

Today, all countries have access to computers and other communication tools to send, receive, store and retrieve data in a convenient manner, and the number of information and communications technology (ICT) applications is increasing at great speed. However, within changing health scenarios, the questions often asked by both ICT providers and users are: what data needs to be collected at service delivery level, and what minimum essential data should be forwarded for international statistical reporting. To address these issues, the WHO Regional Office for South-East Asia assists in strengthening national health information systems, and maintains and regularly updates a database on a set of core indicators of health and its determinants for all countries in the South-East Asia Region. These data are presented in a brochure accompanying this publication. It is important to note that *data* only become *information* once they are processed, analysed, interpreted and available for decision-making. Thus, this publication presents – in the form of graphs, charts, text and tables – the information gleaned from the data provided in the brochure.

Those interested in gauging progress towards achieving the Millennium Development Goals in the countries of the Region may refer to “The Health-related Millennium Development Goals 2014”, a brochure and analytical information kit published by the WHO Regional Office for South-East Asia.

Measuring Core Health Indicators in the South-East Asia Region 2014



Measuring Core Health Indicators in the South-East Asia Region 2014



Regional Office for South-East Asia

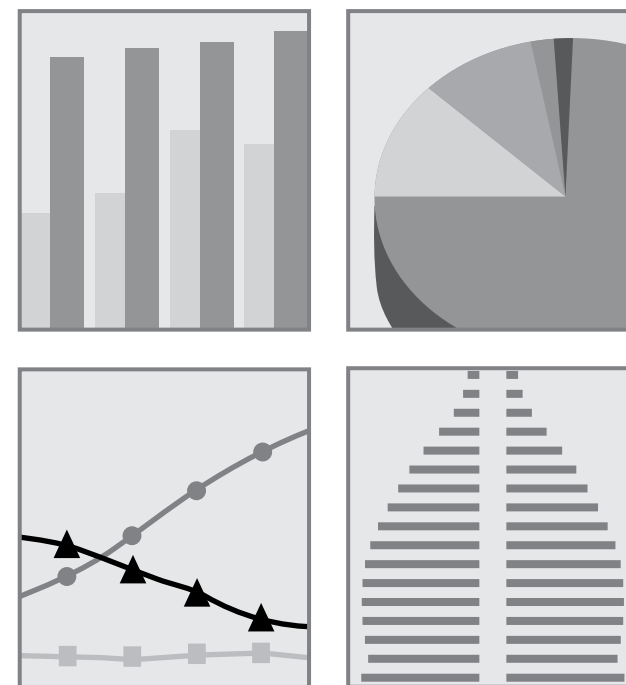
World Health House
Indraprastha Estate,
Mahatma Gandhi Marg,
New Delhi-110002, India
Web site: www.searo.who.int

ISBN 978-92-9022-460-0



Regional Office for South-East Asia

Measuring Core Health Indicators in the South-East Asia Region 2014



WHO Library Cataloguing-in-Publication data

World Health Organization, Regional Office for South-East Asia.

Measuring core health indicators in the South-East Asia Region 2014.

1. Demography. 2. Health Status Indicators. 3. Health Systems Plans. 4. Health Services.

ISBN 978-92-9022-460-0 (NLM classification: WA 900)

© World Health Organization 2015

All rights reserved.

Requests for publications, or for permission to reproduce or translate WHO publications – whether for sale or for noncommercial distribution – can be obtained from Publishing and Sales, World Health Organization, Regional Office for South-East Asia, Indraprastha Estate, Mahatma Gandhi Marg, New Delhi 110 002, India (fax: +91 11 23370197; e-mail: sebookshop@who.int).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

This publication does not necessarily represent the decisions or policies of the World Health Organization.

Maps disclaimer

The boundaries and names shown and the designations used on the maps contained in this document do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Printed in India

For technical information, please contact:

Ms Jyotsna Chikersal, Regional Adviser, HST, Mob:+91 98104 94425 E-mail: chikersalj@who.int

Ms Akanksha Panwar, Data Assistant, HST, E-mail: panwara@who.int

Health Situation and Trend Assessment (HST)

Department of Health Systems Development

World Health Organization, Regional Office for South-East Asia, New Delhi, India

Contents

| | |
|--|-----------|
| Preface | vii |
| Acknowledgements | viii |
| 1 Demographic indicators | 1 |
| Population | 3 |
| Population growth rate | 4 |
| Demographic transition | 5 |
| International migration..... | 7 |
| Total fertility rate..... | 8 |
| Changing patterns of population age structure..... | 9 |
| Population pyramid | 10 |
| The elderly population..... | 11 |
| Population sex ratio | 13 |
| Population density | 14 |
| Urbanization trends | 15 |
| Vital registration coverage | 16 |
| 2. Socioeconomic indicators | 17 |
| Gross national income per capita | 19 |
| Multidimensional poverty | 20 |
| Health dimension of poverty | 21 |
| Adult female literacy rate..... | 22 |

| | | |
|-----------|--|-----------|
| 3. | Health system resource indicators | 23 |
| | Human resources for health | 25 |
| | Infrastructure for health | 26 |
| | Financial resources for health | 27 |
| | Level and trend of per capita total expenditure on health | 28 |
| | Composition of total health expenditure | 29 |
| 4. | Health service indicators of maternal, newborn, and child health | 31 |
| | Proportion of newborn deaths to total under-five children deaths | 33 |
| | Decline in neonatal mortality relative to total under-five child mortality..... | 34 |
| | Children under five who are stunted..... | 35 |
| | Proportion of demand for family planning satisfied | 36 |
| | Antenatal care coverage | 37 |
| | Maternal Mortality ratio | 38 |
| | Proportion of births attendant by skilled health personel | 39 |
| | Antiretroviral prophylaxis among HIV-positive pregnant women | 41 |
| | HIV-positive pregnant women receiving the most effective antiretroviral regimens | 42 |
| | Postnatal care for mothers and babies within two days of birth | 43 |
| | Exclusive breastfeeding for six months (0–5 months) | 44 |
| | DTP3 coverage among 1-year olds | 45 |
| | Antibiotic treatment for children under-5 with suspected pneumonia | 46 |

| | | |
|-----------|---|-----------|
| 5. | Noncommunicable diseases (selected indicators) | 47 |
| | Noncommunicable disease deaths in populations under 70 years of age | 49 |
| | Proportion of noncommunicable disease deaths to total deaths in South-East Asia countries | 50 |
| | Disease burden (in terms of disability-adjusted life years) due to noncommunicable diseases | 51 |
| | Age-standardized death rates of major noncommunicable diseases | 52 |
| | Prevalence of raised blood pressure in adults >25 years of age | 53 |
| | Prevalence of raised blood glucose in adults >25 years of age | 54 |
| | Prevalence of overweight in adults >20 years of age | 55 |
| | Prevalence of obesity in females >20 years of age | 56 |
| | Prevalence of tobacco smoking in adults | 57 |
| 6. | Communicable diseases (selected indicators) | 59 |
| | Proportion of communicable diseases deaths to total deaths..... | 61 |
| | Top five communicable diseases in terms of death rates..... | 62 |
| | Percentage of total disease burden in terms of disability-adjusted life years by three broad disease categories..... | 63 |
| | Relationship between nutritional deficiency in children and their vulnerability to lower respiratory infections | 65 |
| | Relationship between use of solid fuels for cooking and population vulnerability to lower respiratory infections..... | 66 |
| | Relationship between use of improved water and sanitation facilities and population vulnerability to diarrhoeal | 67 |
| | diseases | |
| 7. | Indicators of gender-related sex differentials in health outcomes | 69 |
| | Sex differentials in infant mortality | 71 |
| | Sex differentials in child mortality | 72 |

| | |
|---|-----------|
| Sex differentials in adult mortality | 73 |
| Sex differentials in life expectancy at birth | 74 |
| Sex differentials in life expectancy at age 60 | 75 |
| 8. Health status indicators | 77 |
| Summary measures of population health | 79 |
| Healthy life expectancy, disability expectancy, and total life expectancy at birth | 80 |
| Trends in life expectancy at birth | 81 |
| Life expectancy thematic map | 82 |
| Mortality burden (years of healthy life lost due to premature deaths)..... | 83 |
| Morbidity burden (years of healthy life lost due to ill-health) | 84 |
| Top five causes of mortality in countries of South-East Asia | 85 |
| Top five causes of morbidity in countries of South-East Asia | 86 |
| Top five risk factors that account for the highest disease burden in countries of South-East Asia | 87 |

Preface



Information support has always been an important component of health systems. Advances in information and communication technology have led to the rapid development of health information systems in countries of the WHO South-East Asia Region. An increasing amount of data is now readily available to review and assess health status, health services utilization, and health outcomes, as well as to measure the determinants of such outcomes.

Health data disaggregated by age, sex and social determinants, geographical distribution, and over time, are easily accessible by health and health-related professionals and workers. However, the capacity and capability to analyse the available data in order to transform the figures into useable information has not always been adequate.

The WHO Regional Office for South-East Asia maintains and regularly updates a database on health and health-related core indicators, which it produces and disseminates in a two-part publication. The first part – a brochure – contains only quantitative data, while this complementary part – the analytical information kit – provides an analysis of those data on a set of essential indicators of health and its determinants: the core health indicators for countries of the Region.

All efforts have been made to analyse and present the most recent data and to adhere to WHO's five criteria for statistical reporting: validity, reliability, cross-population comparability, data audit trail and consultation with national authorities. However, the analysis is subject to some limitations on the reported data itself and to some extent to differences in definitions, concepts and measurement units used by the national health information systems. Therefore, caution should be exercised, particularly when using the data for trend analysis or intercountry comparisons.

It is hoped that this report will facilitate sharing of quantitative and analytical information on health indicators among all stakeholders in Member States of the Region. It should also help in sensitizing and prompting health officials at all levels to collect timely and consistently reliable data. This, in turn, can be transformed into information needed by programme managers, and to derive evidence to support health policy debates and decisions for further strengthening health systems in the Region.

A handwritten signature in black ink, appearing to read 'P. Khetrpal'.

Dr Poonam Khetrpal Singh
Regional Director
WHO South-East Asia Region

Acknowledgements

The World Health Organization (WHO) gratefully acknowledges the support and contributions of the technical units at the WHO Regional Office for South East Asia (WHO-SEARO). This would not have been possible without the support of the WHO Representatives to the countries of the Region and the staff in all WHO country offices in the Region. Special thanks are extended to all the health information system focal points at the ministries of health in all 11 countries the Region who collaborated in the production of this publication.

This publication was prepared by the Health Situation and Trend Assessment Unit of Health System Department.

Demographic indicators

(Dynamics of the beneficiaries of health - population count matters)

Population, health, and economic development are each other's determinants as well as consequences. Improved health directly affects population size, age-sex structure, labour force participation, and productivity level, all of which may either inhibit or facilitate economic progress. Health is both a means to and an end product of development.

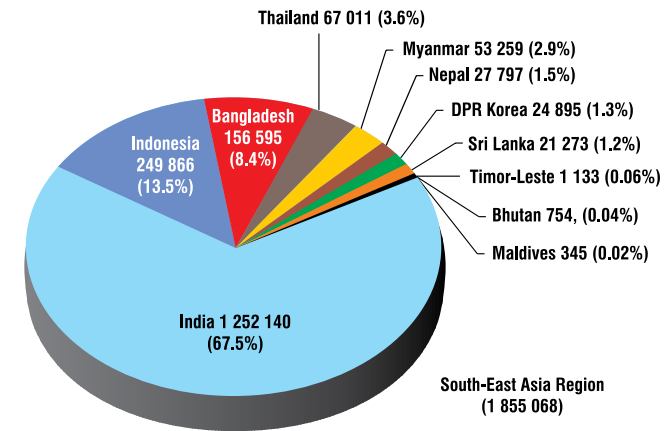
Total population (Know your denominator!)

The norm for this demographic indicator is the de facto population in a country as of mid-year (1 July of the year indicated), presented in thousands. The health services aim to serve the total, or certain characteristics of the total population. Targets like the total population at risk, total number of eligible children for immunization, total number of pregnant women for antenatal care, are denominators for the number to which the services are actually delivered. This ratio of numerator to denominator is what determines the health service performance.

With regard to the population in countries of the South-East Asia Region, three distinct categories emerge: large, medium, and very small. At the one end, large countries, i.e. India, Indonesia, and Bangladesh, account for over 89% of the Region's population; and at the other, the very small countries of Timor-Leste, Bhutan, and Maldives represent less than 1% of the total. The remaining 10% of the population are in the medium category countries of (Thailand, Myanmar, Nepal, DPR Korea, and Sri Lanka).

The population of the Region at 1.86 billion is 26% of the world population of 7.16 billion. The Region's most populated country - India, with 1.25 billion inhabitants - is second in the world only to China's 1.39 billion, and accounts for 17% of the global population.

**Total population in the South-East Asia Region
by order of magnitude, 2013 (in thousands)**



Source: United Nations, World Population Prospects, The 2012 Revision.

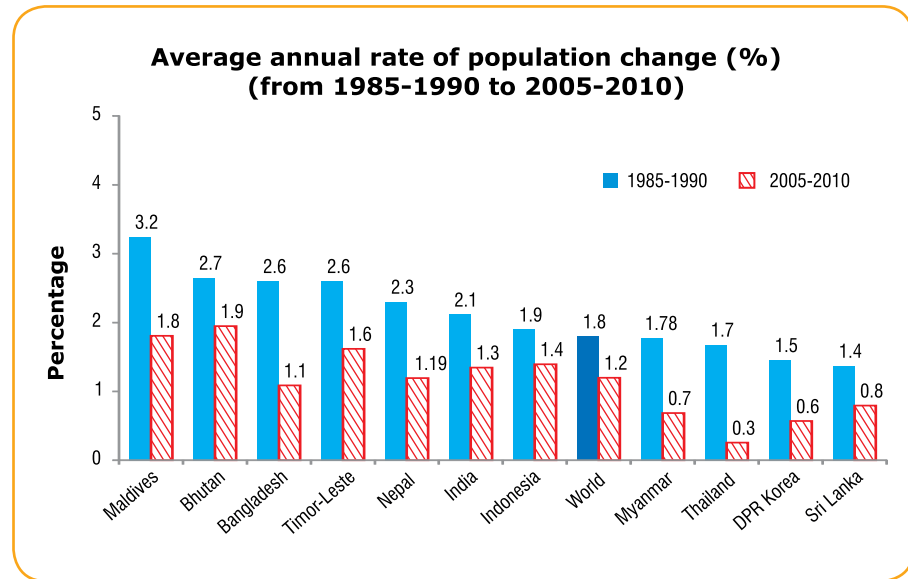
Note: Due to rounding of decimal numbers, the percentages as shown may not add up to 100.

Annual population growth rate (Choice to control or regulate!)

The annual population growth rate is an average exponential rate of annual growth of the population over a given period which is usually a quinquennial (five-year) period. This is a determinant indicator of the total population. A country may perceive its population growth to be too high, too low or satisfactory in light of such factors as area, density, health-care system capacity, human resources for development needs.

As shown in the graph, out of seven countries that had a population growth rate above the world's average in 1985-1990, five (Maldives, Bhutan, Timor-Leste, India, and Indonesia) continued to exceed it two decades later. All five countries except Maldives view their population growth rate to be too high and their policy is to lower the population growth rate (see table on right side). The other two of the seven countries (Bangladesh and Nepal) had reduced their population growth rate to below the world's average in 2005-2010, with a decline of 58% and 48% respectively from their 1985-1990 level.

Of the remaining four countries, two governments (Myanmar and Sri Lanka) view their population growth rate to be satisfactory, and two (DPR Korea and Thailand) view the rate to be too low and have a policy to prevent it from lowering any further.



Source: United Nations, World Population Prospects, The 2012 Revision.

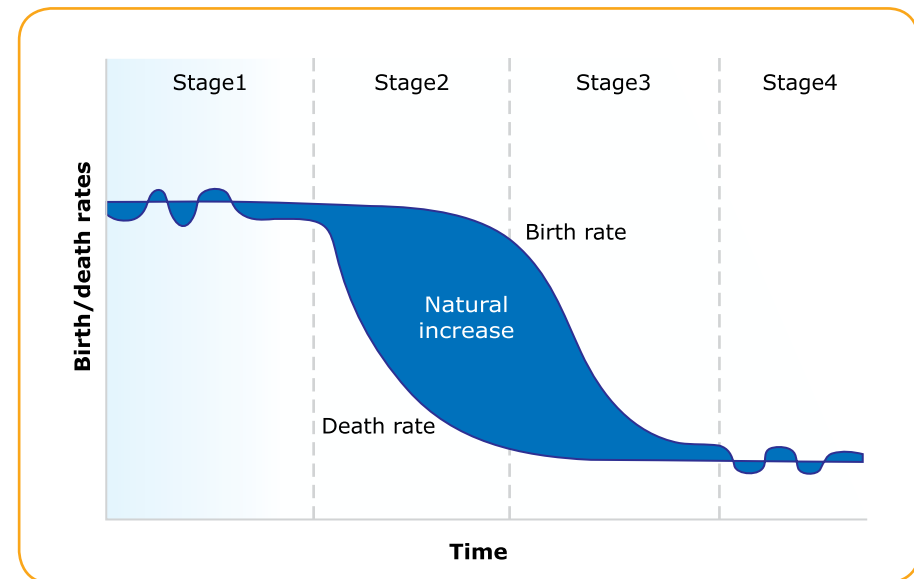
| Government | Bangladesh | Bhutan | DPR Korea | India | Indonesia | Maldives | Myanmar | Nepal | Sri Lanka | Thailand | Timor-Leste |
|---------------------------|-------------------|-------------------|----------------------|-------------------|-------------------|---------------------------|-----------------|-------------------|----------------------|----------------------|-------------------|
| View on population growth | Too high | Too high | Too low | Too high | Too high | Satisfactory | Satisfactory | Too high | Satisfactory | Too low | Too high |
| Policy on growth rate | Lower growth rate | Lower growth rate | Maintain growth rate | Lower growth rate | Lower growth rate | Further lower growth rate | No intervention | Lower growth rate | Maintain growth rate | Maintain growth rate | Lower growth rate |

Source: United Nations, World Population Policies 2011.

Natural growth rate of population and the demographic transition

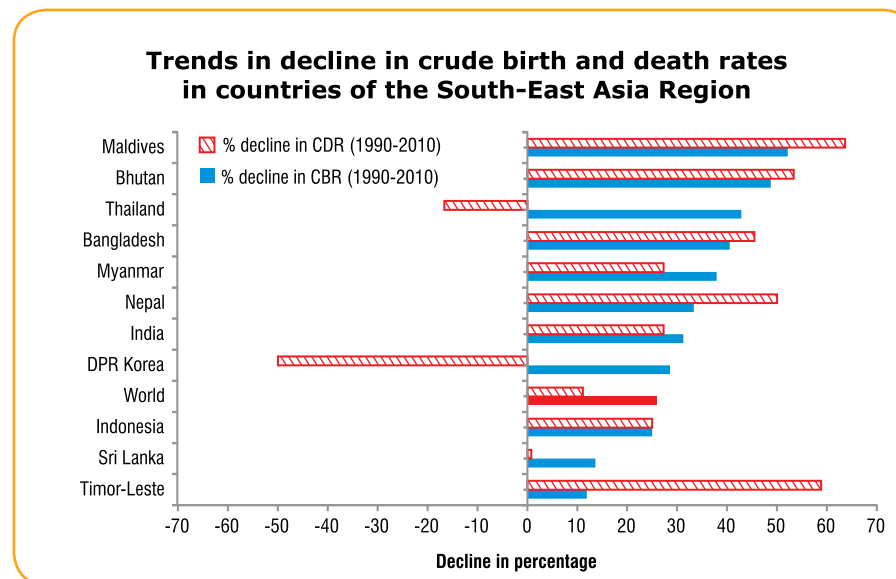
Of the three factors that determine the population size of a country (births, deaths, and international migration), two determine natural growth of the population (birth rate and death rate). Comparative variation in magnitude of these two variables over the long term - called demographic transition - characterizes the population as having a high birth rate and high death rate at one end, and low death rate and low birth rate at the other end. There are two other characteristics in between. The four stages of these characteristics are:

- * The first stage of demographic change is when both the birth rate and death rate fluctuate and are quite high. This is the period when the natural growth rate of the population is quite low.
- * The second stage of transition is when the death rate starts to decline while the birth rate remains more or less constant. This is the period when the population growth rate starts to increase and reaches the maximum.
- * At the third stage, the birth rate also starts to decline as a response to a declining death rate.
- * Finally, the fourth stage is when the birth and death rates are similar, and the birth rate fluctuates close to replacement level. At this time, the natural growth of the population either stops or decreases. Countries in this stage tend to balance the population size through immigration of migrant population.



Source: Adapted from Population Reference Bureau 53(3); 1998:39.

Demographic balance, often a long-term goal, can be achieved when the birth rate of a population equals the death rate, i.e. when replacement level is met and rates are stable.



CBR = crude birth rate; CDR = crude death rate.

Source: United Nations, World Population Prospects, The 2012 Revision.

With a fast decline in both birth and death rates, almost all countries of the South-East Asia Region seem to be entering the third stage of demographic transition.

As shown in the graph, from 1990 to 2010, a decline in both crude death rates (CDR) and crude birth rates (CBR) was higher than the world average in eight countries. Four of these (Maldives, Bhutan, Bangladesh, and Nepal) had a higher decline in crude death rates, and two (Myanmar and India) had a higher decline in crude birth rates. The other two countries (Thailand and DPR Korea) had a negative decline in crude death rates (i.e. crude death rates were higher in 2010 than in 1990), which could have been due to an increased percentage of the elderly population. Of the remaining three countries, Indonesia had an equal decline in CDR and CBR (i.e. a stabilized population size), Sri Lanka had no change in CDR but a decline in CBR (meaning the population size was heading for a decline), and Timor-Leste's already high birth rate had declined at only one fifth of its decline in death rate, which means that the decline in its population growth rate is mostly due to an increasing death rate.

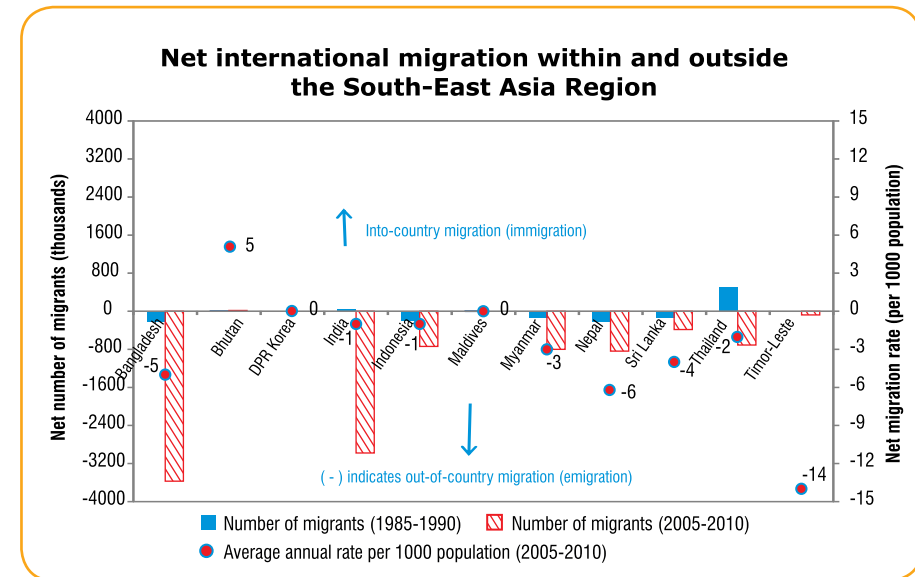
(Note: Birth and death rates are normally computed by dividing total births or deaths in a year at mid-year population figures, and are called crude rates because they represent total population and do not take into account the effect of age and sex differences in the population.)

International migration

If the natural growth rate (the difference between birth and death rates) is too high or too low to maintain the population size as a country perceives it needs, the country is likely to balance it by allowing international migration (immigration or emigration). Although international migration is seen by some as brain drain (if the emigrants are highly intellectuals and highly skilled) or brain gain to the receiving country, it is often considered mutually beneficial.

The previous two graphs show that in most countries of the South-East Asia Region (barring Bhutan, DPR Korea and to some extent Maldives), the natural growth rate of the population is higher than the actual population growth rate (meaning that part of the population is leaving for other countries either as semi-skilled labour or as highly skilled professionals). Such international migration is further discussed under the category of indicators of health resources.

As can be seen from the graph, in the period 2005-2010, the largest number of migrants (3.6 million) were from Bangladesh followed by 3 million from India, and about 1 million each from Indonesia, Myanmar, Nepal, and Thailand. This represents over 10 million people that left the South-East Asia Region in 2005-2010. Barring Timor-Leste, the rate of emigration was highest in Nepal at 6 persons per 1000 migrating each year internationally.



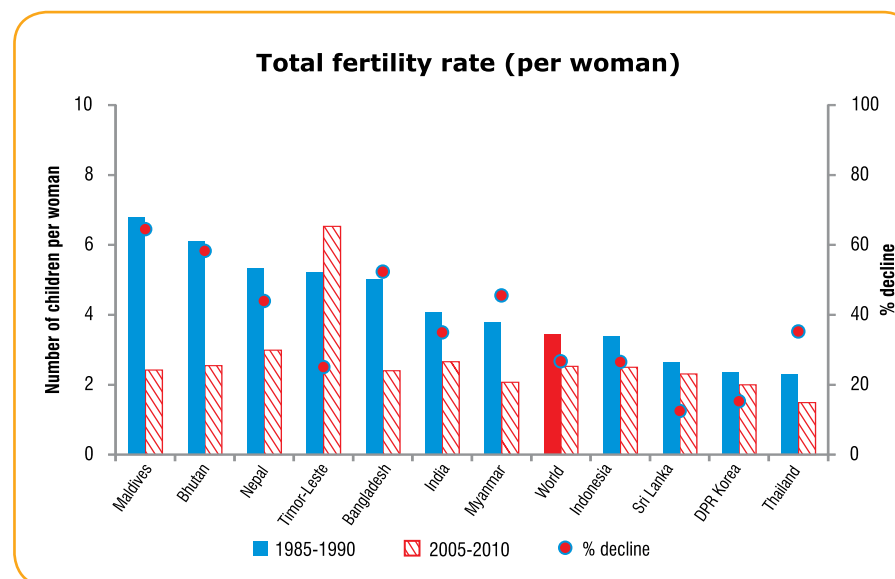
Source: United Nations, World Population Prospects, The 2012 Revision.

