Health system responses to population ageing and noncommunicable diseases in Asia

Vasoontara Yiengprugsawan, Judith Healy and Hal Kendig, Editors
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### Acronyms and abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>APO</td>
<td>Asia Pacific Observatory on Health Systems and Policies</td>
</tr>
<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
</tr>
<tr>
<td>BMI</td>
<td>Body mass index</td>
</tr>
<tr>
<td>COPD</td>
<td>Chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>CT</td>
<td>Computerized tomography</td>
</tr>
<tr>
<td>DALYs</td>
<td>Disability-adjusted life years</td>
</tr>
<tr>
<td>GBD</td>
<td>Global Burden of Disease</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross domestic product</td>
</tr>
<tr>
<td>IDF</td>
<td>International Diabetes Federation</td>
</tr>
<tr>
<td>IHME</td>
<td>Institute for Health Metrics and Evaluation</td>
</tr>
<tr>
<td>IHPP</td>
<td>International Health Policy Program, Ministry of Public Health (Thailand)</td>
</tr>
<tr>
<td>ISH</td>
<td>International Society of Hypertension</td>
</tr>
<tr>
<td>MBBS</td>
<td>Bachelor of Medicine, Bachelor of Surgery</td>
</tr>
<tr>
<td>MOPH</td>
<td>Ministry of Public Health (Thailand)</td>
</tr>
<tr>
<td>NCDs</td>
<td>Noncommunicable diseases</td>
</tr>
<tr>
<td>NHES</td>
<td>National Health Examination Survey (Thailand)</td>
</tr>
<tr>
<td>NHSO</td>
<td>National Health Security Office (Thailand)</td>
</tr>
<tr>
<td>NIROGI</td>
<td>National Initiative to Reinforce and Organize General Diabetes Care in Sri Lanka</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PEN</td>
<td>Package of essential noncommunicable disease interventions</td>
</tr>
<tr>
<td>PPP</td>
<td>Purchasing power parity</td>
</tr>
<tr>
<td>THE</td>
<td>Total health expenditure</td>
</tr>
<tr>
<td>UCS</td>
<td>Universal Coverage Scheme (Thailand)</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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</table>
Executive summary

The recent World Health Organization (WHO) *World report on ageing and health* (WHO, 2015) highlights that the number of people aged 60 years and over is expected to increase steadily over the next 15 years and double by 2050. In parallel, WHO urges countries in its 2014 *Global status report on noncommunicable diseases* (NCDs) to invest in health systems to improve health outcomes, sustain productivity and enhance economic development. There is less recognition, however, that NCDs are inextricably related to processes of ageing and social development. We conclude in this monograph that such recognition is central to devising effective strategies to enable health systems to respond to changing population health needs.

While risk factors stretch back across the life span, and are particularly evident in late middle age, the prevalence and treatment of most NCD conditions occurs among older people. The increasing burden of NCDs is therefore attributable to both an increase in risk factor prevalence and growing numbers of older people. NCDs develop progressively over the life span with ever-increasing impacts on functional capacities. Major NCDs include cardiovascular diseases, diabetes, cancers and chronic respiratory diseases. These generally have strong social determinants and numerous shared risk factors, many of which are amenable to prevention and amelioration throughout life.

The upcoming challenges for health systems in responding to ageing and NCDs are especially difficult for low- and middle-income countries. While health systems across these countries vary, their health services generally focus on acute care and younger populations, as opposed to prevention or management of NCDs through middle and later life. Given the growing costs of NCDs to health systems in rapidly ageing countries, health policy-makers are assigning higher priority to strengthening responses to chronic health conditions.
Many countries in the Asia-Pacific region will experience rapidly ageing societies over the next few decades; consequently, demand for health services for chronic care will increase. Health systems across the region at different stages of readiness will need to adapt strategically, especially the low- and middle-income countries, given their limited resources. Strengthening the capacity of primary health care and identifying innovations in NCD prevention and management are particular priorities.

Although the Asia-Pacific region is very diverse in levels of socioeconomic development, many countries share similar national trajectories in relation to population ageing and NCDs. The rapid transitions in low- and middle-income countries in Asia mean that health services must respond to both more elderly patients and more NCD cases, and they must do so with less lead time than experienced by high-income European and East Asian countries, where these transitions are now well under way.

The rationale for this study is that a comparative analysis of the ways that health services across different countries are reorienting to older people and NCDs may offer insights into policy options and directions for service developments. Sri Lanka and Thailand, countries in South and South-East Asia, were purposefully selected as case studies to represent rapidly ageing societies with somewhat different demographic, epidemiological and health system profiles. Two conditions, adult-onset diabetes and stroke, were selected as “tracer conditions” to assess health services’ current state of readiness to respond to NCDs. These conditions are examples of NCDs that are common causes of mortality and morbidity among older populations; require interventions across all types of health services (health promotion, disease prevention, and primary, secondary and tertiary treatment); involve long-term use of health services; and require different care pathways for older people, as distinct from the management of acute care for younger patients.

Chapter 2 of this monograph includes a regional review of population ageing projections and trends in NCDs over the past three decades. The country case studies in Chapters 3 and 4 introduce each country’s economic and social context, and trace trends in population ageing and NCDs, as well as review the state of their primary care, hospitals and rehabilitation
services, with a focus on diabetes and stroke. Each case study includes informant interviews that identify issues relating to access to health services, responsiveness of services and professionals to elderly patients, and quality of care provided to elderly patients.

Finally, Chapter 5 discusses and identifies cross-cutting issues between the two country case studies, including comparisons to more developed countries in East Asia. The discussion highlights key issues and ways that health services can plan ahead, given particular contexts, cultures and resources. For example, both Sri Lanka and Thailand have set up primary care programmes (Healthy Lifestyle Centres in the former and a nationwide screening programme for NCDs in the latter). Both countries also acknowledge the need to improve the capacity in secondary care hospitals to provide chronic care management for comorbidities among elderly patients. Further suggestions include promoting “age-friendly” facilities and improving the knowledge, skills and attitudes of health care staff. In preparing their health professionals, the Sri Lanka Medical Council and the Royal College of Physicians of Thailand have started training programmes for specialist geriatricians.

Both country case studies note the urgent need to develop intermediate and long-term care facilities, as well as community-based rehabilitation and support services. These types of services are in short supply in other low- and middle-income countries in the region. Future strategies should aim to better integrate health services, improve training for aged care specialists, and strengthen links between health services and community social care. Countries in the region with already large elderly populations can learn from each other as they test innovations and adapt their health systems to address the many challenges of ageing and NCDs.

Building commitment between ministries of health and other national government departments, as well as regional and community partners, is essential to improving the physical infrastructure and social environment, so that people can lead healthier and more active lives across the life course. Prevention and management of NCDs will enhance quality of life and allow older people to remain productively engaged in society. Multisectoral cooperation is needed to ensure health systems are better prepared to respond to NCDs and ageing populations in the future.
Chapter 1: About this report

Study Advisory Team and Vasoontara Yiengprugsawan
Population ageing, health and national development

The significance of population ageing and noncommunicable diseases (NCDs) for the future of developing countries is now well recognized. The World Health Organization’s (WHO) landmark World report on ageing and health (2015) outlined the global challenge of adding years of good health along with years of longer life. WHO makes the case for the importance of developing prevention and care strategies over the life course to enhance ageing people’s independence and well-being, limit their use of expensive health services, and improve their productivity capacities, as well as those of their family caregivers. Measures to improve population health and make health services more cost-effective represent a major investment in social and economic advancement in both developing and developed countries (World Bank, 2014).

The United Nations’ (UN) next generation of Sustainable Development Goals (2015) recognize this potential in Goal 3: “Ensure healthy lives and promote well-being for all at all ages.” The demographic and epidemiological revolutions over recent decades have seen great advances in addressing the health challenges of infectious disease, acute illness and injury, with a necessary focus on children and youth, education and poverty, public health improvements, and socioeconomic development for the entire population. These areas remain major priorities, especially in developing countries, while the global rise in the prevalence of NCDs has traditionally been viewed as a problem for the developed world. These health challenges, however, have rapidly increased in developing countries, along with social changes such as rising standards of living, urbanization and shifts away from traditional ways of life.

NCDs have major impacts and require comprehensive responses from health systems, governments and the wider community. Many of the fundamental challenges raised by recent global reports on ageing populations by WHO and the World Bank can be partly met through action on the NCDs that underlie the most problematic but improvable aspects of population ageing.

WHO and its Member States recognize that NCDs have serious impacts for demands on the health system and national productivity (WHO, 2013).
In its 2014 *Global status report on NCDs*, WHO urges countries in Message 6 to invest in health systems to improve NCD outcomes. There is less recognition, however, that NCDs are inextricably linked to processes of ageing and social development. This recognition is central to devising effective strategies to improve health and social outcomes.

NCDs are chronic diseases that develop progressively over time, with increasing impacts on functional health and demand for health services. While there are varying definitions, most typologies include arthritis and other musculoskeletal conditions, diabetes, stroke and cardiovascular disease, lung and other cancers, and depression. These diseases vary in their prevalence, speed of progression, attributable deaths, impacts on disability, and consequences for health resources. They generally have strong social determinants and many shared lifestyle risk factors – notably physical inactivity, excessive weight, poor diet, and alcohol and tobacco use – most of which are amenable to prevention and amelioration over the course of a long natural history. Their prevalence and impacts can vary between men and women, social class and income gradient, and ethnic and racial group (Commission on Social Determinants of Health, 2010). There are strong indications that the profile and causes of NCDs can also vary greatly between rich countries and developing countries.

The challenges ahead in responding to ageing and NCDs in low- and middle-income countries are substantial. Many developing countries will become “old before they are rich” and before they develop strong social protection systems to support large elderly populations. While health systems vary across countries, they generally focus more on acute care and the health of younger people, than NCDs through middle and later life. The development of chronic disease strategies for ageing populations requires substantial investment in health systems and expertise development; reallocation of priorities and resources is not easily achieved. Further, health systems need to be sensitive to cultural traditions and diversity, available resources and workforce skills, and be able to respond to changing conditions from an existing base.
Significance of the issue in Asia

Many countries in the Asia-Pacific region with rapidly ageing societies are at a population crossroads (Chomik & Piggott, 2015). Prospects for the next 10 years are enhanced by a brief “demographic dividend”, in which the demands of providing for children will lessen due to declining fertility, and the demands of providing for many more older people will be yet to fully impact.

A high proportion of total deaths across the Asia-Pacific region are caused by NCDs, particularly in South-East Asia and the Western Pacific. NCD rates (both morbidity and mortality) are projected to increase dramatically over the next few decades, given increasing numbers of older people (UN Population Division, 2012; WHO, 2013). The demographic and epidemiological transitions under way in low- and middle-income Asian countries mean that health services must respond to both more elderly patients and more NCD cases, and they must do so with less lead time than experienced by high-income European and East Asian countries, where these transitions are now well under way.

Although the Asia-Pacific region is very diverse in levels of socioeconomic development, many countries share similar national trajectories in relation to population ageing and NCDs. They also share cultural traditions that may differ from the core values and social practices that underpin approaches to ageing and health in high-income developed countries (Kendig & Browning, 2010). The overall aim of this study is to explore the ways that health services in selected South Asian countries are responding to both rapidly ageing populations and the shift in population health needs.

Selected countries and tracer conditions

The rationale for this study is that a comparative analysis of the ways that health services in different countries are reorienting to older people and NCDs may offer insights into policy options. Sri Lanka and Thailand, countries in South and South-East Asia, were selected as case studies because their population structures are rapidly ageing. This means that health policy-makers must begin planning now, as health systems and
health professionals take time to adjust to new challenges. Populations and their health needs are changing, so health services must change too.

Health services in many Asian countries were traditionally designed to respond primarily to infectious disease, which usually involved diagnosing and treating patients with single episodes of acute illness or injury. Given younger populations, they were also designed to address and improve maternal and child health. Health services must now reorient to growing numbers of elderly people and people with chronic conditions: these patients may have several conditions (comorbidities), while their capacity to negotiate health services may be affected by physical, sensory and cognitive limitations. This is a big challenge for governments, given tight health budgets. Further, it is not easy to retrofit buildings and clinical environments to provide different types of health services, nor to retrain existing staff or train new staff.

Two conditions, adult-onset diabetes and stroke, were selected to assess health services’ current state of readiness. These two diseases were selected as NCD “tracer conditions” for several reasons: they offer relatively definitive diagnoses with better data collection; they are common causes of mortality and morbidity among older populations; they require interventions across all types of health services (health promotion, disease prevention, and primary, secondary and tertiary treatment); they are often chronic and involve long-term use of health services; they require different forms of patient management, compared with acute care for younger patients; and finally, they demonstrate the changes in patient profiles and health needs that call for modifications to the types of health services and training of health professionals.

In many developing countries, NCDs manifest at a younger age (i.e. less than 70 years old) than in developed countries. Consequently, this Asia-Pacific study will focus on people aged 50–69 years, as well as older age groups. In addition, some lessons were drawn from East Asian countries that already have a substantial older population, in order to highlight policy options already under way in Asia. This is not to suggest that policies adopted by
one society are necessarily appropriate to the different contexts of other societies.

**Structure of the report and data source**

This monograph includes a regional review of population ageing, NCDs and global burden of disease projections, followed by country case studies. The discussion and concluding chapters identify cross-cutting issues and highlight the ways that health services are planning ahead, given particular contexts, cultures and resources. This comparative perspective aims to suggest future directions that health policy-makers might consider in formulating national and regional policies.

Information sources include academic peer-reviewed journal articles, annual reports from international organizations and research institutes, national health policy documents, and government reports (e.g. national ministries of health). For global burden of disease estimates, data were drawn from the 2013 Global Burden of Disease (GBD) database, based at the Institute for Health Metrics and Evaluation (IHME), University of Washington. Data are current (last updated in February 2016).

**Country case study methods**

Each country case study chapter includes reviews of ageing and NCD trajectories, national strategies on ageing and NCDs, a summary of the health system context, and an assessment of current health service responses, particularly in relation to diabetes and stroke (see Appendix A: country template). A qualitative component, undertaken by in-country authors between July and November 2015, involved 10–20 interviews with informants, such as health care providers (e.g. primary care physicians, NCD specialists), health service managers, care providers from nongovernmental organizations and community groups, and elderly patients and their families. These interviews offer insights into the strengths and weaknesses of health services from the viewpoint of both professionals and patients.
References


Chapter 2: Population ageing and NCDs

Vasoontara Yiengprugsawan, Julie Byles, Hal Kendig, Judith Healy
Global and regional trends on population ageing

An increase in life expectancy and a reduction in birth rates have led to the rapid ageing of populations worldwide. The recent World report on ageing and health (WHO, 2015) highlights that the number of people aged 60 years and over is expected to increase steadily over the next 15 years and double by 2050 (Fig. 2.1). Older people will soon represent close to one third of the population in many high-income countries and in some low- and middle-income countries in the Asia-Pacific region.

Fig. 2.1  Projection of world population ageing by the years 2025 and 2050

Globally, the old-age dependency ratio is projected to almost double from 16.7 to 32.7 between 2015 and 2050 (Table 2.1). Middle-income countries and the Asian region are expected to have respective old-age dependency ratios of 23.9 and 26.3 in 2035, and 31.8 and 35.3 by 2050. This requires countries to rethink their workforce policies, as well as other economic and social policies, and to find new ways to maintain and improve productivity and social support systems.

