and genetic background. The disease is rare in Asia, although in countries where people have adopted western diets, such as Japan, incidence is increasing (IARC, 2011). The secondary prevention of colorectal cancer by faecal occult blood, sigmoidoscopy or colonoscopy screening is increasingly being adopted (USPSTF, 2008).

Population-based *mortality rates* are one measure of health care quality. As well as reflecting the quality of cancer care, they also reflect improved diagnosis of early-stage cancers with a better prognosis, where screening is available and effective. They also reflect, however, changes in cancer *incidence*, which may have more to do with public health programmes and changing behaviours, than health care quality. A more sensitive marker of health care quality is *relative survival rates*. These estimate the proportion of patients who are still alive after a specified time period (commonly five years) compared to those still alive in the absence of the disease. They capture the excess mortality that can be attributed to the disease and reflect both how early the cancer was detected and the effectiveness of treatment. Another good measure of health care quality, for breast and cervical cancer, is screening coverage.

Few countries in the region are currently able to supply robust relative survival or screening rates, hence the indicators presented here focus on population mortality rates (WHO, 2008b). For the most recent estimations on breast cancer, Mongolia (4.2 per 100 000 females) and China (5.4) reported the lowest mortality rates, and Fiji (28.4) reported the highest (Figure 5.3.1).

For cervical cancer, New Zealand (1.4 per 100 000) and Australia (1.6) reported the lowest mortality rates, with Papua New Guinea (21.7) and Fiji (20.9) reporting the highest (Figure 5.3.2). As well as reflecting differences in the effectiveness of population screening programmes and access to high quality treatment, these figures also reflect local 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).

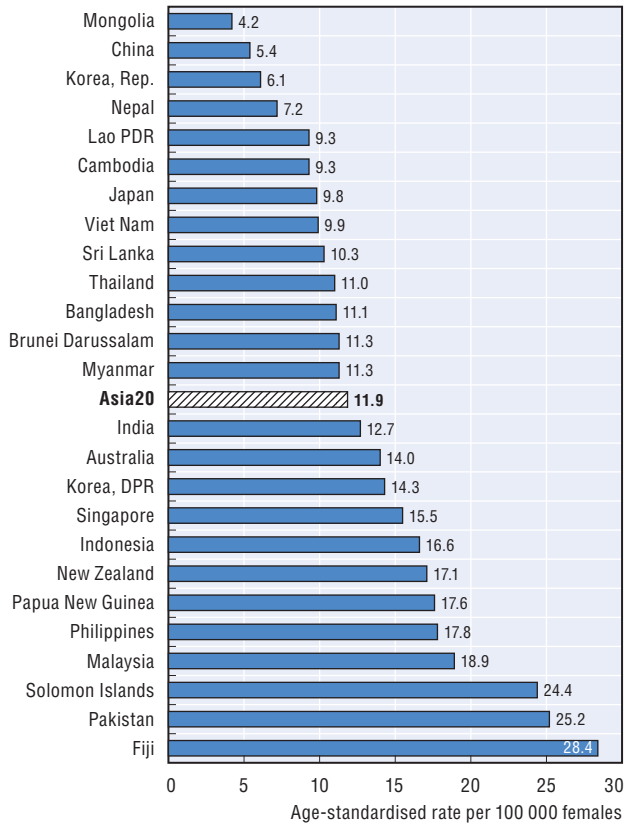
For colorectal cancer, Sri Lanka (2.2 per 100 000 population) and Nepal (2.5) report the lowest mortality rate, while New Zealand (15.1) reports the highest (Figure 5.3.3). This high rate could also reflect the fact that the incidence of colorectal cancer is high in New Zealand, at 37.27 per 100 000 population (Ferlay et al., 2013).

Definition and comparability

Deaths from all cancers are classified to ICD-10 codes C00-C97, lung cancer to C32-C34, breast cancer to C50 and prostate cancer to C61. Mortality rates are based on estimated numbers of deaths in a country in a year divided by the size of the corresponding population. Incidence rates refer to the number of new cases of a cancer in a given population per year. Both rates are age-standardised.

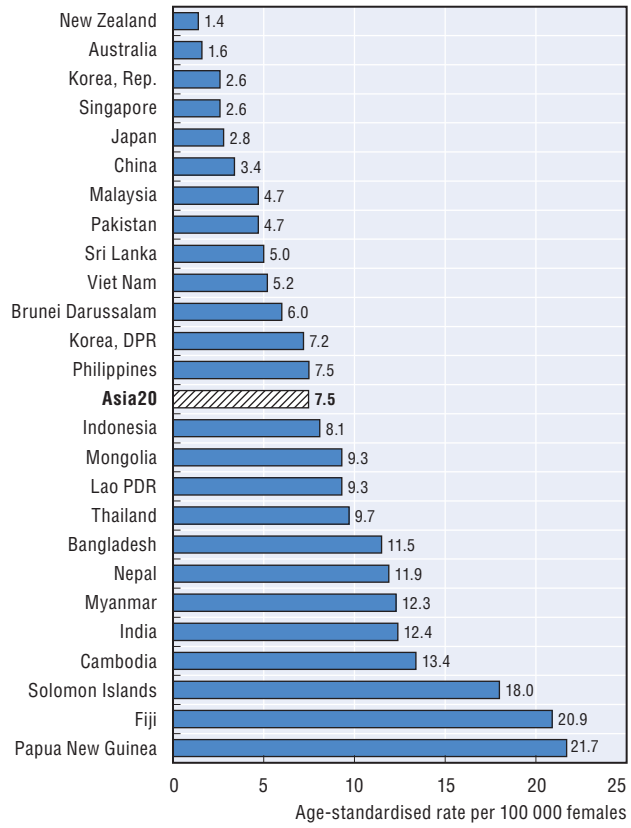
Mortality data are taken from the International Agency for Research on Cancer, GLOBOCAN 2012, available at *http://globocan.iarc.fr/Default.aspx*.