Total fertility rate

Total fertility rate (TFR) in simple terms refers to the total number of children born or likely to be born to a woman in her life time if she meets the prevailing rate of age-specific fertility in the population. TFR of 2.1 children per woman is called replacement-level fertility. This value represents the average number of children a woman would need to have to ensure the next generation by bearing a daughter who survives to childbearing age. If replacement-level fertility is sustained over a sufficiently long period, each generation will exactly replace itself without any need for the country to balance the population by international migration.

As shown in the graph, total fertility rates (TFR) in two decades (from 1985-1990 to 2005-2010) declined in all countries of the Region except Timor-Leste, where it increased. Out of the seven countries that had a higher TFR than the world average during 1985-1990, three (Maldives, Bhutan, Bangladesh) had declined by over 50% by 2005-2010; two (Nepal and Myanmar) had declined between 40-50%; one (India) by 35%, and the remaining country (Timor-Leste) by minus 25% (i.e. the TFR had increased rather than decreased).

The four countries that had a lower TFR than the world average in 1985-1990 sustained that position in 2005-2010 albeit at a slower rate of decline (below the world average decline of 27%). Of these four, DPR Korea and Thailand had a TFR below 2.1 (meaning that they may be heading towards negative population growth as presented in the preceding graph on natural population growth).



Source: United Nations, World Population Prospects, The 2012 Revision.

Changing patterns of population age structure

The changes in the population age structure resulting from declining fertility are beneficial for economic growth. As fertility declines, the proportion of children in the population falls and the proportion of the population of working age increases. Provided jobs are available for the increasing population of working age, a country can reap the benefits of increased production. This so-called “demographic bonus” can thus contribute significantly to economic growth and poverty reduction.

(For the convenience of programme managers, the companion brochure provides the latest population percentages by selected age groups, such as children under one year of age; children under five years for immunization programmes; adolescents (15-19 years); adolescent girls for targeted programmes; youth (15-24 years) for HIV/AIDS programmes; reproductive-age women for reproductive and maternal care programmes; adults (15-59 years); and the elderly (>60) as needed. Multiplying the percentage figure to total population provided for the corresponding year can give the population size of these groups. The estimated annual number of births and deaths are also provided.)

Changing pattern in composition of population by major age groups in the South-East Asia Region, 1990-2010

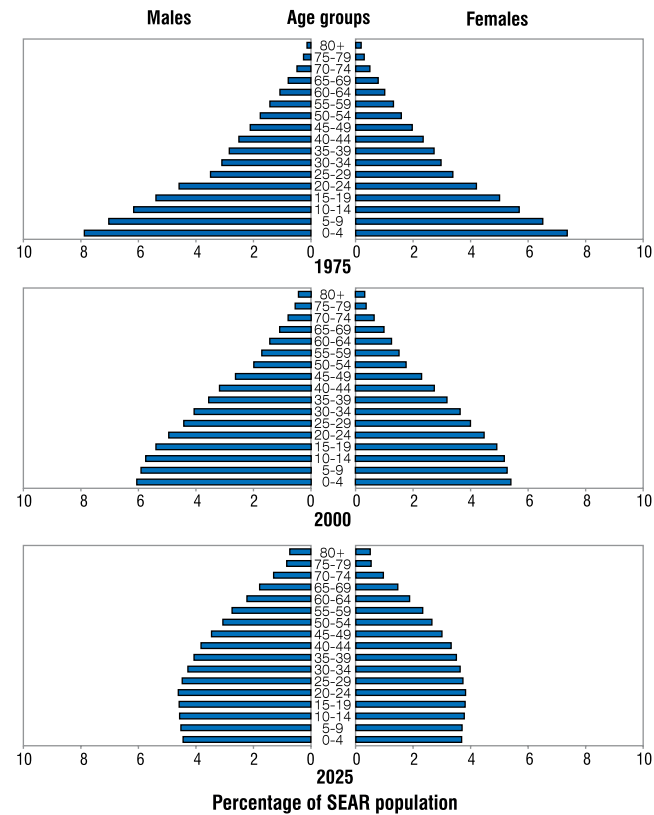


Source: United Nations, World Population Prospects, The 2012 Revision.

As can be seen from the graph, the proportion of children (<15 years) decreased in 2010 compared to 1990 in all countries of the Region except Timor-Leste, where it had increased. On the other hand, while the proportion of the elderly (>65 years) slightly increased, there was a substantial increase in the proportion of adults (15-64 years) for all countries except for Timor-Leste and DPR Korea. The reason for this in Timor-Leste could be due to instability in the population, as the country was only declared in 2000; on the other hand, in DPR Korea it could be due to its fast ageing population.

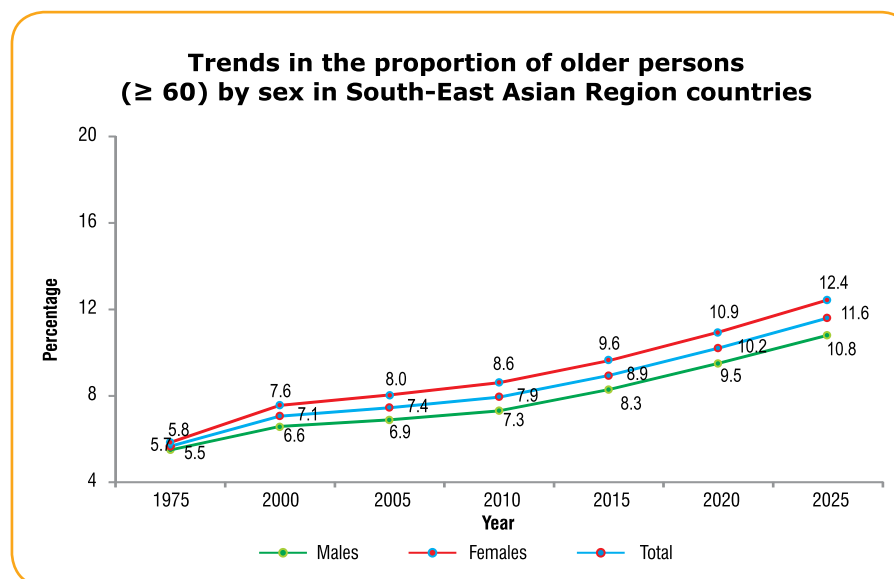
The proportions of other age groups by sex in the total population of the South-East Asia Region are shown in a population pyramid on next page.

Changing pattern of age structure of the population by sex in the South-East Asia Region, 1975-2025



During the demographic transition, countries experience transformations of their age structure and face a phenomenon known as the “youth bulge”—when youth constitutes a significant portion of the population that maintains the momentum for population growth. This seems to have happened in the South-East Asia Region up until around 2000, and as can be seen in the next graph, the Region is beginning to witness a sharp rise in the proportion of the population over the age of 60.

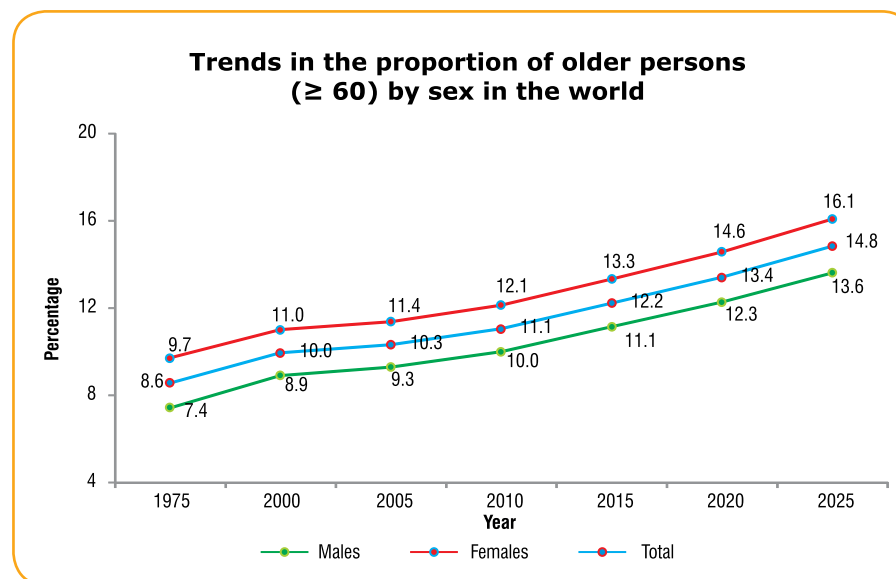
The elderly population



Source: Computed from United Nations, World Population Prospects, The 2012 Revision.

Over the long run, if fertility continues to decline, the share of the population of working age will also decline, and that of older persons will increase, leading to rising dependency ratios. This phenomenon is called the 'demographic burden' and is an inevitable consequence of demographic transition. Every country has to face this problem with development and successful demographic transition.

The United Nations agreed cut-off is ≥ 60 years to refer to the older or elderly persons. Within the elderly population, further classifications, like ≥ 80 , centenarian (≥ 100) and even super-centenarian (≥ 110) are also made.



Source: Computed from United Nations, World Population Prospects, The 2012 Revision.

The two graphs above show that, although the proportion of the elderly population in the South-East Asia Region was rising at a slower rate - from around 6% in comparison to the world average of 8% in 1975 - it caught up with the world rate. The Region's proportion, which increased by only 2 percentage points in 35 years (from around 6% in 1975 to around 8% in 2010) is likely to increase by twice as much from 8% in 2010 to 12% in 2025. This means that the total elderly population in the South-East Asia Region (142 million in 2010), is likely to have a quantum jump of 100 million in 15 years to cross the 242 million mark by 2025. The world as a whole will have about 435 million additional elderly persons, to reach 1.2 billion by 2025 compared with its 765 million in 2010.

As shown in life expectancy graphs in other sections, women not only outlive men (higher life expectancy of women over men), in older age groups they also outnumber men (as shown in the graphs above). However, the female to male gap in the proportion of elderly populations is narrower in the South-East Asia Region than for the world. Although it rose in the Region from merely 0.3% in 1975 to 1.3% in 2010 and is projected to be 1.6% in 2025, for the world as a whole this gap was high at 2.3% in 1975, although it decreased steadily to 2.1% in 2010 and has been slowly increasing ever since.

Population sex ratio

In the human species the ratio between males and females at birth is slightly biased towards the male sex. The natural "sex ratio at birth" is often considered to be around 105. This means that at birth, on average, there are 105 males for every 100 females.

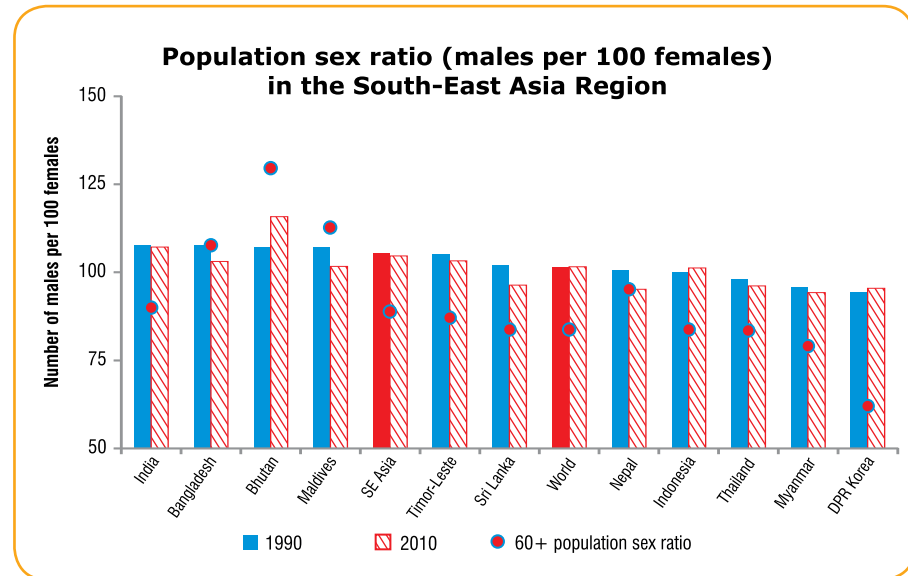
Nature provides that the number of newborn males slightly outnumbers newborn females because as they grow up, men are at a higher risk of dying than women. This is not only due to sex differentials in natural death rates, but also due to a higher risk from external causes (accidents, injuries, violence, war casualties). Thus, the sex ratio of total population is expected to equalize. However, if a country's population sex ratio does not equalize or rather exceeds* the 105-threshold, it means societies with a dominating preference for the male child tend to intervene in nature and reduce the number of girl children born by sex-selective abortion and infanticide.

Because women account for a half of a country's potential, balanced sex ratio is desirable. Besides, gender imbalances have been known in human history to cause serious negative consequences for the society in the long run.

*An under-registration of female births also contributes to sex ratios at birth above the natural level.

Over the 20 years from 1990 to 2010, the number of males per 100 females declined in all countries of the Region except Bhutan, Indonesia, and DPR Korea. While in Bhutan it increased by eight percentage points, in Indonesia and DPR Korea the increase was modest at 1%. The sharpest decline was in Sri Lanka, Nepal, Maldives, and Bangladesh, in that order. By 2010, only two countries (India and Bhutan) in the Region continue to have skewed (above 105) sex ratio.

On the other hand, of the three countries (DPR Korea, Myanmar, and Thailand) that had higher percentage of females to males, two (Myanmar and Thailand) continued at an even higher rate in 2010, although it slowed down in DPR Korea in favour of males.



Source: Adapted and computed from United Nations, World Population Prospects, The 2012 Revision.

Although women normally outnumber men beyond age 60, this is not the case in three countries (Bhutan, Maldives, and Bangladesh), where sex ratio in that population group is 130, 113, and 108 respectively. This may be due to anomalies in enumeration of age and sex-specific population data.

(Note: Unlike the United Nations, some countries, e.g. India, publish sex ratio as the number of females per 100 males. In these cases, the concern is to raise the low sex ratio in order to balance the population by sex. The same concern using United Nations norms would be to bring down the high sex ratio.)

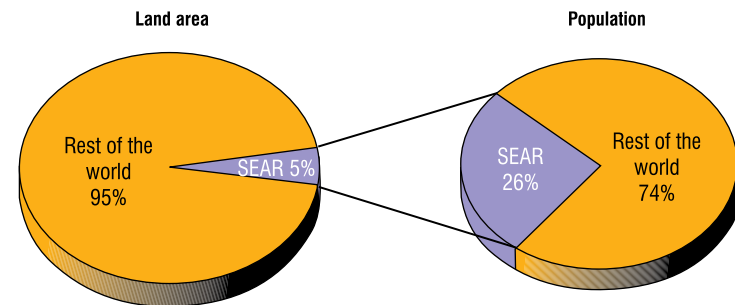
Population density (A growing concern)

Epidemiologists know very well the negative effect of high population density and crowding on health. Apart from stress on the environment, resources, and individual health, epidemics like measles, gastroenteritis, influenza, and tuberculosis in some high-density areas are major threats.

The South-East Asia Region is home to over 1.86 billion people, representing 26% of the world population but living on only 5% of the global land mass. The population density (268 persons per square kilometer) in the Region is more than five times the average world population density (52 persons per sq km). The pressure on land is greatest in Bangladesh (1087 persons per sq km) and Maldives (1158 persons per sq km) and the least in Bhutan (16 persons per sq km). There are large variations in the population densities within countries, mainly due to urbanization. For example, in India, the population density of Mumbai (30 900 persons per sq km) is almost three times that of Delhi (11 500 persons per sq km).

Source: World urban areas population and density: A 2012 update.

Land area and population of the South-East Asia Region (SEAR), 2013



World land area (sq km) = 136 127 000

Source: United Nations, Demographic Yearbook 2011.

World population = 7 162 119 434

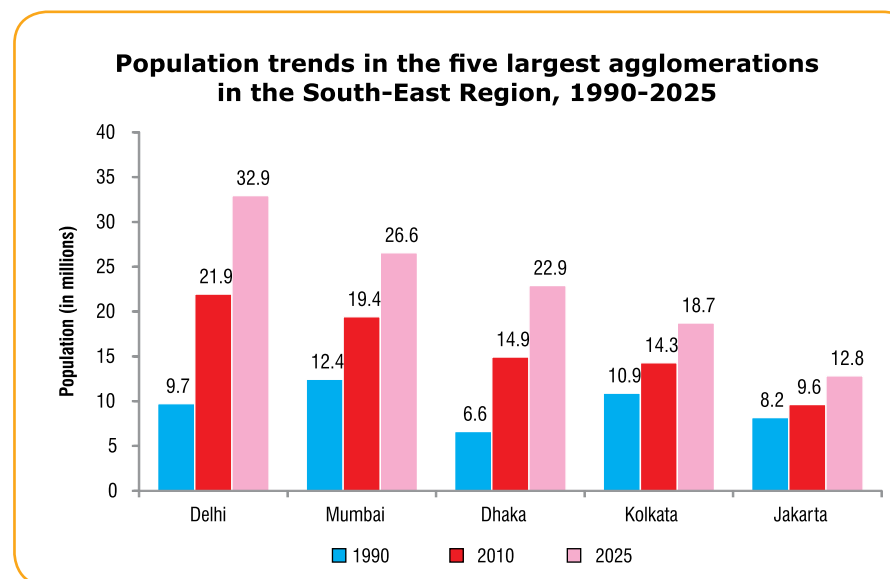
Source: United Nations, World Population Prospects, The 2012 Revision.

Urbanization trends (Need to reverse or balance!)

Urbanization is a necessary 'evil' of the industrialization and development process. There is a natural tendency for people to move from rural to urban areas in search of jobs and for better amenities. This brings pressure on cities and quite often slums are created where people make do with chronic problems of water supply, sanitation, and overcrowding. Under these conditions, infectious diseases can emerge that are more virulent than their rural counterparts. Sustainable development requires cross-sectoral collaboration of all stakeholders for better urbanization.

The proportion of urban population in the South-East Asia Region increased from 26% in 1990 to 33% in 2010 compared with a corresponding global increase from 43% to 52%. The two countries with the highest proportion of urban population in the Region are DPR Korea and Indonesia at 60% and 50% respectively. The proportion of urban population increased in all countries of the Region except in Sri Lanka where it decreased from 17% in 1990 to 15% in 2010. The average annual rate of increase of urban population, which was around 4% over the 20 years from 1990 to 2010, is likely to slow down to grow below 3% in next 20 years: about 43% of the total population of the Region will be living in urban areas by 2030.

Although the Region is not very urbanized, the unplanned growth and disproportionate development of towns and cities, especially the urban agglomerates, are of great concern for the health sector in all countries. As per the United Nations 2011 report on urbanization, out of the 30 largest urban agglomerations in the world ranked by population size (megacities with a population of 10 million and above), five are in the South-East Asia Region. Delhi, with a population of 22 million in 2010, ranked 2nd only after Tokyo. The other four were Mumbai (rank 7), Dhaka (rank 9), Kolkata (rank 10), and Jakarta (rank 26). Bangalore, Chennai, and Hyderabad in India and Bangkok in Thailand are about to figure in the list.



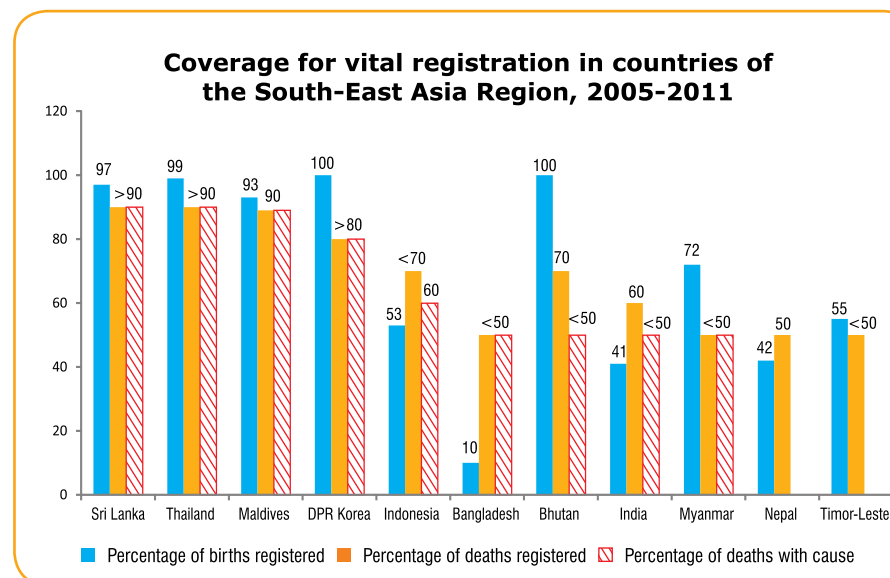
Source: United Nations, World Urbanization Prospects: The 2011 Revision.

Vital registration coverage (Why registration matters!)

Births and deaths at both extremes of life are vital events and their recording and reporting is called vital registration. Apart from a count of how many people are born and die each year, health agencies also need to know the minimum essential attributes of these events. For example, while statistics on births by sex of newborns and the age of the mother may help in planning for appropriate reproductive services and long-term national policies on fertility, statistics on deaths by sex, age, and cause are needed for allocating resources rationally to the population groups and the disease programmes proportionate to the degree of total burden due to morbidity and mortality of that cause.

The above graph highlights that, while data on registration of births and deaths are available for all countries in the Region, data on the cause of death are only available for nine countries. Although all countries register vital events in some form, three (Sri Lanka, Thailand, Maldives) seem to have well functioning vital registration systems. Most other countries report scanty data, either due to inadequacy of coverage and quality of registration or the lack of analysis required for forwarding the registered data.

In the absence of a fully functioning civil registration/vital registration system (CRS/VRS), some countries like India use interim measures such as a sample registration system to track births and deaths in a small part of the population, and extrapolate the birth rate, death rate and causes of deaths to represent the total population. Bangladesh and Myanmar are also developing sample registration. National decennial population censuses, and 3- to 5-year periodic demographic and health surveys are also used to complement and supplement vital registration. However, none of these interim measures can be a substitute for CRS/VRS. WHO, and its partner in this area the Health Metrics Network, focuses on assisting developing countries to track major causes of deaths and improve international reporting of mortality statistics.



Source:

1. WHO, World Health Statistics 2013.
2. Country reported data for intercountry consultative meeting on mortality statistics, April 2007, New Delhi.
3. WHO/South-East Asia Regional Office Vital Registration Statistics dataset (25 July 2013).

Socioeconomic indicators

(Depicting background for health action)

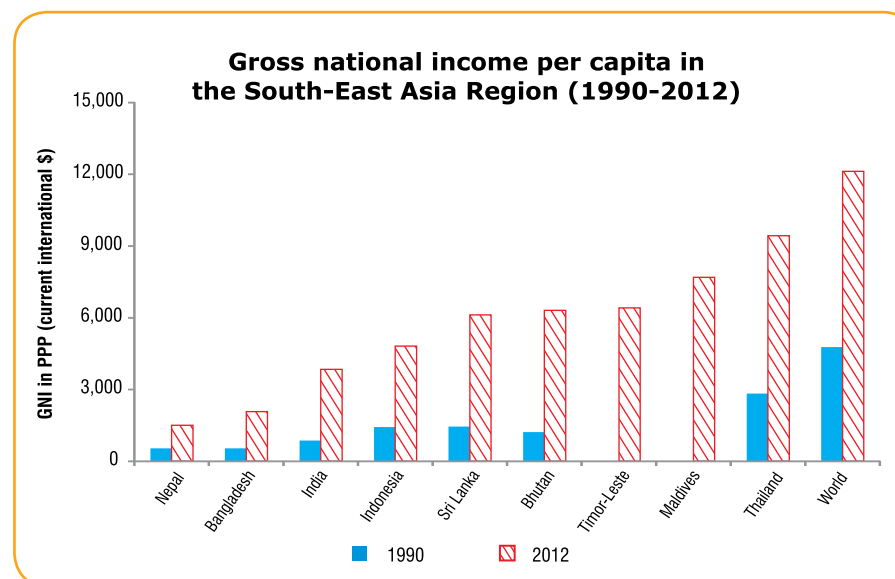
Socioeconomic indicators gauge economic conditions and the sociocultural environment in which people live. Those living in underprivileged conditions are subject to a long causal chain of factors that adversely affect health through curvilinear pathways that may cause wide gaps of health inequalities in the population. A country's health sector in most cases, except for damage control, finds itself constrained to address these gaps that are beyond the health sector, yet strives to present and adjust its performance in light of the prevailing inequities in socioeconomic conditions in the country.

Socioeconomic background

Bivariate correlation between health and wealth has long been proven world over. It means that on one hand the economic condition of an individual, household, community, and country can affect health. It also means that health -- an individual's ability to strive for and achieve economic resources for sustenance -- is needed for overall human well being.

Three well-known indicators of economic conditions that serve as a backdrop on which to present any health scenario in countries are (i) gross national income per capita; (ii) gross domestic product per capita; and (iii) gross domestic product growth rate. Data of countries of the South-East Asia Region on these indicators are presented in the companion brochure.

As shown in the graph, per capita gross national income rose sharply over two decades in all South-East Asia Region countries. This increase was more than 5-fold in Bhutan; 4-fold in India and Sri Lanka; 3-fold in Bangladesh, Indonesia and Thailand; and almost 3-fold in Nepal. This rate of increase in all countries of the Region is more than that of the world average. While Sri Lanka was just behind Thailand (the highest per capita income country in the Region) in 1990, it was Maldives that gained second place in gross national income per capita in 2012. However, in absolute terms, the per capita income in all countries of the Region has remained below the world average.



Source: World Bank, World Development Indicators 2013.

Notes:

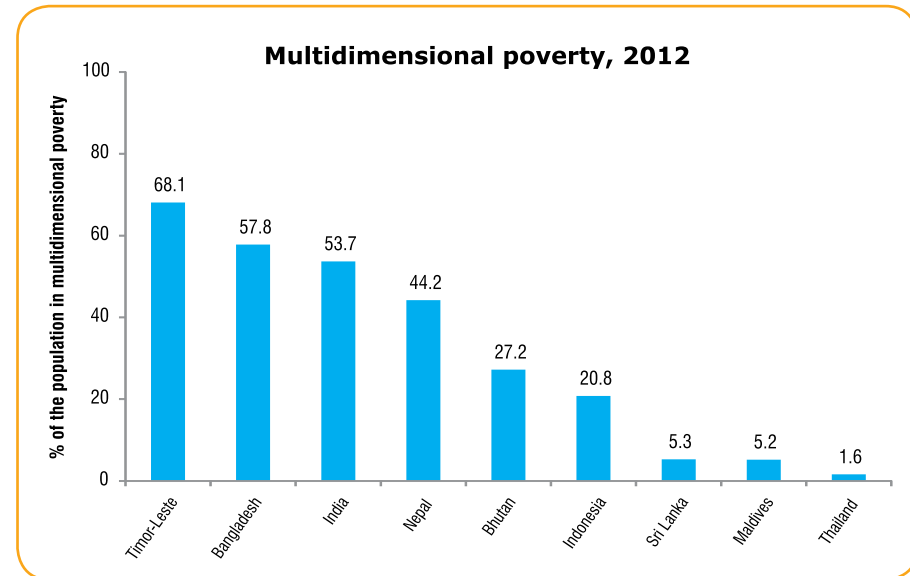
1. Data not available for DPR Korea or Myanmar.
2. No 1990 data available for Timor-Leste and Maldives.
3. GNI = gross national income; PPP = purchasing power parity.