Table 2.1  Old-age dependency ratio (population aged 65+ per 100 persons aged 25–64 years)

<table>
<thead>
<tr>
<th>Location</th>
<th>2000</th>
<th>2015</th>
<th>2035</th>
<th>2050</th>
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<tbody>
<tr>
<td>World</td>
<td>15.1</td>
<td>16.7</td>
<td>26.5</td>
<td>32.7</td>
</tr>
<tr>
<td>High-income countries</td>
<td>25.0</td>
<td>30.0</td>
<td>46.5</td>
<td>54.3</td>
</tr>
<tr>
<td>Middle-income countries</td>
<td>12.0</td>
<td>13.5</td>
<td>23.9</td>
<td>31.8</td>
</tr>
<tr>
<td>Low-income countries</td>
<td>9.6</td>
<td>10.0</td>
<td>10.3</td>
<td>12.5</td>
</tr>
<tr>
<td>Africa</td>
<td>10.0</td>
<td>9.7</td>
<td>11.0</td>
<td>13.5</td>
</tr>
<tr>
<td>Asia</td>
<td>12.5</td>
<td>14.6</td>
<td>26.3</td>
<td>35.3</td>
</tr>
<tr>
<td>Europe</td>
<td>27.3</td>
<td>31.6</td>
<td>49.5</td>
<td>58.5</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>12.9</td>
<td>15.4</td>
<td>26.4</td>
<td>38.2</td>
</tr>
<tr>
<td>North America</td>
<td>23.4</td>
<td>28.2</td>
<td>44.8</td>
<td>47.0</td>
</tr>
<tr>
<td>Oceania</td>
<td>20.0</td>
<td>24.0</td>
<td>34.0</td>
<td>37.6</td>
</tr>
</tbody>
</table>


**NCDs and population ageing in Asia**

Demographic and epidemiological transitions have resulted in a rise in NCDs, with many low- and middle-income countries, in particular, faced with rapid changes accompanied by the so-called “double burden of disease” (i.e. infectious diseases and NCDs). According to the recent GBD study (IHME, 2013), close to 65% of all deaths globally, and over half of disability-adjusted life years (DALYs), can be attributed to NCDs. By 2020 the proportion of NCD mortality will be almost 75% higher than that of communicable diseases and malnutrition, with the highest proportion expected in low- and middle-income countries.
The economic burden of NCDs worldwide is estimated to rise from over US$ 6 trillion in 2010 to US$ 13 trillion by 2030 (Atun et al., 2013). Increasing rates of NCDs in low- and middle-income countries can hinder social and economic development through loss of productivity (HelpAge International, 2011). Given the costs to the health systems and economies of rapidly ageing countries, interventions to reduce NCD risk factors should be a high priority for health policy-makers.

Demographic and economic indicators in the Asia-Pacific region

WHO has two regions in the Asia-Pacific: the South-East Asia Region and the Western Pacific Region. Each region has a total population of about 1.8 billion, with approximately 12% of people aged over 60 years (Table 2.2). As the Western Pacific Region includes a number of high-income countries (i.e. Australia, Japan, New Zealand, the Republic of Korea and Singapore), this region exhibits longer life expectancy and higher levels of health system resources compared to the South-East Asia Region – for example, 78 years for women, compared to 70 years; 6.6% of gross domestic product (GDP) spent on health, compared to 3.7%.

Table 2.2 Sociodemographic and population health attributes for WHO Asia-Pacific regions

<table>
<thead>
<tr>
<th>Indicators (2012–2013)</th>
<th>Global</th>
<th>WHO Asia-Pacific regions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Western Pacific</td>
</tr>
<tr>
<td>Total population (billions)</td>
<td>7.13</td>
<td>1.86</td>
</tr>
<tr>
<td>Aged &lt; 15 years (%)</td>
<td>26%</td>
<td>19%</td>
</tr>
<tr>
<td>Aged &gt; 60 years (%)</td>
<td>12%</td>
<td>15%</td>
</tr>
<tr>
<td>Annual growth rate (%)</td>
<td>1.2%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Living in urban areas (%)</td>
<td>53%</td>
<td>56%</td>
</tr>
<tr>
<td>Crude birth rate (per 1000 population)</td>
<td>19.5</td>
<td>13.9</td>
</tr>
<tr>
<td>Life expectancy in years at birth (males)</td>
<td>68</td>
<td>74</td>
</tr>
<tr>
<td>Life expectancy in years at birth (females)</td>
<td>73</td>
<td>78</td>
</tr>
<tr>
<td>Life expectancy in years at age 60 (males)</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Life expectancy in years at age 60 (females)</td>
<td>22</td>
<td>22</td>
</tr>
</tbody>
</table>
Countries in these two WHO regions, however, have somewhat similar rates of age-standardized mortality from NCDs (499 versus 656 per 100 000 population in the Western Pacific Region and South-East Asia Region, respectively). With population ageing and demand for health services for chronic care expected to rise, health systems across the regions at different stages of readiness will need to strategically adapt, especially the low- and middle-income countries, given their limited resources.

Table 2.3 shows demographic and health system indicators for four countries with ageing populations: Thailand and Singapore (South-East Asia), Sri Lanka (South Asia), and Fiji (Pacific region). Although at different stages of socioeconomic development, and with different levels of health system resources, all need to adjust and prepare responses to population ageing and NCDs (Low et al., 2015; Robinson, 2011).

Table 2.2 Sociodemographic and population health attributes for WHO Asia-Pacific regions (Con’t.)

<table>
<thead>
<tr>
<th>Indicators (2012–2013)</th>
<th>Global</th>
<th>WHO Asia-Pacific regions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Western Pacific</td>
</tr>
<tr>
<td><strong>Age-standardized mortality rates</strong> (per 100 000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communicable diseases</td>
<td>178</td>
<td>56</td>
</tr>
<tr>
<td>NCDs</td>
<td>539</td>
<td>499</td>
</tr>
<tr>
<td>Injuries</td>
<td>73</td>
<td>50</td>
</tr>
<tr>
<td><strong>Health expenditure</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total expenditure on health as % of GDP</td>
<td>8.6%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Per capita total expenditure on health (PPP* int. $US)</td>
<td>$1173</td>
<td>$857</td>
</tr>
<tr>
<td>Per capita govt expenditure on health (PPP int. $US)</td>
<td>$676</td>
<td>$544</td>
</tr>
<tr>
<td>General govt expenditure on health as % of total govt expenditure</td>
<td>14.1%</td>
<td>14.4%</td>
</tr>
<tr>
<td><strong>Health professionals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density of health workforce (per 10 000)</td>
<td>13.9</td>
<td>15.5</td>
</tr>
<tr>
<td>Physicians</td>
<td>28.6</td>
<td>26.2</td>
</tr>
<tr>
<td>Nursing and midwifery</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*PPP: purchasing power parity

Sources: UN Population Division; World Bank (data.worldbank.org/indicator); HelpAge International; Global Health Observatory, World Health Statistics 2015.
In Thailand and Sri Lanka, the proportion of the population aged 60 years and over in 2015 was 16% and 14% respectively; it was lowest in Fiji (9%), and highest in Singapore (18%). These proportions are projected to more than double by 2050 (to 20% in Fiji, 29% in Sri Lanka, 37% in Thailand, and 40% in Singapore). Life expectancy across the four countries ranges from 73 to 85 years among females and 67 to 81 years among males. Fiji has the lowest life expectancy for both women and men, and Singapore has the highest.

Table 2.3  Sociodemographic and population health attributes in selected countries, latest years

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Selected countries in Asia-Pacific region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sri Lanka</td>
</tr>
<tr>
<td>Geographic location</td>
<td>South Asia</td>
</tr>
<tr>
<td>World Bank income classification</td>
<td>Lower middle</td>
</tr>
<tr>
<td>Total population (millions), 2014</td>
<td>20.6</td>
</tr>
<tr>
<td>Urban population, % of total</td>
<td>18%</td>
</tr>
<tr>
<td>Population aged 60+ (% of total), 2015</td>
<td>14%</td>
</tr>
<tr>
<td>Projected population aged 60+, 2050</td>
<td>29%</td>
</tr>
<tr>
<td>Life expectancy at birth (males), 2013</td>
<td>72</td>
</tr>
<tr>
<td>Life expectancy at birth (females), 2013</td>
<td>78</td>
</tr>
<tr>
<td>Life expectancy at age 60 (males), 2013</td>
<td>18</td>
</tr>
<tr>
<td>Life expectancy at age 60 (females), 2013</td>
<td>22</td>
</tr>
<tr>
<td>Age dependency ratio (% of working age)</td>
<td>51%</td>
</tr>
<tr>
<td>Gross national income per capita (US$), 2014</td>
<td>$3400</td>
</tr>
<tr>
<td>Population below national poverty line, 2012</td>
<td>6.7%</td>
</tr>
<tr>
<td>THE* (% of GDP), 2013</td>
<td>3.2%</td>
</tr>
<tr>
<td>Public (% of THE), 2013</td>
<td>43.9%</td>
</tr>
<tr>
<td>Out-of-pocket (% of THE), 2013</td>
<td>46.5%</td>
</tr>
<tr>
<td>Health expenditure per capita (current US$), 2013</td>
<td>$102</td>
</tr>
<tr>
<td>Physicians per 10 000 (2007–2013)</td>
<td>6.8</td>
</tr>
<tr>
<td>Nursing and midwifery per 10 000 (2007–2013)</td>
<td>16.4</td>
</tr>
<tr>
<td>HelpAge International global rating (countries ranked from 1 to 96), 2015</td>
<td>46</td>
</tr>
</tbody>
</table>

*THE: total health expenditure

Sources: UN Population Division; World Bank (data.worldbank.org/indicator); HelpAge international; Global Health Observatory, World Health Statistics 2015.
Table 2.4  Health status in selected countries in the Asia-Pacific region, latest years

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Sri Lanka</th>
<th>Thailand</th>
<th>Singapore</th>
<th>Fiji</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age-standardized mortality rates by causes per 100 000 population (2012)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communicable diseases</td>
<td>75</td>
<td>123</td>
<td>66</td>
<td>105</td>
</tr>
<tr>
<td>NCDs</td>
<td>501</td>
<td>449</td>
<td>265</td>
<td>804</td>
</tr>
<tr>
<td>Injuries</td>
<td>89</td>
<td>73</td>
<td>18</td>
<td>64</td>
</tr>
<tr>
<td><strong>Years of life lost per 100 000 people (2012)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All causes</td>
<td>18 190</td>
<td>20 794</td>
<td>9884</td>
<td>24 231</td>
</tr>
<tr>
<td>Communicable diseases</td>
<td>2592</td>
<td>4570</td>
<td>1527</td>
<td>4602</td>
</tr>
<tr>
<td>NCDs</td>
<td>11 909</td>
<td>12 846</td>
<td>7562</td>
<td>16 839</td>
</tr>
<tr>
<td>Injuries</td>
<td>3689</td>
<td>3379</td>
<td>794</td>
<td>2791</td>
</tr>
<tr>
<td><strong>Prevalence of diabetes, 20–79 years (2014)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.8%</td>
<td>7.4%</td>
<td>10.8%</td>
<td>10.9%</td>
</tr>
<tr>
<td><strong>Premature mortality: probability of dying aged 30–70 years from cardiovascular disease, cancer, diabetes or chronic respiratory disease (2012)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>17.6%</td>
<td>16.2%</td>
<td>10.5%</td>
<td>30.8%</td>
</tr>
<tr>
<td><strong>BMI age-standardized prevalence, 18+ years (2010)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI (≥ 25 kg/m2)</td>
<td>22.0%</td>
<td>26.5%</td>
<td>30.1%</td>
<td>70.2%</td>
</tr>
<tr>
<td>BMI (≥ 30 kg/m2)</td>
<td>4.8%</td>
<td>6.7%</td>
<td>5.0%</td>
<td>35.0%</td>
</tr>
<tr>
<td><strong>Age-standardized prevalence, 25+ years (2010)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raised blood pressure</td>
<td>21.5%</td>
<td>21.9%</td>
<td>16.3%</td>
<td>23.5%</td>
</tr>
<tr>
<td>Raised blood glucose</td>
<td>8.3%</td>
<td>8.9%</td>
<td>8.3%</td>
<td>15.8%</td>
</tr>
<tr>
<td><strong>Prevalence of alcohol consumption (2010)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy episodic drinking – overall</td>
<td>0.3%</td>
<td>1.1%</td>
<td>4.2%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Heavy episodic drinking – males</td>
<td>0.6%</td>
<td>2.3%</td>
<td>8.1%</td>
<td>16.7%</td>
</tr>
<tr>
<td><strong>Insufficient physical activity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevalence – males</td>
<td>17.3</td>
<td>12.9</td>
<td>30.9</td>
<td>10.7</td>
</tr>
<tr>
<td>Prevalence – females</td>
<td>30.3</td>
<td>16.7</td>
<td>35.3</td>
<td>23.2</td>
</tr>
</tbody>
</table>

Sources: Global Health Observatory, World Health Statistics 2015; IDF, Diabetes Atlas (World Development Indicators); WHO global status report on NCDs.
Total health expenditure across the four countries is low, at around 3.2% to 4.6% of GDP, compared to 9.3% for countries within the Organisation for Economic Co-operation and Development (OECD). Thailand has the highest government health expenditure (about 80%), partly due to its universal health coverage scheme, while Sri Lanka has the lowest. Singapore has the highest out-of-pocket payments by health care users as a proportion of total health expenditure (56.8%), followed by Sri Lanka (46.5%).

Rates for age-standardized mortality rates for NCDs were also highest in Fiji, followed by Sri Lanka and Thailand (804, 501 and 449 per 100 000 population, respectively) and lowest in Singapore (Table 2.4). Prevalence of diabetes among the adult population (20–79 years) was about 7% in Sri Lanka and Thailand, and almost 11% in Singapore and Fiji. Among the risk factors, age-standardized prevalence of overweight – as measured by a body mass index (BMI) of or above 25 – was highest in Fiji, followed by Singapore. High BMI and blood glucose were reported as the main risk factors for NCDs in Fiji. Insufficient physical activity was highest in Singapore, perhaps partly due to sedentary lifestyles within the highly urbanized island.

**Global burden of disease in the Asia-Pacific region**

NCDs are a major cause of death among people aged 50–69 years in the Asia-Pacific region. Aggregated data from the 2013 GBD database (IHME) show that the top contributors to NCD-related deaths among older adults in WHO’s South-East Asia Region are ischaemic heart disease, chronic obstructive pulmonary disease (COPD), stroke and diabetes (Fig. 2.2). In WHO’s Western Pacific Region, stroke, ischaemic heart disease and COPD were among the top five causes of NCD-related deaths in both 1990 and 2013.

Comparing two age groups (15–49 years and 50–69 years) across the four countries, mortality rates are 3–8 times higher in the older age group (Table 2.5). Singapore is the most advanced in its epidemiological transition, with by far the lowest mortality rates due to infectious diseases, malnutrition and maternal and neonatal conditions. Mortality rates from NCDs are highest in Fiji, where deaths from cardiovascular disease are 5–8 times higher than in other countries, and deaths from diabetes
mellitus are also extremely high. These high rates are due to obesity with subsequent diabetes, which are occurring at younger ages in Fiji. Among other significant NCD differences for the older age group, Thailand has the highest rate of neoplasms, followed by Singapore, and Sri Lanka has the highest rate of COPD.