5.3.1. Breast cancer mortality, females, 2012



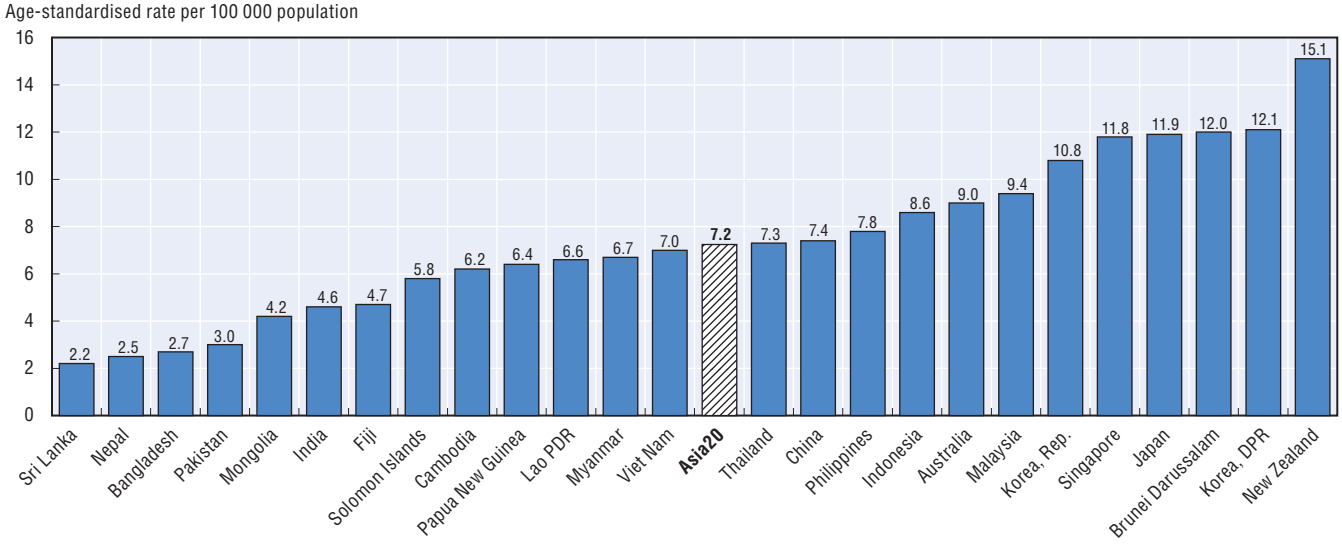
Source: International Agency for Research on Cancer (IARC), GLOBOCAN 2012.

5.3.2. Cervical cancer mortality, females, 2012



Source: International Agency for Research on Cancer (IARC), GLOBOCAN 2012.

5.3.3. Colorectal cancer mortality, 2012



Source: International Agency for Research on Cancer (IARC), GLOBOCAN 2012.

StatLink http://dx.doi.org/10.1787/888933152860

Policies, legal and regulatory frameworks, and key organisations promoting quality of care

Policies that foster quality of care are considered to be those promoting health care that is effective, safe and patient-centered. Quality is a significant concern even in health systems that are well developed and resourced, with expected patient outcomes not always achieved and wide variations in standards both within and between health systems. Where health systems, particularly in developing countries, need to optimise the use of resources and expand population coverage, the improvement process needs to be based on sound local strategies for quality so that the best possible results are achieved from new investment (WHO, 2006b).

A joint survey by the World Health Organization (SEARO/WPRO), OECD and the OECD/Korea Policy Centre sought to assess how countries in the Asia/Pacific region are embracing quality of health care initiatives. The survey, *Evaluating Quality Strategies in Asia/Pacific Countries,* executed in 2013-14, provides a snapshot of how countries are faring. This section is based on the results of the survey (WHO/OECD forthcoming).

Quality of care policies are reported to exist in almost all of the 27 Asia/Pacific countries participating in the relevant section of the survey. Table 5.4.1 provides a list of participating countries.

Table 5.4.1. **Countries responding to questions about quality of care policies**

Australia	Indonesia	Nepal
Bangladesh	Japan	New Zealand
Bhutan	Republic of Korea	Pakistan
Brunei Darussalam	Lao People's Democratic Republic	Philippines
Cambodia	Macau, China	Singapore
China	Malaysia	Sri Lanka
Democratic People's Republic of Korea	Maldives	Thailand
Democratic Republic of Timor-Leste	Mongolia	Viet Nam
Hong Kong, China	Myanmar	
India		

Some countries have overarching quality policies, such as Malaysia's long-standing *Strategic Plan for Quality in Health*, Nepal's *National Quality Assurance Policy*, and Cambodia's *National Policy for Quality in Health*. Other countries have adopted more specific policies, such as those focusing on patient safety. For instance, Hong Kong, China has policies on sentinel events, surgical safety, medication safety, patient safety and hospital accreditation. Many countries specify quality or safety targets with set goals, such as Sri Lanka's use of standards for neonatal care.

A legislative and regulatory framework for quality of care generally addresses three types of health system inputs: health professionals, health services, and the safety of pharmaceuticals and medical devices. Most of the countries responding to the survey have laws related to quality. In most cases, the legal framework refers to laws regulating medical services in general, while New Zealand has more specific acts related to quality of care.

Oversight for quality assurance is the responsibility of government agencies in most countries, with the role often adopted by the national Ministry of Health. In Pakistan, the responsibility rests with local governments and the Ministry of Science and Technology. In Japan, an independent organisation – the Japan Council of Quality Health Care – oversees the hospital accreditation process.