Poverty

When individual and/or household income goes below what is needed for sustenance, it becomes poverty income. The World Bank calls it extreme poverty when per capita income is below 1.25 purchasing power parity (PPP) dollars. From a health standpoint, it is an inadequate amount of food, well-being, and access to a health-care system that determines poverty. Financial poverty can be circumvented to some extent in welfare economies where health and education (the other human capability measure) are free. Therefore, there is new thinking about an alternative to income poverty. UNDP's multidimensional poverty is one of those alternatives. It looks at multiple deprivations at the individual level in health, education, and standard of living. The agency calls it acute poverty and a high resolution lens on poverty.

Data on countries of the South-East Asia Region are presented in the complementary brochure on three indicators of poverty: (i) poverty as a proportion of the population living on less than PPP \$ 1.25 a day; (ii) poverty representing the proportion of the population living below the national poverty line; and (iii) the percentage of the population in multidimensional poverty.

As shown in the graph, of the nine countries of the Region for which data are available, three countries (Sri Lanka, Maldives, and Thailand) have 5% of the population or less living in poverty. However, three others (Timor-Leste, Bangladesh, and India) have over 50% of the population in poverty for one or more of the three dimensions of health, education, and standard of living.



Source: United Nations Development Programme, Human Development Report 2013.

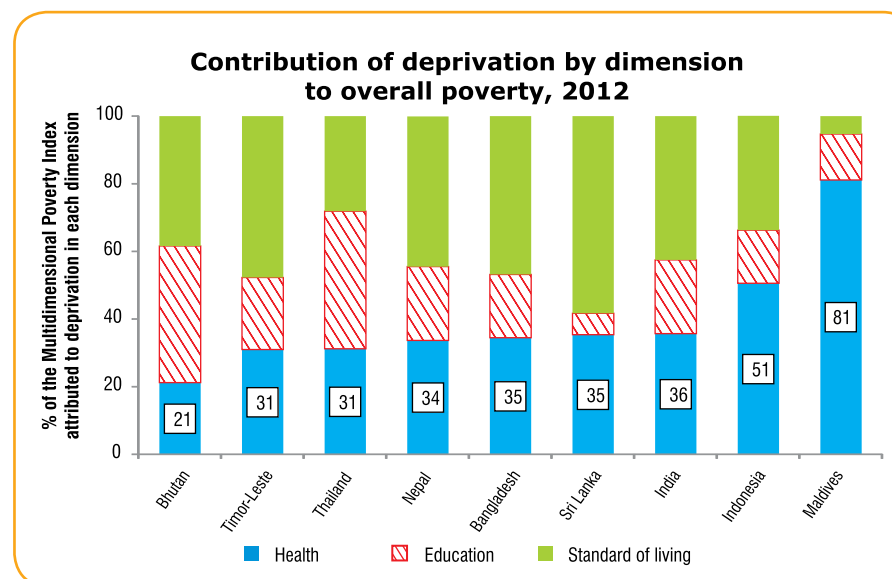
Notes:

1. Data not available for DPR Korea and Myanmar.
2. Depending on availability of meta data, the reference year of data used in the computation may vary from 2000 to 2012, which may limit direct cross-country comparability.

Health related indicators of multidimensional poverty

The United Nations Development Programme considered 10 indicators of deprivation in three dimensions (health, education, and standard of living). Two indicators have been developed for the health dimension: (i) households with at least one member who is malnourished; and (ii) households having had one or more children die.

The graph shows that deprivation in the health component of poverty in the South-East Asia Region varies from the lowest (21%) in Bhutan to the highest (81%) in Maldives, although only 5% of the population of Maldives is considered poor (see the preceding graph). Both of these countries have relatively high national income per capita. In fact Maldives is the second highest per capita income country in the Region after Thailand. This means that per capita income alone does not determine human well-being, rather than the combination and interplay of other dimensions as well. This is also in line with Bhutan's gross happiness index approach over a gross income index.



Source: United Nations Development Programme, Human Development Report 2013.

Notes:

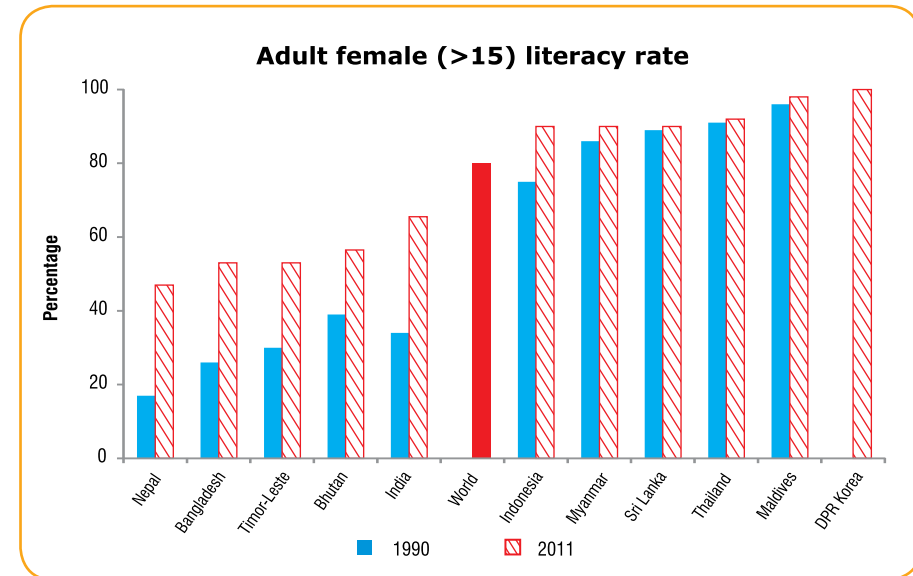
1. Data not available for DPR Korea and Myanmar.
2. Depending on availability of meta data, the reference year of data used in the computation may vary from 2000 to 2012, which may limit direct cross-country comparability.

Literacy level of the population

There are numerous social and sociocultural indicators of a country's population. To understand health message fully and act accordingly, an adequate literacy level of the population is not only desirable, but necessary for cost-effective health delivery. Therefore, from the health standpoint, adult literacy (particularly for women) is often considered as background to present health scenarios.

Since literacy and educational attainment build an individual's capability to achieve the highest attainable level of health, data on three indicators of literacy and education have been selected: (i) Adult (>15) literacy rate; (ii) mean years of schooling; and (iii) expected years of schooling in countries of the Region. These data are presented in complementary brochure to this analytical kit.

Although adult female literacy is increasing in all countries of the Region, there was a sharp rise from the 1990 level in Nepal, Bangladesh, Timor-Leste, Bhutan, and India. However, these countries are still below the world average adult female literacy of 80%.



Source: United Nations Educational, Scientific and Cultural Organization, <http://stats.uis.unesco.org/unesco/> (accessed 2 October 2013).

Notes:

1. Data year for 1990 bar in graph is 1991 (Bangladesh, India, Nepal); 2000 (Myanmar, Thailand); 2001 (Sri Lanka, Timor-Leste); and 2005 for Bhutan.
2. Data year for 2011 bar in graph is 2011 (Bangladesh, India, Indonesia, Myanmar, Nepal); 2010 (Bhutan, Sri Lanka, Timor-Leste, World); 2008 (DPR Korea); 2006 (Maldives); and 2005 (Thailand).
3. Adult female literacy of Bhutan for 2010 is for 15-24 year old females (Source: Bhutan Multiple Indicator survey 2010).
4. Adult female literacy of India for 2011 is for females aged 7 years and above (Census of India 2011, figures at a glance).

Health systems

(How resource-rich are they?)

A century ago, organized health systems in the modern sense barely existed. Few people alive then would ever visit a hospital if one existed. Most were born into large families and faced an infancy and childhood threatened by a host of potentially fatal diseases – measles, smallpox, malaria and poliomyelitis among them. Infant and child mortality rates were very high, as was maternal mortality. Life expectancy was short – even half a century ago it was a mere 48 years at birth. Birth itself invariably occurred at home, rarely with a physician present (adapted from World Health Report 2000, Health systems: Improving performance.)

The three major health system resources are (1) human resources for health; (2) health facilities and equipment, i.e. infrastructure and technology; and (3) financial resources for health. Balancing the mix of available resources and allocating them strategically in order to deliver health services efficiently is a measure of performance of the health system.

Human resources for health (People who make things happen)

There is increasing evidence of a strong correlation between the density of human resources for health in a country and population health outcomes. However, many countries lack the right numbers of health workers at the right places to deliver essential health interventions such as immunization and skilled attendance at delivery (World Health Report 2006).

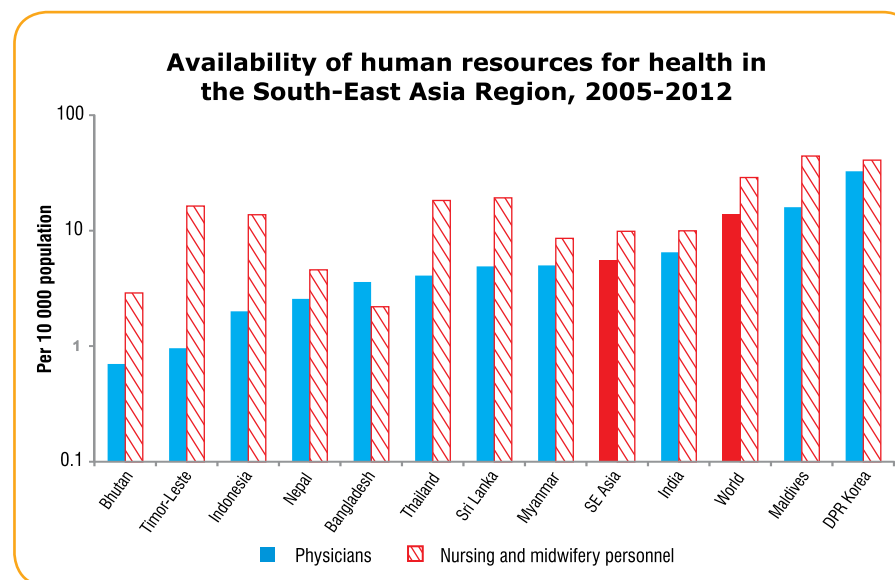
The causes of these shortages and imbalances are manifold. In particular, the international migration of large numbers of health workers further weakens the already fragile health systems in many low- and middle-income countries. Just as debt alleviation programmes are making new resources available to the health sector, numerous countries find that they do not have the personnel they need to put these resources to use (World Bank).

The performance of health care-systems depends ultimately on the knowledge, skills and motivation of the health personnel responsible for delivering services. Their optimum numbers, ratio to the population they serve, and the right mix are equally necessary. Achieving this is a major challenge.

Four countries in the Region (Thailand, Sri Lanka, Maldives, and DPR Korea) reported a combined number of physicians and nurses above 23 per 10 000 population. In addition, the ratio of nurses to physicians in these countries (except DPR Korea) is above 2 to 1, which is the ratio generally considered optimum for delivering health services. These numbers and ratios of key health personnel correlate well with the fast progress on health outcome indicators of these countries.

Although India and Bangladesh do not seem to have the required number of nurses and physicians, some of them may be working for health services in Bhutan and Maldives, and still others may have migrated to industrially developed countries. As per one report, international medical graduates (IMGs) represent 25% of all practicing physicians in the United States, and India is the single largest source of IMGs (20.7% of the total).

To address this challenge of international migration of key health personnel, WHO in consultation with Member countries is setting up a Global Code of Practice on the Ethical International Recruitment of Health Personnel, in parallel to strengthening health systems globally.



Source: WHO, World Health Statistics 2013. Data for Timor-Leste, Nepal, Thailand, and DPR Korea are from the data set reported by countries to the South-East Asia Regional Office in 2005.

Methodologically, there are no gold standards to assess the sufficiency of the health workforce to address the health-care needs of a given population. It has been estimated, however, in the World Health Report 2006 that countries with fewer than 23 physicians, nurses and midwives per 10 000 population generally fail to achieve adequate coverage rates for selected primary health care interventions as prioritized by the Millennium Development Goals framework.

The availability of health personnel is the de facto number actually working in the country's health-care system, public or private, and regardless of their country of origin.

Infrastructure for health (Launch pad of health service delivery)

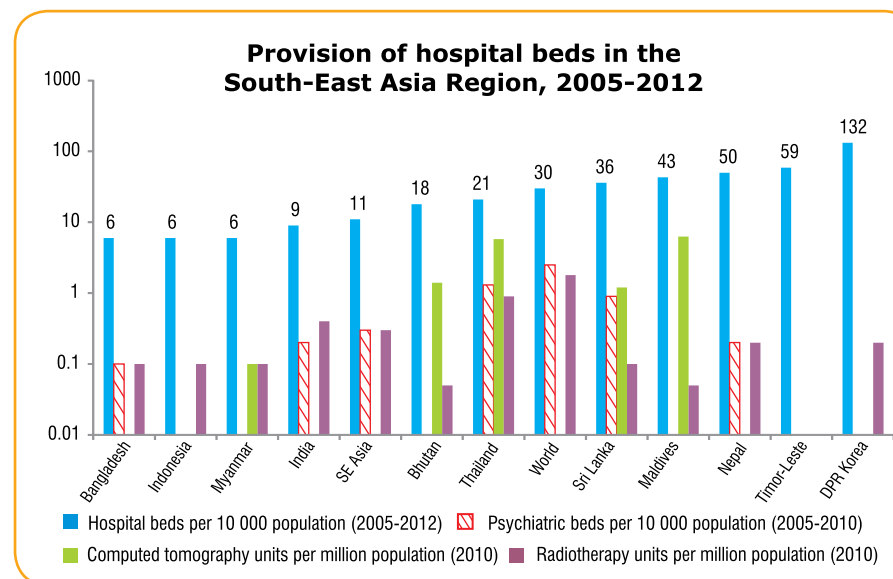
Health posts/health centres require a building from which to operate, and patient beds, equipment, medicines and consumables are all needed during service delivery. Demand for evidence-based medical procedures, along with technology-driven diagnostics and treatment, is ever increasing.

With the growing burden of mental illnesses, provision for separate psychiatric care has become a major capital outlay in health budgets. In addition, high-tech diagnostic equipment like computed tomography and radiotherapy are demanded at the front line of health facilities.

As shown in the graph, four countries (Bangladesh, Indonesia, Myanmar, and India) have less than 11 hospital beds per 10 000 population (the regional average), while at the other end of the scale, five countries (Sri Lanka, Maldives, Nepal, Timor-Leste, and DPR Korea) have reported over 30 (the world average).

Of the five countries that reported on the number of psychiatric beds per 10 000 population, 0.1 was reported by Bangladesh, 0.2 by India and Nepal; 0.9 by Sri Lanka, and 1.3 by Thailand.

Computed tomography units per million population varied from 0.1 in Myanmar (public sector) to 5.8 in Thailand; radiotherapy units were reported as <0.05 per million population in Bhutan and Maldives, 0.4 in India, and the highest in Thailand at 0.9.



Source: WHO, World Health Statistics 2013.

Hospital beds are used to indicate the availability of inpatient services. However, there is no global norm for the density of hospital beds in relation to total population. It is a paradox that while inpatient services are offered mostly by the private sector, data on availability of beds are mostly from the public sector.

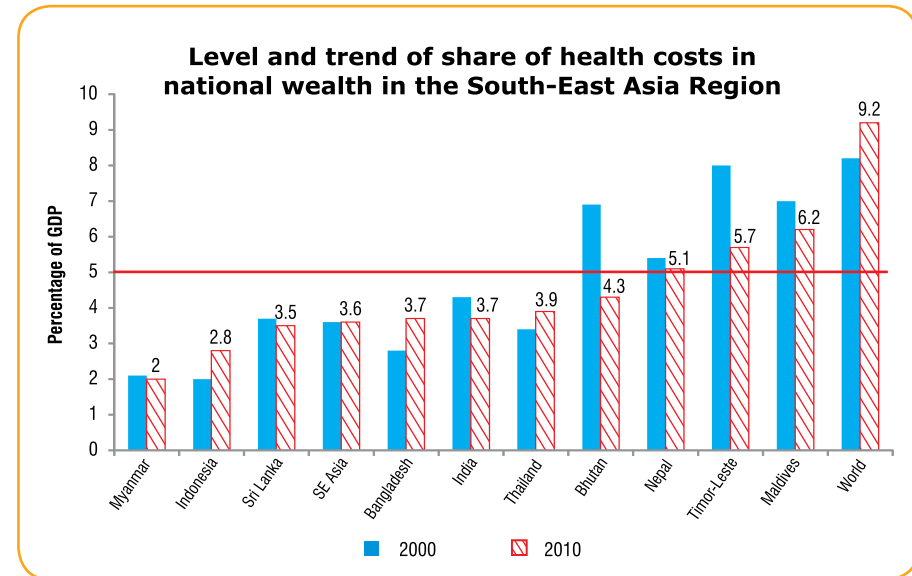
Financial resources for health (Enabler of other resources for health systems)

Financial resources are required to acquire human resources for health and physical infrastructure.

The increasingly high cost of health services has prompted both governments and households to look for health financing arrangements that ensure that people are not denied access to essential health services because they cannot afford it. This involves three interrelated functions of revenue collection, pooling of resources, and purchasing of services. Governments collect revenues by way of taxation and spend a part on organizing and operating public health services. Apart from this government spending on health, a large portion is spent by households as private expenditure to fulfill their health needs.

However, the procurement of health by households is not like procuring other goods. Assisted purchasing of health services through third-party agents by a prepayment mechanism is often desirable even if this involves overhead costs. It is desirable because the poor do not have the knowledge and negotiation skills to purchase services strategically from the service providers. Often the services required are so urgent that they buy impulsively and some providers may take advantage of this situation. Besides, pooling of risks and resources within groups is beneficial for effective access to high-cost personal care.

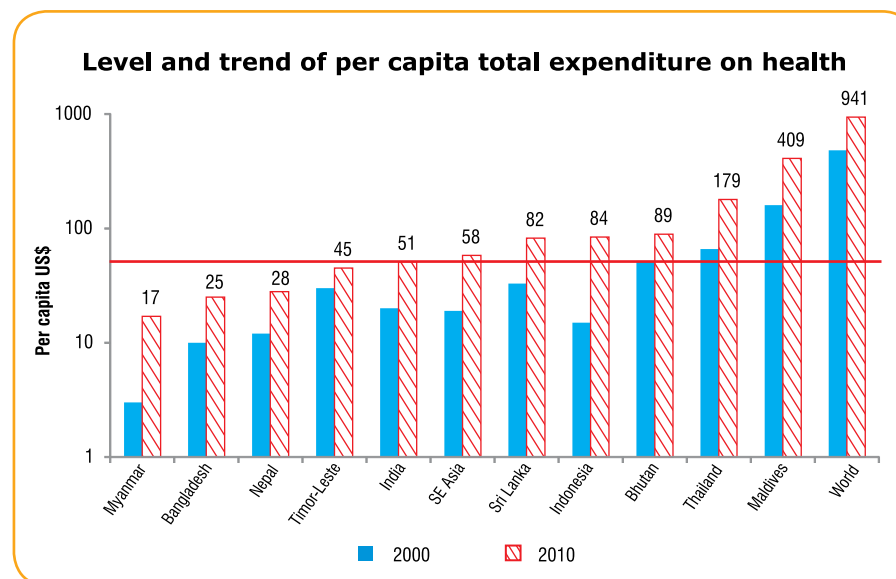
As shown in the graph, four countries (Bhutan, Nepal, Timor-Leste, and Maldives) were spending 5% of their GDP on health by 2000, although Bhutan dropped under the 5% threshold by 2010. While three countries (Indonesia, Bangladesh, and Thailand) increased the allocation for health in 2010, it was decreased in four others (Myanmar, Sri Lanka, India, and Bhutan) in 2010.



Source: WHO, World Health Statistics 2013.

Note: No data available for DPR Korea.

This indicator provides information on the level of resources channeled to health relative to a country's wealth in terms of its gross domestic product (GDP). Although there is no norm of what share of GDP a country should spend on health, a health-for-all (HFA 2000) target of at least 5% of GDP for health by 2000 was generally agreed and continues to be followed by countries of the South-East Asia Region.



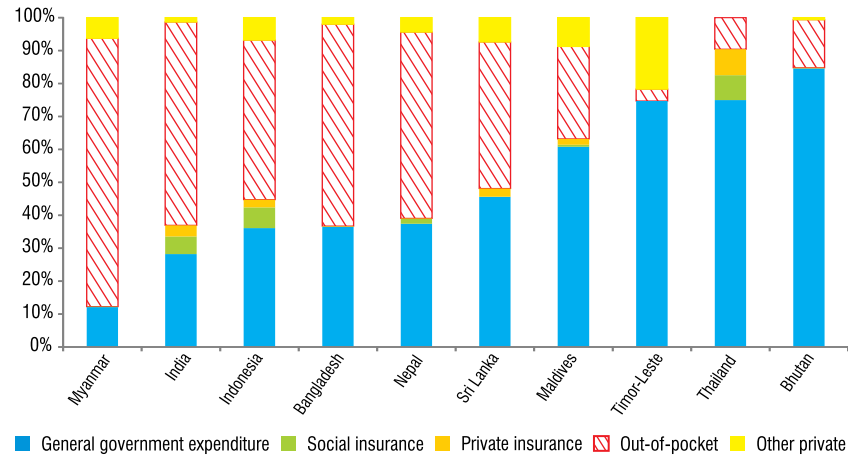
Source: WHO, World Health Statistics 2013.

Note: No data available for DPR Korea.

As shown in the graph, while only three countries (Bhutan, Thailand, and Maldives) were spending above US\$ 44 per capita on health in 2000, all but three (Myanmar, Bangladesh, and Nepal) were doing so by 2010. The regional average in 2010 of US\$ 58 was about one-sixteenth of the global average at US\$ 941. Even the two highest per capita spending countries of the Region (Maldives and Thailand) were spending less than half and less than a quarter of the global average respectively.

The per capita total expenditure on health expressed in US dollars, at average exchange rate, facilitates an intercountry comparison of health spending. WHO estimates that a minimum US\$ 44 per person per year needs to be spent to provide everyone access to a set of essential health services.

Composition of total health expenditure by type of expenditure in the South-East Asia Region, 2010



Source: WHO, World Health Statistics 2013.

Note: No data available for DPR Korea.

As shown in the graph, the government share of total health expenditure in countries of the Region varies from 12% in Myanmar to 85% in Bhutan. The regional average at 35% is about half of the global average. Thus, out of over 60% of private spending, direct out-of-pocket spending represents more than 50% (almost three times the general norm of <15-20%). What is desirable is a higher share of prepayment plan schemes of health insurance. While this does not appear to exist in Timor-Leste, it is <1% of total health expenditure in Bangladesh, Bhutan and Myanmar; about 2% in Nepal, Maldives and Sri Lanka, and reaches only as high as 9% in India and Indonesia and 15% in Thailand.

Of the two main categories (public and private) of sources of funds, the public source refers to expenditure on health by all government agencies in the country, which includes donor (external) funding passing through these agencies. On the other hand, private sources comprise households who spend directly (out-of-pocket) at the time of buying health services or through indirect prepayment by engaging a third-party agency as insurance or through assistance by a nongovernmental organization.

In addition improving people's health, health systems are also concerned with protecting them against the financial costs of illness. The challenge facing governments is to reduce the regressive burden of out-of-pocket spending (OOPS) on health by expanding prepayment schemes, which spread financial risk and reduce the adverse effects of OOPS, which is often catastrophic and impoverishing, especially in most countries of the South-East Asia Region where informal economies still predominate.

Health service coverage indicators

(A snapshot of health services)

A set of eight elements of primary health care services has been the mainstay of modern health-care systems in countries since the 1978 Alma-Ata Declaration of Health-For-All. Later, other services and interventions like dental and mental services were added to the set. With reinvigoration of primary health care in 2008, services and indicators to measure their performance were further revamped. In 2010, in an effort to accelerate progress, the Commission on Information and Accountability recommended 11 core indicators to monitor women's and children's health.

The 11 indicators of maternal, newborn and child health:

1. Maternal mortality ratio (also a Millennium Development Goal (MDG) indicator)
2. Under-five child mortality, with proportion of newborn deaths (under-five child mortality is an MDG indicator)
3. Children under five who are stunted
4. Proportion of demand for family planning satisfied (met need for contraception) (MDG indicator)
5. Antenatal care coverage (at least four times during pregnancy) (MDG indicator)
6. Antiretroviral prophylaxis among HIV-positive pregnant women to prevent HIV transmission and antiretroviral therapy for [pregnant] women who are treatment-eligible
7. Skilled attendant at birth (MDG indicator)
8. Postnatal care for mothers and babies within two days of birth
9. Exclusive breastfeeding for six months (0–5 months)
10. Three doses of combined diphtheria-tetanus-pertussis (DTP3) immunization coverage (12–23 months)
11. Antibiotic treatment for suspected pneumonia.

Note: For detailed data on MDG indicators, please refer to the WHO South-East Asia Regional Office MDG brochure and analytical kit 2014.