**Risk factors for NCDs among older people in Asia**

Major NCDs (cardio-metabolic diseases, COPD and cancers) share common behavioural risk factors, such as sedentary lifestyle, excess use of tobacco and alcohol consumption, and underlying physiological factors (e.g. excess body weight). These individual risk factors are amplified by external
Population ageing and NCDs

Table 2.5  Mortality rates, 15–49 versus 50–69 years, selected countries in the Asia-Pacific region

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (all causes)</td>
<td>183.3</td>
<td>979.7</td>
<td>274.0</td>
<td>940.7</td>
<td>64.3</td>
<td>550.9</td>
<td>346.0</td>
<td>2139.3</td>
</tr>
<tr>
<td>Infectious diseases, malnutrition, maternal &amp; neonatal conditions</td>
<td>13.8</td>
<td>59.2</td>
<td>44.8</td>
<td>101.6</td>
<td>4.7</td>
<td>41.9</td>
<td>37.6</td>
<td>119.6</td>
</tr>
<tr>
<td>NCDs</td>
<td>82.3</td>
<td>800.5</td>
<td>136.2</td>
<td>746.0</td>
<td>43.2</td>
<td>481.4</td>
<td>259.2</td>
<td>1968.5</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>33.2</td>
<td>384.7</td>
<td>34.9</td>
<td>206.7</td>
<td>13.6</td>
<td>174.6</td>
<td>119.6</td>
<td>847.8</td>
</tr>
<tr>
<td>Neoplasms</td>
<td>12.3</td>
<td>109.7</td>
<td>40.7</td>
<td>275.1</td>
<td>21.9</td>
<td>230.2</td>
<td>43.3</td>
<td>214.0</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>4.7</td>
<td>85.1</td>
<td>4.1</td>
<td>54.3</td>
<td>0.06</td>
<td>0.5</td>
<td>39.0</td>
<td>610.4</td>
</tr>
<tr>
<td>Ischaemic stroke</td>
<td>1.8</td>
<td>47.1</td>
<td>1.6</td>
<td>20.9</td>
<td>0.4</td>
<td>13.8</td>
<td>3.6</td>
<td>37.4</td>
</tr>
<tr>
<td>Chronic kidney diseases</td>
<td>3.8</td>
<td>25.5</td>
<td>7.7</td>
<td>50.6</td>
<td>1.4</td>
<td>18.0</td>
<td>14.1</td>
<td>69.1</td>
</tr>
<tr>
<td>COPD</td>
<td>2.7</td>
<td>53.0</td>
<td>3.1</td>
<td>30.3</td>
<td>0.3</td>
<td>12.8</td>
<td>3.8</td>
<td>51.6</td>
</tr>
</tbody>
</table>

Source: GBD 2013. IHME.

Factors, such as urbanization with concomitant reduced physical activity, environmental pollution, and market exposure to energy-dense foods (WHO, 2014).

GBD data (2013) show that among the top NCD risk factors for men and women aged 50–69 years (Table 2.6), many countries share immediate

Table 2.6  Ranking of risk factors, 50–69 years, selected countries in the Asia-Pacific region

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Sri Lanka Males</th>
<th>Sri Lanka Females</th>
<th>Thailand Males</th>
<th>Thailand Females</th>
<th>Singapore Males</th>
<th>Singapore Females</th>
<th>Fiji Males</th>
<th>Fiji Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietary risks</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>High blood glucose</td>
<td>5</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>High cholesterol</td>
<td>6</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>High BMI</td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Air pollution</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Alcohol and drug use</td>
<td>8</td>
<td>9</td>
<td>4</td>
<td>8</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Tobacco</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Low physical activity</td>
<td>9</td>
<td>7</td>
<td>10</td>
<td>11</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Other environment</td>
<td>11</td>
<td>16</td>
<td>14</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>12</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: GBD 2013. IHME.
physiological factors and risk behaviours, some of which are preventable or amenable to modification, such as dietary factors, high blood pressure, high blood glucose, high BMI and high cholesterol. These risk factors are similar across both middle-income countries (e.g. Fiji, Sri Lanka and Thailand) and high-income countries (e.g. Singapore). There are important gender differences, however, with tobacco-smoking the highest risk factor among Thai males, and high BMI the highest risk factor among Fijian females.

**Regional initiatives on population ageing and NCDs in Asia**

While countries in the Asia-Pacific region are on somewhat different NCD and population-ageing trajectories, they have adopted broadly similar health policy strategies. For the Western Pacific Region, WHO has made “reorienting health systems to respond to the needs of older people” the third of four “action pillars” in its *Regional framework for action on ageing and health in the Western Pacific (2014–2019)* (WHO, 2014). For the South-East Asia Region, WHO identifies six strategic components as part of its *Regional strategy for healthy ageing (2013–2018)*, including “adapting the health systems to the challenges of the ageing population and to meet their health needs” (WHO, 2014).

These WHO frameworks both stress the need to reorient and strengthen mainstream health systems to respond to ageing populations, with an emphasis on primary care and service integration. They also advocate a life course approach to disease prevention and stress the importance of interventions on lifestyle and environmental risk factors (Byles et al., 2014). According to these frameworks, the “best buy” for low- and middle-income countries is to address risk factors for cardiovascular disease, cancer, chronic respiratory disease and diabetes. These diseases make the largest contribution to mortality, share common risk factors, and can be addressed using proven cost-effective interventions, such as tobacco control, healthy diet, increased physical activity, salt reduction, and multidrug treatment for individuals with cardiovascular disease.

**Health system responses**

The seminal, though controversial, *World health report 2000* adopted “responsiveness to patients’ rights” as a key measure to assess the performance of health systems around the world (WHO, 2000). This health
system attribute stresses the importance of “respect for human beings as persons”. Such a measure includes how a health system meets certain concerns that are commonly expressed by patients and their families, such as prompt attention, adequate amenities, promoting social support networks and choice of provider. The following section outlines key elements in preparing health system responses to older people and NCDs, including the role of primary care, age-friendly services, integrated care, equity in access and quality of care.

Primary care and NCDs

It makes strategic sense to prioritize the prevention of premature mortality and morbidity and risk factors should preferably be addressed early rather than late in an individual’s life course. From the viewpoint of health services, the great majority of their patients over the next few decades will be people aged 60 years and over. Health services must therefore plan ahead for a predominantly elderly patient population. It also makes strategic sense to focus on strengthening primary care, given that this level of care should (although often does not) have the capacity to undertake health promotion, disease prevention, early treatment and ongoing management of NCDs.

Primary health care is crucial for older patients with chronic conditions for several reasons (HelpAge International, 2014; WHO, 2015). First, international studies find that chronic conditions are often better managed in the community by primary care providers than in hospital admissions. Second, chronic diseases can often be managed more cost-effectively by primary care than expensive hospital care. Third, primary care in the local community is more accessible for older people, who may find it difficult to navigate the distances and cost barriers involved in clinical and hospital services.

WHO headquarters has directed attention to the importance of primary health care in preventing and managing NCDs. The Package of essential NCD (PEN) interventions for primary health care in low-resource settings sets out guidelines for low- and middle-income countries to consider and adapt for the screening, prevention and early treatment of NCDs. The package includes standardized tools for health assessment, essential drugs,
counselling of patients, and community mobilization (WHO, 2010). The
PEN package focuses on reducing premature deaths, highlighting that
46% of NCD deaths globally involve people aged less than 70 years (WHO,
2013). In particular, PEN Protocol 1 targets prevention of heart attacks,
strokes and kidney disease through integrated management of diabetes
and hypertension for populations aged over 40 years. As of 2014, several
low- and middle-income countries in the Asia-Pacific region, including Fiji,
have piloted the PEN package (Roberts, 2011); Bhutan and Sri Lanka have
now scaled up to national level (WHO, 2014).

In 2000 WHO initiated the STEPwise approach to NCDs, to help low- and
middle-income countries build capacity to conduct surveillance and risk
factor assessments. The first step is designed to collect information on risk
behaviours (e.g. tobacco and alcohol use, physical inactivity), physiological
measures (e.g. weight and height), and biomedical measures (e.g. blood
sugar and blood lipids). Over the past decade, several countries in South
and South-East Asia have conducted multiple rounds of risk surveys,
including Bangladesh, Indonesia, Myanmar, Nepal and Sri Lanka (WHO
South-East Asia Regional Office, 2011).

Age-friendly services
The concept of “age-friendly health services” draws on ideas that seek to
make health services more responsive to their patient populations. WHO’s
Global Network of Age-friendly Cities and Communities offers guidelines
and stories of good practice (WHO, 2014), as does the Network of Health
Promoting Hospitals, which encourages health services to ensure that
their health care is age-friendly (Groene & Jorgensen, 2005; International
Network of Health Promoting Hospitals and Health Services, 2015).
Despite these visions, most hospitals remain institutions run more for the
convenience of health professionals than patients. The following types of
age-friendly principles are therefore promulgated as a framework, from
which health services can develop and adapt standards or guidelines to suit
their circumstances (WHO, 2004; 2008):

- a holistic approach to medical, psychosocial, cultural, cognitive
  and functional dimensions;
Population ageing and NCDs

• a goal to promote healthy, happy and active ageing;
• an enabling physical environment that promotes access to and use of health services;
• staff with knowledge and appropriate skills and attitudes; and
• integrated services that deliver continuity of care across primary, secondary and tertiary services, and link to rehabilitation and community-based health and social care.

Integrated health care

Integrated health care refers to “the organization and management of health services so that people get the care they need, when they need it, in ways that are user-friendly, achieve the desired results and provide value for money” (WHO, 2008). Essentially, service integration is about providing the right care, to the right people, at the right time.

To achieve integrated care, people must be able to move between different components of the health care system, and the different components must work together to realize the best outcomes for the individual and the population. Integrated health care may be achieved through co-location of multipurpose services (e.g. a multiservice health centre), continuity of health care across different services (e.g. linking up district hospitals, health centres and health posts), and continuity of care over time and across an individual’s different needs. Health services should also be integrated with social services. For older people, the overall goal of service integration is to enable the prevention and management of multiple chronic conditions, maximize functional capacity, and enhance quality of life.

Ensuring equity of access to health care

Equity in health care broadly means that groups of people are not discriminated against, whether those groups are defined socially (e.g. indigenous people), economically (e.g. poor people), demographically (e.g. elderly people), or geographically (e.g. rural communities). A key aspect of equity involves access to the resources needed to improve and maintain health outcomes. In other words, people should be able to obtain health care when they need it, irrespective of income, physical location and cultural background.
The World health report (WHO, 2000) adopted “fair financing” as a key measure to assess the performance of health systems. This called for countries to adopt fair methods to finance their health systems, by extending financial protection to everyone and ensuring that all people can afford health care goods and services. “Unfair financing”, by contrast, results in people not being able to afford health care or being pushed into poverty through high or “catastrophic” health costs. This report will address financial access for elderly people and NCD patients, given that the goal of universal health coverage has been widely adopted in the Asia-Pacific region.

**Improving the quality of health services**

Quality is a broad term that refers to all the attributes of good health care. Health care services are commonly exhorted to be safe, effective, patient-centred, timely, efficient and equitable (Institute of Medicine, 2001). Although health services commonly aspire to this vision, many fall short, even those in high-income countries, while those in low- and middle-income countries – beset by high patient demand and limited resources – find such standards difficult to meet. Quality attributes must be translated into definable and measurable activities that are relevant to particular countries and particular groups of patients and conditions. While there are many strategies to improve the safety and quality of patient care (Healy, 2011), this report considers strategies under way in middle-income countries in the Asia-Pacific region to improve the quality of clinical performance (Dayal & Hort, 2015), as well as specific strategies to improve the quality of NCD patient management.

**Selected tracer conditions in older adults**

NCDs with multiple comorbidities are common among older populations, in particular, diabetes, cardiovascular conditions and related complications, which share common risk factors. These conditions call for screening programmes to enable early intervention, as well as services that deliver primary, secondary and tertiary health care. As chronic conditions, they may also require long-term care. Two conditions – diabetes and stroke – were selected for this study to provide a window into the preparedness of health services to respond to older patients with chronic health conditions.
Diabetes

Diabetes accounts for a very large and increasing proportion of the NCD burden. An estimated 382 million people around the world have diabetes, and an estimated 175 million cases are undiagnosed (IDF Atlas, 2013). In the 2010 GBD study, diabetes accounted for 1.3 million deaths out of 34.5 million deaths from NCDs, with the number of deaths from diabetes doubling between 1990 and 2010 (George et al., 2013). The total mortality from diabetes is likely to be underestimated, since diabetes as a cause of death is underreported. People with diabetes may die of cardiovascular disease, renal failure or other related complications. Diabetes also accounts for a large proportion of years of life lost to disability, although again this burden is underestimated through underdiagnosis and underreporting (Alberti et al., 2013).

Diabetes is characterized by disordered glucose metabolism. There are two major types: type 1 occurs due to destruction of insulin-producing cells in the pancreas, and type 2 occurs due to a combination of insulin resistance and insufficient insulin production. Type 2 is the most common form affecting older adults. Gestational diabetes is a transient form of diabetes that occurs during pregnancy, and can predispose women to the development of type 2 diabetes later in life. The diagnosis of diabetes is based on blood glucose levels. In asymptomatic people, abnormal errors on at least two separate measurement occasions are required to make a diagnosis of diabetes. Less extreme glucose abnormalities may be classified as impaired glucose tolerance, or impaired fasting glucose (sometimes referred to as prediabetes).

With regards to screening for diabetes, there is evidence for “case finding” by measuring blood glucose in adults (aged 45 years and over) who are at increased risk of diabetes. Treating people with elevated fasting glucose or impaired glucose tolerance with intensive lifestyle interventions (e.g. improved nutrition, healthy eating behaviours, increased physical activity and weight reduction) has been shown to have moderate benefit in decreasing the risk of progression to diabetes (Karunapema & Wijerathna, 2009).
Treatment of diabetes in older patients must consider not only the importance of glucose control, but also other comorbid conditions that may complicate the management of their diabetes and alter their prognosis. For people with shorter life expectancy, long-term control of hyperglycaemia may be less important than for younger patients (Durso, 2006). However, most guidelines and evidence for the prevention and management of diabetes do not account for the presence of comorbidities, or for an older person’s social circumstance and treatment goals. The overarching goal in the management of diabetes in older people should be optimal functional capacity and quality of life. Specific goals will depend on the individual’s age, whether they have other conditions, their social circumstances and their life expectancy.

Management of diabetes also includes patient education and self-management approaches. Diabetes self-management involves daily monitoring of glucose levels, adherence to diet, exercise and medication programmes, and adjustments to treatment in accordance with fluctuations in glucose control. Diabetes programmes have been developed to assist people with diabetes and their caregivers to develop the knowledge and skills necessary to undertake their own care.

**Stroke**

Stroke is a highly prevalent neurological condition arising from interrupted cerebral blood flow and brain infarction. In 2010, about 16.9 million people had a first stroke, and another 33 million people were living with the effects of a previous stroke. There were 5.9 million stroke-related deaths. Although the risk of death from stroke has decreased over the past decade, the absolute numbers of people with incident stroke and stroke survivors have increased, with most of the burden occurring in low- and middle-income countries (Feigin et al., 2014).

The pathology of stroke can be ischaemic, due to lack of blood to the brain, or haemorrhagic, due to a burst blood vessel. As populations age, the prevalence of stroke will increase. Stroke is becoming more prevalent in low- and middle-income countries, as NCD risk factors increase due to population ageing and lifestyle changes. Currently, more than 85% of
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deads from stroke occur in low- and middle-income countries, with 94% of stroke deaths occurring among people aged 70 years or over (GBD, 2015).

Major risk factors for stroke include smoking, diabetes, atrial fibrillation, hypertension (abnormally high blood pressure), and dyslipidaemia (elevated low-density lipoprotein “bad” cholesterol levels in the blood, or low levels of high-density lipoprotein “good” cholesterol). The INTERSTROKE study (O’Donnell et al., 2010) included cases and controls from 22 low-, middle- and high-income countries. It identified the main risk factors accounting for 90% of the population-attributable risks for stroke: social factors, including smoking, alcohol, poor diet and physical inactivity; and individual factors, including hypertension, elevated waist-to-hip ratio, diabetes, depression and history of cardiac disease.

There is a major opportunity to prevent stroke through detection and management of hypertension. Hypertension is also a major risk factor for coronary heart disease, renal failure and congestive heart failure, with significant impacts on premature mortality and disability. There is strong evidence that treatment of hypertension reduces the risk of these adverse health outcomes (WHO ISH, 2003). Population-wide approaches to prevention aim to shift the blood pressure distribution of the whole population. Hence, on World Health Day 2013, WHO called for all adults (aged 18 years and over) from around the world to have their blood pressure measured. This recommendation is endorsed by most international bodies, including the Joint National Committee (Chobanian et al., 2003) and the U.S. Preventive Services Task Force (2007).

