

## Health in Southeast Asia 1



# Health and health-care systems in southeast Asia: diversity and transitions

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Southeast Asia is a region of enormous social, economic, and political diversity, both across and within countries, shaped by its history, geography, and position as a major crossroad of trade and the movement of goods and services. These factors have not only contributed to the disparate health status of the region's diverse populations, but also to the diverse nature of its health systems, which are at varying stages of evolution. Rapid but inequitable socioeconomic development, coupled with differing rates of demographic and epidemiological transitions, have accentuated health disparities and posed great public health challenges for national health systems, particularly the control of emerging infectious diseases and the rise of non-communicable diseases within ageing populations. While novel forms of health care are evolving in the region, such as corporatised public health-care systems (government owned, but operating according to corporate principles and with private-sector participation) and financing mechanisms to achieve universal coverage, there are key lessons for health reforms and decentralisation. New challenges have emerged with rising trade in health services, migration of the health workforce, and medical tourism. Juxtaposed between the emerging giant economies of China and India, countries of the region are attempting to forge a common regional identity, despite their diversity, to seek mutually acceptable and effective solutions to key regional health challenges. In this first paper in the *Lancet Series on health in southeast Asia*, we present an overview of key demographic and epidemiological changes in the region, explore challenges facing health systems, and draw attention to the potential for regional collaboration in health.

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### Introduction

Southeast Asia consists of the ten independent countries located along the continental arcs and offshore archipelagos of Asia—Brunei, Singapore, Malaysia, Thailand, the Philippines, Indonesia, Vietnam, Laos, Cambodia, and

Myanmar (Burma) (figure 1)—collectively known as the Association of Southeast Asian Nations (ASEAN). The region contains more than half a billion people spread over highly diverse countries, from economic powerhouses like Singapore to poorer economies such as Laos, Cambodia,

### Key messages

- The diversity of geography and history, including social, cultural, and economic differences, have contributed to highly divergent health status and health systems across and within countries of southeast Asia.
- Demographic transition is taking place at among the fastest rates compared with other regions of the world, whether in terms of fertility reductions, population ageing, and rural-to-urban migration. Rapid epidemiological transition is also occurring, with the disease burden shifting from infectious to chronic diseases.
- Rapid urbanisation, population movement, and high-density living raise concerns about newly emerging infectious diseases, but these outbreaks have stimulated regional cooperation in information exchange and improvement in disease surveillance systems.
- Southeast Asia's peculiar geology contributes to it being the most disaster-prone region in the world, more susceptible to natural and man-made disasters affecting health, including earthquakes, typhoons, floods, and environmental pollution. Climate change along with rapid economic development could exacerbate the spread of emerging infectious diseases.

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- Health systems in the region are a dynamic mix of public and private delivery and financing, with new organisational forms such as corporatised public hospitals, and innovative service delivery responding to competitive private health-care markets and growing medical tourism.
- The health-care systems are highly diverse, ranging from dominant tax-based financing to social insurance and high out-of-pocket payments across the region. There is a greater push for universal coverage of the population, but more needs to be done to ensure access to health services for the poor.
- Private health expenditure is increasing relative to government expenditure, where new forms of financing include user charges, improved targeting of subsidies, and greater cost recovery. Health-care financing could be further restructured in response to future demographic shifts in age-dependency, as in introduction of medical savings and social insurance for long-term care.
- There is potential for greater public-private participation with economic growth through ASEAN integration and further regional health collaboration, despite the current division of the region under two WHO regional offices.

### Search strategy and selection criteria

We used quantitative and qualitative data from academic and grey literature to review the health situation in southeast Asia. Search terms used were “health”, “health statistics”, “health systems”, “socio-economic development”, and “southeast Asia”. Data were gathered after a call for information from regional experts on selected subthemes related to health (geography, history, demography, epidemiology, and health systems). Data collection took place between June, 2009, and June, 2010. Quantitative data were retrieved from databases of WHO, the World Bank, and the UN Population Fund, as well as from the scientific literature. Qualitative information was retrieved from grey literature (eg, WHO reports) as well as academic literature, including a mix of peer-reviewed journal articles and book chapters from established publishers. Data were critically appraised and analysed to elaborate trends, projections, and associations between socioeconomic and population health measures.

and Myanmar (table).<sup>1,7</sup> By comparison with India and China, southeast Asia is less visible in global politics and economics. The same is also true of global health.