Proportion of newborn deaths to total children under-five deaths

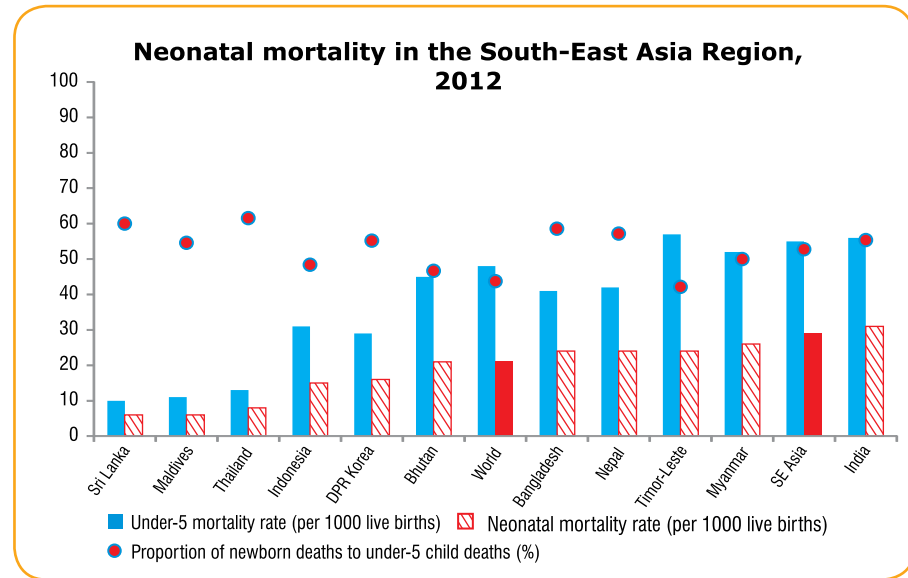
The first month* after the birth of a child is called the neonatal period. Deaths occurring in this period are called newborn or neonatal deaths and are of great concern because the health interventions needed to address their major causes generally differ from those needed to address other under-five child deaths. Causes of death and required interventions are so time sensitive that for monitoring purposes, this one month period is subdivided into very early neonatal (first 24 hours after birth: the zero day), early neonatal (1-6 days after birth), and late neonatal (7-28 days after birth).

Neonatal deaths account for a large proportion of under-five child mortality in the South-East Asia Region.

Focus on neonatal mortality is increasingly important because over the last two decades, in almost all countries, there has been slower declines in neonatal mortality than in under-five mortality.

* more specifically the first 28 days as per WHO International Classification of Diseases 10th edition.

As shown in the graph, the neonatal mortality rate per 1000 live births in countries of the Region varied in 2012 from 6 in Maldives to 31 in India. The share of neonatal deaths to total under-five child deaths was 53% compared with a global share at 44%. Countries with high under-five mortality rates (U5MR) (Bhutan, Timor-Leste, Myanmar, and India) tend to have a lower proportion of neonatal deaths than those with low U5MR (Sri Lanka, Thailand, and Maldives). In order to reduce further U5MR, these latter countries now have to focus on interventions that reduce deaths occurring in the neonatal period.



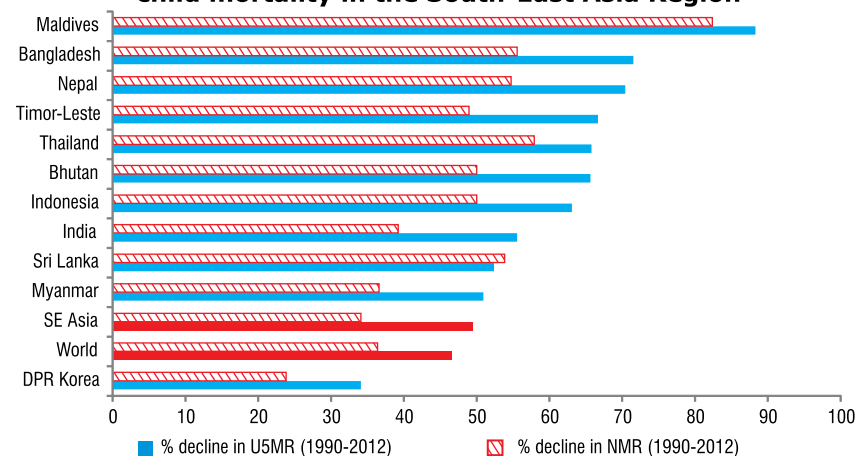
Source:

1. United Nations Inter-agency Group for Child Mortality Estimation, Levels and Trends in Child Mortality, Report 2013.
2. WHO, World Health Statistics 2013.

The right side graph shows that, while under-five mortality rates (U5MR) and neonatal mortality rates (NMR) declined in all countries over a period of two decade (1990 to 2012), the percentage decline in NMR was slower than that in U5MR. This finding may indicate that despite effective interventions like child immunization to decrease postnatal under-five child mortality, there is need to scale up and accelerate interventions like postnatal home visits, prenatal/perinatal care, breastfeeding and others that have proven to be cost-effective in preventing and controlling the causes of deaths occurring in the neonatal period.

It is noted from the graph that in Sri Lanka, the average percentage decline in the neonatal component of U5MR over last two decades was higher overall than the corresponding overall decline in child mortality, which was already low.

Decline in neonatal mortality relative to total under-five child mortality in the South-East Asia Region



NMR = neonatal mortality rate; U5MR = under-five mortality rate.

Source:

1. United Nations Inter-agency Group for Child Mortality Estimation, Levels and Trends in Child Mortality, Report 2013.
2. WHO, World Health Statistics 2013.

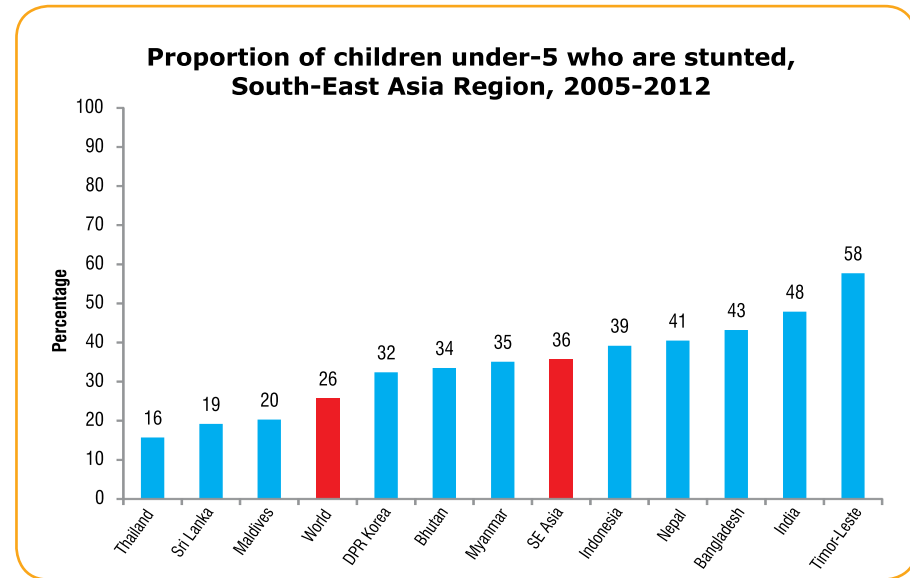
Children under-5 who are stunted

Stunting (low height-for-age) is one of the three most commonly used indices of child growth. The other two are weight-for-age and weight-for height.

Stunting is defined as the proportion of children under five years of age whose height-for-age is below -2 standard deviation from the median height-for-age of the reference population of WHO Child Growth Standards. It is a primary manifestation of malnutrition in early childhood, including malnutrition during fetal development brought on by the malnourished mother. Thus, it is a measure of chronic malnutrition. Once set in, it may run from one generation to the next.

On a population basis, high levels of stunting 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. Similarly, a decrease in the national stunting rate is usually indicative of improvements in overall socioeconomic conditions of a country.

As shown in the graph, an average of 36% of children in the South-East Asia Region are stunted compared with the global average of 26%. The average stunting from malnutrition in six countries (Thailand, Sri Lanka, Maldives, DPR Korea, Bhutan, and Myanmar) is less than the Regional average, the first three of which have even lower levels than the global average. Conversely, the other five countries (Indonesia, Nepal, Bangladesh, India, and Timor-Leste) have child stunting levels higher than both the Regional and global averages.



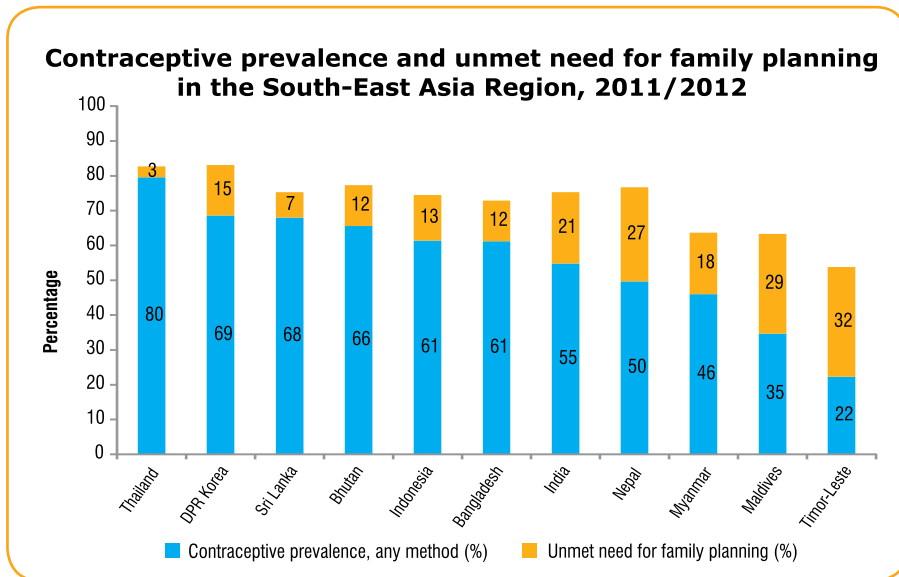
Source: WHO, World Health Statistics 2013. Data for Bhutan is from UNICEF.

Proportion of demand for family planning satisfied (met need for contraception)

Contraceptive prevalence and unmet need for family planning are key indicators for measuring improvements in access to reproductive health. The purpose of contraceptive methods is to ensure healthy population development, with a target for individuals or all couples to have access to information and services to prevent pregnancies that are too early, too closely spaced, too late or too many.

The concept of unmet need points to the gap between women's reproductive intentions and their contraceptive behaviour. The indicator is useful for tracking progress towards the target of achieving universal access to reproductive health.

Information on unmet needs for family planning complements the indicator for contraceptive prevalence. The sum of contraceptive prevalence and unmet need provides the total demand for family planning.



Although, as shown in the graph, more than 50% of women in the reproductive age group (15-49 years) in all countries of the Region demand family planning, the demand is about 80% in eight countries (Thailand, DPR Korea, Sri Lanka, Bhutan, Indonesia, Bangladesh, India, and Nepal). While more than 50% of this demand in these eight countries is met by some form of contraceptive method, the remaining demand -- which varies from as low as 3% in Thailand to as high as 27% in Nepal -- remains unfulfilled. Although the total demand in the remaining three countries is 60% or less, the proportion of unfulfilled demand is high.

Source:

1. United Nations, Department of Economic and Social Affairs Population Division, World Contraceptive Use 2012.
2. WHO Regional Office for South-East Asia, MDG brochure and analytical kit 2014.

Note:

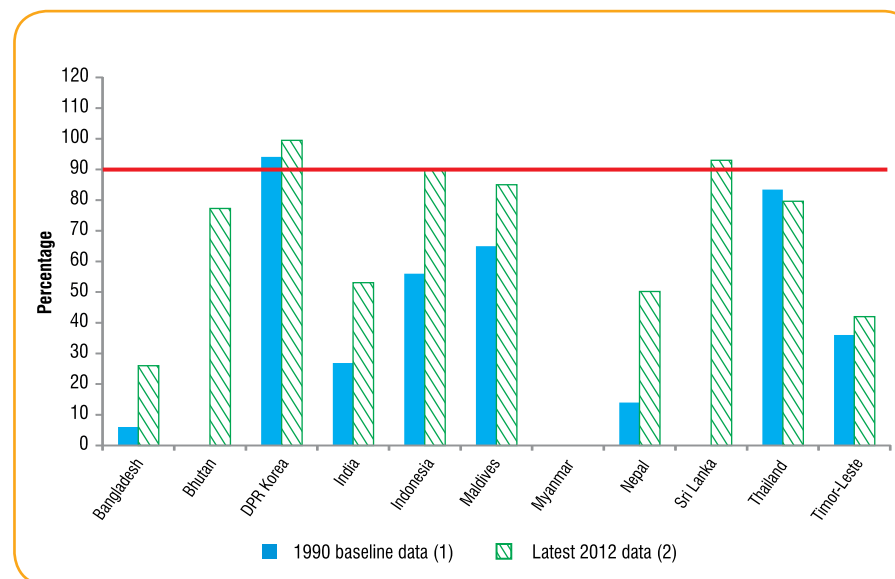
1. Reference year of data for contraceptive prevalence: 2011/2012 (Bangladesh), 2011 (Nepal), 2010 (Bhutan), 2009/2010 (Myanmar, Timor-Leste), 2009 (Maldives, Thailand), 2007/2008 (India), 2007 (Indonesia), 2006/2007 (Sri Lanka), 2002 (DPR Korea).
2. Reference year of data for unmet need for family planning: 2011/2012 (Bangladesh), 2011 (Nepal), 2010 (Bhutan, DPR Korea), 2009/2010 (Timor-Leste), 2009 (Maldives), 2007/2008 (India), 2007 (Indonesia, Myanmar), 2006/2007 (Sri Lanka), 2006 (Thailand).

Antenatal care coverage (at least four visits during pregnancy)

Antenatal care coverage is an indicator of access and utilization of care during pregnancy. It is the proportion of women who were attended at least four times during pregnancy by trained health personnel for reasons related to their pregnancy. This is also one of the process indicators for tracking progress in reducing maternal mortality.

Many health problems suffered by pregnant women can be prevented, detected and treated during antenatal care visits with trained health workers. WHO recommends a minimum of four antenatal visits, comprising interventions such as tetanus toxoid vaccination, screening and treatment for infections, and identification of warning signs during pregnancy – a package often called focused antenatal care.

As shown in the graph, three countries have already reached or surpassed the 90% coverage of pregnant women with at least four visits. However, two countries in the Region are still below 50% coverage with four visits.



Source: Latest MDG reports and further data update of SEA Region countries

Note:

1. 1991 for Indonesia, 1992 for India, 1993 for Bangladesh, 1995 for Thailand, 1997 for DPR Korea, 1999 for Maldives, 2001 for Nepal, 2006 for Timor-Leste. Baseline data not available for Bhutan and Sri Lanka.
2. 2012 for Indonesia; 2011 for Bangladesh, Nepal; 2010 for Bhutan, DPR Korea, Timor-Leste; 2009 for India, Maldives, Thailand; 2007 for Sri Lanka.. No data available for Myanmar.

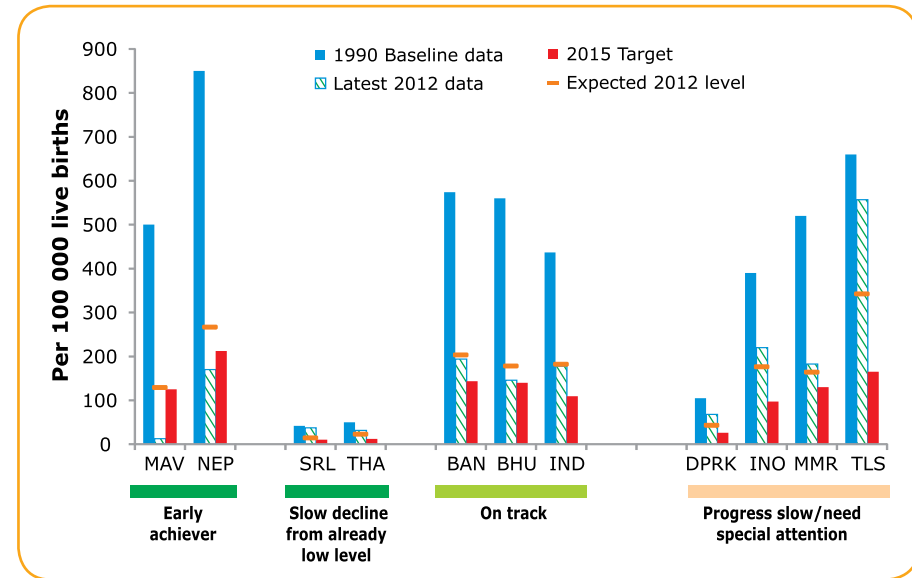
Maternal mortality ratio

Complications during pregnancy and childbirth are a leading cause of death and disability among women of reproductive age. The indicator for maternal mortality ratio represents the risk associated with each pregnancy.

The maternal mortality ratio in a population is the annual number of maternal deaths per 100 000 live births. The death of a woman is considered maternal death only when it occurs during pregnancy, during childbirth or within 42 days of termination of pregnancy, from any cause related to or aggravated by the pregnancy, but not from accidental or incidental causes. The ICD-10 makes provision for also including late maternal deaths (those occurring between 42 days and 1 year after childbirth).

As shown in the graph, two out of 11 countries in the South-East Asia Region have already achieved their 2015 target, and three are on track to achieve the target by 2015. Progress by four countries (Democratic People's Republic of Korea, Indonesia, Myanmar and Timor-Leste) has been slow and, unless extra efforts are made to accelerate the process, they are less likely to achieve the target by 2015. In order to achieve the 2015 target, they need to close the gap between what is expected by 2015 at the current rate of progress and the 2015 target. With current rates of progress, the gap in expected maternal mortality ratio by 2015 and 2015 targets for these countries is likely to be 25 43,19 and 215, respectively. The remaining two countries (Sri Lanka and Thailand) that have experienced a slow decline appear to be finding it difficult to further reduce the maternal mortality ratio from an already low level.

The corresponding radar chart on page 40 depicts the same.



Source: Latest MDG reports and further data update from countries

Note:

1. Baseline year: 1991 for India, Indonesia and Sri Lanka; 1992 for Nepal; 1997 for Democratic People's Republic of Korea; 2000 for Timor-Leste.
2. Latest data year: 2012 for Democratic People's Republic of Korea, Maldives, Myanmar and Sri Lanka; 2011 for Nepal; 2010 for Bangladesh, Bhutan, India, Indonesia, Thailand and Timor-Leste.
3. Countries in the "Early achiever" category have already brought down maternal mortality ratio below the 2015 target.
4. Countries in the "On track" category are likely to reach the target on 2015, provided they maintain the current average annual rates of decline.
5. Countries in the "Slow progress" category have current maternal mortality ratio above what was expected and, unless extra efforts are made, they are less likely to meet the 2015 target.
6. In 2011, Nepal has not only already achieved the MDG 5 target of reducing maternal mortality by three quarters from the 1990 level, but it is also on track to achieve the country-set lower target of 134 maternal deaths per 100 000 live births by 2015.

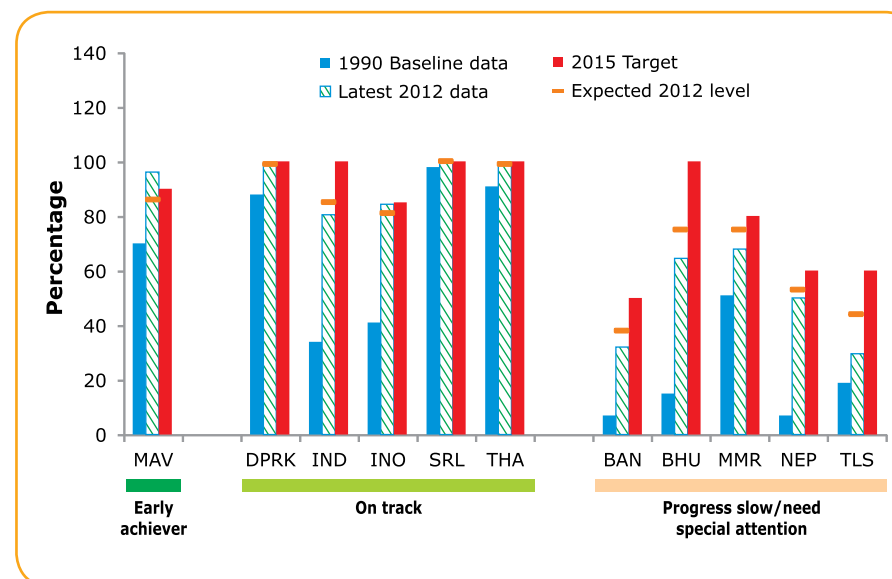
Proportion of births attended by skilled health personnel

This is a sub-indicator to monitor progress in reducing maternal mortality. Measuring maternal mortality accurately is difficult, except where there is comprehensive registration of deaths and causes of death. Several process indicators have been proposed for tracking progress on the reduction of maternal mortality by focusing on professional care during pregnancy and childbirth, particularly for the management of complications. This is one of the most widely used process indicators for that purpose.

The proportion of births attended by skilled health personnel is the percentage of deliveries attended by personnel trained to provide the necessary supervision, care and advice to women during pregnancy, labour and the postpartum period; to conduct deliveries on their own; and to care for newborns.

As shown in the graph, one country in the South-East Asia Region has already achieved and is above its 2015 target, and five are on track to achieve the target by 2015 provided their current rates of progress continue. The progress made by the remaining five countries (Bangladesh, Bhutan, Myanmar, Nepal and Timor-Leste) has been slow. In order to achieve their country-set targets, they need to make extra efforts to accelerate the process and close the gap between what is expected at the current rate of progress and the 2015 target. By 2015, the gap in terms of percentage points from the target for these five countries is likely to be 6, 10, 7, 3 and 14, respectively.

The corresponding radar chart on the next page depicts the same.

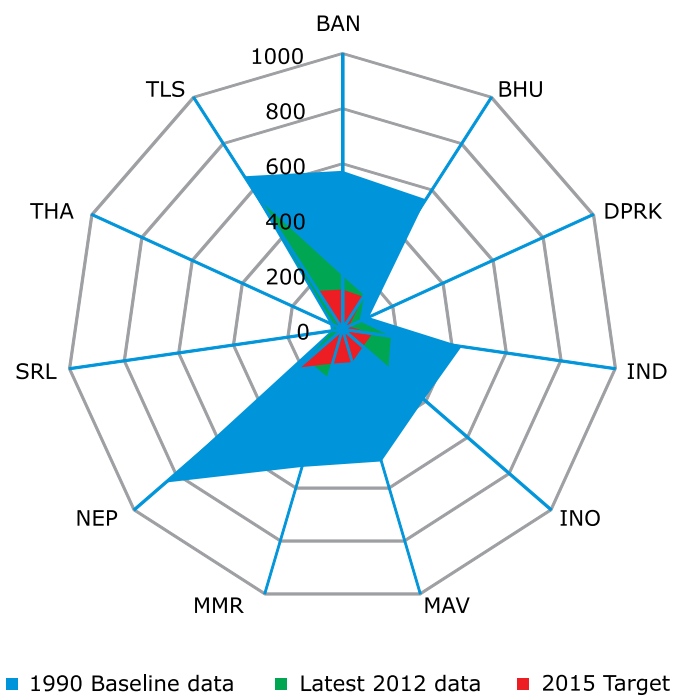


Source: Latest MDG reports and further data update from countries

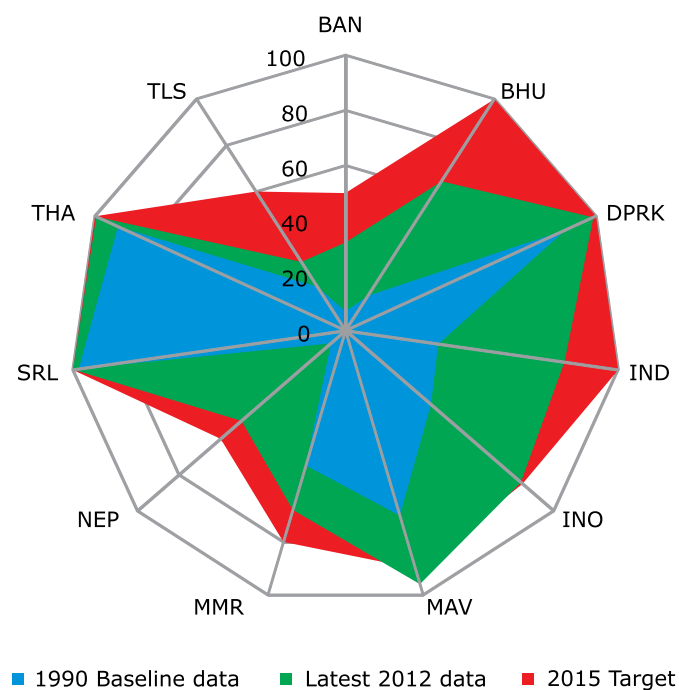
Note:

1. The 2015 targets shown in the graph (except for Bangladesh, which is for 2010) are those set by the countries for monitoring this indicator.
2. Baseline year: 1992 for India and Indonesia; 1993 for Sri Lanka; 1997 for Democratic People's Republic of Korea; 2000 for Maldives and Timor-Leste.
3. Latest data year: 2013 for Nepal; 2012 for Democratic People's Republic of Korea, Indonesia, Maldives, Myanmar and Sri Lanka; 2011 for Bangladesh and India; 2010 for Bhutan; 2009 for Thailand and Timor-Leste.
4. Countries in the "Early achiever" category have already reached or are above their 2015 target.
5. Countries in the "On track" category are likely to reach the target on 2015, provided they maintain their current average annual rates of increase.
6. Countries in the "Slow progress/needs special attention" category have current rates of progress below what was expected and, unless extra efforts are made, they are less likely to meet the 2015 target.

Maternal mortality ratio



Proportion of births attended by skilled health personnel



Antiretroviral prophylaxis among HIV-positive pregnant women to prevent HIV transmission and antiretroviral therapy for pregnant women who are treatment-eligible

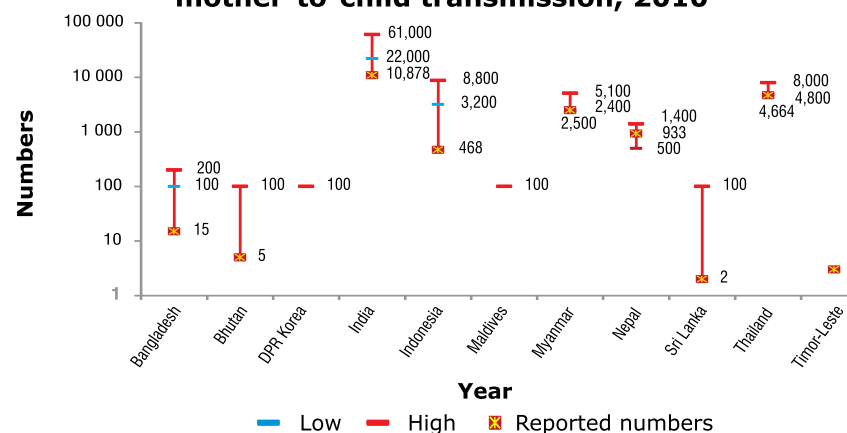
The purpose of this indicator is to assess progress in preventing mother-to-child transmission (PMTCT) of HIV.