Stroke management guidelines recommend that people with stroke should have access to rehabilitation and long-term care (UK National Institute of Health and Clinical Excellence, 2008). However, many low- and middle-income countries have few rehabilitation services and specialist stroke units, which limits their potential to substantively improve stroke outcomes (Langhorne et al., 2012).
Summary and conclusion

The projected increase in the number of older people – expected to double over the next few decades – along with the rapid rise in the prevalence of lifestyle risk factors, will both contribute to the increase in NCDs. While risk factors stretch back across the life span, the prevalence and treatment of most NCD conditions occurs among older people.

For the past 20 years, the GBD has shown that the top causes of death in the Asia-Pacific region are heart disease, diabetes and COPD, and that the rates for these conditions are 5–10 times higher among older people than younger people across countries. Monitoring future trends in prevalence, speed of progression, attributable deaths and impacts on disability will be important for health resource allocation. Changes in patient age profiles and corresponding health needs call for modifications to the types of health services and the training of health professionals.

While many NCDs share common risk pathways, health system responses may require different strategies, depending on the aetiology of the particular condition and the most cost-effective point of intervention from different levels of care. For example, one of the selected tracer conditions (diabetes) can be detected and managed at the level of primary health care; while the other (stroke) requires timely access to a higher level of care and treatment services. Continuity and integration in the management of chronic care will be essential to improve population health outcomes. Within the context of low- and middle-income countries, strengthening the capacity of primary health care and identifying innovations in NCD prevention and management are particular priorities.
References


Population ageing and NCDs


Population ageing and NCDs


Chapter 3: Sri Lankan country case study

Palitha Karunapema, Palitha Abeykoon
Context

Sri Lanka is an island located in the Indian Ocean in South Asia (see map, Appendix B). In 2012 the total population numbered 20.2 million (Sri Lankan Government, 2012). The society is multiethnic, multilingual and multireligious: three quarters of the population is Sinhala-speaking, while the remaining quarter comprises three distinct ethnic groups: Sri Lankan Tamils (13%), Muslims (7%), and Indian (or Estate) Tamils (5%). Sri Lanka also has a small number of Eurasian Burgher, Malay and Indian people (less than 1%). Most Sinhala-speaking people are Buddhists, while the rest are Christians.

Historically, Sri Lanka was one of the first developing nations in South Asia to achieve better health outcomes, despite relatively low expenditure. While Sri Lanka has an extensive network of public sector health services, these services were judged not ready to address the needs of a rapidly ageing population or to respond to growing rates of NCDs in 2008 (World Bank, 2008). Public sector health services in Sri Lanka have traditionally been geared to maternal and child health and to the prevention and treatment of infectious diseases. This chapter concentrates on the plans and progress made in responding to changing population health needs, in particular the needs of older people with chronic NCDs, especially diabetes and stroke.

Sri Lanka was ranked as a moderate achiever by the international Global AgeWatch Index, placing 46th on the overall Index in 2015 (HelpAge International, 2015). The country scored less well on income security, given its low pension coverage for only 17% of people aged 65 years and over.

Classified by the World Bank as a lower-middle-income country, the Sri Lankan economy has grown quickly following the end of the civil war in May 2009. This is largely due to political stability, post-war reconstruction efforts and increased consumption. Sri Lanka is also in the process of strengthening its health system, responding to changing health needs, and engaging in recovery and reconstruction following the devastating effects of more than two decades of civil war and the 2004 tsunami. Sri Lanka experienced its worst environmental disaster in history when a tsunami hit the east coast of the island on 26 December 2004, killing nearly 40,000 people, displacing tens of thousands more, and causing huge damage to
property and land (Athukorala & Resosudarmo, 2006). The civil war and
the tsunami have clearly had major impacts on Sri Lanka’s population and
health services.

According to a World Bank overview, economic growth averaged 6.3%
between 2002 and 2013, and GDP per capita has recently risen (World Bank,
2015). Growth has been pro-poor, with consumption per capita for the
bottom 40% of the population growing at 3.3% a year, compared to 2.8%
for the total population. Other human development indicators also are
impressive. Regarding the Millennium Development Goals, Sri Lanka met,
was on track for, or made substantial progress on most of its 2015 targets
(WHO, 2015).

The national poverty rate has declined to 6.7% of the population, and the
national unemployment rate is low at 4.4% (these rates are higher in rural
districts and areas affected by the civil war) (World Bank, 2015) (see Table
3.1). Primary agriculture currently accounts for 30% of the labour force;
however, this sector will continue to decline with the expected expansion
of other parts of the economy. GDP per capita doubled between 2005 and
2013/14 to US$ 10 527.

Table 3.1  Sri Lanka: macroeconomic indicators, 2000–2014

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
<th>2013/2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (current US$)</td>
<td>854.9</td>
<td>1242.4</td>
<td>2399.9</td>
<td>3631.0</td>
</tr>
<tr>
<td>GDP per capita PPP* (current international US$)</td>
<td>3920.5</td>
<td>5202.4</td>
<td>7418.8</td>
<td>10 527.5</td>
</tr>
<tr>
<td>GDP average annual growth rate %</td>
<td>6.0</td>
<td>6.2</td>
<td>8.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Unemployment (% of labour force)</td>
<td>7.7</td>
<td>7.7</td>
<td>4.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Poverty rate (national poverty line)</td>
<td>22.7</td>
<td>15.2</td>
<td>8.9</td>
<td></td>
</tr>
</tbody>
</table>

*PPP: purchasing power parity

Population ageing

Life expectancy at birth in Sri Lanka has increased to 71.6 years for men and
78.5 years for women, while the fertility rate has fallen (although the total
fertility rate increased from 1.9 in 1997 to 2.5 in 2012). The overall trend,
however, indicates that older people, both in number and as a proportion of
the population, are growing rapidly (see Chapter 2, Table 2.3).
People aged 60 years and over accounted for 6.6% of the population in 1981, compared to 12.4% in 2012, with a projected increase to 24.8% by the year 2041 (Ministry of Health, 2012). Scenarios differ as to when population ageing will peak (Fig. 3.1). Projected changes in the structure of the “population tree” show its gradual “rectangularization” (similar to the demographic transition in high-income countries), with larger numbers of older women than older men (Fig. 3.2). This transition to an ageing society has been much faster for Sri Lanka than for European countries.

The old-age dependency ratio is expected to rise from about 10.9 people aged 65 years and over per 100 working-age people in 2011 to 23.7 per 100 by 2030 (UN Population Division, 2015). A person aged 60 years or over in Sri Lanka is generally considered “elderly” and is expected to retire from the paid workforce. Retirement age in the formal sector is 60 years of age, compared to 65 or over for most developed countries with similar life expectancies.

**Fig. 3.1** Sri Lanka population aged 60 years+ 1950–2010 with forward projections

Fig. 3.2 Population trees for Sri Lanka: 1950, 2015 and projections for 2050

Note from the source: the dotted line indicates the excess male and female population in certain age groups. The data are in thousands or millions.


**NCD mortality and morbidity patterns**

As with other countries in the Asia-Pacific region, the pattern for mortality and morbidity in Sri Lanka has shifted to a higher proportion of NCDs compared to infectious diseases (see Chapter 2, Table 2.4). While risk factors stretch back across the life course, and are particularly evident in late middle age, the onset of most actual NCD conditions occurs among
older people. The increasing burden of NCDs is therefore attributable to both an increase in risk factor prevalence and growing numbers of older people.

Expert informants in Sri Lanka said that planning for NCD prevention and management has been hampered by the absence of a comprehensive NCD surveillance system. According to one informant, “prevalence statistics and projections of both risk factors and disease conditions may underestimate the current situation.” The latest mortality data published by the Registrar General’s Department is for 2010. In terms of scope and accuracy, Sri Lanka’s vital statistics system has been classified as weak among countries in the Asia-Pacific region (Mikkelsen et al., 2014). Nor is disability data from hospitals captured well using the current International Classification of Diseases. Informants said that Sri Lanka needed to improve its institutional capacity to conduct regular population surveys on disability. A comprehensive population-level survey of disability is urgently needed (Peiris-John et al., 2014), although population-level surveys of NCD risk factors were conducted in 2006 and 2014 using the WHO STEPwise survey package, with the 2014 survey due for publication soon.

Mortality data show that ischaemic heart disease is the largest single cause of death, followed by cancer, diabetes mellitus, ischaemic stroke, chronic kidney disease and COPD. Chapter 2 shows that mortality from these causes was higher among people aged 50–69 years, compared to those aged 15–49 years (see Table 2.5). There are also differences between men and women, with age-specific cardiovascular mortality rates much higher among males than females (see Table 2.5).

Diabetes prevalence

Turning to the tracer conditions selected for this study, the World Diabetes Atlas estimated that the diabetes prevalence (i.e. the percentage of people aged 20–79 years who have type 1 or type 2 diabetes) for Sri Lanka was 7.8% in 2014 (IDF 2015). Diabetes prevalence has increased from about 2% in 1988 to 10.3% in 2008, with higher rates in urban areas. A survey using stratified cluster sampling of 6047 people aged 30–65 years in four provinces found age-standardized rates of 13.9% and 14.1% for diabetes and prediabetes respectively (Wijewardene et al., 2005). Another study,
based on stratified cluster sampling, found a 10.3% prevalence (age and sex standardized) among people aged over 20 years, but estimated that 20% of adults in Sri Lanka had prediabetes or undiagnosed diabetes (Katulanda et al., 2008). The 10.3% prevalence of diabetes among adults in Sri Lanka is projected to increase to 13.9% by 2030 (Katulanda et al., 2008).

**Fig. 3.3 Diabetes prevalence, 1988–2008**

![Diabetes prevalence graph](image)

**Sources:** Jayawardena et al. 2012; Katulanda et al. 2006.

**Fig. 3.4 Diabetes mortality rates (age-standardized), 2000 and 2005**

![Diabetes mortality rates graph](image)

**Source:** Register General – Sri Lanka data 2000 and 2005 – calculation by the author.
Mortality due to diabetes (age-standardized rates) increased between 2000 (dark shading) and 2005 (light shading) across all older age groups, with the highest increase among those aged 70–74 years (Fig. 3.4). This resulted in increased hospital admissions due to diabetes and related complications (Ministry of Health Care and Nutrition, 2002).

**Stroke prevalence**

Surveys of risk factors for stroke and related NCDs in Sri Lanka between 1998 and 2002 found an age-standardized prevalence rate for hypertension of 19%, with little difference between men and women (Wijewardene et al., 2005). Similar results were reported in other district and national-level studies, including a somewhat higher hypertension prevalence of 25% (unadjusted) (Katulanda et al., 2008). A survey of Colombo adults aged 18 years and over (n=2313) found a 1% stroke prevalence rate, with hypertension the most common risk factor (rounded to 63%), followed by smoking (50%), excess alcohol consumption (46%), diabetes (33%), transient ischaemic attack (30%), and family history (22%) (Chang et al., 2011).

**National policies on ageing and NCDs**

Population ageing entered the public policy agenda in 2006 with the Cabinet’s adoption of a national policy for senior citizens (Table 3.2). The policy grouped goals under three areas: elders and development; advancing health and well-being; and ensuring an enabling and supportive environment. The 17 broad goals included ensuring income security and promoting suitable employment (Goal 5) and ensuring health and well-being in old age through healthy nutrition and recreation (Goal 8). While the 2006 policy announced a vision for healthy and active ageing, the 2010 plan set out an action strategy, listing activities, timeframes and responsible partners. So far, however, only some of these components have been implemented.

A national policy and strategic framework for NCDs was adopted by the Cabinet in 2010 (Sri Lankan Government, 2009). As the lead agency, the Ministry of Health was tasked with enlisting other stakeholders, since reducing NCD risk factors must include others outside the health sector. The NCD programme was allocated its own government budget line with 900 million rupees for the first three years and 2000 million rupees in 2013.
for the following three years (about US$ 28 million in total). The overall policy intention was as follows:

To reduce premature mortality (less than 65 years) due to chronic NCDs by 2% annually over the next 10 years through expansion of evidence-based curative services, and individual and community-wide health promotion measures for reduction of risk factors.

The nine strategic objectives listed in the framework constituted a “vision statement”. The focus on premature mortality (among people aged less than 65 years) is in line with the WHO NCD policy, although this ignores the gains that might be made among those aged 65 years and over. The nine strategic objectives included reducing NCD risk factors among the population and strengthening health services to be ready for increased numbers of patients:
Objective 1: Support prevention of chronic NCDs by strengthening policy, regulatory and service delivery measures for reducing level of risk factors of NCDs in the population.

Objective 3: Facilitate provision of optimal NCD care by strengthening the health system to provide integrated and appropriate curative, preventive, rehabilitative and palliative services at each service level.

The NCD programme is run by an NCD Unit (staffed by a director, two physicians and administrative officers) within the Ministry of Health. The Unit’s function is to plan, coordinate and monitor activities. NCD programmes are managed mainly through the offices of the Regional Director of Health Services and district NCD medical officers. The take-up of NCD funds, however, has been low and slow (implementation is discussed later in this chapter). According to informants, health services do not yet have sufficient capacity to effectively implement the national NCD prevention and control programme; health workers at the local level have many other responsibilities and are not yet trained in NCD prevention; and the programme is insufficiently strategic.

Physician informants attributed poor implementation partly to the lack of technical experts at the central level to manage the programme (only one permanent consultant for chronic NCD) and partly to the lack of effective utilization of professional bodies.

**Health service funding and financial access by older people**

International reports regard fairness of financing as a core indicator of health system performance (WHO, 2010), while the universal health coverage policy calls for financial access to health care, especially for vulnerable people (WHO, 2014). Sri Lanka aims to offer universal health coverage, an implicit government policy since 1996. But in practice, how financially accessible are health services for the older population, especially older people with chronic health problems?

As noted in Chapter 2, Sri Lanka spends a lower proportion of its GDP on health (about 3.2%) than the South-East Asia average, and Thailand and
Singapore, which both spend 4.6% (Chapter 2, Table 2.3). Total health expenditure as a percentage of GDP reached 4.0% in 2005, then declined to 3.2% in 2013 (Table 3.3). However, total health expenditure in purchasing power parity (PPP) per capita, taking local cost of living into account, increased from US$ 206 in 2005 to US$ 304 in 2013.

Table 3.3 Sri Lanka: trends in health expenditure, 1995–2013

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<tr>
<td>THE* % of GDP</td>
<td>3.4%</td>
<td>3.7%</td>
<td>4.0%</td>
<td>3.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>THE US$ PPP per capita (2011 prices)</td>
<td>$101</td>
<td>$149</td>
<td>$206</td>
<td>$254</td>
<td>$304</td>
</tr>
<tr>
<td>Public expenditure on health as % of THE</td>
<td>46.8%</td>
<td>48.4%</td>
<td>45.1%</td>
<td>45.3%</td>
<td>43.9%</td>
</tr>
<tr>
<td>Private expenditure on health as % of THE</td>
<td>53.2%</td>
<td>51.6%</td>
<td>53.8%</td>
<td>55.2%</td>
<td>-</td>
</tr>
<tr>
<td>OOP† payments as % of THE</td>
<td>45.7%</td>
<td>41.7%</td>
<td>45.3%</td>
<td>44.8%</td>
<td>46.5%</td>
</tr>
<tr>
<td>OOP payments as % of private expenditure on health</td>
<td>85.9%</td>
<td>80.8%</td>
<td>82.5%</td>
<td>81.9%</td>
<td>83.0%</td>
</tr>
</tbody>
</table>

*THE: total health expenditure; †OOP: out-of-pocket
Source: WHO Global Health Expenditure database.

Historically, Sri Lanka has provided its population with government health services that are free to the user. Increasingly, however, people are paying for health care from the private sector. The important point in relation to financial access by older people – many of whom are on limited incomes; few of whom receive a pension – is that over half of total health spending in Sri Lanka takes place in the private sector, and most of this (80–86% over the last decade) comes from households. In 2010, private sector sources accounted for 55% of total health expenditure and public sector sources accounted for 45% (Table 3.3).