In the first paper in this *Lancet* Series on health in southeast Asia, we analyse the key demographic and epidemiological transitions of the region to delineate the challenges facing health systems and to emphasise potential for regional collaboration in health. This regional overview sets the scene for more detailed discussion of specific health issues presented in the five subsequent reports in this Series, profiling maternal and child health,<sup>8</sup> infectious diseases,<sup>9</sup> non-communicable

See Online for webappendix



Figure 1: Southeast Asia

diseases,<sup>10</sup> health workforce challenges,<sup>11</sup> and health-care financing reforms.<sup>12</sup>

## Population and health transition

### Urbanisation

Southeast Asia contains about 600 million people, or 9% of the world's population, with Indonesia having the largest population (and fourth largest in the world) and Brunei the smallest (see table). Nearly half (43%) of the region's population live in urban areas, which is less than the world average, but there is much variation between countries, from 15% in Cambodia to 100% in Singapore. The region's average population density of 133 people per km<sup>2</sup> also masks substantial intercountry and in some instances intracountry differences. Population densities range from a low of 27 people per km<sup>2</sup> in Laos to a high of 7022 per km<sup>2</sup> in Singapore.<sup>16</sup> Population densities in southeast Asia's only two megacities, Jakarta and Manila, are much higher, at more than 10 000 people per km<sup>2</sup>.<sup>17</sup> Although their population sizes are similar (around 14 million), the greater sprawl of Manila and Jakarta make them less densely populated (ranked 15th and 17th in the world) than Mumbai and Delhi (ranked 1st and 13th, respectively). The next largest city in southeast Asia, Bangkok, is ranked 39th. Although urbanisation is expected to continue to rise in the region, urban slum populations seem to be less deprived than they are elsewhere, with about a quarter living in extreme shelter deprivation (defined by UN Habitat as a slum household lacking three or more of the following conditions: access to water, access to sanitation, access to secure tenure, a durable housing structure, and sufficient living space).<sup>18,19</sup>

### Trends in mortality and fertility

Although life expectancy in all countries in the region has improved, there have been significant variations in the rate of progress. Most countries have enjoyed continuous rises in life expectancy since the 1950s, and these are converging. In some cases (Myanmar, Cambodia) political regimes and history of conflict have affected progress, as has HIV in Thailand (figure 2). Where life expectancy gains have slowed, this trend has been mainly attributable to slow progress in reduction of adult mortality.<sup>15</sup> There has been little progress towards reduction of intercountry difference in life expectancy during the past 50 years, with the gap remaining at around 20 years.

As elsewhere, decreased fertility has been the main factor contributing to ageing of the populations in these countries. The speed and timing of fertility reduction has varied widely across the region (webappendix p 1). Singapore had the earliest and sharpest reduction—the total fertility rate fell from more than six children per woman in 1957 to 2.1 in the mid-1970s, and since 2003, it has ranked among countries with ultra-low fertility (table).<sup>20</sup> Thailand's fertility decrease mirrors that of Singapore, although beginning somewhat later; it is currently the only other country in the region with

	Population (millions)*	Population density (people per km <sup>2</sup> )†	Urban population (% of total population)*	Adult literacy rate (%)‡	Life expectancy, both sexes (years)§	Life expectancy, women (years)¶	Life expectancy, men (years)¶	Population aged 65 years or older (%)*	Total fertility rate (children per woman)	Infant mortality rate (deaths per 1000 livebirths) in 2010**	Under-5 mortality rate (deaths per 1000 livebirths) in 2010**	Maternal mortality rate (deaths per 100 000 livebirths) in 2008††	Mortality of people aged 15–60 years (deaths per 1000 population) in 2010‡‡
Brunei	0.4	66	72%	95%	76	80	75	4%	2.05	6	8	37	104
Singapore	5.0	7022	100%	94%	81	83	78	9%	1.26	2	3	16	67
Malaysia	28.3	86	68%	92%	72	77	72	4%	2.51	5	5	42	118
Thailand	67.8	132	36%	94%	70	72	66	7%	1.82	9	9	47	150
Philippines	92.2	307	63%	93%	71	74	70	4%	3.03	21	29	84	170
Indonesia	243.3	128	43%	92%	68	73	69	6%	2.13	30	37	229	173
Vietnam	87.3	263	28%	90%	72	76	72	7%	2.03	11	13	64	141
Laos	6.3	27	27%	73%	61	66	63	4%	3.42	49	68	339	216
Cambodia	14.8	82	15%	76%	61	63	59	3%	2.86	50	60	266	243
Myanmar	50.0	74	31%	90%	56	63	59	5%	2.28	42	55	219	219