Transmission of HIV infection from HIV-positive women to children can happen during pregnancy, during labour and delivery or after delivery through breastfeeding. The risk of mother-to-child transmission can be significantly reduced through the complementary approaches of antiretroviral regimens for the mother, with or without prophylaxis to the infant, implementation of safe delivery practices, and use of safer infant feeding practices.

Although a total of 18 631 HIV+ pregnant women were reported from countries of the South-East Asia Region in 2010, the estimated number is likely to be two to five times higher, with wide intercountry variation.*

* While the reported figure is based on national programme data aggregated from facilities or other service delivery sites, the estimates are computed using standardized statistical modelling based on UNAIDS/WHO methods to determine the number of all pregnant women living with HIV who need antiretrovirals for the prevention of mother-to-child transmission in the country.

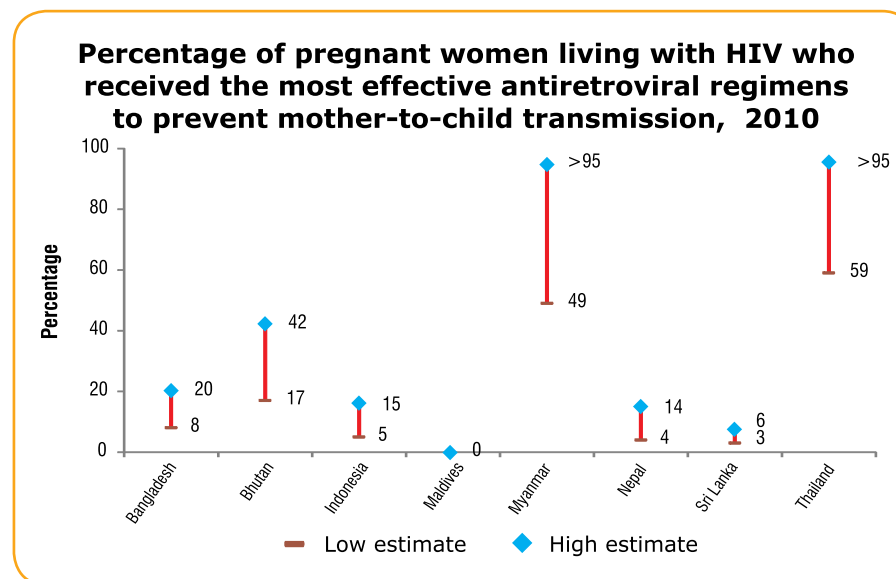
Estimated number of pregnant women living with HIV in need of antiretroviral treatment to prevent mother-to-child transmission, 2010



Source: UNICEF.

Note:

1. For Nepal, the reported number of HIV+ pregnant women in need of antiretrovirals is taken from the country's 2012 progress report on HIV/AIDS.



Source: UNICEF.

Note:

Data not available for DPR Korea, India, or Timor-Leste.

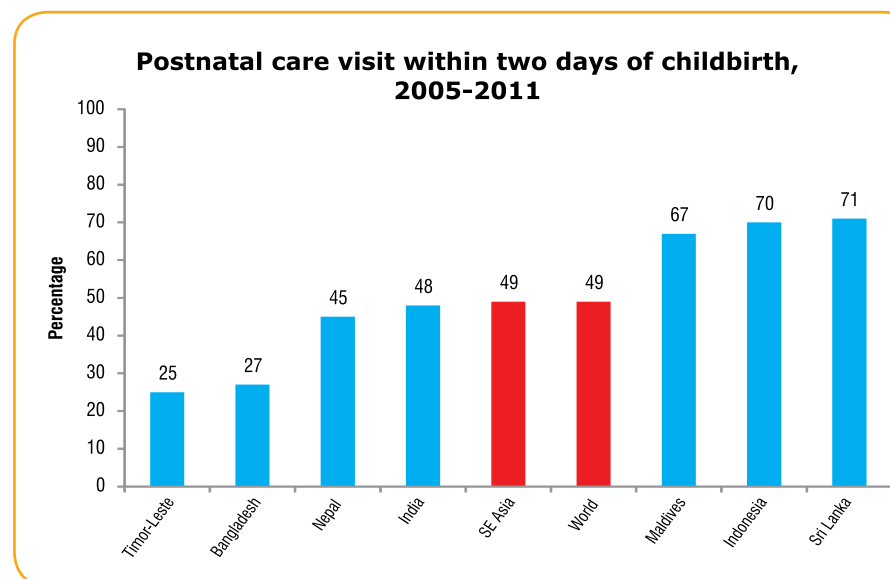
All pregnant women who were reported to be HIV-positive and were in need of antiretroviral (ARV) treatment for preventing mother-to-child transmission of HIV received the most effective ARV regimens in all countries except in Nepal, where the needs over 40% of such women in 2010 were unmet. Of the three high HIV-prevalence countries in the Region, Myanmar and Thailand had an estimated ARV coverage for all eligible pregnant women of over 95%, while no estimate was available for India. The remaining countries for which estimates are available had coverage below 20%, except for Bhutan which had coverage up to 42%.

Postnatal care for mothers and babies within two days of birth

The majority of maternal and newborn deaths occur within the first 48 hours. Even if birth occurs in a health facility, in many settings, mothers and newborns are discharged within a few hours, and have no further contact with a health provider until the sixth week postpartum and immunization visit. Therefore, home visits within 2 days of childbirth are critical to improve maternal and newborn survival and for provision of other health care in line with the continuum of care principle.

Studies have shown that home-based newborn care interventions can prevent 30–60% of newborn deaths in high mortality settings under controlled conditions (WHO/UNICEF).

On average, 49% of newborns, regardless of the place of delivery, are visited by trained health personnel within two days of birth. Of the seven South-East Asia countries for which estimates are available, coverage with home visits for postnatal/postpartum care is below 30% in Timor-Leste and Bangladesh; close to the Regional average of 49% in Nepal and India; and about 40% above the Regional/global average in Maldives, Indonesia, and Sri Lanka.



Source: WHO, World Health Statistics 2013.

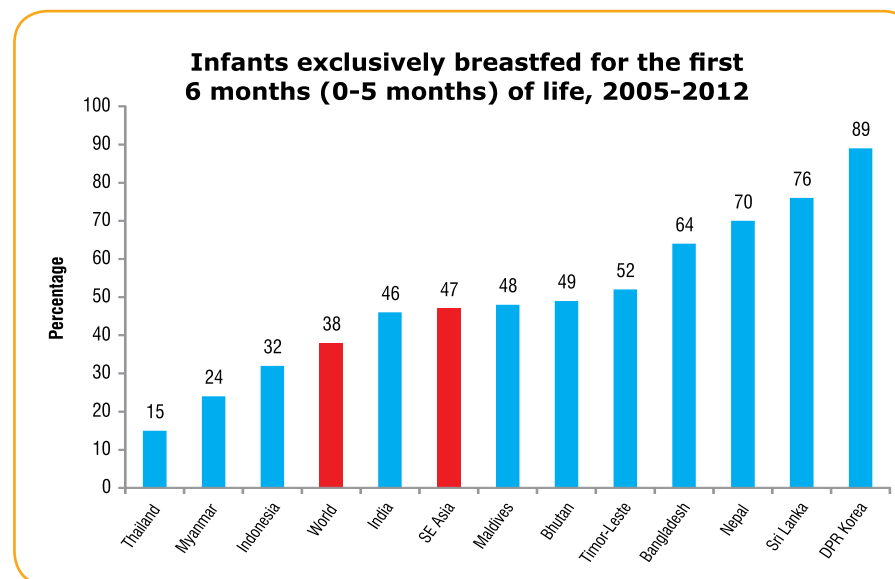
Note:

Data not available for Bhutan, DPR Korea, Myanmar, or Thailand

Exclusive breastfeeding for six months (0–5 months)

Breastfeeding is one of the key newborn care practices. Exclusive breastfeeding means that the infant receives only its mother's breast milk. Breast milk contains all the nutrients an infant needs in the first six months of life and protects against common childhood diseases. WHO recommends that infants should be exclusively breastfed for the first six months of life.

Breastfeeding at one time was the rule, and babies were carried with their mother and fed as required. This has lost its impetus with the pace of economic industrialization, the effects of which can be seen across the world, including countries of the South-East Asia Region, and especially in Thailand. Social and cultural factors also influence breastfeeding practices. On average, 47% of infants are exclusively breastfed in the Region compared with a global average of 38% and only 18% of the world's industrialized countries.



Source: WHO, World Health Statistics 2013.

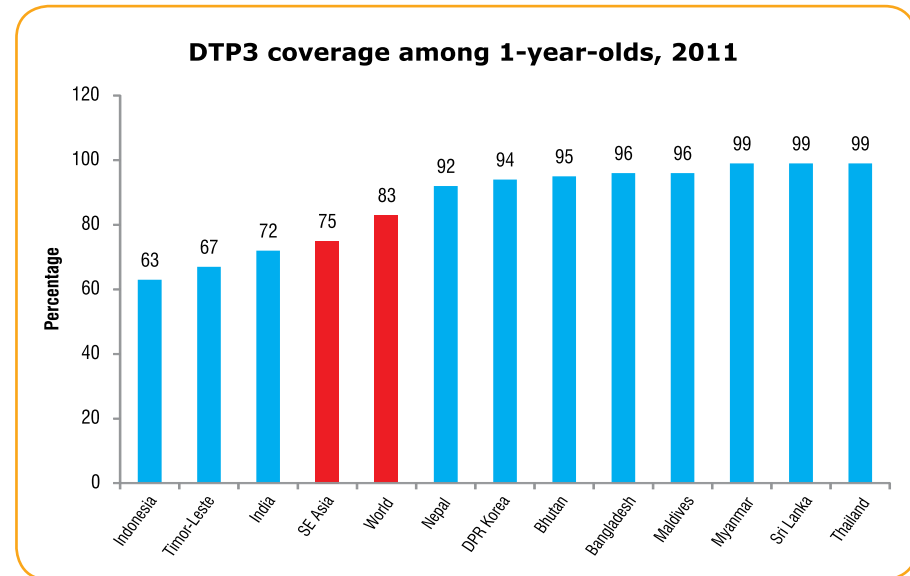
Note:

1. Data for Myanmar are for 2009-2010 from UNICEF, Multiple Indicator Cluster Survey.
2. Data for DPR Korea are not available in the WHO nutrition database but from the country's latest survey of 2005.

Three doses of combined diphtheria-tetanus-pertussis immunization coverage (12–23 months)

DTP refers to the combined diphtheria, tetanus, and pertussis vaccine. The percentage of children receiving the third dose of DTP (DTP3) is an indicator of how well countries provide routine immunization services. It sets the process in motion for service providers and seekers (the parents of eligible children) to obtain other complementary immunizations as a child grows up.

The right side graph shows that, while DTP3 coverage in three countries of the Region (Indonesia, Timor-Leste, and India) is below the regional average of 75%, eight countries (Nepal, DPR Korea, Bhutan, Bangladesh, Maldives, Myanmar, Sri Lanka, and Thailand) are not only above the regional average, but also above the global average of 83%.



Source: WHO, World Health Statistics 2013.

Antibiotic treatment for suspected pneumonia

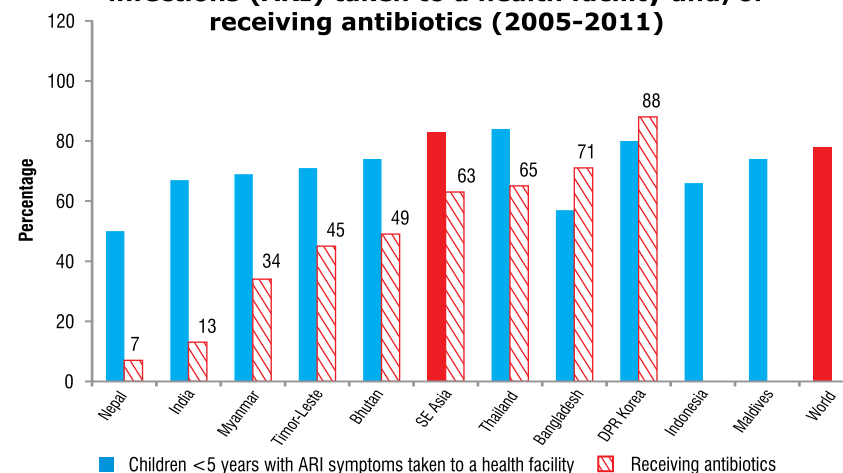
Pneumonia is a severe form of acute lower respiratory infection that specifically affects the lungs. It is the leading killer of children. Mortality due to childhood pneumonia is strongly linked to poverty-related factors including under nutrition, lack of access to safe water and adequate sanitation, indoor air pollution and inadequate access to health care. Therefore an integrative approach to tackle this important public health issue is an urgent need.

Suspected pneumonia refers to children with a combination of respiratory symptoms, for which they should seek clinical assessment for pneumonia by an appropriate health-service provider.

However, not all children with suspected pneumonia should receive antibiotic treatment. Only those classified by the Integrated Management of Childhood Illness guidelines (based on a rapid respiratory rate counted by a health worker) are eligible for treatment by antibiotics.

Although on average a little over 80% of children under age 5 in the Region with suspected pneumonia (cough and fast or difficult breathing due to a problem in the chest) were taken to a health facility, and 63% received antibiotics treatment for pneumonia, there is a wide variation between countries, from <15% in Nepal and India to over 4-5 times as much in Thailand, Bangladesh and DPR Korea.

Children <5 years with symptoms of acute respiratory infections (ARI) taken to a health facility and/or receiving antibiotics (2005-2011)



Source: WHO, World Health Statistics 2013.

Note:

1. Data for Indonesia refer to acute respiratory infections and/or fever.
2. "Receiving antibiotics" data for Bangladesh and Nepal are from UNICEF (Accessed October 2013), http://www.childinfo.org/pneumonia_countrydataantibiotics.php.
3. Data not available for Sri Lanka.

Noncommunicable diseases

(Diseases that are non-infectious and non-transmissible from person to person)

Ever since industrialization of economies began, so did the rise in noncommunicable diseases (NCDs), which are rooted in socioeconomic transition with urbanization as a pre-requisite. Urbanization often represents a lifestyle transition from the hard physical activity of nomadic/agrarian society to a sedentary physical lifestyle on the one hand, and a higher mental activity of industrial society on the other. Along with these factors comes the dietary transition from healthy to a less healthy way of eating, and the increased use of tobacco and alcohol.

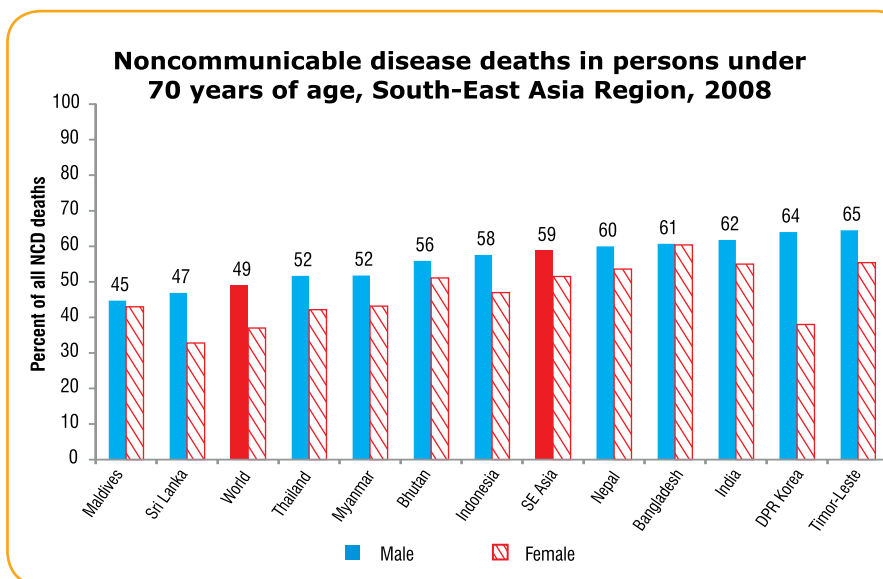
Industrialization has many positive assets, which is why it was pursued. The development of medicine and medical technology has reduced death rates and as a result life expectancy is increasing, although as a by-product of socioeconomic transition, birth rates are also decreasing. The decrease in both death and birth rates has resulted in demographic transition from a high ratio of child population and a low number of elderly, to exactly the opposite.

Thus, demographic transition and socioeconomic transition have led to epidemiological transition from communicable to noncommunicable diseases. Among these, cardiovascular diseases, diabetes, chronic obstructive pulmonary diseases, and cancer have reached such a magnitude in the last few decades that they can no longer be considered on a case-by-case basis. Instead, many NCDs have drawn the attention of governments and have become major problems of public health concern.

Noncommunicable diseases: a major health challenge of the 21st century

Demographic transition with increased longevity is leading to a rapid increase in the proportion of middle-aged and older adults (the biological age when the body begins to degenerate, which can only be slowed down by adapting to a healthy ageing way of living). Causes of death in this population group have been found to be mostly due to one or more noncommunicable diseases (NCDs). This is more the case in high-income industrialized countries. For example, in Japan (the country with the highest longevity in the world), the cause of 80% of all deaths is NCDs. This is not surprising, as most deaths occur in older age group. What is alarming is when a high proportion of NCD deaths occur in the age group below 70 years, and worse still before age 60.

As shown in the graph, more than 50% of noncommunicable disease (NCD) deaths occur in the age group under 70 in males in countries of the Region, except Maldives and Sri Lanka. Although these two countries are below the world average of 49% for males, only Sri Lanka is below the world average of 37% for females as well. The share of NCD deaths in five countries (Nepal, Bangladesh, India, DPR Korea, and Timor-Leste) ranges from 60% to 65% in males, which is above the regional average of 59%. This is in stark contrast to the low percentage of NCD deaths in this age group in the world's high-income countries. For example in Japan the share of NCD deaths in this age group is only 29% and 16% for males and females respectively.



Source: WHO, Global status report on noncommunicable diseases 2010.

Note: Data for South-East Asia and World are projected deaths for 2008 based on WHO Global Burden of Disease 2004.

Proportion of noncommunicable disease deaths to total deaths in the South-East Asia Region, 2008

Of the 14.5 million deaths that occurred in the Region in 2008, 8 million – about 55% – were due to noncommunicable diseases (NCDs). As shown in the table below, while only 23% NCD-related deaths were reported in the economically productive age group of 15-59 years globally (and only 9% in Japan), the rate was much higher in the South-East Region at 31%. As these are chronic and often sudden killer diseases, their rising trend in this age group may have social and economic implications and impediments to the aspiration of all countries of the Region.

| | Deaths from all causes | | | | | | | | Deaths attributed to noncommunicable diseases | | | | | | | | | |
|----------------|------------------------|-------------|-----------------------|-------------|---------------------|-------------|------------------------|---|---|-----------------------|-----------------------|-----------------------|----------------------|-----------------------|----------------------------|---|---------------------------------------|---|
| | 0-14 years | | 15-59 years age group | | 60+ years age group | | Total number of deaths | Deaths from all causes in <60 years age group (%) | 0-14 years | | 15-59 years age group | | 60+ years age group | | Total number of NCD deaths | Share of NCD deaths to total deaths (%) | NCD deaths in <60 years age group (%) | NCD deaths in economically productive age group 15-59 years (%) |
| | Number of deaths | % of total | Number of deaths | % of total | Number of deaths | % of total | | | Number of NCD deaths | % of total NCD deaths | Number of NCD deaths | % of total NCD deaths | Number of NCD deaths | % of total NCD deaths | | | | |
| Bangladesh | 221 692 | 19.3 | 436 613 | 37.9 | 492 369 | 42.8 | 1 150 675 | 57.2 | 17 257 | 2.9 | 210 645 | 35.2 | 370 889 | 61.9 | 598 791 | 52.0 | 38.1 | 35.2 |
| Bhutan | 1 378 | 23.7 | 1 736 | 29.9 | 2 699 | 46.4 | 5 812 | 53.6 | 136 | 4.4 | 864 | 28.1 | 2 074 | 67.5 | 3 074 | 52.9 | 32.5 | 28.1 |
| DPR Korea | 12 902 | 6.3 | 51 031 | 25.0 | 140 089 | 68.7 | 204 023 | 31.3 | 1 570 | 1.2 | 28 772 | 21.7 | 102 523 | 77.2 | 132 864 | 65.1 | 22.8 | 21.7 |
| India | 2 123 595 | 21.5 | 3 092 688 | 31.3 | 4 678 400 | 47.3 | 9 894 683 | 52.7 | 162 498 | 3.1 | 1 693 988 | 32.3 | 3 384 924 | 64.6 | 5 241 410 | 53.0 | 35.4 | 32.3 |
| Indonesia | 201 910 | 12.1 | 528 200 | 31.6 | 942 745 | 56.4 | 1 672 855 | 43.6 | 22 132 | 2.1 | 301 872 | 28.4 | 739 939 | 69.5 | 1 063 943 | 63.6 | 30.5 | 28.4 |
| Maldives | 114 | 9.8 | 246 | 21.2 | 800 | 69.0 | 1 161 | 31.0 | 32 | 3.5 | 184 | 20.0 | 705 | 76.5 | 922 | 79.4 | 23.5 | 20.0 |
| Myanmar | 136 381 | 22.3 | 219 448 | 35.9 | 254 957 | 41.7 | 610 786 | 58.3 | 4 867 | 2.0 | 66 520 | 27.4 | 171 094 | 70.6 | 242 480 | 39.7 | 29.4 | 27.4 |
| Nepal | 42 832 | 23.4 | 57 652 | 31.5 | 82 248 | 45.0 | 182 732 | 55.0 | 3 158 | 3.4 | 27 506 | 30.0 | 61 007 | 66.5 | 91 671 | 50.2 | 33.5 | 30.0 |
| Sri Lanka | 10 001 | 5.5 | 66 495 | 36.9 | 103 865 | 57.6 | 180 361 | 42.4 | 2 178 | 1.8 | 24 560 | 20.8 | 91 166 | 77.3 | 117 905 | 65.4 | 22.7 | 20.8 |
| Thailand | 20 227 | 3.4 | 215 733 | 36.7 | 352 359 | 59.9 | 588 319 | 40.1 | 5 400 | 1.3 | 115 778 | 27.7 | 297 222 | 71.0 | 418 400 | 71.1 | 29.0 | 27.7 |
| Timor-Leste | 2 802 | 39.7 | 1 944 | 27.5 | 2 312 | 32.8 | 7 058 | 67.2 | 173 | 7.1 | 634 | 26.1 | 1 618 | 66.7 | 2 425 | 34.4 | 33.3 | 26.1 |
| SE Asia | 2 773 834 | 19.1 | 4 671 787 | 32.2 | 7 052 843 | 48.6 | 14 498 464 | 51.4 | 219 401 | 2.8 | 2 471 323 | 31.2 | 5 223 159 | 66.0 | 7 913 884 | 54.6 | 34.0 | 31.2 |
| World | 9 592 857 | 16.9 | 15 716 798 | 27.6 | 31 578 633 | 55.5 | 56 888 288 | 44.5 | 837 543 | 2.3 | 8 290 205 | 23.0 | 26 994 124 | 74.7 | 36 121 872 | 63.5 | 25.3 | 23.0 |
| Japan | 4 698 | 0.4 | 116 014 | 10.2 | 1 015 399 | 89.4 | 1 136 111 | 10.6 | 2 634 | 0.3 | 82 703 | 9.1 | 823 429 | 90.6 | 908 766 | 80.0 | 9.4 | 9.1 |

Source: Deaths estimates for 2008 by cause for WHO Member States, http://www.who.int/healthinfo/global_burden_disease/estimates_country/en/index.html (accessed 29 April 2013).

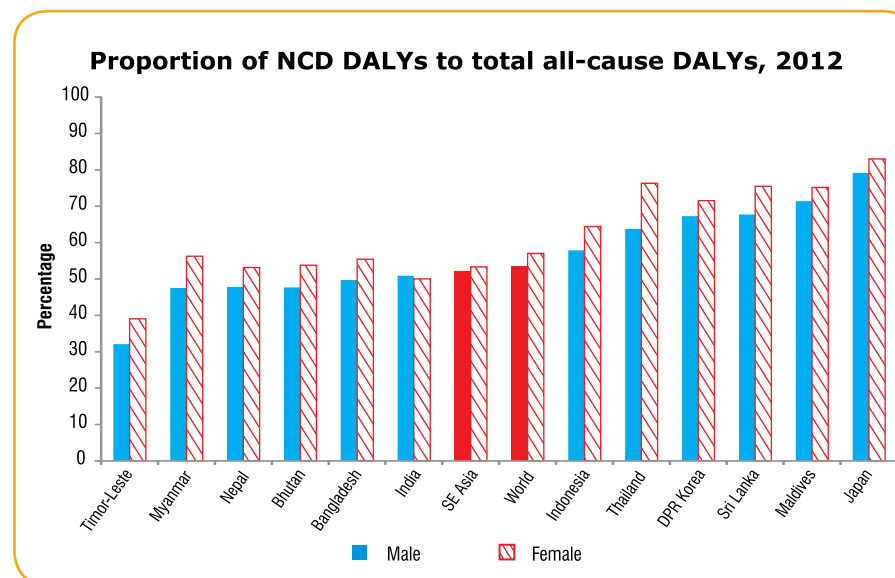
Note: Because of the need to round the data, some percentages may not add up to 100%.

Disease burden (in terms of DALYs) due to noncommunicable diseases

One DALY (disability-adjusted life year) is one lost year of healthy life. It is a single measure of disease burden by cause encompassing both morbidity and mortality. It combines years lived with a disability and years of life lost due to premature death due to that cause.

As shown in the graph, noncommunicable diseases in the South-East Asia Region account for 53% of all-cause disease burden which is slightly less than the world average of 55%. While six countries of the Region are below these averages, the share of NCD burden in the remaining five (Indonesia, Thailand, DPR Korea, Sri Lanka, and Maldives) ranges from 58% to 71% for males and from 64% to 75% for females. These five countries have the highest life expectancy in the Region. Normally, the higher the longevity, the greater is the share of the NCD burden, as it is for Japan in the graph.