While public sector outpatient services do not charge user fees and public hospital inpatient care is free, household out-of-pocket payments have nevertheless increased steadily, to account for 46.5% of total health expenditure in 2013 (Table 3.3). Households purchase private goods and services, and must pay for some drugs, aids and appliances. For example, while consultations in government health facilities are free, patients must sometimes pay for diagnostic tests and medications from the private sector due to public sector shortages. High out-of-pocket expenditure in Sri Lanka may also be due to the middle and upper middle classes choosing for
various reasons – whether push or pull factors – to pay for services from the private sector.

Kwon et al. (2012) point out that the National Health Accounts for Sri Lanka show that just over 80% of household out-of-pocket payments are for ambulatory care, while only a small proportion are for inpatient care. They conclude that many people are paying for consultations, medicines and diagnostic tests in private ambulatory facilities. There are no data on how much older people (who have less financial capacity) and people from lower income groups pay for health care. Since more than half of consultations occur in the private sector, many people, and certainly those from upper income groups in urban areas, bypass public health services for private ambulatory care. On the one hand, urban populations usually have higher incomes than rural populations, and private health services (usually hospitals) typically locate in higher-density, better-off urban areas. Small clinics run privately by physicians, on the other hand, are located widely throughout the country.

Out-of-pocket payments are driven by push and pull factors. First, while patients of government health facilities do not pay user fees, they must pay private providers when goods and services are not available from the public sector. Second, public hospital outpatient departments are often overcrowded and lack continuity of care (patients cannot choose their doctor), making them less attractive to patients. Third, private clinics are perceived by the public to provide better personalized care. Fourth, long waiting times for outpatient public services (often 2–4 hours) mean that employed people with higher incomes are more likely to use private doctors. Finally, many doctors employed in the public sector also work after-hours in the private sector.

Informants said that lack of doctors, medications and investigation facilities were the most common reasons for patients to bypass primary care institutions for secondary care hospitals or private doctors.

Health services delivery
This section outlines the types of health care services delivered to the Sri Lankan population, with particular emphasis on older patients with chronic
health problems, in particular diabetes and stroke. The services discussed in turn are preventive and primary health care, ambulatory care, hospital services and rehabilitation. The policy intention is to integrate most NCD prevention and management within mainstream health services, which calls for strengthening overall health services.

One of the challenges for improving the delivery of NCD services is that older patients have expectations for standard levels of health care. Older informants said that they do not expect to maintain good health or to necessarily receive high-quality health services. However, this does not excuse health professionals from seeking to provide high-quality care to older patients.

**Box 3.1 Older people’s attitudes to chronic disease and health care**

In general, older people do not worry too much about chronic conditions unless they are painful or limit their daily activity. Sri Lankan people are more tolerant of bad health, in line with Buddhist religious teaching. They accept serious health events, such as stroke or heart attack, as inevitable and have lower expectations of health services.

Older women seek treatment more frequently than men, a general trend seen across all age groups. People of higher socioeconomic status with good family support, seek health care more frequently and expect more from health services, whether public or private.

Many older patients prefer conservative medical management to surgical procedures (e.g. drug treatment for osteoarthritis rather than knee replacement). Patients with chronic conditions would prefer to see the same doctor and be treated in a single visit, which usually does not happen in government health services.

If patients who are frail or have disabilities do not have anyone to take them to a clinic, they go to a pharmacist or attend a doctor only with an acute medical problem. Most elderly patients seek allopathic treatment, but if the condition or pain does not improve, they may seek Ayurveda treatment; this is also the case with joint pain, stroke or terminal stages of cancer.

*Source: Interview with a group of elderly people.*
Turning to the organization of health services in Sri Lanka, public sector health services are provided by the Ministry of Health via three administrative levels: the national ministry, nine provincial ministries, and 25 district offices. Government administrative areas are divided into 331 divisional secretary areas, and further subdivided into Grama Niladhari divisions.

Private sector services include medical practices, hospitals, laboratories and pharmacies. About half of consultations and treatments take place in the private sector (Table 3.4), including a small number of consultations (about 5%) with Ayurvedic practitioners (Box 3.2).

**Table 3.4  Main treatment sources consulted by patients during a 14-day reference period (%)**

<table>
<thead>
<tr>
<th>Source of treatment</th>
<th>Government sector</th>
<th>Private sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Western</td>
<td>Ayurvedic</td>
</tr>
<tr>
<td>1986/87</td>
<td>44.1</td>
<td>1.9</td>
</tr>
<tr>
<td>1996/97</td>
<td>50.7</td>
<td>2.0</td>
</tr>
<tr>
<td>2003/04</td>
<td>43.5</td>
<td>1.2</td>
</tr>
</tbody>
</table>

*Source: Central Bank Consumer Finance Surveys.*

**Box 3.2 Ayurvedic medicine**

In Sanskrit, *ayur* means life or living and *veda* means knowledge, so Ayurveda is called the “knowledge of living” or “science of longevity”. The traditional system of medicine in India, it preceded and evolved independently of Western medicine. Practitioners seek to treat and integrate body, mind and spirit using a holistic approach, especially by emphasizing diet, herbal remedies, exercise, meditation, breathing and physical therapy. As such, it is non-invasive and said to be non-toxic. Ayurvedic medicine is a form of traditional medicine, referred to in some countries as “alternative” or “complementary” medicine. Sri Lanka has a Ministry of Indigenous Medicine and an Ayurvedic research institute.


Health promotion and illness prevention programmes are run centrally by the Ministry of Health, and at the provincial level by provincial and
regional directors of health. The grassroots or divisional level is managed in part by medical officers of health (337 doctors), who are also trained in public health, and work under the leadership of a regional director of health. These divisional-level public health services are long-established in Sri Lanka, the traditional focus being the prevention of infectious diseases. However, the medical officers of health now manage a range of other programmes focusing on NCDs, elderly people, occupational health, food sanitation, etc. (Box 3.3).

**Box 3.3 Health messages to community groups**

In Batticaloa in the Eastern Province, medical officers use existing community groups to inform people about NCDs. After attending a talk on healthy diet, 33-year-old Komathy Amarasingam from the Women’s Rural Development Society said she would pass on what she had learned to women in her community. “One key lesson is the importance of getting your BMI checked and being screened,” she said. “Many women don’t know about the link between obesity and lifestyle. Personally, I am going to do more meditation and physical activity, perhaps cycling.”

Source: WHO Sri Lanka website www.who.int/country/lka/en

**Primary health and outpatient care**

NCD screening is now conducted mainly through Healthy Lifestyle Centres, which are attached to local hospitals and staffed by doctors, nurses and other health staff (Box 3.4). About 800 of these centres have been established throughout the country since 2011. Sri Lanka set up these centres drawing on lessons from three earlier pilot projects. The centres’ main functions are to screen hospital outpatients for NCDs, to educate people about how to reduce their risk factors, and to promote healthy and active ageing. Women are more likely than men to attend these centres, accounting for 80% of the users of NCD screening services. Similarly, women account for 70% of people screened in diabetes clinics, despite a similar diabetes prevalence for men and women.

Follow-up from NCD screening is said to be poor; symptoms are usually not urgent in the early stages, so people discontinue their health visits. Some people may instead consult traditional medicine, such as Ayurveda
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practitioners, who hold out hope of a cure for cancer, heart disease, diabetes, stroke, etc. However, preventive messages from Ayurveda practitioners are similar to those of Allopathic (Western) practitioners, and can reinforce a change to a healthier lifestyle.

Informants regarded the Healthy Lifestyle Centres as very important in NCD prevention, but thought the centres were underused, especially by men at risk of cardiovascular disease, and because they do not screen people aged over 65 years. They believed that private sector clinics should participate in NCD screening and that the country needs a systematic population-wide screening programme.

Box 3.4 Healthy Lifestyle Centres

Geethani Priyardarshi was on the bus in her home town when a chance meeting may have saved her years of ill health. A fellow passenger and public health midwife suggested that the 37-year-old have a check-up to see if she was at risk of developing a chronic condition. Luckily for Geethani, she lives close to the Digampitiya Healthy Lifestyle Centre in Kurunegala District, North Western Province.

Staff conduct a weekly clinic for up to 20 people aged 35–65 years. People can walk in without a referral or appointment or be referred by community health workers. For example, midwives use routine home visits as an opportunity to encourage family members to be screened. Primary health care workers have been trained to give nutrition and lifestyle counselling, resulting in a more integrated and economical approach to health care and promotion.

The busy waiting room at the Digampitiya Centre is a sign that the health message is working. But 43-year-old Anura Jayasinghe is a rare male face. He brought his wife for a check-up, but has no plans to be screened himself. Mr Jayasinghe says he feels fine, and cannot take more time off work anyway. His response illustrates the low rate of male participation, a major challenge for Sri Lanka’s NCD screening programme.


A considerable amount of ambulatory care takes place in the private sector. Private sector health care is widespread, accounting for about 60% of all
patient consultations; however, minimal data are available, as private practice is not well monitored or regulated. To a large extent, private health care is provided by doctors who are employed full-time in the public sector and run private clinics (presumably) after-hours. Dual practice in Sri Lanka is an accepted policy, and most private clinics depend on public sector doctors. Dual practice by doctors is generally poorly regulated throughout South Asia, failing to ensure that doctors carry out their full outpatient sessions in government clinics or hospitals, and that they do not push patients to transfer to private care (Hipgrave et al., 2013). Informants described the estimated 10,000 doctors who work part-time in private clinics, most of whom are also employed in government hospitals, as “the hidden strength” of the Sri Lankan health care system.

The Sri Lanka WHO PEN package, which began as a pilot project in Baddulla District, aims to strengthen the capacity of primary health care in government divisional hospitals (Table 3.5) to undertake early interventions in relation to chronic diseases (Box 3.5). The main challenges are to improve the infrastructure of these facilities, increase supply of medication, increase supply of support staff (such as laboratory technicians) and train staff to use clinical guidelines.

**Box 3.5 PEN interventions in Sri Lanka**

PEN aims to close the gap between what is needed and what is currently available in order to achieve higher coverage of essential PEN interventions at primary health care level in low- and middle-income countries.

**Expected outcomes**

1. Increase the proportion of primary health facilities with trained professionals for diagnosis and treatment of NCDs.
2. Provide feasible and evidence-based technical guidance on diagnosis and treatment of major NCDs among patients attending primary health centres.
3. Provide guidance on essential equipment and medicines for the diagnosis and treatment of major NCDs, with due consideration of affordability.
4. Standardize treatment to reduce the inappropriate use of medicines.
5. Establish a referral system for NCD case management to strengthen the connections between health workers at different levels.
6. Improve the management information system.
7. Promote prevention and health education.
8. Measure gaps, progress and impact.
9. Improve quality of diagnosis, case management and follow-up.
10. Support adherence and change of health-related behaviours.
11. Increase motivation, skills and competence of the primary care workforce.

Current situation

The Sri Lankan primary care system potentially has the capacity to implement the PEN package, since many components are already available in some form. Additions include the PEN protocol, International Society of Hypertension risk prediction charts, and essential NCD medication list.

1. Infrastructure at primary health centres is adequate in most places, but improvement to infrastructure is slow due to lack of provincial health budget allocations.
2. Availability of NCD medication improved dramatically over the last 2–3 years due to Ministry of Health commitment.
3. Lack of basic investigation facilities and equipment is currently a major obstacle.
4. Regarding human resources, 95% of government primary health care facilities now have qualified doctors, but lack sufficient nursing and paramedical staff (e.g. lab technicians).
5. Regarding PEN clinical guidelines, lack of staff training and auditing means that the Ministry of Health NCD guidelines are poorly implemented.
6. Shared care of patients between primary and secondary care hospitals needs to be improved.
7. Screening for NCDs is being implemented, but utilization needs to increase, especially among males.
8. Information systems are in place in more than 200 hospitals (excluding primary health care hospitals), but these do not yet capture outpatient numbers.
9. Referral mechanisms presently apply in acute cases, but there is a 1–2 month delay in secondary care hospitals for non-urgent referrals for chronic conditions.
Hospitals

Most ambulatory care at government health facilities is provided as outpatient hospital care. Sri Lanka does not provide separate community clinics or divide government health facilities into ambulatory and inpatient care services, nor does it separate primary and secondary care services; therefore, ambulatory care and primary care are also discussed in this section.

Sri Lanka has a high ratio of acute hospital beds per 1000 population (3.6 in 2012, World Bank World Development Indicators). Government health services are based on a hospital model in the provision of primary, secondary and tertiary care. The nearly 600 government hospitals throughout the country are classified into several levels and number of beds (Table 3.5). As the number of beds in each hospital within a particular group varies considerably, an indicative average is given.

Table 3.5  Government hospitals by type and number of beds

<table>
<thead>
<tr>
<th>Type of institution</th>
<th>Total number</th>
<th>Average number of beds per hospital (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National hospital</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Teaching hospital</td>
<td>20</td>
<td>1190</td>
</tr>
<tr>
<td>Province general hospital</td>
<td>3</td>
<td>1250</td>
</tr>
<tr>
<td>District general hospital</td>
<td>18</td>
<td>566</td>
</tr>
<tr>
<td>Base hospital – type A</td>
<td>22</td>
<td>350</td>
</tr>
<tr>
<td>Base hospital – type B</td>
<td>46</td>
<td>200</td>
</tr>
<tr>
<td>“Primary care” institutions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divisional hospital – type A</td>
<td>42</td>
<td>100</td>
</tr>
<tr>
<td>Divisional hospital – type B</td>
<td>129</td>
<td>70</td>
</tr>
<tr>
<td>Divisional hospital – type C</td>
<td>322</td>
<td>25</td>
</tr>
<tr>
<td>Primary medical unit (dispensaries and maternity homes)</td>
<td>474</td>
<td>15</td>
</tr>
<tr>
<td>Specialized hospitals</td>
<td>27</td>
<td>180</td>
</tr>
</tbody>
</table>

Source: Medical Statistics Unit.

The Sri Lankan model of public primary health care is based on subdistrict (divisional type A, B and C) hospitals with outpatient clinics and inpatient beds. In addition, primary medical units, mostly without beds, include dispensaries and maternity care. By contrast, small primary care “village” hospitals no longer exist in most high-income urbanized countries. While
secondary care mostly refers to hospitals with at least four basic types of consultants, the demarcation in Sri Lanka between primary and secondary care is not as clear, and larger hospitals often provide primary care as well as secondary curative care. Primary care facilities do not function as “gatekeepers” to more advanced care – while there is an official referral pathway, it is not strictly enforced. The primary health care facilities cater mainly to rural and sub-urban populations. Private physicians bypass the divisional hospitals and refer their patients directly to secondary and tertiary care hospitals. Therefore, many patients go directly from primary care to more advanced care hospitals.

Divisional hospitals in Sri Lanka account for about 60% of ambulatory consultations in the public sector, and 29% of total hospital beds, although the bed occupancy rate of below 50% in most divisional hospitals is very low. These hospitals are said by clinical informants to be very underused. Most lack adequate diagnostic capacity, such as X-ray and laboratories, and many lack the capacity for even basic NCD management, such as performing blood cholesterol tests and fasting blood sugar tests. Most facilities (reportedly 95%) are staffed by MBBS qualified doctors (i.e. Bachelor of Medicine, Bachelor of Surgery) and registered nurses. Although the supply of pharmaceuticals to divisional hospitals has improved in recent years, especially for management of NCDs, these hospitals have limited capacity to provide good-quality ongoing care to patients discharged from secondary and tertiary care hospitals. While bed occupancy is low, outpatient clinics in divisional hospitals are often overcrowded.

Physician informants said that divisional hospitals now have a better supply of medications and diagnostic equipment, which should enable specialists to refer patients back for ongoing management.