Assuring the quality of health professionals, health services, pharmaceuticals and medical devices

Well-trained doctors, nurses and other health professionals constitute the foundation of a health care system. Their knowledge and skills need to be regularly updated, to promote quality improvement and patient safety. Licensing, continuous professional education and development (CME and CPD) and professional certification and re-certification can help assure professional performance.

Ideally, this continuous learning should be a mandatory requirement for health professionals to continue to practise. Although several Asia/Pacific countries have mandatory CME/CPD, only a few have in place re-certification or re-licensing based on mandatory CME/CPD. For example, since 2010 in Australia, mandatory CPD has been a requirement linked to the annual re-registration of health professionals. In some other countries, such as Japan and Nepal, CME exists without mandatory enforcement.

Quality assurance also needs to apply to health services. Accreditation is a process that can be used to assure quality, by systematically evaluating hospitals on a range of quality and safety indicators. International evidence suggests general accreditation programmes significantly improve clinical outcomes and quality of care for complex conditions including acute myocardial infarction. Accreditation can also improve the process of care provided by health services, and should be used as a tool to improve quality (*Alkhenizan* and Shaw, 2011).

In the Asia/Pacific survey, 19 countries report engaging in hospital accreditation, and in most cases this is carried out on a voluntary basis. Indonesia and Cambodia are among the countries that make hospital accreditation mandatory. In New Zealand and the Republic of Korea, participation is voluntary for some providers, yet in effect mandated through a fee schedule contracting process and other practices. The use of national standards in the accreditation process is common. For instance, in Australia, national standards were implemented in 2013 and are linked to mandatory hospital accreditation.

Some countries, such as Bangladesh, Japan and the Republic of Korea, use as a guide the US Joint Commission on Accreditation of Healthcare Organisations approach. Under the requirements, health services must undergo an onsite survey at least every three years to earn and maintain accreditation. Another approach adopted by some countries is that of the Australian Council on Healthcare Standards, which uses a four-year continuous quality assessment and improvement accreditation scheme that includes two onsite surveys supported by a self-assessment system.

As an additional quality assurance measure, some countries have adopted an inspectorate of health. Such a body can enforce standards and independently investigate breakdowns in quality of care. More generally, the accreditation for quality improvement and inspection for safety control are integrated into one model. Many countries in the survey also use the International Organization for Standardization (ISO) certification as a supplementary quality assurance approach. ISO develops voluntary standards internationally, and 20 countries report having ISO certification initiatives.

Assuring the quality of technologies can promote their safe use in patients. Once pharmaceuticals, medical devices and blood products are permitted on the market, mechanisms should be in place to assure their safe and appropriate use. Most countries in the Asia/Pacific survey have standards for safe blood use and preparation and handling of blood products. The exceptions reportedly in the survey are China, Timor-Leste and Lao PDR.

Assuring the safety and quality of medicine has been an international public health priority since the thalidomide disaster of 1961, in which thousands of congenitally deformed infants were born as a result of exposure in utero to medicine taken by their pregnant mothers. The disaster prompted international efforts to address drug safety (WHO, 2002a). What followed was the establishment of pharmacovigilance systems to test the safety of drugs, monitor adverse drug reactions, and share these learnings internationally to prevent other disasters. In more recent years, these systems have been expanded to assess the safety of herbals, traditional and complementary medicines, blood products, biologicals, medical devices and vaccines (WHO, 2002a).

Most countries in the Asia/Pacific survey report that they have pharmacovigilance systems in place, to identify safety and other problems with pharmaceuticals. Fifteen countries report to carry out technology assessment studies to assess the added value of new drugs, and the results of these studies inform the reimbursement decision-making process. The same number of countries – but not necessarily the same countries – report that they conduct technology assessment studies to determine the added value of new devices.

Table 5.4.2. **Mandatory CME/CPD, hospital accreditation, technology assessment studies on medical devices and drugs, safe blood use and pharmacovigilance**

	Existence of mandatory CME/CPD	Existence and type of hospital accreditation	Existence of technology assessment studies for medical devices	Existence of standards on safe blood use	Existence of technology assessment studies on drugs	Existence of pharmacovigilance systems
Australia	+	Mandatory	+	+	+	+
Bangladesh	+	Voluntary	+	+	+	+
Brunei Darussalam	+			+		+
Cambodia	+	Mandatory		+		+
China						
Democratic People's Republic of Korea	+	Mandatory	+	+	+	
Democratic Republic of Timor-Leste						+
Hong Kong, China	+	Voluntary	+	+	+	+
India		Voluntary		+	+	
Indonesia	+	Mandatory		+		+
Japan		Voluntary	+	+	+	+
Republic of Korea	+	Voluntary/ Mandatory	+	+	+	+
Lao People's Democratic Republic	+					+
Macau, China		Voluntary	+	+		+
Malaysia	+	Voluntary	+	+	+	+
Maldives	+			+	+	+
Mongolia	+	Voluntary		+		+
Myanmar				+	+	+
Nepal		Mandatory	+	+		+
New Zealand	+	Mandatory /Voluntary	+	+	+	+
Pakistan	+			+		+
Philippines		Voluntary	+	+	+	+
Singapore	+	Voluntary	+	+	+	+
Sri Lanka		Mandatory	+	+	+	
Thailand	+	Voluntary	+	+	+	+
Viet Nam		Voluntary	+	+		

Data infrastructure, quality indicators, national audit studies and practice guidelines

A critical first step to improving the quality of health care is the ability to measure it. This requires robust data infrastructure. Nationally consistent data can help identify system failings and inform policy making, and assist in decision making about the allocation of health resources. Ideally, data infrastructure should enable a patient to be monitored over time, to follow their journey through the health system and examine their outcomes.