Despite the regional average life expectancy of 67 years being lower than the global average of 70 years (World Health Statistics 2014), the Region has proportionately a higher share of the NCD burden. This points again to the fact that there are more premature deaths (at age <70 and even at <60) due to NCDs in the South-East Asia Region.



Source: Death and DALY estimates for 2012 by cause for WHO Member States, http://www.who.int/healthinfo/global_burden_disease/estimates/en/index2.html (Accessed 12 August 2014)

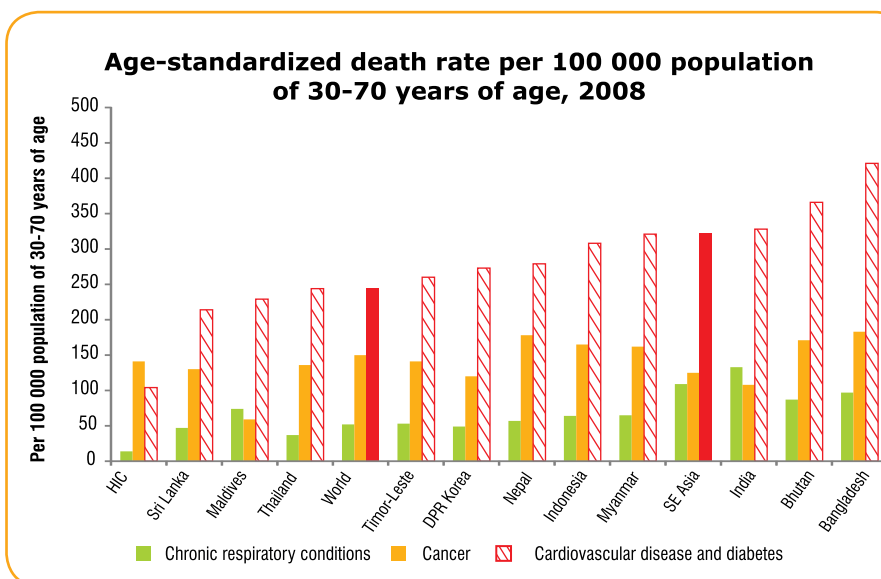
Major noncommunicable diseases

The analysis of available data on major noncommunicable diseases (NCDs) is an attempt to demystify the popular myth that NCDs affect mostly high-income people. On contrary, the evidence gleaned shows that the impact of NCDs is far more significant among people with lower socioeconomic status. Already afflicted with some communicable disease or injury, they lack the right education and required awareness to adapt readily in a healthy way to the fast-changing lifestyle surrounding them. As a consequence, poorer population groups fall prey to lifestyle-related NCDs as well. Given their health-seeking behaviour to date, NCDs are detected late, at the stage when extensive and expensive hospital care is the only option, which they can hardly afford.

On the other hand, while the initial burden of NCDs was indeed greater in affluent societies, improved health care, early detection and timely treatment have brought most of NCDs under control in these societies.

This graph shows that, of the three major categories of noncommunicable diseases (NCDs), cardiovascular disease and diabetes has the highest death rate in every country of the Region. The second highest category is cancer, except in Maldives and India, where chronic respiratory conditions is the second highest category.

Only two countries (Sri Lanka and Thailand) have death rates lower than the world average for each of the three categories of NCD. There is no high-income country in the Region as classified by the World Bank (four are classified as low-income, and the remaining seven as lower middle-income countries). The fact that every country in the Region has death rates higher than the average in high-income countries for each NCD category except cancer supports the hypothesis that deaths due to NCDs are rising at a faster rate in low- and middle-income countries.



HIC = high-income countries.

Source: WHO, World Health Statistics 2012.

Risk factors for major noncommunicable diseases

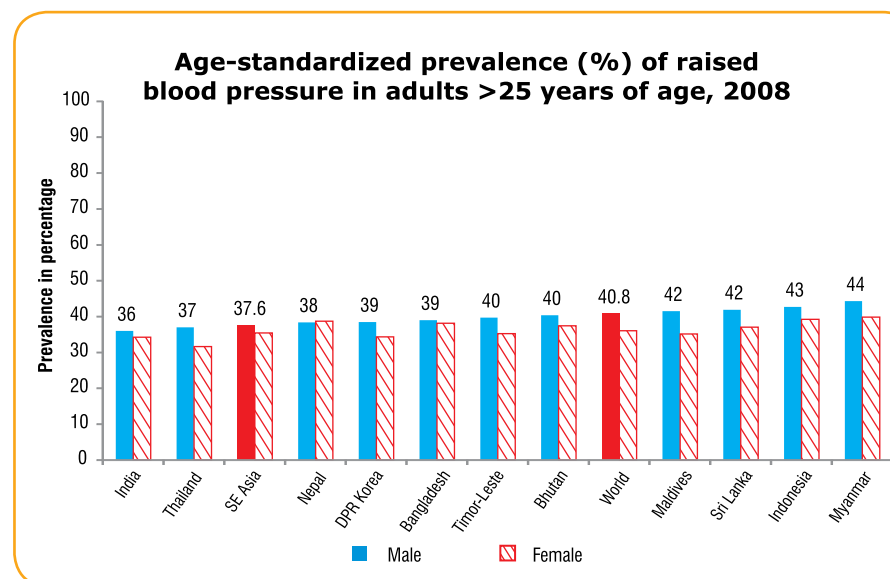
Raised blood pressure (SBP ≥ 140 and/or DBP ≥ 90 or on medication)

Noncommunicable diseases (NCDs) are caused, to a large extent, by four behavioural risk factors: tobacco use, unhealthy diet, insufficient physical activity and the harmful use of alcohol. There are several quantitative indicators to gauge the magnitude and trend of these risk factors. The four selected indicators for which data are available in most countries of the South-East Asia Region are as follows; although they are linked directly or indirectly to all NCDs, their specific risks are also noted:

1. Raised blood pressure is a major risk factor for coronary heart disease and ischaemic as well as haemorrhagic stroke.
2. Raised blood glucose causes all diabetes deaths, ischaemic heart disease, and stroke deaths.
3. Overweight and obesity are risk factors for heart disease, strokes and diabetes, which increase steadily with increasing body mass index (BMI), an indicator of overweight and obesity.
4. Tobacco smoking causes lung cancer, chronic respiratory disease, and cardiovascular disease.

As shown in the graph, the average prevalence of raised blood pressure in the South-East Asia Region is lower than the global average. While two countries (India and Thailand) are below the regional average, four (Maldives, Sri Lanka, Indonesia, and Myanmar) are not only above the regional average, but are also above the world average.

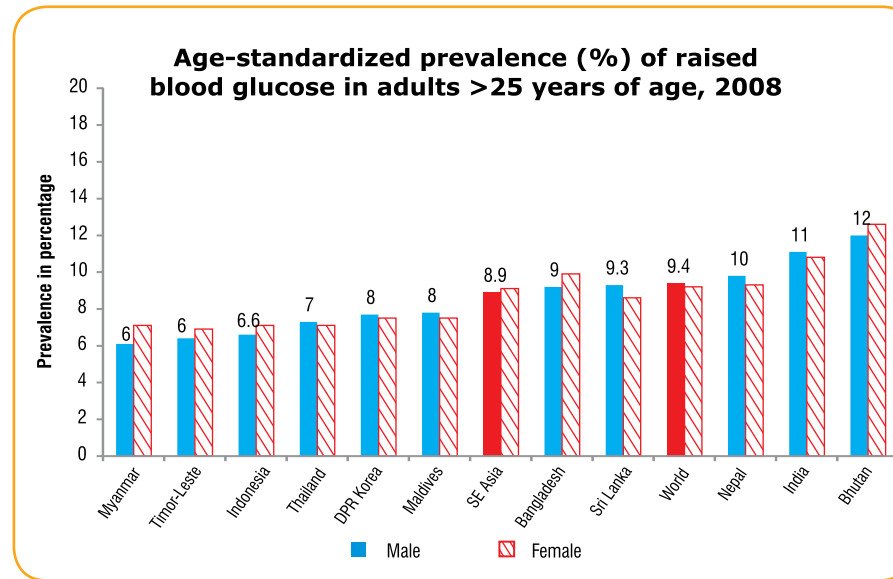
Global evidence seems to suggest that the prevalence of raised blood pressure is similar across all income groups, though it has been found to be lowest in high-income populations. Apart from income for treatment, there is a combined effect of other factors like a responsive public health system for early detection, and reduced salt intake, which determine the average level of blood pressure in the population.



DBP = diastolic blood pressure; **SBP** = systolic blood pressure.

Source: WHO Global Health Observatory, www.who.int/gho (accessed 4 May 2013).

Raised blood glucose (fasting glucose ≥ 7.0 mmol/L or on medication)

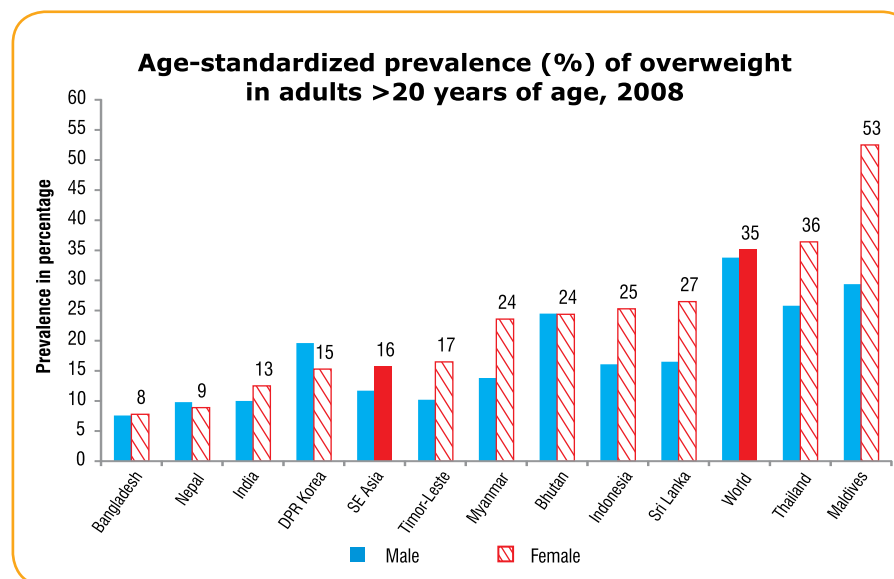


Source: WHO Global Health Observatory, www.who.int/gho (accessed 4 May 2013).

This graph shows that the prevalence of raised blood glucose in countries of the South-East Asia Region is slightly lower than the world average. Six countries are shown to be below the regional average, and three (Nepal, India, and Bhutan) are not only above the regional average, but also above the global average.

Changes in diet and reductions in physical activity levels increase resistance to insulin which, in turn, raises blood glucose. Genetically, some populations are more prone than others to develop resistance to insulin due to their slow adaptability rate to fast-changing diet patterns and reduced physical activity. In such populations, raised blood glucose is strongly correlated with diabetes. The rising incidence and prevalence of diabetes in most countries of the Region support this hypothesis. Data reveal a slightly higher prevalence of raised blood glucose in women than men in five countries of the Region (Myanmar, Timor-Leste, Indonesia, Bangladesh, and Bhutan).

Overweight (BMI ≥ 25 kg/m²)



BMI = body mass index.

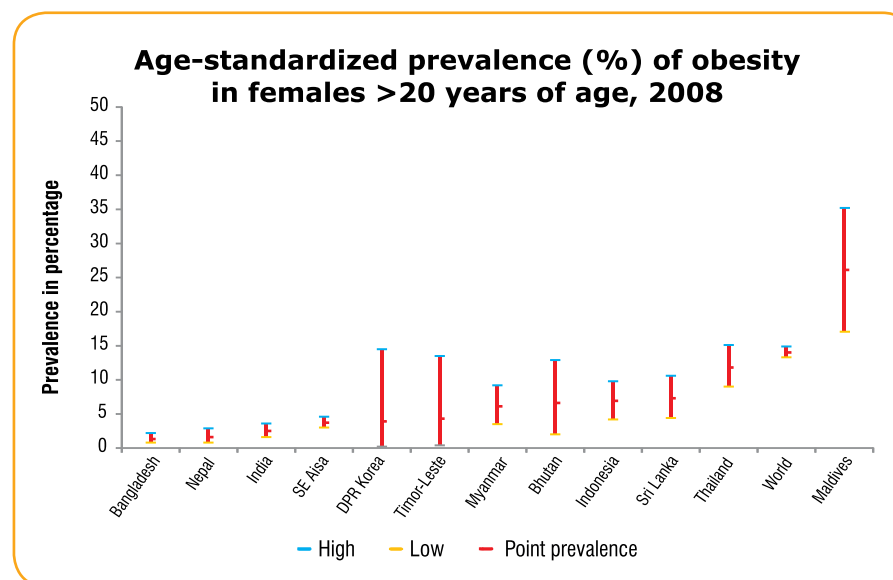
Source: WHO Global Health Observatory, www.who.int/gho (accessed 4 May 2013).

As shown in the graph, the prevalence of overweight in the South-East Asia Region is slightly lower than the world average. While at one end, four countries (Bangladesh, Nepal, India, and DPR Korea) are below the regional average, two (Thailand and Maldives) at the other end are not only above the regional average, but are also above the global average.

Data reveal that, except in Nepal, DPR Korea, and Bhutan, the prevalence of overweight is higher in women than in men in South-East Asia Region countries, and is almost double in Maldives.

Globally, the prevalence of overweight is highest in upper middle-income countries, but the fastest rise in overweight - especially in children - is in the lower middle-income group. While an inverse relationship between education and body mass index (BMI) has been found in high-income countries, a positive relationship between socioeconomic status and BMI in medium- and low-income countries has been observed. All countries in the South-East Asia Region fall in this latter category.

Obesity in women (BMI ≥ 30 kg/m²)



BMI = body mass index.

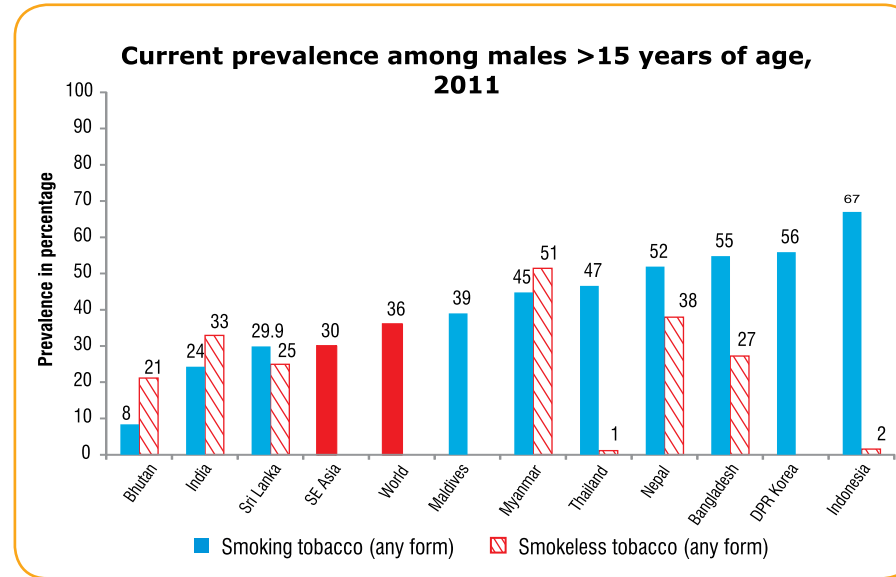
Source: WHO Global Health Observatory, www.who.int/gho (accessed 4 May 2013).

All healthy people have fat reserves necessary for the proper functioning of their bodies. By nature, women tend to carry slightly more of this reserve than men. However, excess fat has been found to be unhealthy. The quantitative measure of body fat is body mass index (BMI). A person with BMI greater than 30 is classified as obese and considered to be at risk for a host of noncommunicable diseases.

As shown in the graph, while the prevalence of obesity in women in three countries (Bangladesh, Nepal, and India) is lower than the regional average, Maldives is not only above this average but also above the world average. The 26% prevalence of obesity in Maldives is comparable to that in high-income countries of the WHO Region of the Americas.

Although the average prevalence of obesity in a country may be low, like that in India, there is global evidence that the prevalence varies across socioeconomic groups within an individual country. This may well be the case in most countries of the Region, where socioeconomic disparities are rather high.

Tobacco use prevalence among men



Source: WHO, Report on the global tobacco epidemic 2013.

Notes:

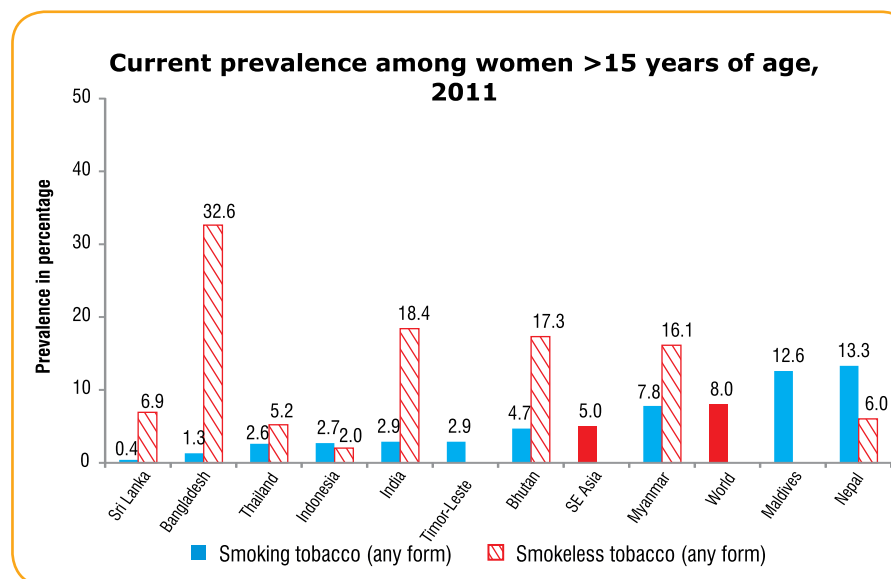
1. Years of data differing from 2011 are Bhutan (2007), India (2009), Sri Lanka (2006), Maldives (2004), Myanmar (2009), Bangladesh (2010), DPR Korea (2008).
2. Age groups different from that in the graph title are Bhutan (25-74), Sri Lanka (15-64), Maldives (25-64), Myanmar (15-64), Nepal (15-49), Bangladesh (>25), DPR Korea (25-64).
3. Data not available for Timor-Leste.
4. South-East Asia Region and World averages are for 2009 (World Health Statistics 2013).

Although smoking is the most commonly used form of tobacco globally, the use of tobacco in any form is a risk factor for lung cancer, oral cancer, chronic respiratory disease and cardiovascular disease, among others.

The left side of the graph shows that, of the three countries that have tobacco smoking prevalence in men lower than the average for the Region, India has higher prevalence of smokeless tobacco. The right of the graph, i.e. the seven countries that have smoking prevalence higher than the regional as well as the world average, one (Myanmar) also has a higher prevalence of smokeless tobacco.

Analysis of global data reveals that while the prevalence of smoking is slowly but steadily decreasing in high-income countries, it is increasing in many low- and middle-income countries. All countries in the South-East Asia Region fall in this latter category.

Tobacco use prevalence among women



Source: WHO, Report on the global tobacco epidemic 2013.

Notes:

1. Years of data differing from 2011 are: Sri Lanka (2006), Bangladesh (2010), India (2009), Timor-Leste (2010), Bhutan (2007), Myanmar (2009), Maldives (2004).
2. Age groups differing from that in the graph title are: Sri Lanka (15-64), Bangladesh (>25), Timor-Leste (15-49), Bhutan (25-74), Myanmar (15-64), Maldives (25-64), Nepal (15-49).
3. Data not available for DPR Korea.
4. South-East Asia Region and World averages are for 2009 (World Health Statistics 2013).

Although smoking prevalence among women is not very high in countries of the Region except for Maldives and Nepal, the use of smokeless tobacco does appear to be high. Of the eight countries of the Region for which data are available for both smoking and smokeless tobacco use, six have higher prevalence of the use of smokeless tobacco among women. While smoking prevalence among women varies from less than 1% in Sri Lanka to 13% in Nepal, the prevalence of smokeless tobacco use varies from 2% in Indonesia to as high as 33% in Bangladesh.

Communicable diseases

(diseases that are infectious and transmissible from person to person)

A communicable disease is transmitted to a human host via an infectious agent (a pathogenic micro-organism) directly or through an intermediate host, called a vector.

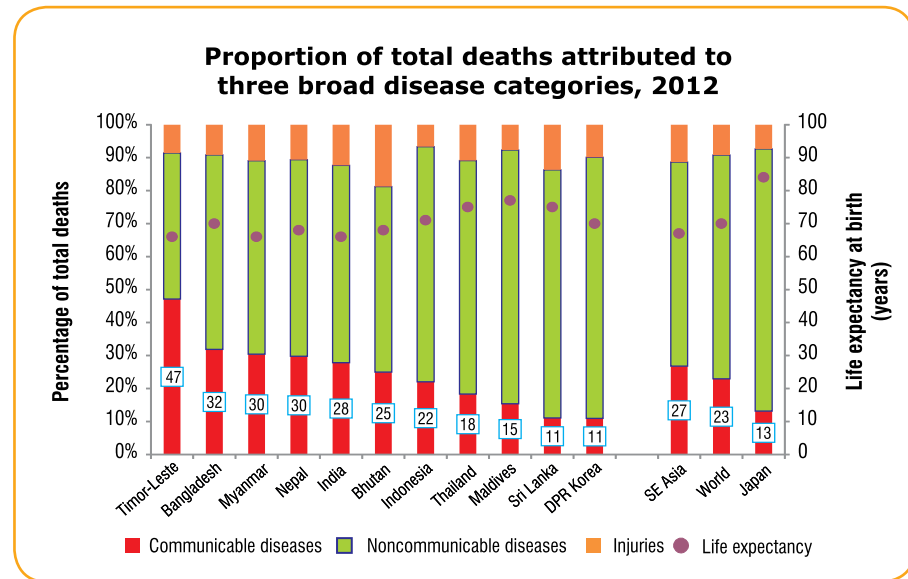
Some infectious diseases in the past have had such a devastating impact on the population that communication sharing between public health agencies, private physicians, and hospitals was the main approach to protect the public. This approach remains an essential part of surveillance and control of these diseases, which is why the name *communicable diseases* continues to be used for infectious diseases.

(Lately, strong evidence has emerged in support of a causal link between the communicable and noncommunicable disease divide whereby certain communicable disease infections are rendered noncommunicable.)

Communicable diseases: an unfinished agenda

The hypothesis that an industrialized and/or rising per capita income economy shows a pattern and trend of diseases from communicable to less communicable, followed by noncommunicable diseases, holds true for South-East Asia countries.

As shown in the graph, about 30% of total deaths in four countries of the South-East Asia Region were due to communicable diseases (Bangladesh, Myanmar, Nepal, and India). However, communicable diseases represented 47% of total deaths at the top end of the scale (Timor-Leste) and 11% each for Sri Lanka and DPR Korea at the bottom end of the scale. The proportion of deaths due to communicable diseases in these last two countries is comparable to that in the world's high-income countries. It is also noted that, besides high per capita income, the proportion of deaths due to communicable diseases decreases as the average life expectancy of the population increases.



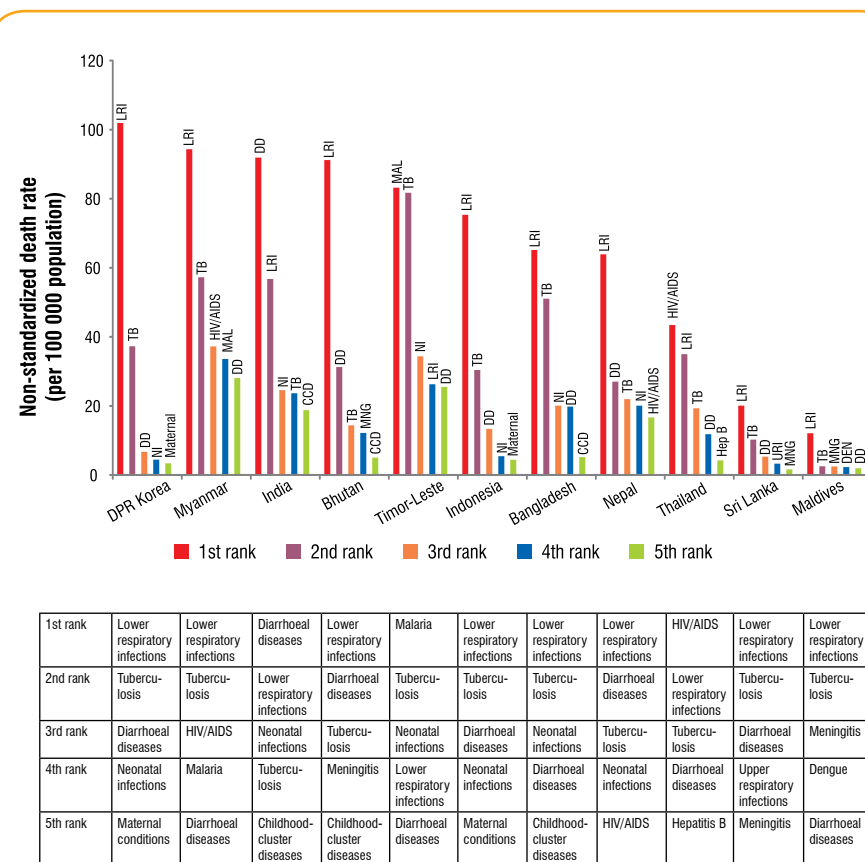
DPR = Democratic People's Republic; **SEA** = South-East Asia.

Source: Computed from deaths and life expectancy estimates for 2012 for WHO Member States, http://www.who.int/healthinfo/global_burden_disease/estimates/en/index2.html (Accessed 12 August 2014)

Top five communicable diseases in terms of death rate per 100 000 population, 2008

Although the proportion of deaths due to communicable diseases is decreasing, some communicable disease death rates remain rather high. The rank of some communicable diseases has remained constant for decades, despite a general epidemiological transition. Factors related to epidemiological transition seem likely to affect both communicable and noncommunicable diseases.

Among the communicable diseases shown in the graph, the top rank killers in almost all countries of the South-East Asia Region are lower respiratory infections (particularly pneumonia), diarrhoea in children, followed by tuberculosis, malaria and HIV/AIDS in adults. Infections in the neonatal period, vaccine-preventable childhood diseases and those related to maternity are also significant. Demographically, children and women bear most of the double burden of epidemiological transition in the Region.