\*Data are from reference 1. †Data are from reference 1; population size and density for Singapore are based on Singapore Department of Statistics data (reference 3). ‡All data are for 2007 apart from those for Vietnam (1999), Myanmar (2000), Laos (2005), and Indonesia (2006); see reference 4. §Data are from reference 5. ¶Data for 2005–10, from reference 6. ||Data are from reference 7. \*\*Data are from reference 13. ††Data are from reference 14. ‡‡Data are from reference 15.

**Table: Basic demographic indicators**

lower-than-replacement fertility. Vietnam, Brunei, and Indonesia all have close to replacement-level fertility. Total fertility rates in Laos, Cambodia, and the Philippines continue to exceed three children per woman.

Rapid socioeconomic development and strong family planning programmes are likely to have driven this reduction. Interestingly, this statement was true for Indonesia, but less so for Brunei and Malaysia, although all three countries share a common dominant religion, Islam.<sup>21</sup> Malaysia adopted a pronatalist policy in the late 1970s under the then Prime Minister Mahathir Mohammad.<sup>22</sup> Catholicism has been a major contributing factor to the slow uptake of family planning programmes in the Philippines, alongside the persistence of cultural norms that support large family sizes.<sup>23</sup>

The high fertility rates recorded in Cambodia and Laos are related to low educational levels, as reflected in their low proportion of enrolment in secondary school—25–44% compared with 61–90% elsewhere in the region (including 72% in Vietnam).<sup>24</sup> According to Cleland,<sup>25</sup> although literacy confers cognitive abilities to use contraception, the social and psychological skills conferred by higher education probably enable people to “translate the desire to postpone or limit childbearing into contraceptive practice... [and] they are also more likely to use allopathic health services for a range of needs including ante- and natal-care, child immunization and curative care [that lead to better child survival]”.

## Migration

Economic and demographic developments have prompted the movement of people across the region, mainly for short-term employment, but also for settlement.<sup>26</sup> Rapid economic growth and the slowing of domestic population and labour force growth due to fertility reduction have

prompted countries such as Singapore to open its doors to in-migration of foreigners at all skill levels for employment, with the option of permanent settlement for the highly skilled. The Philippines, Indonesia, and Vietnam are major labour-exporters, whereas Malaysia and Thailand both receive and send nationals abroad. Besides this internal labour market, countries in southeast Asia also send and receive migrants from outside the region. Since the 1980s, however, destinations within Asia have replaced labour migration to countries such as the USA and to the Middle East.<sup>26</sup>

There is significant undocumented or illegal migration as well as movement of displaced people in the region.<sup>27,28</sup> These groups are particularly vulnerable since “[u]ndocumented migrants are disproportionately more exposed to health risks due to inadequate working conditions and irregular movements, but are unlikely to seek medical attention because of their status, and are also often left out of assistance programmes in times of disasters and emergencies”.<sup>27</sup>

## Population ageing

Population age structures of countries in the region vary widely as a result of past differences in fertility, mortality, and migration trends (figure 3). These trends are in turn affected by economic, social, cultural, and political developments. Singapore and Thailand have among the fastest ageing populations in the world, with the proportion of elderly residents projected to double from 7% to 14% in 19 and 22 years, respectively—shorter than the 26 years expected for Japan<sup>29–31</sup> because of more rapid fertility reduction in these two countries. With increasing longevity, the pace of increase in numbers of the oldest old, aged 80 years and older, in southeast Asia is projected to exceed that of east Asia over the period 2025–50.<sup>32</sup> This