Of 23 countries that responded to questions in the survey about data infrastructure, 22 of them report having hospital inpatient data available at a national level. Twenty-one have national mortality data, population health survey data, and population census registry data. Eighteen countries have national primary care data. Fewer countries have national data on cancer registries, prescription medicines, long-term care, psychiatric care and patient experience.

A national number that uniquely identifies patients can be used to electronically link an individual's health records across multiple databases. It can be an important contributor to quality of health care, and help improve a patient's care co-ordination across health services. An example of how it can be useful is by linking patient records in a hospital database to death records in a mortality database, to identify patients who died following treatment. Applying a unique patient identifying number consistently, and recording it with few errors, yields the highest quality and most accurate results, at the lowest cost in terms of person-hours (OECD, 2013d).

In the survey, 16 countries have a unique patient identification number in hospital inpatient datasets and mortality datasets. Twelve countries have such a number in primary care, and eleven in psychiatric hospital care. Of all the countries in the survey, nine have a national ID or health service ID system that can be used to link data across providers for mortality data, seven countries for hospital inpatient data, and six for primary care and psychiatric hospital data. Two countries also do this for patient experiences data.

The collection of quality indicators can help monitor performance in areas such as acute care, primary care, cancer, mental health and the patient experience. In the Asia/Pacific survey, 19 countries report the existence of national quality indicators. However, not all countries have mechanisms to assure consistency amongst the levels of systems. A lack of consistency raises the risk of heterogeneous data collection. Almost all countries report having systematic quality of care feedback mechanisms for health providers, which is a critical way of ensuring that health services learn from the experience.

Quality indicators are most commonly used to monitor hospital inpatient care and mortality, with 11 countries reporting the use of indicators in this way. Ten countries use quality indicators to monitor population health, and nine to monitor primary care. The use of quality indicators, and public reporting of them, can improve quality by enabling hospitals to be compared and benchmarked against their peers. This greater public accountability can help to lift hospital performance.

Some countries link hospital performance to financial incentives, as a way of encouraging the delivery of high-quality health care. In the Asia/Pacific Survey, seven countries report that they have some form of pay for performance system. Some countries, such as the Republic of Korea and New Zealand, present quality indicators to institutions and provide incentives based on results. In Cambodia a health service's accreditation status is linked to payment.

Many countries encounter difficulties in regularly monitoring health care quality. In the survey, 18 countries cite a lack of resources or technical capacity for data collection, analysis and use as barriers to monitoring performance. Fifteen countries have concerns about the quality of the data, which can limit their usefulness. Meanwhile, nine countries report legal or policy barriers to the collection or analysis of data. Five countries report it has become easier to use personal health data to monitor health and health care quality over the past five years. Six countries report it has become harder or much harder.

National audit studies can be conducted to assess the quality of care in specific areas where problems with quality are likely. This can be useful particularly to assess major complications of particular types of surgery such as cardiothoracic surgery, mortality related to anaesthesiology, and maternal deaths. In the survey, 14 countries report that they conduct national audit studies. For example, Malaysia conducts a perioperative mortality review, Bangladesh conducts a maternal and perinatal death review, Hong Kong, China has a surgical outcomes monitoring and improvement programme, the Philippines conducts quarterly perinatal audits and Sri Lanka investigates adverse events related to anaesthesia.

To promote quality and reduce adverse events, *evidence-based practice guidelines* can play a key role. These guidelines draw on the most comprehensive clinical research to assist health professionals and patients make decisions about appropriate and effective health care. Most countries in the survey report they have developed clinical practice guidelines, most commonly for hospitals and primary care. Mental health and long-term care guidelines exist in fewer countries. Most guidelines are set by expert groups, with the support and co-ordination of government. In the survey, 17 countries conduct studies to assess compliance with guidelines, while 10 countries use financial incentives to encourage compliance.

Patient-centred care

A high-quality health care system should place the patient at the centre, and provide an opportunity for patients to give feedback on their experiences. Patients should be empowered to be involved in making decisions affecting their own care. Improving health literacy can help patients make better informed decisions and promote patient safety. Ideally, patients should also have the oppor-

tunity to play a role in the policy-making process. Seeking feedback from patients can also boost consumer participation and enhance quality of care. Box 5.4.1 discusses how Asia/Pacific countries are using patient experience surveys to promote patient-centered care.

Box 5.4.1. **How Asia/Pacific countries measure patient experience**

Listening to the views of patients provides a good opportunity to improve the quality of health care. As patients navigate their way through the health system, their experiences can help inform decision making around quality improvement. Such surveys should ideally be done in a manner that is consistent both nationally, and between health services.

Of 26 Asia/Pacific countries that responded to the relevant section of the *Evaluating Quality Strategies in Asia/Pacific Countries* survey, 16 have developed systems to measure patient experiences. Their approaches are different. In Australia, including consumers in the development and design of quality health care is a national quality and safety standard linked to hospital accreditation. In addition to hospital-based surveys on patient experience, the Australian Bureau of Statistics conducts national surveys, although this survey does not provide hospital-level data.

In many countries, health authorities are involved in developing patient experience surveys. For example, in New Zealand, the Health Quality & Safety Commission is developing a national patient experience indicators system, in consultation with the Ministry of Health. In Japan, the Ministry of Health, Labour and Welfare conducts the Patient Experiences Survey every three years. In Singapore, the Patient Satisfaction Survey, supervised by the Ministry, is conducted annually for patients in public health care institutions. In the Republic of Korea, the Ministry of Health and Welfare and National Medical Centre conduct surveys of patient experience, while in Hong Kong, China, the Hospital Authority has engaged an independent survey agency.