Elderly informants said they preferred to receive treatment from the local divisional hospital or private general practitioner, as these are closer to their homes. They would also prefer to receive treatment from the same doctor each time, so that this doctor better understood their medical problems.
Secondary care hospitals (base hospitals type A and B, district general hospitals) provide four core specialties: medicine, surgery, paediatrics, and obstetrics and gynaecology. Most also offer microbiology, pathology and radiology.

Health systems managers and health care providers regarded secondary care hospitals as the backbone of health services, given their recently expanded capacity and core specialties. They also viewed these hospitals as essential in supporting primary care institutions to function effectively.

Moving up the hierarchy, the tertiary care hospitals (provincial general hospitals, teaching hospitals and the national hospital) provide additional specialties, such as neurology, nephrology, dermatology and endocrinology.

Patients with an acute NCD condition, who are admitted to a primary care hospital but cannot be managed at that level, would be transferred to a secondary or tertiary hospital, depending on the availability of the appropriate specialist. Secondary care hospitals, such as base hospitals and district general hospitals, do not necessarily have a full range of specialties. After the acute stage, patients are managed by an NCD hospital medical consultant or surgical clinic consultant.

Patient management within a hospital depends on the main condition (e.g. heart disease, cancer, stroke, etc.) and is undertaken by the relevant specialist in their outpatient clinic and ward. The hospital tradition of specialty wards, however, is breaking down, given the rapid increase in NCD patients with multiple conditions. Patient referrals within a hospital are generally from one consultant to another. But referrals of new patients to specialist outpatient clinics encounter long waiting times, since most specialists limit new patients to 20 per clinic. This may push some patients to seek treatment from the same specialist in the private sector, a common occurrence in the Sri Lankan health system.

Patients are often discharged prematurely in order to free beds. Patients who need continuing care, rather than specialist treatment, are usually
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discharged back to a divisional hospital. Discharge planning for NCD continuing-care patients has not yet become part of standard hospital procedure, and is not done well, except for the basics, such as writing a diagnosis card and prescribing discharge medications.

Clinical informants said that NCD patients are discharged from secondary or tertiary hospitals to attend that hospital’s outpatient clinic or usually their local hospital, but discharge plans are inadequate or not sent through for follow-up care. Patients do not get a clear explanation about what they should do regarding medications and lifestyle changes. This results in poor adherence to treatment, shifting health care providers and seeking alternative treatments. Hospital staff should follow a comprehensive discharge plan, which they should discuss with the family and patient, rather than just writing on the diagnosis card.

Rehabilitation after acute injury and many NCD events is essential for optimal health outcomes, and elderly patients, in particular, require a longer rehabilitation time. However, hospitals generally lack rehabilitation staff or dedicated units. The national rehabilitation guidelines, published recently by the Ministry of Health, propose to support a rehabilitation specialty and establish rehabilitation units in major teaching and provincial hospitals.

Sri Lanka has very few long-term care homes for dependent people. The Ministry of Health runs 13 elderly care units, making use of underutilized district hospitals, while a model elderly care unit has been opened in Kadugannawa by the University of Peradeniya medical unit. Nurses and other caregivers are being trained in elderly care, and a national centre for elderly care is being constructed in Hendala, Waththala.

**NCD programme implementation**

Table 3.6 details key actions proposed by the Ministry of Health under the 2010 NCD strategic framework, as well as the extent of their implementation so far.
Table 3.6  Major activities under the NCD programme

<table>
<thead>
<tr>
<th>Proposed programme</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase funding for NCD prevention</td>
<td>Implemented</td>
</tr>
<tr>
<td>High-level, central-level NCD committee</td>
<td>Established</td>
</tr>
<tr>
<td>Appointment of district-level NCD medical officers</td>
<td>Completed</td>
</tr>
<tr>
<td>Establish more than 700 Healthy Lifestyle Clinics</td>
<td>Established</td>
</tr>
<tr>
<td>Establish NCD screening in hospitals for 35–65 age group</td>
<td>Established</td>
</tr>
<tr>
<td>Promote population-wide healthy lifestyle programmes</td>
<td>Not yet fully implemented at local level</td>
</tr>
<tr>
<td>Conduct STEP surveys on NCD surveillance every 5 years</td>
<td>2014/15 survey completed</td>
</tr>
<tr>
<td>Increase NCD medication supply in primary care facilities</td>
<td>Improved</td>
</tr>
<tr>
<td>Increase numbers of specialists and general doctors</td>
<td>Implemented</td>
</tr>
<tr>
<td>In-service training for doctors on diabetes and stroke care</td>
<td>Implemented, need continuous in-service programme</td>
</tr>
<tr>
<td>Increase number of CT* scanners in country to 35 by 2015</td>
<td>Almost 90%</td>
</tr>
<tr>
<td>Increase stroke units in major hospitals to 10 by 2015</td>
<td>Achieved</td>
</tr>
<tr>
<td>Begin construction of a 300-bed national stroke hospital</td>
<td>Achieved</td>
</tr>
<tr>
<td>Pictorial warning 80% coverage</td>
<td>Completed</td>
</tr>
<tr>
<td>Tax increase for tobacco products</td>
<td>In line with inflation 70% tax</td>
</tr>
<tr>
<td>Reorganize NCD unit into an NCD bureau</td>
<td>Implemented</td>
</tr>
<tr>
<td>Increase places for physical activity (e.g. walking tracks, gymnasiums)</td>
<td>Started implementation</td>
</tr>
<tr>
<td>Media/advocacy campaign to reduce intake of salt, sugar, fat</td>
<td>Partially implemented</td>
</tr>
<tr>
<td>Healthy school canteen policy implementation</td>
<td>50%</td>
</tr>
<tr>
<td>Multisector involvement: appointing focal points in other ministries for NCD activities</td>
<td>Established, but needs further strengthening</td>
</tr>
</tbody>
</table>

*CT: computerized tomography
Source: Authors’ compilation.

Part of the 2010 NCD framework proposed to strengthen the divisional hospitals in providing comprehensive primary health care. But many of the proposed measures, and much of the NCD funds, have been directed to specialist care in secondary and tertiary hospitals. The capacity of primary health care to manage NCDs, as envisaged by the WHO PEN package, is therefore limited. According to a Ministry of Health community survey in 2013, only 60% of NCD patients were taking medication and regularly seeing a doctor.

Physician informants said that most of the NCD money was not directed to evidence-based “best buys” for reducing and managing NCDs.
Prevention also required an effective mass media campaign to better inform the population.

Diabetes management

According to one informant, most hospital admissions for people with diabetes are for associated complications, and a large proportion (15–20%) of surgical beds in secondary care hospitals are taken up by patients with diabetic foot complications (see Box 3.6). Almost all secondary and tertiary hospitals are said to have diabetic clinics. These are managed by a medical specialist (either a consultant physician or consultant endocrinologist) and

Box 3.6 Patient care pathway for diabetic foot complications

The National Initiative to Reinforce and Organize General Diabetes Care in Sri Lanka (NIROGI project), run by the Sri Lanka Medical Association in collaboration with the Ministry of Health, has developed a diabetic foot screening protocol for use in diabetic clinics. Doctors and nurses have been trained in its use, and the protocol is now used by most specialist clinics. All diabetic patients are given information on foot care, with high-risk patients assessed every three months and low-risk patients assessed annually. Specialist footwear is manufactured by a private company in collaboration with the NIROGI Lanka project.

Diabetic patients with foot ulcers or cellulitis usually present themselves to a general practitioner or outpatient department at a government hospital. Often these patients are not receiving regular medical care and have poor diabetic control. Patients with uncomplicated foot ulcers are treated as outpatients, while those with foot/systemic complications are referred to a secondary or tertiary care hospital, and may be referred to a surgical ward after assessment. Most diabetic patients with foot ulcers have their wounds cleaned and are put on intravenous antibiotics. If there are vascular complications, the patient is referred to a vascular surgeon in a tertiary care hospital. Some patients need an amputation to save the limb, although people are often reluctant to give consent. Patients who undergo a below-knee amputation require a prosthesis, but few hospitals provide prosthetic and orthotic services. After discharge, a patient is referred to the hospital’s medical or diabetic clinic for follow-up care.

Source: Clinical informants.
many also have dedicated medical officers and diabetic nurse educators. According to the patients informant group, these diabetic clinics provide a good quality of service. Clinician informants said that while about 40% of diabetic patients attend divisional hospitals, these hospitals cannot provide good-quality care because they lack sufficient pharmaceuticals and basic diagnostic and treatment facilities.

A common pathway for an older diabetic patient with cellulitis would be admission to a divisional hospital for antibiotics treatment. If the condition did not respond to treatment and blood glucose was not under control, the patient would be transferred to a secondary care hospital with better diagnostic and treatment facilities, or to a tertiary care hospital if they needed vascular assessment for arterial insufficiency.

**Stroke management**

Strokes account for 9% of all deaths in Sri Lanka and 10% of all hospital admissions. Stroke management has evolved rapidly since the establishment of a stroke unit in the National Hospital of Sri Lanka in 2003. With the success of the stroke unit concept, an increased supply of neurologists and lobbying from professional associations, the Ministry of Health issued a circular in 2010 to establish a stroke unit in every major hospital, with 400 million rupees allocated for stroke units in the national NCD plan. By 2015 there were eight stroke units in the country with varying levels of facilities, and a 400-bed national stroke centre is due for completion in 2018.

Tertiary care hospital stroke units possess diagnostic equipment and offer acute care plus post-stroke rehabilitation. They are staffed by neurologists and paramedical staff including physiotherapists, occupational therapists, speech therapists and social workers. While most secondary care hospitals provide acute medical care for stroke, these do not have a dedicated stroke unit, and most do not provide appropriate thrombolytic treatment. Patients who reach secondary and tertiary hospitals now receive a better standard of care than previously (Box 3.7).

Clinician informants said that many patients presented themselves to hospitals outside the “window period” for effective treatment of stroke symptoms.
Clinician informants suggested that if a shared care system was set up, many stroke and diabetes patients could be transferred from higher-level hospitals to a local divisional hospital, since these local hospitals are mostly underutilized.

**Box 3.7 Patient care pathway for stroke**

A patient with suggestive stroke/transient ischaemic attack symptoms usually present themselves to a nearby general practitioner or outpatient department at a local government hospital. They are then transferred to the nearest secondary or tertiary care hospital. The emergency department of the receiving hospital will quickly assess the patient and admit them to a general medical or neurology ward. In a secondary care hospital, the patient is examined by a senior house officer or registrar under the supervision of an internal medicine consultant. If the hospital does not have a computerized tomography (CT) scan facility, the patient is transferred temporarily to another hospital. If necessary, the patient may be transferred to a tertiary care hospital, as emergency thrombolysis is carried out only by neurologists in the National Hospital and a few tertiary care hospitals.

A stroke patient usually remains in hospital for 1–2 weeks, and is then discharged for follow-up by the hospital medical clinic, and possibly rehabilitation physiotherapy and occupational therapy. After being stabilized (2–3 months) the patient is referred back to the primary care hospital for medical follow-up. A few tertiary care hospitals run a multidisciplinary stroke team rehabilitation programme of 1–2 months’ duration. For example, the Ragama Rehabilitation Hospital (a centre of excellence in physical rehabilitation) runs a comprehensive stroke rehabilitation programme in collaboration with the Ragama Teaching Hospital. Most stroke patients (about 70%) also seek treatment from an Ayurveda practitioner, who offers physical therapy along with herbal medicine.

Caring for stroke patients at home is a challenging task for family members, and very few caregiver education/support programmes are available in Sri Lanka. Families usually depend on advice from the general practitioner or hospital staff. Public community services are scarce and few families can afford private help from a certified caregiver or nurse. The whole burden of care sometimes falls on one family member, even in an extended family.

*Source: Clinical informants.*
Health professionals

Sri Lanka is relatively well staffed, with 2.76 doctors and nurses per 1000 population in 2011. Government health services in 2012 employed: 15 910 medical officers; 1223 dental surgeons; 1130 registered/assistant medical officers (their qualifications are less than medical doctors, but the Sri Lankan Government stopped training them in 1994); 36 818 nurses (both general and public health); and 1510 public health inspectors (Ministry of Health, Sri Lanka). Since 2000, the population rate of public sector medical officers and nurses (in particular) per 100 000 population has increased (Table 3.7).

Table 3.7 Trends in key health professionals per 100 000 population, selected years

<table>
<thead>
<tr>
<th>Year</th>
<th>Medical officers</th>
<th>Dental surgeons</th>
<th>Registered/asst medical officers</th>
<th>Nurses</th>
<th>Public health nurses</th>
<th>Public health inspectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>41.1</td>
<td>3.3</td>
<td>7.0</td>
<td>76.0</td>
<td>1.4</td>
<td>7.7</td>
</tr>
<tr>
<td>2005</td>
<td>51.9</td>
<td>4.9</td>
<td>6.5</td>
<td>101.4</td>
<td>1.6</td>
<td>7.7</td>
</tr>
<tr>
<td>2010</td>
<td>71.0</td>
<td>5.5</td>
<td>5.4</td>
<td>171.2</td>
<td>1.8</td>
<td>7.0</td>
</tr>
<tr>
<td>2012</td>
<td>78.6</td>
<td>6.0</td>
<td>5.6</td>
<td>180.3</td>
<td>1.6</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Source: Medical Statistics Unit 2012.

According to data from the last National Census of Manpower in 2007, the vast majority of doctors (92%) worked in hospitals, as did 98% of nurses, while 67% of midwives worked in public health services attached to a Ministry of Health divisional office. The distribution of government medical and dental officers in 2014 varied, with the lowest rates of doctors in the central Nuwara Eliya District and the highest in the Colombo District.

The strategic plan for the health workforce for 2009–2018 regarded NCDs as a key factor (Ministry of Health, 2009). This workforce plan has not been fully implemented, partly because the Ministry of Health does not have a unit responsible for human resource planning, and implementation depends on several government departments. Doctors are trained during five-year undergraduate degrees at eight medical schools in state universities and one dental science faculty. The Ministry of Higher Education funds specialist training, which is undertaken through the
Postgraduate Institute of Medicine in Colombo. Nurses are trained during three-year diploma courses, and more recently degree-level university courses. The Sri Lanka Medical Council accredits university medical courses and practitioner registrations, as well as handling registration applications from foreign doctors, while the professional colleges handle applications for specialist membership. There is currently an oversupply of paediatricians and a shortage of general physicians, general surgeons and some specialists, including neurosurgeons, thoracic surgeons and psychiatrists. There are also shortages of paramedical and auxiliary staff. Geriatrics is an emerging sub-speciality that currently offers a diploma and will soon offer a postgraduate degree (Box 3.8). As there are few specifically trained geriatricians in the country, general physicians currently provide most medical care for older people.

Informants stated that university medical schools now produce about 1000 doctors per year. While most are deployed in the curative sector, the recent deployment of some young doctors to primary care institutions was seen as a positive development.

Box 3.8 Development of geriatric medicine in Sri Lanka

In 2013 the Postgraduate Institute of Medicine initiated a full-time one-year Diploma in Elderly Medicine, which offers lectures and clinical experience. By 2015 two classes of 16 doctors had completed the diploma. Further, a Doctor of Medicine and board certification in Geriatric Medicine has been approved, with plans to begin training specialist geriatricians in 2016.

The Sri Lanka Association of Geriatric Medicine, which formed in 2014, aims to develop geriatric services and promote healthy active ageing in Sri Lanka. The Association’s 2014 conference theme was “Towards achieving a brighter and healthier silver age”; its 2015 theme was “Ensuring dignity in the silver age”. In addition, the Ceylon College of Physicians and College of General Practitioners join with the Sri Lanka Association of Geriatric Medicine in holding regular symposia on elderly care.

Source: Dr DN Samaraweera, President Sri Lanka Association of Geriatric Medicine.
Community services and family care

In Sri Lanka most caregivers for elderly people are family members. While this is a culturally accepted phenomenon, in most cases this care is provided by women (wives, daughters and daughters-in-law). Although family patterns are said to be changing, only about 30% of women were in the paid workforce in 2009, a pattern that has not changed since the early 1990s (Fig. 3.5).