Source: computed from WHO, Mortality and burden of disease estimates for WHO Member States in 2008

http://www.who.int/healthinfo/global_burden_disease/cod_2008_sources_methods.pdf (Accessed March 2013)

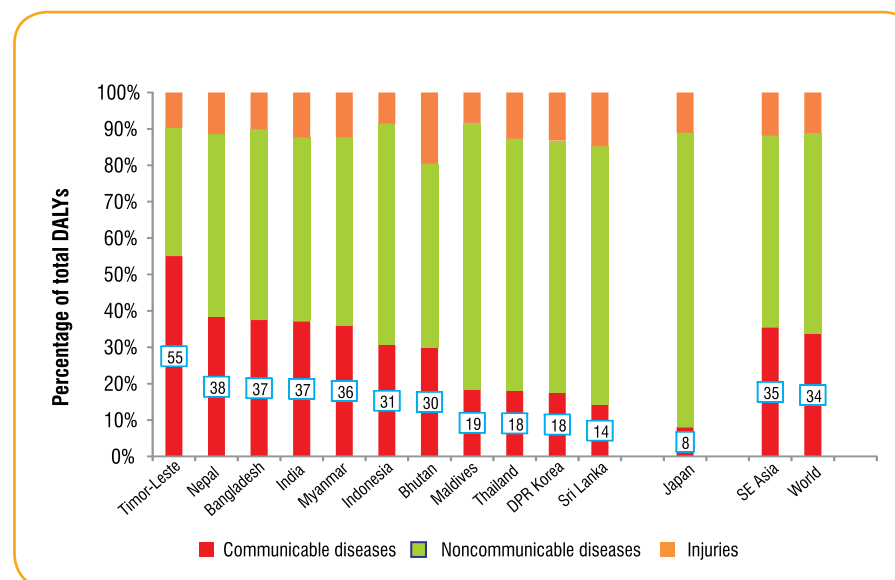
Percentage of total disease burden in terms of disability-adjusted life years (DALY) by three broad disease categories, 2012

High population growth has put tremendous pressure on the environment. In addition, human activities such as encroachment on wildlife habitats, deforestation, change in agriculture and crop patterns, uncontrolled urbanization with crowded populations and poor sanitation have all led to the emergence of new, and the re-emergence of old infectious diseases. Unlike in industrialized countries, such human activities in most countries of the South-East Asia Region have resulted in a high burden of communicable diseases in one segment of population, and an increase in noncommunicable diseases in others. Thus, a high pathogen load of communicable diseases is also responsible to a large extent in slowing economic growth in some countries.

The proportion of communicable disease DALYs^a lost (compared with total DALYs) is more than the proportion of communicable disease deaths (compared with total deaths), which implies that there is also a burden of sickness and suffering which is frequent and often relapsing and recurring.

While the proportion of deaths due to communicable diseases is 27% in the South-East Asia Region, the proportion for DALYs is 35%. Even countries with the lowest share of deaths, comparable with high-income countries, have almost twice as many DALYs lost due to communicable diseases (e.g. Sri Lanka compared with Japan).

It is also noted that some countries in the Region are beginning to have a triple burden of disease, as deaths and DALYs due to injuries and accidents are also on rise.



Source: Computed from DALY estimates for 2012 by cause for WHO Member States, http://www.who.int/healthinfo/global_burden_disease/estimates/en/index2.html (Accessed 12 August 2014)

^a One DALY is one lost year of healthy life. It is a single measure of disease burden by cause encompassing both morbidity and mortality, and combines years lived with a disability and years of life lost due to premature death due to that cause.

Risk factors for communicable diseases

In a simplified scenario for lay persons, communicable diseases are mostly environmentally induced diseases whose risk factors lie in the surrounding environment. In the "Environment - Agent - Host" chain of germ theory, it is the agent that is the germ that interacts with the environment, and the human host and becomes infected from host-to-host in the form of infection. The emerging and re-emerging infections from the environment that cause disease are mostly parasitic, bacterial and/or viral.

Apart from the symbiotic coexistence of humans with micro-organisms, disease-causing organisms breed in man-made unhygienic conditions of air, water and soil. People who are weak, who have low immunity, and/or live in unhygienic conditions are at greater risk of contracting infections from their surroundings.

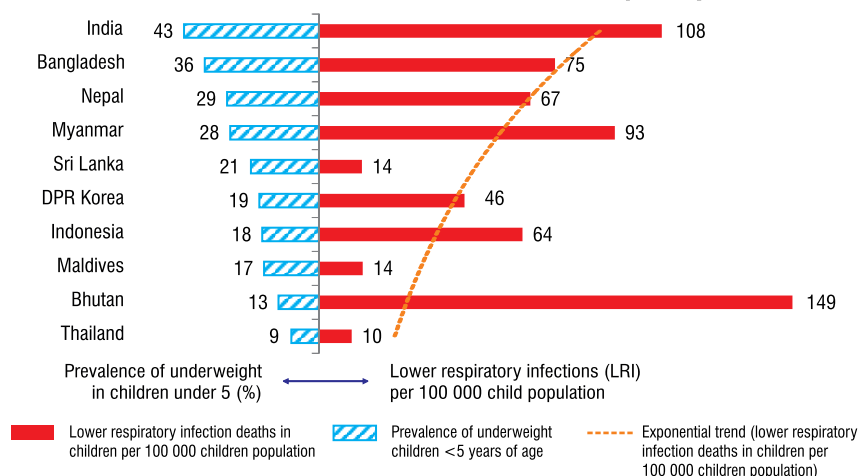
Three scenarios are presented here in support of this hypothesis.

1. Relationship between nutritional deficiency in children and their vulnerability to lower respiratory infections

Underweight-for-age in children under-five is a major indicator of nutritional deficiency in the population. Underweight children are vulnerable to more frequent and severe infectious illnesses. The death rate due to lower respiratory infections, particularly pneumonia, in children is the first or second rank disease among all infectious diseases in most South-East Asia countries.

As shown in the graph, a decrease in prevalence of underweight children across the countries from 43% to 9% corresponds to a decrease in lower respiratory infections from 108 to 10 per 100 000 child population. However, a few countries, like Bhutan and Myanmar, had no such corresponding decrease.

Countries with lower prevalence of underweight-for-age in children tend to have lower death rates due to lower respiratory infections*



* Not a univariate relation as there are other determinants (see next graph for relation between use of solid fuel and lower respiratory illness death rates).

Note: No data available for Timor-Leste.

- Source:**
1. Prevalence of underweight. WHO South-East Asia Regional Office, MDG report 2014.
 2. Lower respiratory infection death rates. WHO Global Burden of Disease report 2004, updated October 2009.

2. Relationship between use of solid fuels for cooking and population vulnerability to lower respiratory infections

Use of solid fuels, including biomass (wood, dung and crop residues) and coal for cooking and heating, is the main source of indoor air pollution in countries of the South-East Asia Region. There is strong evidence that exposure to indoor air pollution is a cause of pneumonia and other acute lower respiratory infections among children under five years of age. If the solid fuel is coal, it also causes chronic obstructive pulmonary disease and lung cancer among adults. Indoor air pollution disproportionately affects women and children who spend a lot of time near the domestic hearth.

The graph shows that a cross-country decrease in the percentage of the population using solid fuels from 95% to 8% corresponds to a decrease in lower respiratory infections from 94 to 12 per 100 000 of the total population. However, it is noted that, while two countries (Bhutan and DPR Korea) have higher lower respiratory infection rates than expected, Sri Lanka had a lower rate for the given coverage of population with solid fuel. One reason for this could be that DPR Korea and Bhutan were less able to provide timely treatment for lower respiratory infections compared with Sri Lanka.

Countries with a lower use of solid fuel for cooking tend to have a lower death rate due to lower respiratory infections*



* Not a univariate relation as there are other determinants (see previous graph for relation between weight-for-age in children under-five and lower respiratory infection death rates).

Note: No data available for Timor-Leste.

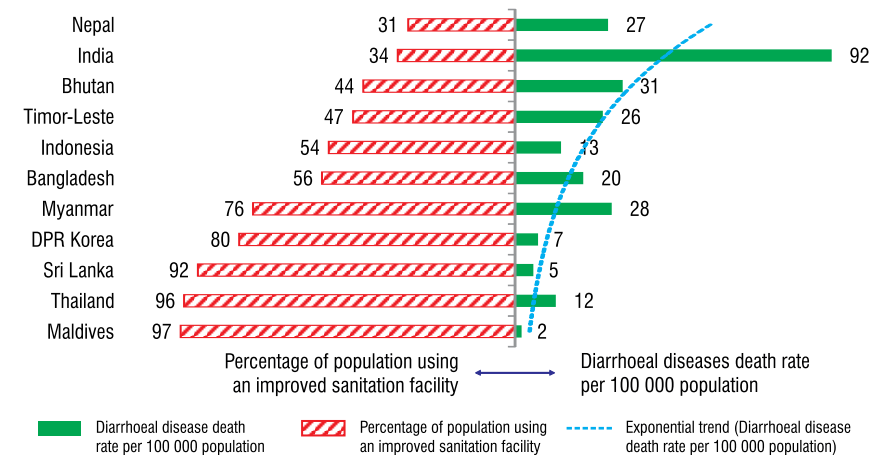
- Source:**
1. Percentage of population using solid fuels, <http://millenniumindicators.un.org/unsd/mdg/Data.aspx> (accessed 15 May 2013).
 2. Lower respiratory infection death rates, WHO Global Burden of Disease report 2004, October 2009 update.

3. Relationship between use of improved source of water and sanitation facilities and population vulnerability to diarrhoeal diseases

It has been found globally that inadequate access to sanitation, hygiene, and safe drinking water increases the incidence of diarrhoeal diseases. In most South-East Asia Region countries, the death rate due to diarrhoea, particularly in children, ranks first or second among all communicable diseases.

This graph shows that, across countries, the higher the percentage of the population with access to adequate sanitation facilities, the lower the death rate due to diarrhoeal diseases. However, the diarrhoea death rate of 92 per 100 000 population in India is exceptionally high, indicating that other concomitant factors, such as inadequate access to treatment for diarrhoea in India, may be responsible. The forthcoming vaccine against a major cause of diarrhoeal presents hope for reducing diarrhoeal deaths in India.

Countries where a higher percentage of the population use improved sanitation facilities tend to have fewer deaths from diarrhoeal diseases*



* Not a univariate relation as there are other concomitant determinants.

- Source:**
1. Percentage of population using an improved sanitation facility, WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, <http://www.wssinfo.org/data-estimates/table/> (accessed 22 March 2012).
 2. Diarrhoeal diseases death rates, WHO Global Burden of Disease Report 2004, October 2009 update.

Indicators of gender-related inequity in health

(The latent layer at the bottom of the socioeconomic determinants of health pyramid)

Gender—what a given society believes about the appropriate roles and activities of men and women and the behaviours and status that result from these beliefs—can have a major impact on development; helping to promote it in some cases while seriously retarding it in others (WHO, En-gendering the Millennium Development Goals on Health).

These gender factors are known to have caused differentials in achievements of health by men and women, adversely affecting more often women than men. There is enough evidence to show that, while levels of achievements on health have risen lately for both men and women, wide gaps in achievement are also observed between the two.

While achieving the highest attainable level of health connotes with the ideal, striving for the smallest possible gap of this achievement between men and women is the optimum fairness. It is the lack of fairness, called inequity, that all health-care systems strive to minimize with a close focus on women's health, the less privileged women in particular. Although gender is not equated with any sex category, it is the sex categories (male/female) on which gender factors are analysed to examine which category, and to what extent, gender factors adversely affect that sex category.

There are many sociocultural factors that adversely affect health outcomes, education, justice, and the political and economic achievements of women, and only some of these have been analysed in this section, notably those related to health and ill-health.

Note:

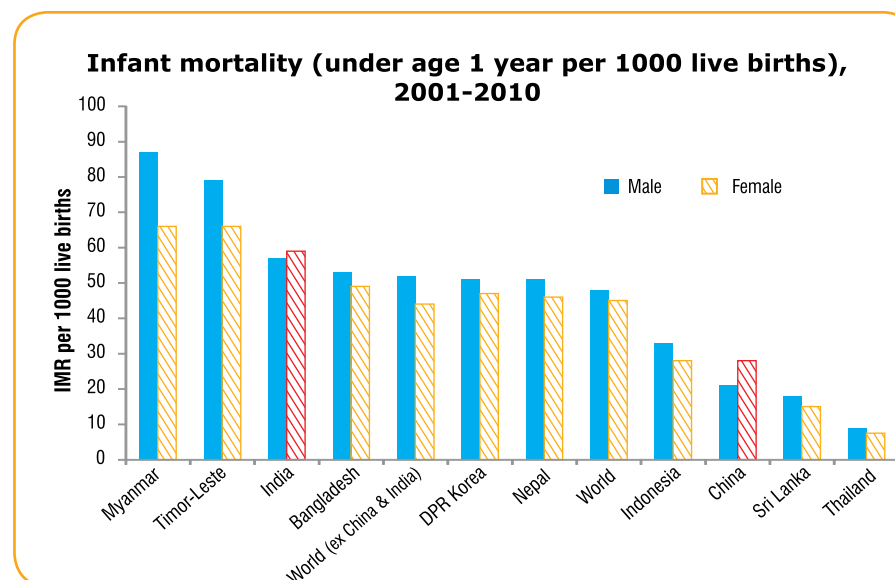
- (1) For more factors of gender and its related inequity in health, please refer to the latest WHO/South-East Asia Regional Office publication on the Millennium Development Goals brochure and analytical report 2014.
- (2) For cause-specific sex differentials in morbidity and mortality, please refer to sections of this publication on indicators of communicable and noncommunicable diseases.

Sex differentials in infant mortality

Newborn girls have a biological advantage in survival over newborn boys. They have less vulnerability to perinatal conditions (including birth trauma, intrauterine hypoxia and birth asphyxia, prematurity, respiratory distress syndrome and neonatal tetanus), congenital anomalies, and such infectious diseases as intestinal infections and lower respiratory infections (United Nations Population Division, detailed vital registration analysis of countries).

However, the biological advantage is compromised by discriminatory care of girls in some population groups. As a result, higher mortality in girls than in boys has been observed in some countries.

As shown in the graph, all countries except India in the South-East Asia Region, for which data are available, have lower infant mortality rates for girl than for boy infants. India on the other hand has a higher infant mortality among girls. In comparison to China, the country with the highest infant mortality sex differential in the world at 33%, India's sex differential is 4%, even though the level of infant mortality in China overall is about half that of India.



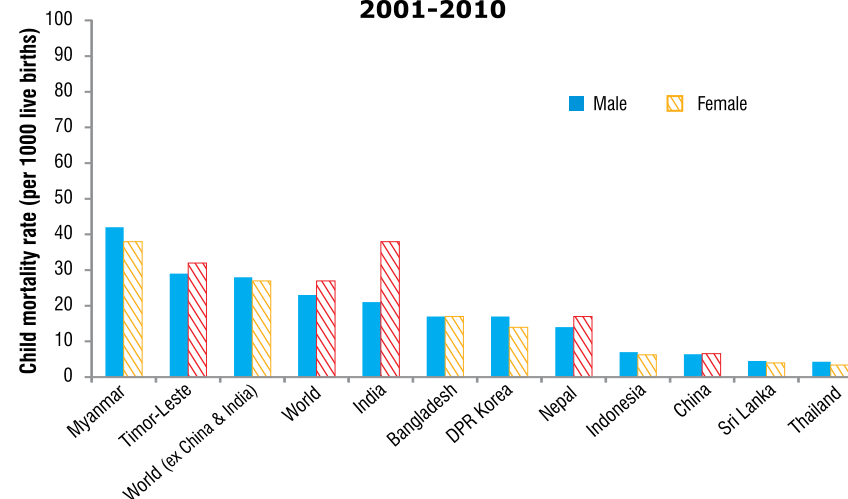
Source: United Nations Department of Economic and Social Affairs Population Division, Sex differentials in childhood mortality 2011.

Sex differentials in child mortality

Beyond early infancy, girls do not enjoy the same biological advantage as at birth and therefore the survival rate of boys often catches up with that of girls, to reach equal advantage for both sexes by 1 to 4 years of age. At this age, the natural biological resilience of girls is no longer as strong against the infectious diseases of childhood. In addition, in some socioeconomic settings girls do not have the same access to resources such as food and medical care as boys do. As a result, the sex differential in child mortality is even higher than that in infancy for girls.

This graph shows that, in addition to India, two other countries of the Region (Timor-Leste and Nepal) have higher child mortality rates for girls than for boys. While the sex differential in the child mortality rate in Timor-Leste was 10% over the period analysed, it was 21% in Nepal and extremely high at 81% in India. It is noted that China, which had the highest sex differential in infant mortality in the world, has lowered its differential to the level where the mortality rate for girls is now almost the same as for boys.

Child mortality (age 1 to 4 years old per 1000 live births), 2001-2010

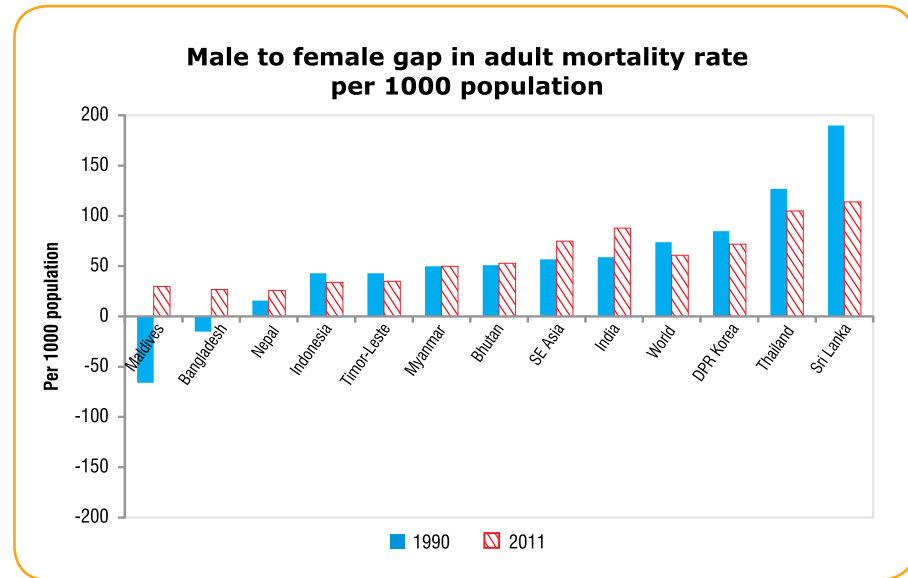


Source: United Nations, Department of Economic and Social Affairs Population Division, Sex differentials in childhood mortality 2011.

Sex differentials in adult mortality

Disease and injury in adulthood affect both men and women, though somewhat differently. For instance, social pressures on boys (a gender factor) may inflate risk-taking behaviours for them to be tough; discourage emotions such as anxiety and shame; and prevent them from seeking timely medical assistance in life-threatening situations. All these contribute to excess mortality in men. In addition, external causes of mortality (injury, accidents and violent behaviours), internal causes of mortality (attributable to genetic make-up vulnerability) are also higher for men in adulthood than for women despite the higher burden of reproductive age-related diseases and disabilities in women.

Compared with 1990, the gap in mortality rates of adult men and women (aged between 15 and 60 years) was lower in 2011 in five countries (Indonesia, Timor-Leste, DPR Korea, Thailand, and Sri Lanka) of the South-East Asia Region. While this gap is similar for two other countries (Myanmar and Bhutan), it has increased in two others (Nepal and India). In the remaining two countries (Maldives and Bangladesh), the negative gap in 1990 (i.e. adult female mortality was higher than in males) turned positive by 2011 (i.e. female mortality reduced faster than male mortality in these two countries).



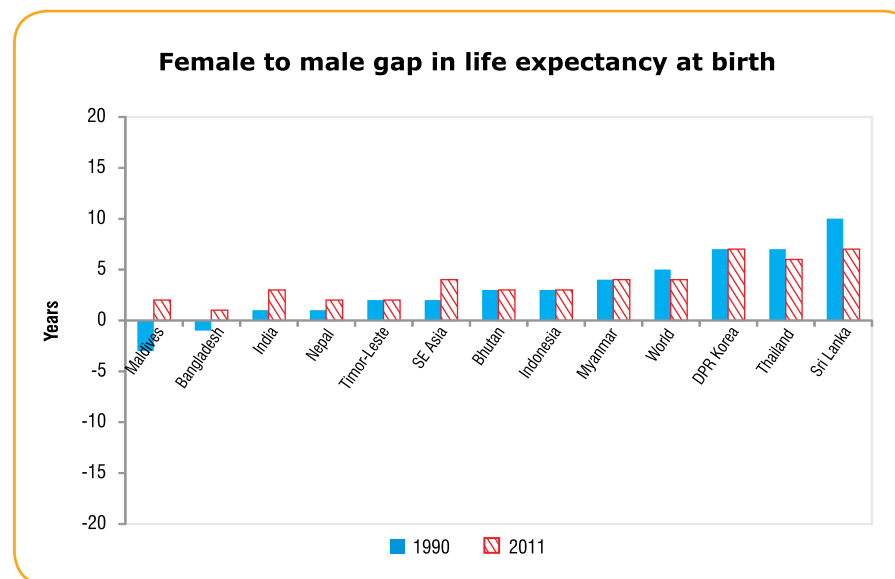
Source: WHO, World Health Statistics 2013.

Sex differentials in life expectancy at birth

For both males and females, life expectancy at birth is a summary measure of all age-specific mortality over the life span. A well-known characteristic of the twentieth century mortality decline was a widening of the sex difference in mortality in favour of females (lower mortality in females than in males). However, there are indications that in the twenty-first century worldwide, male mortality is also decreasing at a faster rate than before.

In the South-East Asia Region, the difference in life expectancy of women and men in 2011 remained the same as in 1990 for five countries (Timor-Leste, Bhutan, Indonesia, Myanmar, and DPR Korea). While the difference increased in Nepal and India, it went down in Thailand and Sri Lanka. In remaining two countries (Maldives and Bangladesh), the negative gap in 1990 (meaning that female life expectancy was lower than for males) became positive by 2011 (meaning that female life expectancy rose faster than male life expectancy).

Globally, the difference in average female to male life expectancy dropped from 5 years in 1990 to 4 years in 2011; conversely, it increased in the South-East Asia Region from 2 years in 1990 to 4 years in 2011, meaning that women in the Region were living 4 years longer than males by 2011 compared with 2 years longer in 1990.



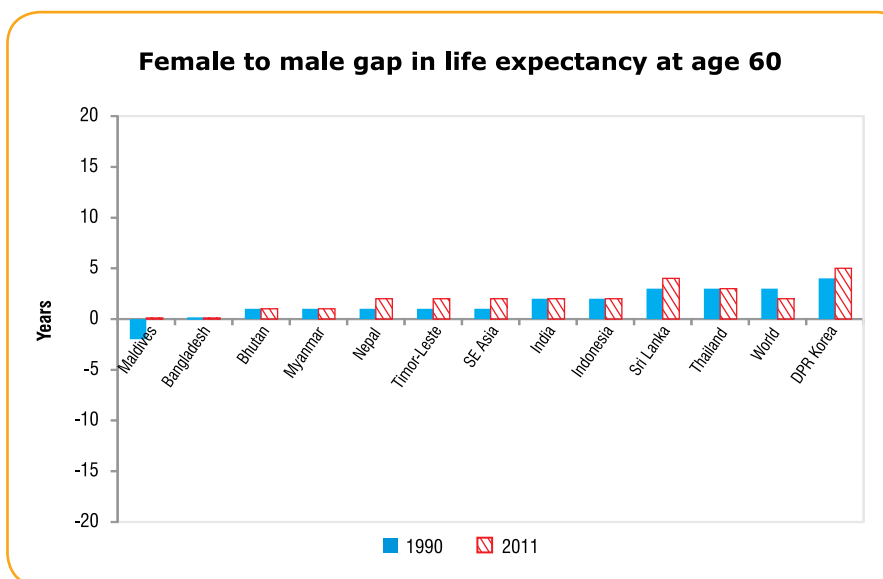
Source: WHO, World Health Statistics 2013.

Sex differentials in life expectancy at age 60

Sex differentials in mortality decreases with age. However, regardless of when life expectancy is measured (at birth or later ages), women outlive men.

While the difference in the life expectancy for women and men at age 60 remained the same in 2011 as it was in 1990 for six countries (Bangladesh, Bhutan, Myanmar, India, Indonesia, and Thailand) of the South-East Asia Region, it increased in four others (Nepal, Timor-Leste, Sri Lanka, and DPR Korea). In the remaining country - Maldives - the negative gap in 1990 (i.e. female life expectancy at age 60 was lower than for males) was annulled by 2011 (i.e. female life expectancy rose faster than male life expectancy to catch up with males).

It is also noted that, while the difference in global average female to male life expectancy at age 60 dropped from 3 years in 1990 to 2 years in 2011, it increased in the South-East Asia Region from 1 to 2 years (meaning that women at age 60 in the Region were expected to live 2 years longer than men in 2011 in comparison to 1 year in 1990).



Source: WHO, World Health Statistics 2013.

Indicators of health status

(How good is the population health?)