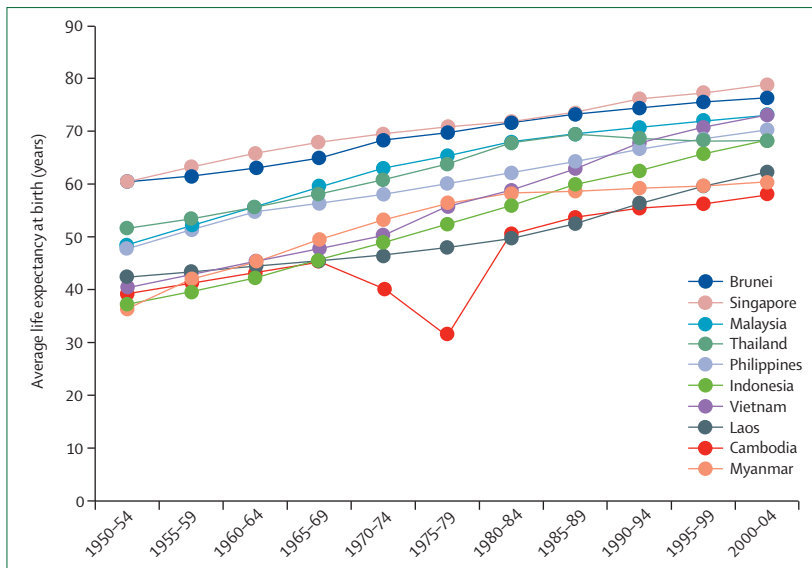


Figure 2: Average life expectancy at birth in southeast Asia, 1950-2010  
Data are for both sexes combined, from reference 16.

rise will have important implications for management of the burden of disease and health-care provision for elderly people.

The other major factor contributing to population ageing has been the decrease in mortality. Figure 4 shows estimated trends in risk of child death (ie, between birth and age 5 years) in countries of the region during the past four decades. Child survival has improved substantially in all countries, but particularly in Indonesia, Vietnam, Thailand, Malaysia, Brunei, and Singapore, where the risk of child death is now typically less than about 0.5%, compared with 15–20% in the 1970s.<sup>13</sup> Measured by the risk of dying between ages 15 and 60 years, regional diversity in levels of adult mortality is even greater than for child mortality (figure 5). Typically, the risk of dying at these ages for men is 20–30%, and is higher (32%) in Cambodia, Laos, and Myanmar (26–27%), and significantly lower in Singapore, where the level is similar to those in Australia and Japan (7–8%). This regional diversity in risk of adult death is similar for women, but with rates typically 20–30% less than those for men.<sup>15</sup>

## Changing disease burden

### Mortality

Increasing longevity is a result of diminishing burden from communicable, maternal, and perinatal diseases (group 1 diseases; webappendix p 2), whereas countries with aged populations have a higher burden of non-communicable diseases (group 2 diseases). Interestingly, mortality rates from these two groups of diseases, as well as from injuries, are correlated. Countries with high mortality rates from communicable diseases also have high death rates from chronic diseases (webappendix p 2). Deaths from communicable diseases are still

prominent in Cambodia, Myanmar, and Laos. Injuries are an important cause of death in all countries, but less so in Singapore and Brunei.

Few countries in the region have complete cause of death data systems to inform health policy and planning, and of those that do only Singapore has reliable cause of death certification and coding. Although not representative of present health conditions in neighbouring countries, understanding of how leading causes of death have changed in Singapore during the past 40 years or so can provide important insights into what other countries of the region could expect to achieve, provided there is a similarly strong public health commitment to disease control and injury prevention. Figure 6 summarises trends in selected causes of death for both sexes in Singapore since 1963.

In the early stages of transition, striking reductions in infectious diseases such as tuberculosis were achieved, offset by increases in non-communicable diseases including cardiovascular diseases and cancers, as well as injuries. Although deaths due to road traffic accidents have subsequently decreased and cardiovascular diseases seem to have reached a plateau, breast cancer has continued to rise. Except for stomach and cervical cancer, mortality from all other cancers is still rising (data not shown). These data illustrate the success of Singapore in reducing mortality from the diseases of poverty, as well as the effects of inadequate chronic disease control programmes, although there is evidence of some success in control of lifestyle-related diseases in recent years. As other countries in the region succeed in bringing communicable diseases under control, the importance of injury prevention and chronic disease control programmes will become increasingly pressing.

### Health and wealth

The region as a whole does not have reliable longitudinal data for disease trends. However, evidence from studies of disease prevalence shows a strong inverse association with national wealth, which can be largely attributed to the social determinants of health, including the provision of more efficient health systems with greater population coverage. The figure provided on p 3 of the webappendix shows the relation between prevalence of tuberculosis and per head income (log-log scale). The regression equation (not shown) suggests that a doubling of per head income is associated with a reduction in tuberculosis prevalence of 73%. For diabetes mellitus prevalence, countries can be roughly divided into three groups that are positively correlated with income, although the effect tapers off at higher levels of per head income, (webappendix p 4), possibly because of more effective disease control programmes with greater coverage.