Fig. 3.5 Labour force participation and unemployment rates, 1993–2010

Financial support and personal care for elderly family members can pose huge challenges, especially when elderly people are very frail and dependent, or require considerable care due to acute or chronic conditions. With increasing industrialization, more young adults are moving from rural to urban areas or leaving to work in other countries. While these transitions are changing older people’s living arrangements, the great majority of older people still lived in households with their children in 2006 (Fig.3.6).

A 2006 study of the living arrangements of 2413 elderly care recipients, which drew on the Sri Lanka Aging Survey, and was conducted in 13 districts of Sri Lanka, found that most elderly people (74.9%) lived with their children, with or without their spouse, while only 5.6% lived alone. Regardless of housing arrangements, it was generally women (i.e.
daughters or daughters-in-law) who provided the majority of direct care for elderly people (Østbye et al., 2010). The study concluded that traditional, cultural and religious influences support the role of family and children in caring for elderly people in Sri Lanka, as in many other Asian countries, although the lack of alternative arrangements is also an important factor. The study recommended that government policies and programmes for elderly people in Sri Lanka should increase the provision and support of home-based care, rather than building institutional care facilities. Focus group discussions and interviews with both elderly people and caregivers in the Galle District of southern Sri Lanka in 2011 found that both groups thought that older people should be cared for in the home by their children. While elderly people hoped for this support, they also feared losing their independence (Watt et al., 2014).

Older informants said that they depended on their children for support, often including getting to health appointments.

Government policies now promote more participation by elderly people in programmes that affect them. The Social Service Department employs about 350 social service officers attached to the divisional secretariats across the country (population coverage 50 000–250 000) to coordinate community
services. These social services staff have promoted the establishment of village-level elders committees (Box 3.9).

**Box 3.9 Village elders committees**

From 2003 the National Secretariat for Elders began to establish elders committees at the village level in order to empower older people to protect their rights and promote their own welfare. These committees were endorsed in the 2010 National Plan of Action on Ageing, and now number about 11,000 village-level elder committees supported by divisional social service departments. The committees were later organized into several levels: provincial, district, divisional and Grama Niladhari.

*Source: searo.who.int/publications/journals/regional_health_forum/media/2012/rhf2012v16n1p47.pdf*

**Key issues for elderly patients**

The issues that emerged as important to older patients of health care services are discussed under the following three headings: access, responsiveness and quality.

**Access to health care**

Geographic access to government health facilities is generally good, since most people live within 5–6 kilometres of these facilities (Weerasinghe & Fernando, 2011). Historically, however, the physical design of government hospitals has not been very age-friendly (Box 3.10). National disability legislation (Protection of the Rights of Persons with Disabilities (Amendment) Act, No. 33 of 2003) now requires new hospitals to be designed and constructed in ways that offer easy access to people with disabilities, for example, including roads, ramps, suitable toilet facilities, parking spaces and visible signage. But this law does not apply to older buildings; therefore most existing hospitals have not significantly improved their facilities. The big hospitals involve long walking distances between treatment points, such as outpatient clinics, X-ray departments and dispensaries. Wards do not have enough toilets and many toilets are not wheelchair accessible. One improvement is that many hospital drug dispensaries now offer a separate counter and, thus, some priority for elderly people.
Box 3.10  Example of a typically age-unfriendly district general hospital, Gampaha District

This example is a major secondary care hospital, located 30 kilometres from the capital city of Colombo. All major specialities are available at the hospital, which functions as a referral hospital for primary health care institutions in the Gampaha District.

Hospital admissions are done on the ground floor of the seven-storey building, and are fairly accessible for elderly people. The three lifts in the building make the upper floors accessible.

However, the administrative office is located on the second floor of an old building, which only has stairs. Patients with disabilities have to be carried, if necessary, to the upper-floor administrative office.

In the upper floor of another old two-storey building with no lift, hospital authorities moved out the surgical ward, and replaced it with the mental health unit.

Hospital buildings are located on different levels; therefore, the passages between some wards have higher inclines than recommended by regulations.

On a positive note, some buildings were altered after a 2014 Ministry of Health circular on accessibility. There is a separate counter for elderly people, although most of the time it is overcrowded.

Elderly patients receive no priority in medical or surgical clinics. Most hospital toilets are not disability-friendly and are difficult to use if in a wheelchair.

Most elderly patients admitted to public hospitals need help with meals and personal care from family members or hired help, as hospitals do not have adequate numbers of nursing staff.

Source: Authors’ visit and compilation.

Responsiveness of health services and health professionals to elderly patients

Some elderly people were concerned about the treatment they and others had received in public sector health facilities. Some believed that younger patients, who offered better outcomes, were given priority treatment in busy medical and surgical wards, with one consequence being that elderly stroke patients do not get enough attention. They thought that hospital
staff did not fully understand the special needs of older patients, failing to take greater care to communicate clearly or undertake risk assessments, despite elderly inpatients’ higher risk of falls, etc. They said that health professionals needed to be trained with better knowledge and skills and more respectful attitudes to elderly patients. In the words of one elderly informant: “Doctors don’t pay attention to our concerns, especially when we have several problems: they say ‘don’t worry’ or ‘these symptoms are common in old age’.”

**Quality of care provided to elderly patients**

Quality of care is a broad term that covers many aspects. Safety, clinical effectiveness, efficiency, patient-centredness and equity are key components in quality improvement programmes. In Sri Lanka quality and safety improvement programmes began a decade ago, with the introduction of the Japanese 5S concept. Originally developed for the manufacturing sector, then adapted for other sectors, the concept is based on five Japanese words, variously translated into English as: sort, set in order, shine, standardize and sustain. The Ministry of Health established its Quality Secretariat in 2012, with the aim of improving quality and safety in government hospitals and clinics. The national rehabilitation guidelines, published by the Ministry of Health in 2015, should also improve the quality of care for disabled and elderly patients when implemented.

Informants stated that a large proportion of health care in hospitals is not age-friendly. One aspect of treatment quality relates to problems of underuse, overuse and misuse of health care. Underuse of appropriate health care is evident in the shortages of medication and diagnostic and treatment equipment. Overuse is evident in terms of overcrowding in outpatient clinics, which is compounded by frequent unnecessary visits by patients to doctors and pharmacies.

Clinicians pointed out that the common outpatient clinic practice of seeing diabetes, hypertension and stroke patients every month was unnecessary. Most visits were to collect prescriptions and could be better managed with a repeat prescription. Further, at some primary care institutions, prescriptions were only for two weeks, so patients had to make extra visits to the hospital dispensary.
Misuse or ineffective treatment is evident in the low rate of adherence to standard clinical protocols to manage NCDs. Clinician interviewees said that most doctors were not fully aware of current practice guidelines, but depended on the senior consultant in their hospital for guidance, leading to considerable variation across hospitals. Clinical audits in hospitals on the extent to which clinical management are meeting quality standards were not widely undertaken.

Clinical informants also said that doctors’ uptake of clinical guidelines – including the 2013 diabetic foot care guidelines and the WHO PEN guidelines for cardiovascular disease – is poor, due to the lack of clinical governance and regular monitoring in hospitals. The medical culture has not adopted clinical auditing, except in relation to maternal deaths and dengue deaths. In 2012 the Ministry of Health initiated a quality and safety programme with 18 performance indicators, but only one (methicillin-resistant Staphylococcus aureus incidence) measures patient clinical quality and safety. Other quality measures that should be monitored in relation to NCD clinical management include diabetes amputations and 30-day stroke mortality. A 2007 cross-sectional study under the Health Sector Development Project, which included 180 patients for each of four disease categories (diabetes, hypertension, epilepsy and ischaemic heart disease) from six base hospitals in Sir Lanka’s Southern Province, found that compliance with recommended protocols was low. Table 3.8 shows that compliance by clinicians with protocols for diabetes management is poor, even in secondary care hospitals.

Table 3.8 Compliance by base hospitals with clinical protocols on diabetes management

<table>
<thead>
<tr>
<th>Clinical protocol question</th>
<th>Patient % receiving recommended treatment</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the patient have an ophthalmoscopic eye examination within the last 12 months? (Management of Diabetes Mellitus, p. 30)</td>
<td>39%</td>
<td>The eye examination is an important aspect of diabetes management. Eye screening for complication is poor among diabetic patients.</td>
</tr>
</tbody>
</table>
Table 3.8 Compliance by base hospitals with clinical protocols on diabetes management (Con’t.)

<table>
<thead>
<tr>
<th>Clinical protocol question</th>
<th>Patient % receiving recommended treatment</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the patient have his/her feet examined for sensation (pin prick) within the last 12 months? (Management of Diabetes Mellitus, p. 32)</td>
<td>10%</td>
<td>Foot screening is performed to detect high-risk diabetic foot. Foot screening in clinical settings seems very poor.</td>
</tr>
<tr>
<td>Was the patient’s blood pressure recorded at every visit during the last 6 months? (Management of Diabetes Mellitus, p. 32)</td>
<td>65%</td>
<td>Hypertension could either coexist or develop in diabetic patients. Examination of blood pressure is fairly adequate among the study population.</td>
</tr>
<tr>
<td>Did the patient have at least one HbA1C* determination done in the last 6 months? (Management of Diabetes Mellitus, p. 32)</td>
<td>9%</td>
<td>HbA1C* provides a good estimation of glycaemic control. As this test is not available in the government sector, few patients had this test.</td>
</tr>
<tr>
<td>Did the patient have an estimation of urine for albumin done at least once in the last 12 months? (Management of Diabetes Mellitus, p. 28)</td>
<td>34%</td>
<td>Microalbumin is a surrogate measure of renal involvement in diabetes. The low proportion reflects poor laboratory facilities in hospitals.</td>
</tr>
</tbody>
</table>

*HbA1C: glycated haemoglobin

Source: World Bank and Ministry of Health – internal report 2007; Study done in 6 base hospitals in southern province as a part of the project.

Summary and conclusion

The extensive network of government health services established over previous decades has been oriented towards maternal and child health and infectious diseases, and geared towards offering episodic care. These health services have served the country well, but with the return of political stability and a growing economy, health policy-makers are turning their attention to the country’s ageing population and growing rates of NCDs. These transitions also require a change in community attitudes to promote healthy active ageing, and a change in health care workers’ knowledge, skills and attitudes regarding elderly patients and NCDs.

While Sri Lanka was well placed to achieve many Millennium Development Goals, particularly in the area of maternal and child health, its health
system currently lacks capacity to achieve ambitious NCD targets by 2025, let alone Sustainable Development Goal targets by 2030. These targets can only be achieved through a stronger and better-funded health system that is more responsive to changing health needs. The Ministry of Health is currently preparing a master plan for 2017–2030 to address these emerging health needs.

One of the challenges Sri Lanka faces in developing elderly care services is the lack of capacity in primary and secondary care hospitals to provide multidisciplinary management, as required by elderly patients with comorbidities. Elderly patients with chronic conditions also require rehabilitation services and community-based social services to support their family caregivers or assist where family care is not available.
References


Sri Lankan country case study


World Bank, South Asia Region, Human Development Unit (2012). Sri Lanka demographic transition: facing the challenges of an aging population with few resources. Report No. 73162-LK.
Chapter 4: Thai country case study

Vij Kasemsup, Thaworn Sakunphanit, Kanitta Bundhamcharoen, Sirinard Nipaporn, Rassamee Tansirisithikul
Thai country case study

Context

Thailand is a country in South-East Asia (see map, Appendix B) with a population of 65.9 million (UN Population Division, 2015). The vast majority of the population is of Thai ethnicity (96%); the official language is Thai and the main religion is Buddhism (93%) (Jongudomsuk et al., 2015). The remainder of the population are Chinese, Malay, Khmer, Mons and other minorities including hill tribes. In addition, an estimated 3–4 million migrants, both legal and illegal, were living and working in Thailand in 2013 (UN Population Division, 2014). The country has undergone major demographic and epidemiological transitions in its move to low rates of mortality and fertility. Thailand became a leader among developing countries by establishing universal health coverage for its population in 2002. It has been a constitutional monarchy since 1932, and was a founding member of the Association of Southeast Asian Nations (ASEAN).

HelpAge International ranked Thailand moderately at 34 on its 2015 Global AgeWatch Index (HelpAge International, 2015). The country performed best in the “enabling environment” domain, due to older people’s high satisfaction with public transport (78%) and social connectedness (90%). It ranked moderately in the "health" domain, with life expectancy at 60 (21 years) and healthy life expectancy at 60 (16.7 years) just above the regional averages (19 and 14.8 years, respectively). It also ranked moderately in the “income security” domain; despite a high rate of old-age poverty (28%), Thailand has high pension income coverage (81.7%) and gross national income per capita above the regional average. According to the HealthAge International (2015), Thailand ranked lowest in the “capability” domain, due to low levels of educational attainment among older people (11.8%) compared to the regional average (30.3%).

Classified as an upper-middle-income country, Thailand was one of the fastest growing economies in South-East Asia between 1985 and 1996, but was hit hard by the Asian financial crisis, from which the economy took a decade to recover. As an upper-middle-income economy, the country now faces challenges in continuing to increase its productivity, as higher labour costs mean Thailand is less competitive than some of its ASEAN neighbours (Jongudomsuk et al., 2015). Thai society and the economy are also periodically shaken by political instability, with 25 general elections and 19
coup d’état – 12 of which were successful – since 1932 (Liampittong, 2014). In May 2014, a military coup removed the government and made the head of the National Council for Peace and Order, General Prayuth Chan-ocha, Acting Prime Minister. The National Council declared its intention to hold general elections, perhaps in 2016, after carrying out reforms and promulgating a new constitution.

Thailand became an upper-middle-income country in 2011, moving from a low-income country in less than a generation. Widely cited as a development success story, the country enjoyed sustained strong growth and impressive poverty reduction, particularly during the 1980s (World Bank, 2015). High economic growth was interrupted by the Asian financial crisis of 1997–1998, followed by reduced average annual economic growth, sinking to 0.3% in 2013/2014 (Table 4.1). This moderation reflects a combination of factors: decreased export competitiveness to newly emerging regional economies; a shortage of skilled labour and knowledge workers; and the political changes and uncertainty that have affected public and private investment. Thailand’s economy is expected to pick up slightly in 2015–2017, but the rate of recovery will depend on how fast it can overcome factors constraining growth.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
<th>2013/2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP per capita (current US$)</td>
<td>1957.5</td>
<td>2677.5</td>
<td>4781.8</td>
<td>5519.4</td>
</tr>
<tr>
<td>GDP per capita PPP (current int. US$)</td>
<td>7045.7</td>
<td>9661.3</td>
<td>12 507.7</td>
<td>14 551.7</td>
</tr>
<tr>
<td>GDP average annual growth rate (%)</td>
<td>3.5</td>
<td>3.9</td>
<td>7.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Unemployment (% of labour force)</td>
<td>2.4</td>
<td>1.3</td>
<td>1.0</td>
<td>0.8</td>
</tr>
</tbody>
</table>


For a comprehensive review of Thailand’s health care system, please consult the recent report published by the Asia Pacific Observatory on Health Systems and Policies (Jongudomsuk et al., 2015). This chapter concentrates on the progress and plans made, mainly since 2000, for responding to changing population health needs, in particular, the health needs of older people in relation to NCDs and two tracer conditions: diabetes and stroke.
Population ageing

Life expectancy at birth rose steadily to 69.9 years for men and 77.6 years for women by 2005; it is expected to rise to 72.8 years for men and 79.4 years for women by 2021 (Table 4.2). The latest UN population statistics report a life expectancy for Thai men and women of 71 and 79 respectively (Chapter 2, Table 2.3). The number and population proportion of elderly people in Thailand has increased rapidly compared to other countries in the region, in accordance with rising life expectancy and lower birth rates among the Thai people. According to projections by the UN Population Division, the proportion of Thai people aged over 60 years is expected to grow from 16% in 2015 to 37% in 2050 (Chapter 2, Table 2.3). The Thai National Economic and Social Development Board estimated a more rapid rise of this age group, to about 30% of the population by 2040 (Prachuabmoh et al., 2013). The number of people aged 60 years and over is expected to peak around 2050, then decline quite rapidly (Fig. 4.1).