In Malaysia, the Institute of Health Management, in collaboration with programme heads in the Ministry of Health, is responsible for conducting the various patient experience surveys. In Nepal, the Quality Section of the Department of Health Services is responsible for measuring patient experiences. In Korea DPR, an assessment committee of devotion has been established in the Ministry of Public Health.

Sri Lanka has adopted national guidelines on quality and safety in health care, including a standard format for measuring patient experience. In Thailand, the Healthcare Accreditation Institute has started to collect information on patient experience. Bangladesh reports it has standardised tools and uses them for systematic measurement, while Cambodia reports it has a Guideline on Patient Satisfaction Survey. Viet Nam has an annual patient survey with national standard questionnaires for hospitals.

In some countries, individual hospitals conduct patient experience surveys. In Timor-Leste, there is a patient suggestions centre at the HNGV hospital. In Macau, China, the Hospital Conde S. Januário has a consumer participation policy.

Public reporting on quality of health care promotes open government and transparency, and helps patients make more informed choices. Public reporting on consistently-collected indicators enables health services to be benchmarked against their peers, and facilitates a transparent process for consumers to access information about the performance of health services. Ideally, public reporting should be across the health system, including hospitals, primary health care and mental health services. Sixteen countries in the survey indicate they have some form of public reporting on quality of care.

In most cases, the assessment results on health services' quality of care are delivered to the public through an internet website, commonly owned by government authorities. Seventeen countries publish regular national reports on the quality of care, and eight countries say these reports have been influential in changing health policy and practices. For example, the Republic of Korea publishes an annual comprehensive quality report, and says the report has been influential in improving quality of care. New Zealand publishes a Health Quality and Safety Indicator set and also cites its influence on quality.

Patient organisations can facilitate the participation of patients in the policy-making process, and in the design of health services. These organisations can take the form of broader consumer groups, more disease-specific support groups, or formal hospital committees that provide feedback to management. They can provide health system consumers with a voice, and advocate for those who are vulnerable. Such organisations exist in most of the countries participating in the survey. This includes the Thalassemia foundation in Bangladesh and SMARTER, an autism group in Brunei Darussalam.

Patient safety and medical malpractice

An unexpected adverse outcome or hospital error can be distressing for patients, and potentially cause serious harm. Indicators of patient safety can include obstetric trauma, surgical complications and post-operative sepsis. Given these procedures are highly complex, these complications can never be fully prevented. Adverse drug reactions can also be dangerous, and result in avoidable hospitalisations that are costly to the health system. However, implementing measures promoting safety can reduce the risk of incidents that can have catastrophic consequences for patients.

In the survey, 16 Asia/Pacific countries report that they have a national patient safety programme in place. For example, a comprehensive nationwide patient safety programme was developed in Malaysia. Bangladesh has safety programmes for blood, injections and infection prevention and control. Some countries have hand hygiene initiatives, while several countries factor patient safety into the hospital accreditation process.

The collection and public reporting of sentinel events and adverse events can benchmark health services against their peers. The aim of reporting these incidents is not to promote a culture of blame, but to learn from them and to try to prevent future adverse incidents. Eleven countries in the survey have an adverse event reporting system. For example, the Philippines reports on sentinel events, Nepal reports on adverse events following immunisation and Myanmar reports on unusual events that may include adverse events and errors.

It is important for aggrieved patients who have a negative experience in the health system to have a formal mechanism in which they can have their claims transparently assessed and satisfactorily resolved. Nineteen countries in the survey have systems in place to address medical malpractice. This role is usually held by medical councils or disciplinary boards.

Medication safety programmes can promote the safe use of medicines both in hospitals and in community settings. Malaysia is an example of a country that has such a programme. Patients with co-morbidities and taking multiple medications are at higher risk of adverse drug reactions. An Asia Pacific Conference on National Medicines Policies in 2012 held a workshop addressing the need to ensure access to safe and effective medicine. The workshop identified the main sources of problems that might be reported in the region included intentionally fraudulent medicines, substandard medicines, unexpected clinical problems with a medicine from a usually reliable source, adverse reactions to medicines, and biased or misleading information that could be because of the poor quality translation of information (Escalante and McEwen, 2013).

The workshop observed that medication safety could be improved if these countries have national medicine policies ensuring medicines are of a good quality and prescribers and consumers are given appropriate and unbiased information. Every country should have a means of reporting problems with medicines. Improving access to expert advice and authoritative laboratory testing are other important considerations. However, the workshop concluded that external support is needed for resource-poor countries. It also noted that national medicines policies should include surveillance on problems with medicines, rather than just monitoring adverse drug reactions (Escalante and McEwen, 2013).

However, for some countries with small populations and limited resources, establishing national expert groups is impossible and timely access to an expert can be challenging. In some cases, these countries use WHO to identify and source expert clinical advice. One option discussed, especially for Pacific Island countries, was establishing a network of expert clinical and technical advisers in developed countries who could be consulted at short notice (Escalante and McEwen, 2013).

Other patient safety issues relate to hospital-acquired infections. Hospitals should have robust infection controls policies to reduce the risk of Methicillin-resistant Staphylococcus Aureus (MRSA) and other infections. Infection control policies that take in hand hygiene initiatives and the appropriate use of antibiotics can help promote patient safety.

Quality indicators relating to hospital-acquired infections can be used to measure the performance of health services, and should be publicly reported. In the survey, 19 countries have quality indicators and performance measures on infection control. Among those countries, nine report having nationally standardised quality indicators on hospital-acquired infections.