HIV was introduced into the region in the 1980s. Transmission peaked in the early 1990s in Thailand, followed by Myanmar and Cambodia.<sup>33</sup> HIV/AIDS has been a major cause of death in some countries of the region (eg, Thailand),<sup>34</sup> although its spread has been partly

controlled by the promotion of condom use.<sup>35</sup> In the early 2000s, more effective antiviral therapies emerged, followed by the introduction of compulsory licensing.<sup>36</sup> Although universal access to treatment has been attempted, patient compliance and losses to follow-up care are still prevalent.<sup>37,38</sup> AIDS mortality in southeast Asia has stabilised since the mid-1990s, although prevalence remains high in Myanmar, Laos, and Cambodia.<sup>15</sup>

### Regional environment and health

The environment continues to be an important contributing factor to disease and mortality in the developing world, including countries in southeast Asia, accounting for up to a quarter of all deaths.<sup>39</sup> Regular monsoons and typhoons occur in southeast Asia. The El Niño and La Niña phenomena also intensify the annual variation of the hot and wet climate, leading to droughts, floods, and the occurrence of infectious diseases such as malaria and cholera.<sup>40</sup> Countries in the northern part of the region such as the Philippines and Vietnam are badly affected by seasonal typhoons that have increased in intensity over time.

The Philippines and Indonesia are located on the Pacific Ring of Fire,<sup>41</sup> a zone of earthquakes and volcanoes where around 90% of the world's earthquakes occur.<sup>42</sup> Southeast Asia is one of the most disaster-prone regions in the world; the Indian Ocean earthquake off the coast of Sumatra in 2004 caused a devastating tsunami in Aceh, Indonesia, and countries on the fringe of the Indian Ocean, one of the worst natural disasters ever recorded.

Uncontrolled forest fires raged in the Indonesian states of Kalimantan and Sumatra in 1997. The severity of the fires was also closely linked to the occurrence of the El Niño Southern Oscillation, which has historically brought severe drought conditions to southeast Asia, creating conditions ripe for fires. In 1997, the severity and extent of haze pollution was unprecedented, affecting some 300 million people across the region.<sup>43</sup> The health-related cost of the haze was estimated to be US\$164 million.<sup>44</sup>

The health effects of the 1997 haze in southeast Asia have been well documented.<sup>45,46</sup> An increase in concentration of particulate matter with diameter 10 µm or less from 50 µg/m<sup>3</sup> to 150 µg/m<sup>3</sup> was significantly associated with increases of 12% in upper respiratory tract illness, 19% in asthma, and 26% in rhinitis from public outpatient care facilities in Singapore.<sup>47</sup> Time-series analyses in people admitted to hospital in Kuching, Malaysia, showed that significant fire-related increases occurred in respiratory hospital admissions for chronic obstructive pulmonary disease and asthma. Survival analyses suggested that people older than 65 years who had been previously admitted to hospital for cardiorespiratory and respiratory diseases were significantly more likely to be readmitted during the 1997 haze episode.<sup>48</sup>

Climate change could exacerbate the spread of emerging infectious diseases in the region, especially vector-borne

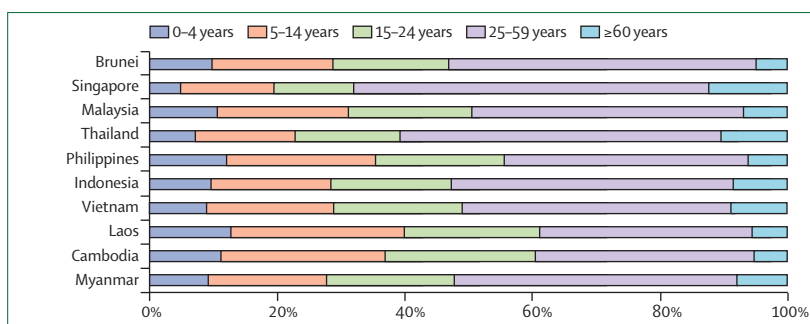


Figure 3: Population distribution by age in southeast Asia, 2005

Data are from reference 16.