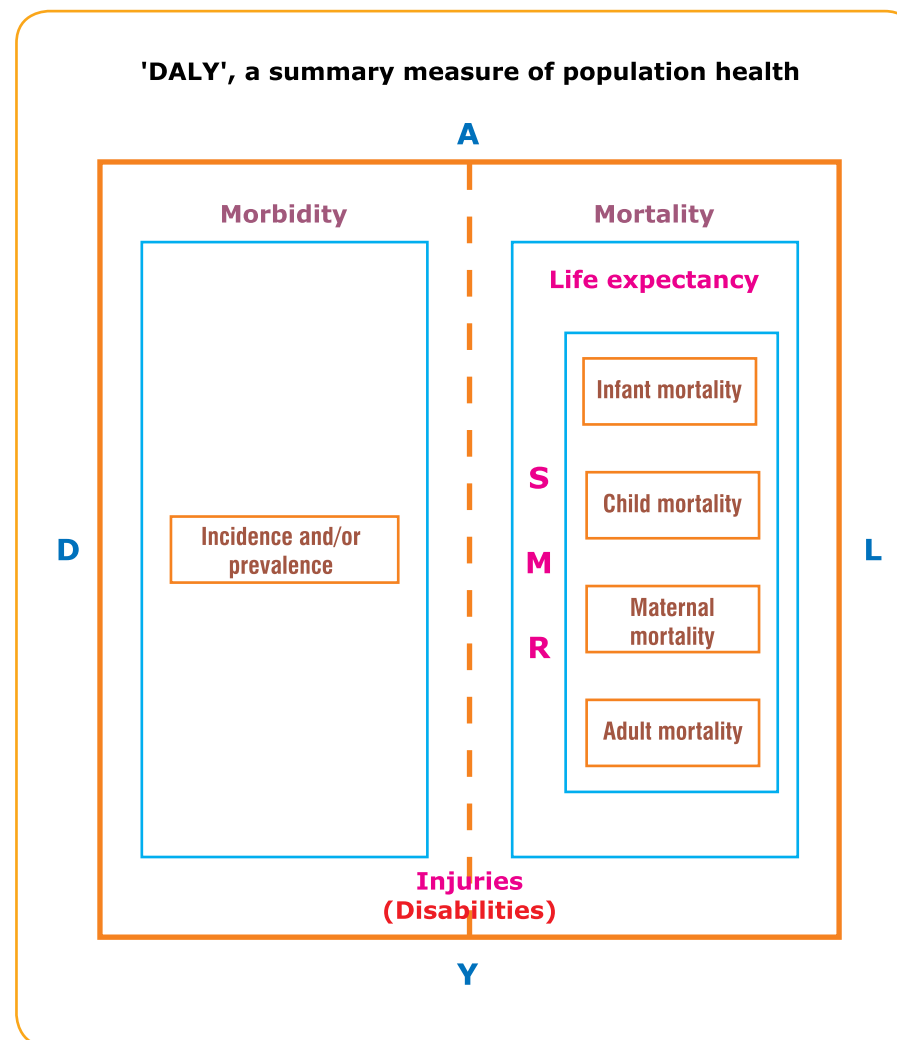
Although some techniques like quality-of-life measures are evolving, there is still a lack of well-perfected tools and techniques to measure positive aspects of health. Since positive attributes of health cannot be comprehensively measured, their negative aspects are measured, mostly in terms of changing patterns and magnitude of mortality and morbidity. These inform programme managers and policy-makers to take appropriate damage control measures within their sphere of expertise.

Summary measure of population health

Prior to 2000, mortality and morbidity data were viewed in isolation; indicators were developed and the health status of certain age groups measured, mostly based on mortality. As the specialized United Nations agency on health, WHO has an extensive longitudinal global database on mortality. Thus, in the past the focus was on deaths, whether they were male or female, the age at which they died, and the cause of death. It was hoped that the data gathered would inform health policy and try to enhance health and prolong life in the future.

The year 2000 brought disability-adjusted life year (DALY) methodology, which also encompasses morbidity. Thereafter, attention was turned to include patients in queues at the clinic, being nursed on hospital beds, those on cots in homes changing sides in pain, and persons involved in accidents on the road, who may end up disabled for the rest of their lives.

Once recorded and registered, these data need to be analysed and analytical scenarios presented for use by programme managers and policy-makers so that they may initiate appropriate action and interventions. This is a challenge in itself in tracking the status of population health.



Life expectancy at birth

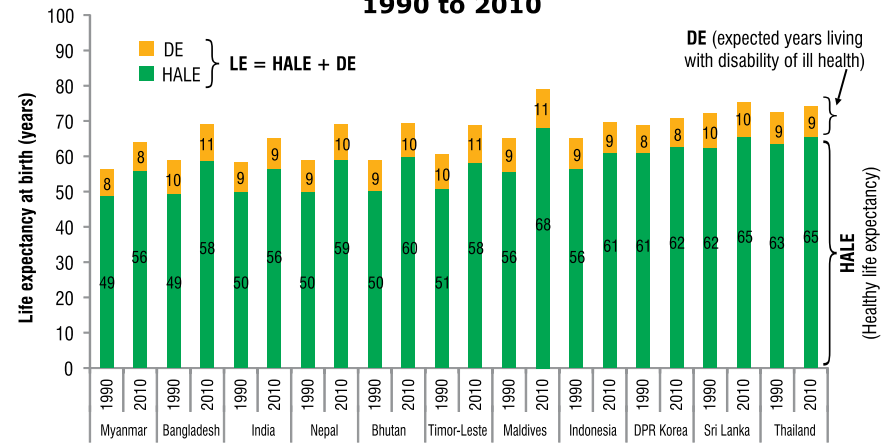
The main goal for the health system is to achieve the highest attainable level of health for the people. Recently, many public health experts have been debating on the proxy indicators for measuring health status. Although no one measure is perfect for the purpose of summing up the health of a population, life expectancy at birth (LEB), which is also one of the summary measures, has been used over a century. Its drawback is that it measures longevity without considering the effects of disease and disability. A new measure introduced from 2000 is healthy life expectancy, or HALE. HALE - which is also called disability-free life expectancy (DFLE) or disability-adjusted life expectancy (DALE) - is estimated from the life tables for each country and adjusted with estimates for disease and disability and other non-fatal health outcomes. Although it is not easy to compute, HALE is a valuable index for measuring health status.

The left side of the graph shows that in 1990, six countries had life expectancy at birth (LE) close to 59 years and healthy life expectancy (HALE) around 50 years; two decades later in 2010 they all had LE of 68 years and above and HALE of 57 years and above. Towards the right of the graph, the remaining five countries of the Region had LE above 65 years and HALE around 56 in 1990, and 70 and above and 60 and above respectively in 2010.

It is noted that the average increase of 9 years in LE from 1990 to 2010 in the first category of countries was mainly due to a decrease in mortality. On the other hand, the average increase of 5 years in the second category, with higher baseline levels of LE, was mostly in HALE (meaning that their burden of morbidity was comparatively low). While the fraction of LE lost due to disabilities and morbidities rose in all countries, Indonesia and Sri Lanka managed to keep it from rising, and Thailand reduced it from 9.2 to 8.8.

It is also noted that over this two decade period, Maldives had the highest increase of 14 years in LE (65 to 79 years) and 12 years in HALE (56 to 68 years).

Trend in healthy life expectancy, disability expectancy, and total life expectancy at birth in the South-East Asia Region, 1990 to 2010

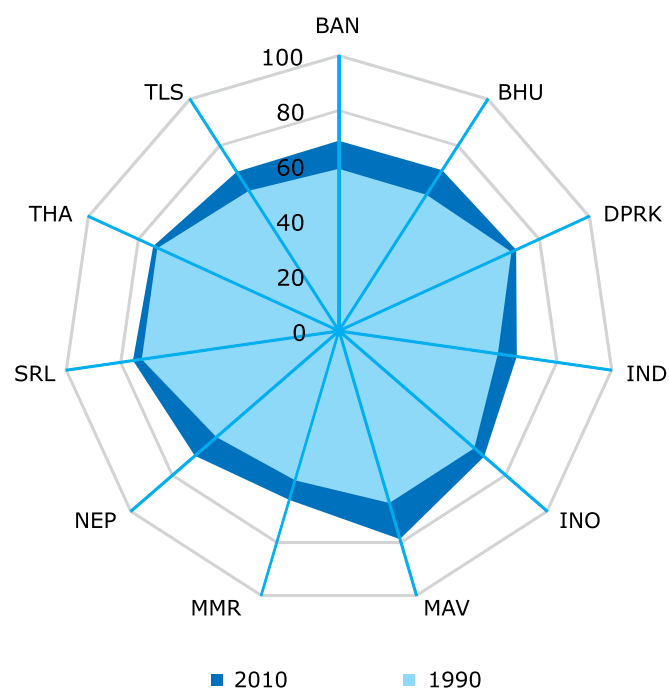


DE = disability expectancy; **HALE** = healthy life expectancy; **LE** = life expectancy at birth.

Source: The Institute of Health Metrics and Evaluation, www.healthmetricsandevaluation.org (accessed 9 May 2013).

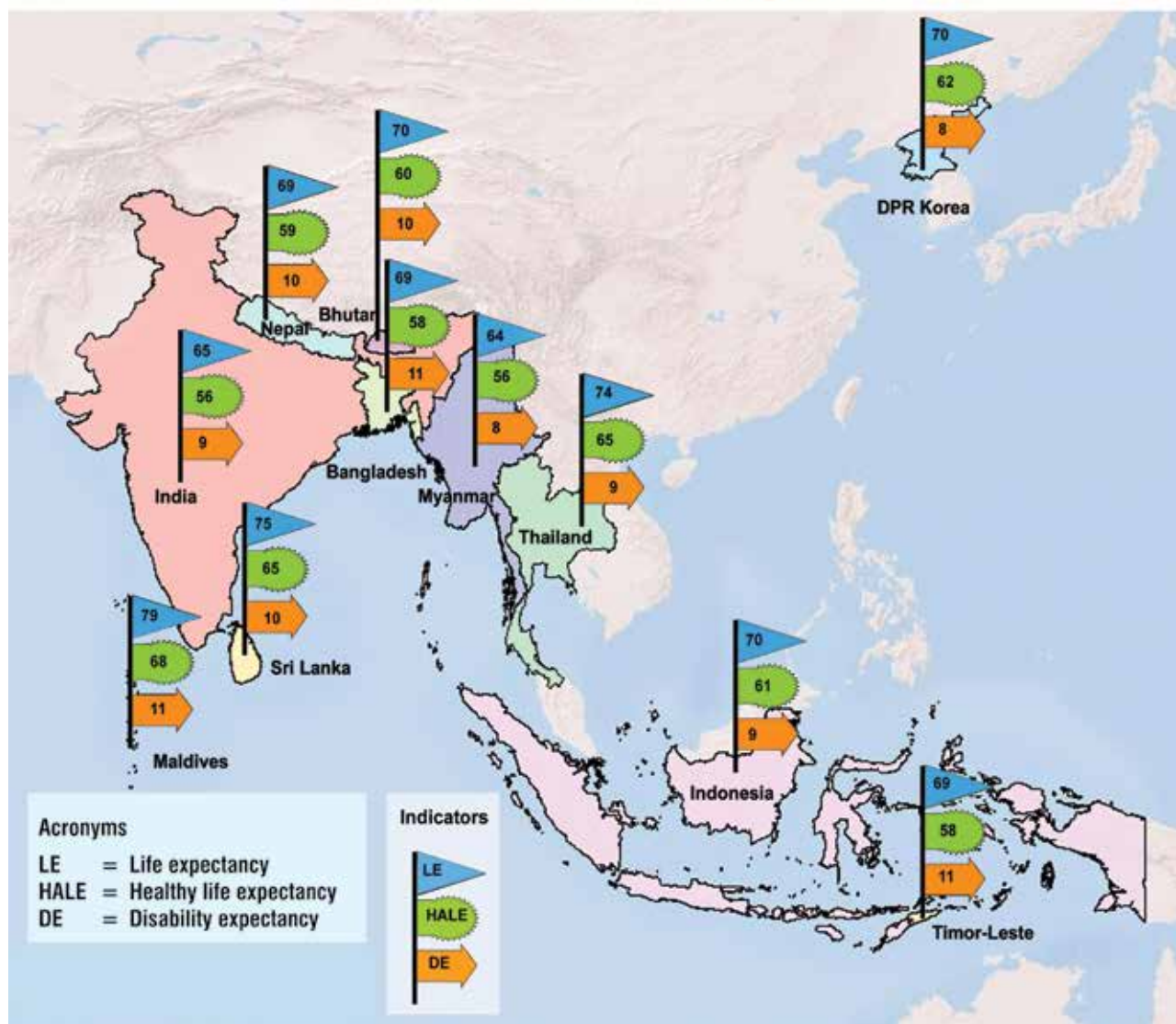
Trend in life expectancy at birth in years in the South-East Asia Region

Life expectancy at birth reflects the overall mortality level of a population. It summarizes the mortality pattern that prevails across all age groups - children and adolescents, adults, and the elderly. It is one of the few major health impact indicators.



Source: The Institute of Health Metrics and Evaluation, www.healthmetricsandevaluation.org (accessed 9 May 2013).

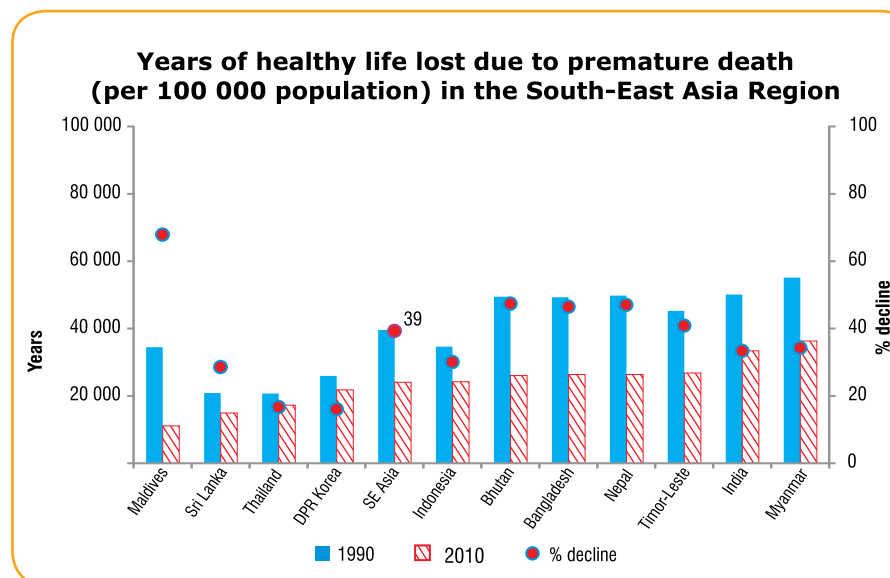
Total life expectancy, healthy life expectancy and disability expectancy at birth (in years)
in countries of the WHO South-East Asia Region, 2010.



Mortality burden

Disability-adjusted life years (DALY) is a measure of disease burden. Of its two components - years of life lost (YLL) and years lost due to disability (YLD), YLL measures the burden of mortality in the population due to premature deaths (dying before the expected global standard age). It sums up the time difference between the expected standard age of death and the age when death actually occurred across the population.

As shown in the graph, the rate of mortality burden declined from 1990 to 2010 in all countries of the Region. In five countries (Maldives, Bhutan, Bangladesh, Nepal, and Timor-Leste), the rate of decline was above the regional average decline of 39%.

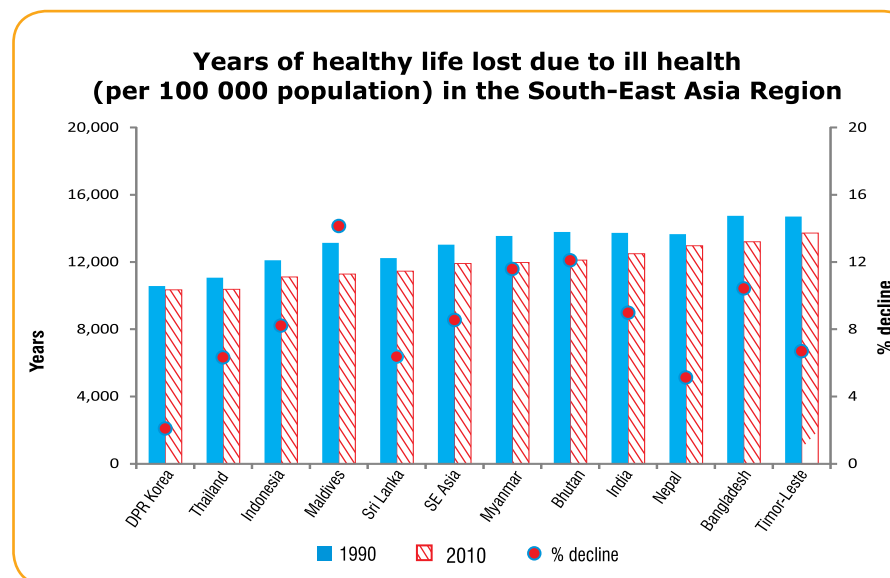


Source: The Institute of Health Metrics and Evaluation, www.healthmetricsandevaluation.org (accessed 9 May 2013).

Morbidity burden

YLD (years lived with disability) is the component of DALYs that measures the burden of morbidity in the population. It sums up the fraction of healthy years lost through living in ill-health due to all causes over the lifespan, across the population.

This graph shows that the overall morbidity burden has been declining in all countries of the Region, albeit at a slow rate. In five countries (Maldives, Myanmar, Bhutan, India, and Bangladesh), the rate of decline has been equal to or above the regional average, which itself was only 9% over a span of 20 years.



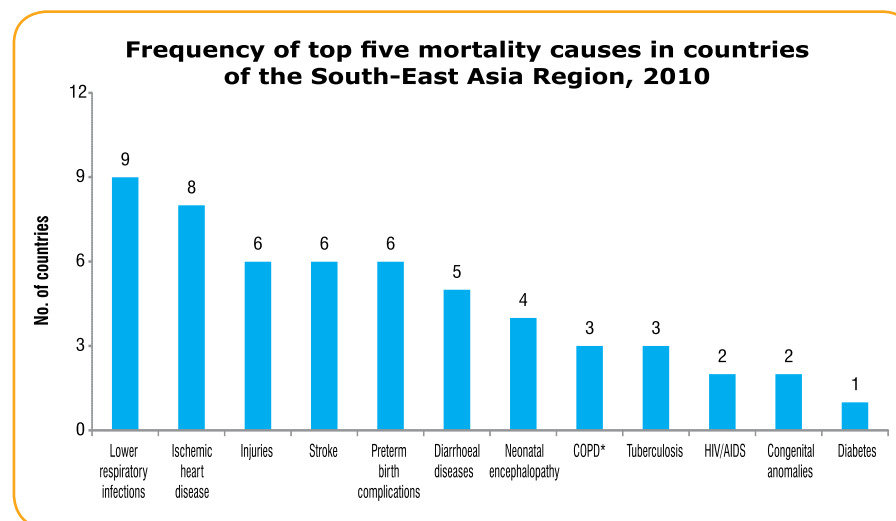
Source: The Institute of Health Metrics and Evaluation, www.healthmetricsandevaluation.org (accessed 9 May 2013).

Top five causes of mortality in the South-East Asia Region, 2010

| | Bangladesh | Bhutan | DPR Korea | India | Indonesia | Maldives | Myanmar | Nepal | Sri Lanka | Thailand | Timor-Leste |
|---|---------------------------------------|------------------------------|---------------------------------------|---------------------------------------|------------------------|-----------------------------|------------------------------|------------------------------|-------------------------------|------------------------------|------------------------------|
| 1 | Preterm birth complications | Lower respiratory infections | Stroke | Preterm birth complications | Stroke | Ischemic heart disease | Lower respiratory infections | Lower respiratory infections | Ischemic heart disease | HIV/AIDS | Lower respiratory infections |
| 2 | Lower respiratory infections | Preterm birth complications | Ischemic heart disease | Lower respiratory infections | Tuberculosis | Stroke | Stroke | Diarrhoeal diseases | Injuries including self-harm* | Ischemic heart disease | Diarrheal diseases |
| 3 | Neonatal encephalopathy | Poisoning | Chronic obstructive pulmonary disease | Diarrhoeal diseases | Road injuries | Neonatal encephalopathy | HIV/AIDS | Neonatal encephalopathy | Stroke | Road injuries | Preterm birth complications |
| 4 | Drowning | Neonatal encephalopathy | Lower respiratory infections | Ischemic heart disease | Diarrhoeal diseases | Preterm birth complications | Diarrhoeal diseases | Preterm birth complications | Diabetes | Lower respiratory infections | Congenital anomalies |
| 5 | Chronic obstructive pulmonary disease | Ischemic heart disease | Self-harm | Chronic obstructive pulmonary disease | Ischemic heart disease | Congenital anomalies | Tuberculosis | Tuberculosis | Lower respiratory infections | Stroke | Ischemic heart disease |

Color code : Communicable diseases Noncommunicable diseases Injuries

*Sri Lanka considers that this may not be the 2nd rank cause of mortality in the country.

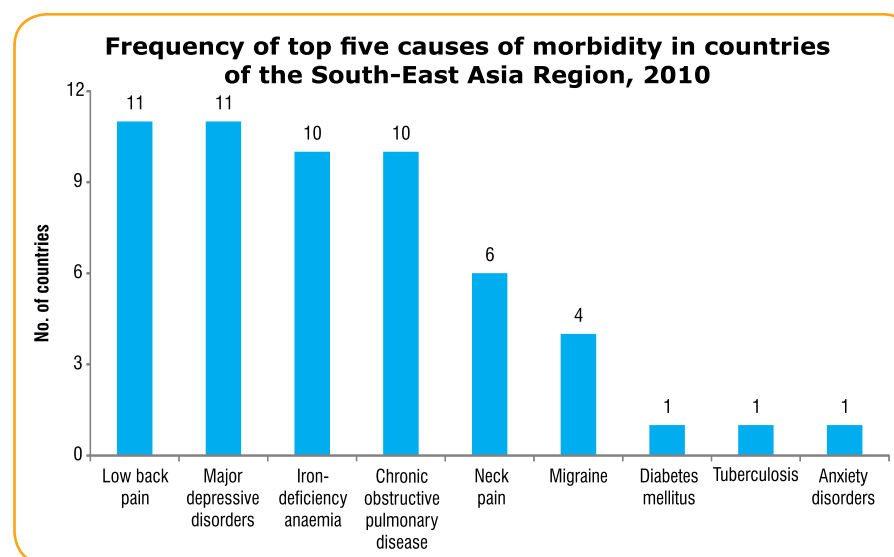


* Chronic obstructive pulmonary disease.

Source: The Institute of Health Metrics and Evaluation,
www.healthmetricsandevaluation.org (accessed 9 May 2013).

Top five causes of morbidity in the South-East Asia Region, 2010

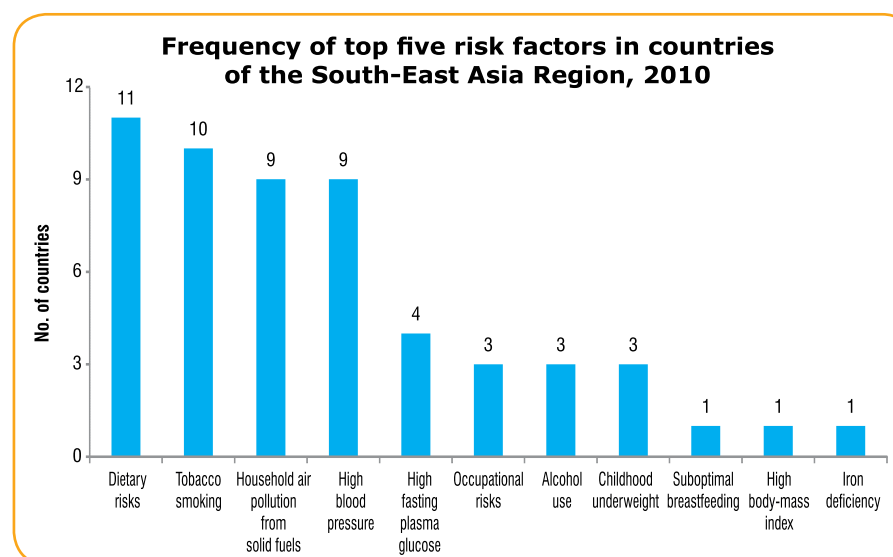
| | Bangladesh | Bhutan | DPR Korea | India | Indonesia | Maldives | Myanmar | Nepal | Sri Lanka | Thailand | Timor-Leste |
|---|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|----------------------------|
| 1 | Low back pain | Low back pain | Low back pain | Iron-deficiency anaemia | Low back pain | Major depressive disorders | Major depressive disorders | Low back pain | Major depressive disorders | Major depressive disorders | Major depressive disorders |
| 2 | Iron-deficiency anaemia | Major depressive disorders | Iron-deficiency anaemia | Low back pain | Major depressive disorders | Low back pain | Low back pain | Iron-deficiency anaemia | Low back pain | Low back pain | Iron-deficiency anaemia |
| 3 | Major depressive disorders | Iron-deficiency anaemia | Major depressive disorders | Major depressive disorders | Iron-deficiency anaemia | Iron-deficiency anaemia | Chronic obstructive pulmonary disease | Chronic obstructive pulmonary disease | Iron-deficiency anaemia | Neck pain | Tuberculosis |
| 4 | Chronic obstructive pulmonary disease | Chronic obstructive pulmonary disease | Neck pain | Chronic obstructive pulmonary disease | Chronic obstructive pulmonary disease | Neck pain | Iron-deficiency anaemia | Major depressive disorders | Chronic obstructive pulmonary disease | Migraine | Low back pain |
| 5 | Anxiety disorders | Migraine | Chronic obstructive pulmonary disease | Migraine | Neck pain | Chronic obstructive pulmonary disease | Neck pain | Migraine | Diabetes mellitus | Chronic obstructive pulmonary disease | Neck pain |



Source: The Institute of Health Metrics and Evaluation, www.healthmetricsandevaluation.org (accessed 9 May 2013).

Top five risk factors that account for the most disease burden in the South-East Asia Region, 2010

| | Bangladesh | Bhutan | DPR Korea | India | Indonesia | Maldives | Myanmar | Nepal | Sri Lanka | Thailand | Timor-Leste |
|---|--|--|--|--|--|----------------------|--|--|--|-----------------------------|--|
| 1 | Tobacco smoking | Dietary risks | Tobacco smoking | Dietary risks | Dietary risks | Dietary risks | Dietary risks | Household air pollution from solid fuels | Dietary risks | Dietary risks | Childhood underweight |
| 2 | Household air pollution from solid fuels | High blood pressure | Dietary risks | Household air pollution from solid fuels | High blood pressure | High blood pressure | Tobacco smoking | Tobacco smoking | High blood pressure | Tobacco smoking | Household air pollution from solid fuels |
| 3 | Dietary risks | Household air pollution from solid fuels | Household air pollution from solid fuels | Tobacco smoking | Tobacco smoking | High body-mass index | Household air pollution from solid fuels | Dietary risks | Household air pollution from solid fuels | Alcohol use | Tobacco smoking |
| 4 | Occupational risks | Occupational risks | High blood pressure | High blood pressure | Household air pollution from solid fuels | Iron deficiency | High blood pressure | Childhood underweight | High fasting plasma glucose | High blood pressure | Suboptimal breastfeeding |
| 5 | High blood pressure | Alcohol use | Alcohol use | Childhood underweight | High fasting plasma glucose | Tobacco smoking | High fasting plasma glucose | Occupational risks | Tobacco smoking | High fasting plasma glucose | Dietary risks |



Source: The Institute of Health Metrics and Evaluation, www.healthmetricsandevaluation.org (accessed 9 May 2013).