Most countries have health care policies or programmes aimed at preventing the spread of infection. These include Japan's Nosocomial Infection Surveillance, which collects data from voluntarily participating hospitals. Bangladesh has infection control guidelines, which includes hand washing, and sterilisation of equipment, gauge and linen. Brunei Darussalam has national guidelines on antibiotics. In Korea, DPR, all treatment and prevention units have non-permanent infection control committees and infection control nurses. The Maldives has a National Infection Control guideline and waste management and sterilisation guidelines. In Sri Lanka, every secondary and tertiary care hospital should have an infection control unit and a nurse, while Thailand has a National Infection Control Committee.

More quality improvement initiatives promoting safety are described in Box 5.4.2.

Box 5.4.2. **Quality improvement initiatives**

"WHO SAVE LIVES: Clean Your Hands"

The "WHO SAVE LIVES: Clean Your Hands" annual initiative is part of a major global effort led by the WHO to support health care workers to improve hand hygiene in health care, promoting the prevention of often life-threatening health care-associated infections (HAI). This initiative is part of the WHO Patient Safety First Global Patient Safety Challenge, "Clean Care is Safer Care" programme. It was launched in October 2005, and is aimed at reducing HAI worldwide. The central feature of Clean Care is Safer Care thus far has been to highlight the importance of clean hands in health care. The programme has galvanised action at many levels including, as of September 2014, 134 health ministers pledging commitment to reducing HAI and to supporting the work of the WHO. Over 40 countries and areas have also started hand hygiene campaigns during this time.

The survey results show that almost all countries have been working on this initiative and/or hand hygiene to some extent. Australia's National Hand Hygiene Initiative is based on the SAVE LIVES: Clean Your Hands campaign. Some countries report significant improvements in hand hygiene compliance. For example, Hong Kong, China, shows a significant increase in the compliance rate at general hospitals from 38.3% to 75.5% from 2007 to 2012. Malaysia reports a gradual increment in hand hygiene compliance from 56.6% in June 2008 to 82.2% in the fourth quarter of 2012. This was accompanied with a reduction in hospital-acquired infection from 3.57 per 100 patients surveyed in March 2007 to 1.51 per 100 patients surveyed in September 2012.

In Thailand, a regional workshop on "Clean Care is Safer Care" was held in Bangkok in June 2007. In Vanuatu, the maternity unit in the main referral Vila Central Hospital has adopted a "Clean Ward" campaign using the "Save Lives: Clean your Hands" promotion materials, to establish standards and to ensure compliance.

WHO Surgical Safety Checklist and Manual

While surgical procedures are intended to save lives, unsafe surgical care can cause substantial harm. Given the ubiquity of surgery, this has significant implications for public health. The WHO Second Global Patient Safety Challenge, "Safe Surgery Saves Lives", addresses the safety of surgical care. WHO Patient Safety initiated work on the challenge in January 2007.

Around two-thirds of countries' responses in the survey have mentioned the implementation of the WHO Surgical Safety Checklist to some extent. However, a limited number of countries have implemented the WHO checklist at a national level and it is not necessarily mandatory.

The compliance with the checklist is one of the challenging issues. Thailand mentions that the low compliance reflects different work patterns and cultural norms and then additional education and enforcement of checklist use is needed to improve compliance. The Republic of Vanuatu also points out that frequent changes in leadership and staffing are often a cause for poor implementation and adaptation, because new staff are not well-oriented. This can result in overlooking standards, inconsistency to rules, and a tendency to easily fall short of the requirements.

In Hong Kong, China, the use of the surgical checklist has been extended to settings outside the usual operation theatres. For example, "Bedside Procedure Surgical Safety" emphasises the implementation of safety checks for at least two bedside procedures, namely, "Chest tapping and insertion of drains", and "Insertion of intravascular catheter with the use of guide wire", aiming to avoid wrong side tapping and retention of guide wire respectively.

In Fiji, various checklists have been implemented, including intravenous care bundles-IV checklist, catheter-related care bundles-CVP lines/femoral lines and IDC lines checklists, surgical infection control bundles – use of surgical site infection surveillance forms, pre-operative checklists, anaesthetist checklists, and ventilator-related care bundles. The use of these checklists is subject to regular compliance audits.

WHO Patient Safety Curriculum Guide

The Multi-Professional Patient Safety Curriculum Guide released by the WHO in October 2011 promotes the need for patient safety education. The comprehensive guide assists universities and schools in the fields of dentistry, medicine, midwifery, nursing and pharmacy to teach patient safety. It also supports the training of all health care professionals on priority patient safety concepts and practices.

Only a limited number of countries, such as Sri Lanka and Vanuatu, have used the curriculum guide. In Sri Lanka, the curriculum guide has been included in the M Sc and MD curriculum of medical administration (partially). It will be included in undergraduate medical and nursing curriculums. In Vanuatu, the curriculum guide was adapted and incorporated into the existing school of nursing curriculum, which is the only training institution in the country. The curriculum guide has been translated in local languages in various countries including Cambodia, China, Japan, Lao PDR, Republic of Korea, Mongolia, and Viet Nam.

Box 5.4.2. **Quality improvement initiatives** *(cont.)*

In Thailand, the Healthcare Accreditation Institute (Public Organization), in collaboration with universities and health-professional schools, is planning to develop a multi-professional patient safety curriculum for health care undergraduates in Thailand in 2014. This newly developed curriculum should be in line with the WHO Patient Safety Curriculum guide, while taking into account the contexts of health care delivery in Thailand. The aim is that all health professional learning includes patient safety competencies.