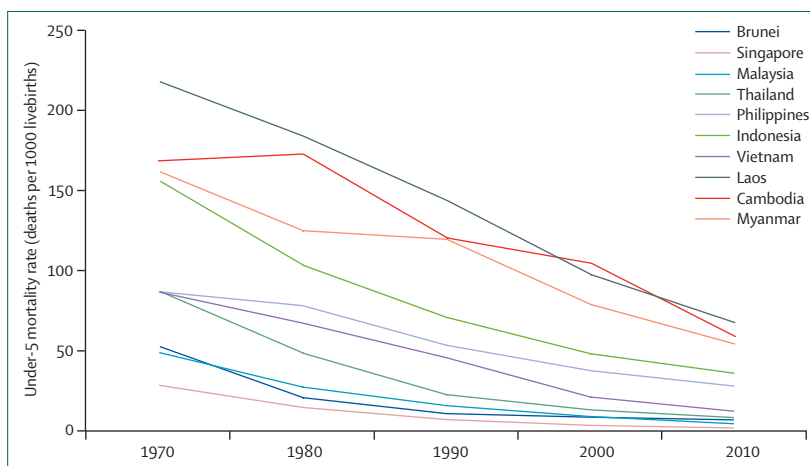


Figure 4: Under-5 mortality rates in southeast Asia, 1970-2010

Data are from reference 13.

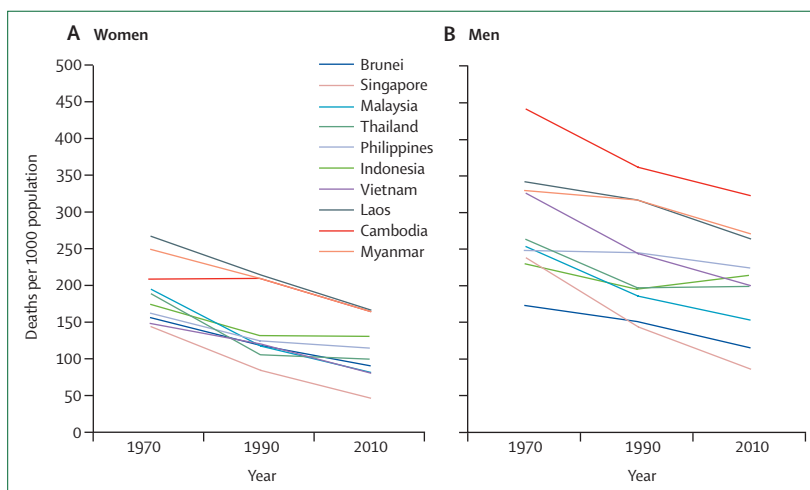
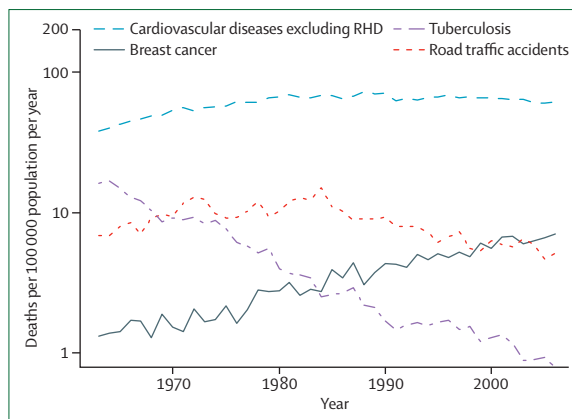


Figure 5: Trends in mortality in (A) women and (B) men aged 15-59 years in southeast Asia, 1970-2010

Data are from reference 15.

diseases linked to rises in temperature and rainfall.<sup>49</sup> Southeast Asia has been identified as a region that could be vulnerable to effects of climate change on health, because of large rainfall variability linked to the El Niño and La Niña oscillation, with attendant consequences for health systems.<sup>50</sup>



**Figure 6: Trends in mortality from selected causes of death in Singapore, 1960–2009**

Data are from reference 5. RHD=rheumatic heart disease.

### Health systems in southeast Asia

Southeast Asia's rich history and recent industrialisation and globalisation have raised new challenges for the region's health systems. Modern medical technology is available in the world market but at costs higher than most of the region's population can afford. Many traditional health practices persist alongside the use of new medical technologies and pharmaceutical products, presenting regulatory problems in terms of safety and quality. With increasing educational levels, ageing populations, and growing consciousness of human rights in the recently developing democratic environment, the demand for better care is increasing. Health systems in the region face more serious adjustment problems than ever before.<sup>51</sup> Health services have become an important industry, with a mix of public and private non-profit and for-profit actors, along with the growth of trade and medical tourism. The provision, financing, and regulatory functions of the public sector have to adapt accordingly to these transformations. The need to restructure health-care delivery and financing systems becomes crucial to balance new demand and supply equilibriums.<sup>52,53</sup>

Countries in southeast Asia and their health system reforms can thus be categorised according to the stages of development of their health-care systems. A typology of common issues, challenges, and priorities are generated for the diverse mix of health systems of southeast Asia at different stages of socioeconomic development (see webappendix pp 5–8). The pressures placed on national health-care systems by the recent demographic and epidemiological transitions that we have described are amplified by the growing demands of an increasingly educated and affluent population for high quality health care and the supply of the latest medical technology. Before the east Asian financial crisis in 1997–98 and the recent global economic recession, an expanding middle class in the urban populations of the larger cities pushed their demand for high quality care into a booming private sector. As a result, market forces

have turned many aspects of health care into a new industry in countries such as Singapore, Malaysia, and Thailand, contributing to labour-force distortions for the production and distribution of health workers both within and across countries.

The 1990s began with the opening up of socialist states and rapid growth among market economies in the region. While they were each finding ways to reform their health systems, the Asian financial crisis in 1997–98 posed more challenges for countries of the region. The depreciation of local currencies resulted in increased costs of imported drugs and other essential supplies, at the same time as access to basic health care was reduced for the most vulnerable population groups.<sup>54</sup> However, reported spikes in suicides and mental illnesses in the other affected east Asian economies such as South Korea, Taiwan, and Hong Kong were not as significant in southeast Asia.<sup>55</sup> Following the lessons learnt from the past financial crisis, most countries have strengthened their social protection mechanisms and essential health services. There is a greater push among countries to increase universal coverage of basic health services, especially to vulnerable and disadvantaged populations.<sup>56,57</sup> Throughout the region, many innovative pro-poor financing schemes were implemented, such as the Health Card and 30-baht Schemes in Thailand, the Health Fund for the Poor in Vietnam, Health Equity Funds in Cambodia and Laos, and, even in affluent Singapore, the Medifund, a means-tested hospital fees subsidy scheme for indigent patients.

So far, the health-care systems with dominant tax funding are fairly stable, in view of the strong role of governments and effective controls by health agencies to overcome inequity problems. However, crucial issues involve rising costs, future sustainability of centralised tax-financed systems, efficiency and quality of the public services, and higher public expectations. In both Malaysia and Singapore, the health-care systems are changing from government-dominated health services towards greater private-sector involvement. Attempts to privatise public hospitals have been controversial, thus resulting in many hybrid forms of corporatised entities that continue to be controlled or subsidised by governments.<sup>58–61</sup> Some of the most innovative and advanced forms of public-private mix in health services have developed within the region, for example the restructuring or corporatisation of public hospitals in Singapore from as early as 1985 and the later Swadana (self-financing) hospitals in Indonesia.<sup>62</sup> With the anticipated rise in the ageing population and future problems of intergenerational funding through pay-as-you-go mechanisms, there are experiments with new health-care financing such as compulsory medical savings and social insurance for long term care.<sup>63–65</sup> Some countries such as the Philippines, Vietnam, and Indonesia have radically decentralised their health-care systems with the devolution of health services to local governments, a restructuring that has affected aspects of systems performance and equity even though the impetus for

decentralisation was mainly political.<sup>66</sup> Consequently, to ensure increased financial coverage and affordability, many governments have passed laws to establish national health insurance systems and mandated universal coverage, although implementation is problematic. With existing policies of decentralisation and liberalisation, equity issues and poor infrastructure will continue to challenge the development of the health sector.<sup>57,67</sup>

### Towards regional collaboration in global health

The severe acute respiratory syndrome (SARS) epidemic has emphasised the need to strengthen regional health collaboration. This cooperation has occurred via two channels—direct bilateral collaboration by individual countries (ministries of health and foreign affairs) and those under the aegis of ASEAN. The Mekong Basin Disease Surveillance project is an example of successful health cooperation. It was established under the collective agreement of each Ministry of Health of member states of the Greater Mekong subregion to share important public health information. The emergence of influenza A H5N1 and H1N1 outbreaks has led to common efforts to strengthen epidemiological surveillance and stockpiling of antiviral drugs.