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ANNEX A

National data sources

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ANNEX B

Additional information on demographic and economic contexts

Table B.1. **Total mid-year population, thousands, 1960 to 2012**

	1960	1970	1980	1990	2000	2010	2012
Australia	10 292	12 905	14 708	17 097	19 259	22 404	22 792
Bangladesh	49 537	66 309	82 498	107 386	132 383	151 125	155 589
Brunei Darussalam	82	130	193	257	332	401	412
Cambodia	5 720	7 022	6 699	9 057	12 223	14 365	14 932
China	650 680	814 378	984 016	1 165 429	1 280 429	1 359 821	1 376 815
Fiji	393	521	635	728	812	861	885
Hong Kong, China	3 076	3 958	5 054	5 794	6 835	7 050	7 086
India	449 595	555 200	698 966	868 891	1 042 262	1 205 625	1 238 579
Indonesia	88 693	114 067	145 494	178 633	208 939	240 676	247 358
Japan	92 501	103 708	115 912	122 249	125 715	127 353	126 917
Korea, DPR	11 424	14 410	17 372	20 194	22 840	24 501	24 738
Korea, Republic	25 074	31 437	37 451	42 972	45 977	48 454	48 795
Lao PDR	2 120	2 685	3 251	4 245	5 388	6 396	6 697
Macau, China	171	251	246	360	432	535	544
Malaysia	8 161	10 909	13 834	18 211	23 421	28 276	29 094
Mongolia	956	1 279	1 690	2 184	2 397	2 713	2 796
Myanmar	21 486	27 166	34 475	42 123	48 453	51 931	52 874
Nepal	9 545	11 559	14 385	18 111	23 184	26 846	27 791
New Zealand	2 372	2 820	3 147	3 398	3 858	4 368	4 436
Pakistan	45 541	59 204	79 984	111 091	143 832	173 149	180 549
Papua New Guinea	1 967	2 435	3 215	4 158	5 379	6 859	7 184
Philippines	26 272	35 805	47 398	61 949	77 652	93 444	97 102
Singapore	1 634	2 074	2 415	3 016	3 918	5 079	5 163
Solomon Islands	118	160	231	312	412	526	555
Sri Lanka	9 895	12 485	15 033	17 324	18 846	20 759	21 182
Thailand	27 362	36 879	47 369	56 583	62 343	66 402	66 770
Viet Nam	32 912	43 783	54 897	68 910	80 888	89 047	90 986
Asia-22	**1 562 437**	**1 954 696**	**2 408 633**	**2 924 969**	**3 368 690**	**3 743 948**	**3 822 769**
OECD	**791 668**	**894 220**	**986 752**	**1 070 002**	**1 156 140**	**1 242 081**	**1 253 058**

Source: UN DESA (2013), *World Population Prospects: The 2012 Revision.*

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Table B.2. **Share of the population aged 65 and over, 1960 to 2010**

	1960	1970	1980	1990	2000	2010
Australia	8.6	8.2	9.6	11.1	12.4	13.4
Bangladesh	3.4	3.5	3.6	3.7	4.1	4.6
Brunei Darussalam	3.9	3.6	2.9	2.7	2.8	3.7
Cambodia	2.5	2.6	2.8	3.2	3.8	5.0
China	4.0	3.9	5.1	5.8	6.9	8.4
Fiji	2.1	2.2	2.6	2.9	3.4	4.8
Hong Kong, China	2.8	3.9	5.9	8.7	11.0	12.9
India	3.1	3.3	3.6	3.9	4.4	5.1
Indonesia	3.6	3.3	3.6	3.8	4.7	5.0
Japan	5.7	7.0	9.0	11.9	17.2	23.0
Korea, DPR	3.2	3.2	3.6	4.4	5.9	8.8
Korea, Rep.	3.7	3.3	3.9	5.0	7.3	11.1
Lao PDR	2.6	3.1	3.5	3.5	3.6	3.7
Macau, China	6.5	6.4	8.6	6.7	7.4	7.2
Malaysia	3.4	3.3	3.6	3.6	3.8	4.8
Mongolia	4.8	4.8	4.5	4.1	3.7	3.8
Myanmar	3.4	3.7	3.9	4.2	4.7	5.1
Nepal	2.7	3.1	3.3	3.5	3.8	4.9
New Zealand	8.6	8.5	9.8	11.1	11.8	13.0
Pakistan	4.3	3.8	3.8	3.8	3.9	4.3
Papua New Guinea	2.4	2.1	2.2	2.3	2.5	2.8
Philippines	3.1	3.0	3.2	3.1	3.2	3.7
Singapore	2.0	3.3	4.7	5.6	7.3	9.0
Solomon Islands	2.7	3.5	3.1	2.8	2.8	3.3
Sri Lanka	4.7	3.7	4.4	5.5	6.3	7.8
Thailand	3.3	3.5	3.7	4.5	6.6	8.9
Viet Nam	4.7	5.4	5.3	5.7	6.4	6.5
Asia-22	**3.7**	**3.8**	**4.4**	**4.9**	**5.9**	**7.1**
OECD	**8.5**	**9.8**	**11.3**	**12.0**	**13.3**	**14.8**