Enthusiasm for regional economic collaboration continues to grow, evident from the explicit goal of the ASEAN Free Trade Area to increase the region's competitive advantage as a production base geared towards the world market. ASEAN leaders have identified health care as a priority sector for region-wide integration. From an economic perspective, opening of health-care markets promises substantial economic gains. At the same time, however, this process could also intensify existing challenges in promotion of equitable access to health care within countries. It could also lead to undesirable outcomes whereby only the better-off will receive benefits from the liberalisation of trade policy in health.

Health and trade policy can and do appear to contradict each other. Tobacco use is the major preventable cause of non-communicable disease and death among the populations of ASEAN countries.<sup>68</sup> All ASEAN members except Indonesia have embraced the Framework Convention on Tobacco Control (FCTC)<sup>69</sup> and all countries endorse some form of tobacco control policy. However, most of these states are, to varying degrees, still involved in investment in or promotion of the tobacco industry, often using the justification of poverty alleviation. There are clear contradictions inherent in the state seeking to prevent tobacco use in the interests of health, while actively promoting tobacco for the economic benefit of its population, resulting in both substantial and symbolic harm to efforts to implement the FCTC.<sup>70</sup> For example, tobacco production is legitimised; rational policy principles are violated, and direct cooperation between the state and multinational tobacco corporations is made possible by modification of control policies. Tobacco exports within ASEAN also threaten the group's health

solidarity. Divestiture of state ownership of capital in tobacco corporations<sup>71</sup> and a much stronger commitment by states to control the use and promotion of tobacco are urgently required in ASEAN countries.

Issues of intellectual property rights surrounding products such as essential pharmaceutical drugs as public health goods are also of concern to countries. Thailand started compulsory drug licensing in 2008. Indonesia has called for the urgent development of a new system for virus access and a fair and equitable sharing of the benefits arising from the use of the influenza virus in research (now commonly referred to as viral sovereignty). Additionally, Indonesia has pressed for the development of medical products to replace the existing patent system in global health governance.<sup>72</sup>

With globalisation, ensuring of accessible health services for citizens is no longer the sole responsibility of the state; health care in southeast Asia is fast becoming an industry in the world market. The private sectors in Singapore, Thailand, and Malaysia have capitalised on their comparative advantage to promote medical tourism and travel, combining health services for wealthy foreigners with recreational packages to boost consumption of such health services. Patients from elsewhere, including the developed countries, are choosing to travel for medical treatment, which is perceived to be high quality and value for money. Because of poor local economic conditions, the Philippines had a policy to export human resources for health to the world and to richer countries in the region as an income-generating mechanism. Although the financial returns from this strategy seem substantial, equity issues have surfaced concerning the negative effects of international trade in health services and workforce migration on national health systems, especially in widening disparities in the rural–urban or public–private mix.

Regional collaboration in standards of data collection and health systems analysis is hampered by WHO's division of the ASEAN region into two areas under separate regional offices: the South-East Asia Regional Office, encompassing Indonesia, Myanmar, and Thailand, and the Western Pacific Regional Office, consisting of the remaining countries. Potential benefits from enhanced WHO regional cooperation include improved health surveillance, information-sharing, and health systems strengthening in all ASEAN countries.

### Conclusion

Southeast Asia is a region characterised by much diversity, including public health challenges. Social, political, and economic development during the past few decades has facilitated substantial health gains in some countries, and smaller changes in others. The geology of the region, making it highly susceptible to earthquakes and resultant tsunamis, along with seasonal typhoons and floods, further increases health

risks to the population from natural disasters and long-term effects of climate change. Public policy in these countries cannot ignore such risks to health, which could have important social and economic consequences. Regional cooperation around disaster preparedness and in the surveillance of and health systems response to disease outbreaks has obvious advantages as a public health strategy. Concomitantly, all countries in the region are faced with large or looming chronic disease epidemics. Even in the poorest populations of the region, non-communicable diseases already kill more people than do communicable, maternal, and perinatal conditions combined, with many of these deaths occurring before old age. Greatly strengthened health promotion and disease prevention strategies are an urgent priority if the impressive health gains of the past few decades in most countries of the region are to be replicated. Further growth and integration of the ASEAN region should include as a priority enhanced regional cooperation in the health sector to share knowledge and rationalise health systems operations, leading to further public health gains for the region's diverse populations.

#### Contributors

All authors contributed to data collection, interpretation, writing, and revision of the report.

#### Conflicts of interest

We declare that we have no conflicts of interest.

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