Source: UN DESA (2013), *World Population Prospects: The 2012 Revision.*

StatLink http://dx.doi.org/10.1787/888933152881

Table B.3. **Crude birth rate, per 1 000 population, 1960-65 to 2005-10**

	1960-65	1970-75	1980-85	1990-95	2000-05	2005-10
Australia	21	19	15	15	13	13
Bangladesh	48	46	42	33	25	22
Brunei Darussalam	42	38	31	30	21	18
Cambodia	46	42	49	38	27	26
China	39	31	22	19	12	13
Fiji	42	33	33	28	24	22
Hong Kong, China	35	20	15	12	8	9
India	41	37	34	29	25	22
Indonesia	44	38	32	24	22	21
Japan	17	19	13	10	9	9
Korea, DPR	33	33	22	21	17	15
Korea, Republic	40	30	20	16	10	10
Lao PDR	43	43	43	42	28	29
Macau, China	25	10	20	16	8	9
Malaysia	39	31	29	27	20	18
Mongolia	48	43	38	27	19	22
Myanmar	43	39	35	25	20	18
Nepal	43	42	41	36	31	26
New Zealand	26	21	16	17	14	15
Pakistan	44	42	42	38	29	28
Papua New Guinea	42	45	38	35	34	31
Philippines	43	38	36	32	29	26
Singapore	34	22	17	18	11	10
Solomon Islands	41	48	42	39	35	34
Sri Lanka	35	29	26	20	19	19
Thailand	42	35	24	18	14	12
Viet Nam	41	36	31	27	17	17
Asia-22	**39**	**34**	**30**	**25**	**19**	**18**
OECD	**22**	**19**	**16**	**14**	**12**	**12**

Source: UN DESA (2013), *World Population Prospects: The 2012 Revision.*

StatLink http://dx.doi.org/10.1787/888933152896

Table B.4. **Fertility rate, number of children per women aged 15-49, 1960-65 to 2005-10**

	1960-65	1970-75	1980-85	1990-95	2000-05	2005-10
Australia	3.3	2.5	1.9	1.9	1.8	1.9
Bangladesh	6.8	6.9	6.0	4.1	2.9	2.4
Brunei Darussalam	6.6	5.9	3.9	3.3	2.3	2.1
Cambodia	6.9	6.2	6.2	5.1	3.5	3.1
China	6.1	4.8	2.7	2.1	1.6	1.6
Fiji	6.0	4.2	3.8	3.4	3.0	2.8
Hong Kong, China	5.3	3.3	1.7	1.2	1.0	1.0
India	5.8	5.3	4.5	3.7	3.0	2.7
Indonesia	5.6	5.3	4.1	2.9	2.5	2.5
Japan	2.0	2.1	1.8	1.5	1.3	1.3
Korea, DPR	3.9	4.0	2.8	2.3	2.0	2.0
Korea, Republic	5.6	4.3	2.2	1.7	1.2	1.2
Lao PDR	6.0	6.0	6.4	5.9	3.7	3.5
Macau, China	4.4	1.8	2.0	1.4	0.8	0.9
Malaysia	6.0	4.6	3.7	3.4	2.5	2.1
Mongolia	7.5	7.5	5.8	3.3	2.1	2.4
Myanmar	6.1	5.7	4.7	3.1	2.2	2.1
Nepal	6.0	5.9	5.7	5.0	3.7	3.0
New Zealand	4.0	2.8	2.0	2.1	1.9	2.1
Pakistan	6.6	6.6	6.4	5.7	4.0	3.7
Papua New Guinea	6.3	6.1	5.5	4.7	4.4	4.1
Philippines	7.0	6.0	4.9	4.1	3.7	3.3
Singapore	5.1	2.8	1.7	1.7	1.3	1.3
Solomon Islands	6.4	7.2	6.4	5.5	4.6	4.4
Sri Lanka	5.2	4.0	3.2	2.4	2.3	2.3
Thailand	6.1	5.1	2.9	2.0	1.6	1.5
Viet Nam	6.4	6.3	4.6	3.2	1.9	1.9
Asia-22	**5.8**	**5.0**	**4.0**	**3.1**	**2.3**	**2.2**
OECD	**3.2**	**2.6**	**2.0**	**1.8**	**1.7**	**1.7**

Source: UN DESA (2013), *World Population Prospects: The 2012 Revision.*

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Table B5. **GDP per capita in 2012 and average annual growth rates, 1980 to 2012**

	GDP per capita in USD at PPPs	Average annual growth rate (in real terms)			
	2012	1980-90	1990-2000	2000-10	2010-12
Australia	41 943	1.9	2.3	1.5	1.4
Bangladesh	1 957	1.0	2.7	4.5	5.1
Brunei Darussalam	54 114		-0.3	-0.4	0.5
Cambodia	2 395		2.8	6.2	6.1
China	9 051	7.7	9.3	9.9	7.9
Fiji	4 886	1.3	1.5	1.2	1.5
Hong Kong, China	50 917	5.4	2.3	3.6	2.2
India	3 900	3.4	3.5	5.9	4.3
Indonesia	4 925	3.4	2.5	3.8	4.9
Japan	35 724	4.1	0.9	0.7	0.7
Korea, Republic	31 950	8.4	5.6	3.6	2.2
Lao PDR	2 846	2.8	3.6	5.3	5.9
Malaysia	16 862	3.1	4.4	2.5	4.0
Mongolia	5 298		-1.5	5.0	13.2
Myanmar	1 626			8.1	4.5
Nepal	1 457	2.4	2.4	2.5	2.9
New Zealand	29 609	1.0	1.7	1.2	1.5
Pakistan	3 056	3.3	2.0	2.2	1.9
Papua New Guinea	2 736	-0.9	1.4	1.6	6.7
Philippines	4 380	-0.7	0.6	2.8	3.4
Singapore	62 130	5.3	4.2	3.3	1.6
Solomon Islands	3 383	-2.0	0.0	1.0	5.4
Sri Lanka	6 043	3.1	4.2	3.8	6.6
Thailand	9 503	5.8	3.4	3.5	2.8
Vietnam	3 788	3.8	5.8	5.6	4.6

Source: International Monetary Fund, World Economic Outlook Database, April 2014.

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MEASURING PROGRESS TOWARDS UNIVERSAL HEALTH COVERAGE

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