Fig. 4.1 Thai population aged 60+, 1950–2010 with forward projections

The old-age dependency ratio (i.e. ratio of the population aged 65 years and over per 100 people aged 15–64) is expected to rise from 12.4% in 2010 to 23.4% in 2025 (UN Population Division, 2015). Fig. 4.2 shows the projected rise in the percentage of the population aged 60 years and over from 13.2% in 2010 to 32.1% in 2040. Projected changes in the structure of the “population tree” show its rapid “rectangularization”, similar to the demographic transition in high-income countries (Fig. 4.3).

### Table 4.2  Life expectancy of Thai population, 1974–1976 to 2021 estimate

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>58.0</td>
<td>63.8</td>
<td>65.6</td>
<td>67.7</td>
<td>69.9</td>
<td>69.9</td>
<td>72.8</td>
</tr>
<tr>
<td>Female</td>
<td>63.8</td>
<td>68.9</td>
<td>70.9</td>
<td>72.4</td>
<td>74.9</td>
<td>77.6</td>
<td>79.4</td>
</tr>
</tbody>
</table>


### Fig. 4.2  Percentage of youth (0–14 years), working age (15–59 years) and elderly (≥ 60 years) in Thailand: 2010–2040

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Fig. 4.3 Population trees for Thailand: 1950, 2015 and projections for 2050

Note from the source: the dotted line indicates the excess male and female population in certain age groups. The data are in thousands or millions.


NCD mortality and morbidity patterns

NCDs have become the leading cause of death in Thailand, as in other middle- and high-income countries in the Asia-Pacific region (Chapter 2, Fig. 2.2 and Table 4.3). In 2009 NCDs accounted for 354 000 deaths, or 74% of total deaths, in Thailand. The Thai burden of disease study, which calculated DALYs for 2009 and 2013, showed NCDs – including alcohol dependence, stroke, diabetes and ischaemic heart disease – to be in the top 10 categories, as major contributors to loss of healthy life years among
the elderly population (Vichathai & Wongvorathanakul, 2014). For elderly people (aged 60 years and over), stroke, diabetes, ischaemic heart disease and COPD were the leading diseases in 2013 (IHPP, 2014). The great majority of deaths from a group of NCDs (cancer, cardiovascular disease, diabetes mellitus and COPD) will occur among the elderly population over the next few decades (Fig. 4.4 and Fig. 4.5).

Table 4.3  Top 10 burden of disease categories for adult males and females in Thailand, 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diseases</td>
<td>DALYs ('000)</td>
</tr>
<tr>
<td>1</td>
<td>Alcohol dependence</td>
<td>537</td>
</tr>
<tr>
<td>2</td>
<td>Traffic accidents</td>
<td>490</td>
</tr>
<tr>
<td>3</td>
<td>Stroke</td>
<td>423</td>
</tr>
<tr>
<td>4</td>
<td>Liver cancers</td>
<td>272</td>
</tr>
<tr>
<td>5</td>
<td>Ischaemic heart disease</td>
<td>267</td>
</tr>
<tr>
<td>6</td>
<td>HIV/AIDS</td>
<td>257</td>
</tr>
<tr>
<td>7</td>
<td>Diabetes</td>
<td>236</td>
</tr>
<tr>
<td>8</td>
<td>COPD</td>
<td>207</td>
</tr>
<tr>
<td>9</td>
<td>Cirrhosis</td>
<td>199</td>
</tr>
<tr>
<td>10</td>
<td>Bronchus and lung cancer</td>
<td>143</td>
</tr>
</tbody>
</table>

Table 4.3 Top 10 burden of disease categories for males and females (aged 60+), 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diseases</td>
<td>DALYs ('000)</td>
</tr>
<tr>
<td>1</td>
<td>Stroke</td>
<td>233</td>
</tr>
<tr>
<td>2</td>
<td>COPD</td>
<td>171</td>
</tr>
<tr>
<td>3</td>
<td>Diabetes</td>
<td>130</td>
</tr>
<tr>
<td>4</td>
<td>Ischaemic heart disease</td>
<td>126</td>
</tr>
<tr>
<td>5</td>
<td>Liver cancers</td>
<td>103</td>
</tr>
<tr>
<td>6</td>
<td>Alcohol dependence</td>
<td>93</td>
</tr>
<tr>
<td>7</td>
<td>Cataract</td>
<td>92</td>
</tr>
<tr>
<td>8</td>
<td>Bronchus and lung cancer</td>
<td>82</td>
</tr>
<tr>
<td>9</td>
<td>Benign prostatic hypertrophy</td>
<td>53</td>
</tr>
<tr>
<td>10</td>
<td>Deafness</td>
<td>47</td>
</tr>
</tbody>
</table>

Source: Burden of Disease Project, IHPP, MOPH, Thailand.
The prevalence of diabetes mellitus and stroke, as well as other NCDs, showed an increasing trend between 2003 and 2008 (Fig. 4.4). In 2013 a health survey of the ageing population showed that the prevalence of diabetes mellitus, hypertension and overweight (BMI above 25) was 18.1%, 41.4% and 29% respectively (Piensriwachara et al., 2013). A study using medical records and verbal autopsy methods found that stroke was the leading cause of death in both men and women in 2005, accounting for 9.4% and 11.3% of deaths respectively (Rao et al., 2010). Diabetes was the second

Fig. 4.4 NCD prevalence in population aged 60+, 2003 and 2008

Source: NHES (3rd wave in 2004; 4th wave in 2009).

Fig. 4.5 Projection of NCD mortality: < 60 years vs ≥ 60 years (2015 and 2025)

main cause of death in women (8.0%) and the 10th main cause of death in men (3.2%) in 2005 (Rao et al., 2010). The percentage of NCD deaths among the elderly population compared to the younger generation is expected to increase from 74% in 2015 to 80% in 2025 (Fig. 4.5).

The number of severely dependent and totally dependent elderly people is projected to rise from about 140,000 people in 2009 to 280,000 people by 2024 (Fig. 4.6) (Srithamrongsawat et al., 2009). This raises the question of what sort of support system will be needed, in addition to family care, to help respond to the needs of dependent elderly people.

**Fig. 4.6 Estimated numbers of severely and totally dependent elderly people: 2004–2024**

![Graph showing the estimated numbers of severely and totally dependent elderly people from 2004 to 2024](source: Srithamrongsawat, Bundhamcharoen, Sasat, Odton and Ratkjaroenkhajorn 2009.

### Diabetes prevalence

Turning to the tracer conditions selected for this study, the World Diabetes Atlas estimated the diabetes prevalence for Thailand to be 7.4% among the population aged 20–79 years in 2014. National Health Examination Surveys (NHES) in Thailand found an estimated 3.2 million people with diabetes among the adult population (15 years and over), but only about one third knew that they had the condition. Comparing three consecutive surveys, from NHES II to NHES IV, the prevalence of diabetes had risen steadily: 4.6% in 1997, 6.8% in 2004 and 6.9% in 2009 (Deerongchanawong & Ferrario, 2013; MOPH, 2011).

An evaluation of treatments for type 2 diabetes and hypertension (more than 30,000 cases) showed that about one third of diabetes patients were able to control their blood sugar levels within normal limits, improving
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slightly from 33.4% of patients in 2012 to 36.4% in 2015. Moreover, the evaluation showed that the elderly group could control their blood sugar levels better than the younger groups: 47.9% of patients aged 70 years or over; 34.5% of patients aged 60–64 years; and 30.4% of patients aged 50–54 years (NHSO & MedResNet, 2015). Between 2013 and 2015, the prevalence of diabetic retinopathy decreased slightly from 7.3% to 6.3%, while the prevalence of diabetic nephropathy decreased from 14.5% to 8.5%. This is because the incidence of both diabetic retinopathy and diabetic nephropathy have shown a decreasing trend from 3.4% and 5.2% in 2013 to 2.4% and 2.9% in 2015, respectively (NHSO & MedResNet, 2015).

**Stroke prevalence**

Stroke is the most common cause of death in Thailand and the principal cause of adult disability, particularly among elderly patients (Poungvarin, 2007; Hanchaiphiboolkul et al., 2011). From the 2014 Thailand Burden of Disease report, stroke was the leading cause of death in two out of four regions, especially the central and northern regions, or seven out of 13 Ministry of Public Health (MOPH) regions (IHPP, MOPH 2015). The incidence of stroke was about 250 000 per year, while death from stroke was more than 50 000 per year, with an increasing mortality trend between 2008 and 2012, from 20.8 to 30.7 per 100 000 population (Suwanwela, 2014).

A study on the national data regarding in-hospital stroke patients in 1172 hospitals from October 2009 to September 2010 indicated that the average prevalence of stroke in Thailand was 122 per 100 000 population. In this study, 63.9% of stroke patients had a cerebral infarction and 28.5% had an intracerebral haemorrhage. Cerebral infarction was higher in the older age group, with an average age of 66 years, and occurred more frequently in men, at a male to female ratio of 1.16. Most of these patients were covered by Thailand’s Universal Coverage Scheme (UCS) (Kongbunkiat et al., 2015).

**National policies on ageing and NCDs**

**Policy on ageing**

Thailand has adopted several policies and plans for its ageing population (Jitapunkul & Wivatvanit, 2009). Successive versions of the constitution have assured the rights of elderly people, most recently the 2007 Constitution. Articles 53, 80 and 85 assert the dignity of elderly people and
their right to welfare support and a retirement income (Pannarunothai et al., 2015). The Elderly Person Act B.E. 2546, passed in 2003, assured rights in several areas including health services, employment opportunities, social participation, waiving fees for public services, appropriate accommodation and a monthly pension of 600–1000 baht. Under the National Saving Fund Act B.E. 2554 (2011), a national saving fund for workers in the large informal sector was established by government on 18 August 2015, to benefit older people when they retire.

The Thailand Elderly Council was established in 1982, coinciding with the first World Conference on Ageing (Table 4.4). The country has adopted two national plans for older people; the current plan covers five strategies for 2001–2021, with aims ranging from empowering and protecting elderly individuals to system change for the older population (Karnchanachitra et al., 2007).

Table 4.4  Timeline of policies and plans concerning the ageing population

<table>
<thead>
<tr>
<th>Year</th>
<th>Thailand activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>First Elderly Council</td>
</tr>
<tr>
<td>1997</td>
<td>Constitution of the Kingdom of Thailand B.E. 2540</td>
</tr>
<tr>
<td>1999</td>
<td>National Committee of Senior Citizens</td>
</tr>
<tr>
<td>2003</td>
<td>Elderly Person Act B.E. 2546</td>
</tr>
<tr>
<td>2003</td>
<td>National Committee on the Elderly</td>
</tr>
<tr>
<td>2005</td>
<td>Healthy Thailand Programme</td>
</tr>
<tr>
<td>2007</td>
<td>Constitution of the Kingdom of Thailand B.E. 2550</td>
</tr>
<tr>
<td>2009</td>
<td>Thailand Healthy Lifestyle Strategic Plan</td>
</tr>
<tr>
<td>2009</td>
<td>Second National Plan for the Elderly (amended)</td>
</tr>
<tr>
<td>2011</td>
<td>National Saving Fund Act B.E. 2554</td>
</tr>
<tr>
<td>2015</td>
<td>Funding for Long Term Care</td>
</tr>
</tbody>
</table>

Source: Modified from Jitapunkul & Wivatvanit 2009.

The 2003 Elderly Person Act set up the National Committee on the Elderly, the National Saving Fund, and related agencies such as the Foundation of Thai Gerontology Research and Development Institute. The National Committee on the Elderly is an intersectoral committee chaired by the Prime Minister, with the secretariat by the government’s lead agency,

Table 4.5 Principal strategies and policies: Second National Plan on the Elderly, 2002–2021

<table>
<thead>
<tr>
<th>Strategy Areas</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare people for high-quality old age</td>
<td>Income insurance for old people  Life-long learning  Promote respect for elderly people</td>
</tr>
<tr>
<td>Capacity-building among elderly people</td>
<td>Increase health knowledge on prevention, self-care and health promotion  Strengthen elderly people’s organizations  Increase opportunities for working and earning  Encourage talented elderly people  Encourage media to produce programmes on elderly people  Ensure suitable homes and environments</td>
</tr>
<tr>
<td>Social protection</td>
<td>Income protection  Family protection  Assistant systems and networks  Make public services more accessible  Expand community-based social and health services  Increase cooperation among community, local, religious, and private organizations</td>
</tr>
<tr>
<td>Develop national policies for elderly people among stakeholders</td>
<td>National systems for working on issues related to elderly people  Support individuals working on issues related to elderly people</td>
</tr>
<tr>
<td>Review knowledge about elderly people, and evaluate progress of the plan</td>
<td>Support research institutions  Evaluate policy implementation  Modernize information systems on elderly people</td>
</tr>
</tbody>
</table>

Sources: Karnchanachitra et al. 2007; Knodel et al. 2015.
The broad strategies outlined in the Second National Plan for the Elderly aimed to change many areas (Table 4.5). An implementation evaluation of this plan in 2011–2012 showed that, apart from some slow development, activities had been undertaken in most areas, including the Old Age Allowance in 2009 and the National Saving Fund Act in 2015 (Box 4.1). Moreover in 2015, the National Health Security Office (NHSO) introduced a fund of 600 million baht to set up a long-term care facility for elderly people, which is expected to spend 10% of the whole long-term care budget for the next three years (NHSO, 2015; Isranews agency, 2015).

Box 4.1 Initiatives relating to older persons

Civil societies have actively participated in the development of policies for elderly people, as well as system governance and implementation. Elderly clubs, managed by elderly people themselves, have been established in every province (22,880 nationwide in 2010).

The Association of Older Persons Councils of Thailand, a not-for-profit organization under the Royal Patronage of Her Royal Highness the Queen Mother, was established in 1989. This association plays a role in coordinating the elderly clubs and contributing to policies, such as the Elderly Person Act of 2003.

In 2008 the Ministry of Social Development and Human Security set up the National Elderly Assembly. Representatives of elderly clubs from every province were invited to share their opinions on elderly policies and formulate resolutions. These recommendations were sent to the National Committee on the Elderly and the Prime Minister, and many finally became national policy (Chokevivat V, 2014).

Many research institutes and universities conduct research on policy options and evaluation; for example, the Foundation of Thai Gerontology Research and Development Institute was established in 2006 on the recommendation of the National Committee on the Elderly.

Policy on NCDs

In 2011 the MOPH launched the Healthy Thailand Strategy 2011–2020 Plan, aiming to reduce the prevalence and cost of NCDs, especially diabetes, hypertension, ischaemic heart disease, stroke and cancer (MOPH, 2011).
The plan aims to promote a better diet and physical activity through healthy public policy, social mobilization and public communication, and through health care services, such as surveillance and screening for diabetes in high-risk populations, and building capacity in the health care team, including use of volunteers (MOPH, 2011). An NCD network, established under the WHO Country Cooperation Strategy, promotes a whole-of-government approach to persuade agencies to collaborate in reducing NCDs in the population (WHO, 2011).

The MOPH has set out specialist service plans relating to 10 NCD areas for the 13 MOPH regions throughout the country, including Bangkok Metropolitan. Thailand is active in population-level health promotion strategies to reduce NCD risk factors, such as smoking, harmful use of alcohol, unhealthy diet and physical inactivity. The 1992 Law on Tobacco Control was passed after pressure from the anti-smoking movement (Chantornvong & McCargo, 2001). Over the past decade, the Thai Health Promotion Foundation, which is funded through a 2% “sin tax” on tobacco and alcohol sales, has funded several initiatives for the control and prevention of NCD risk factors, including the Sweet Enough Network, the Network of Fatless Belly Thais, and the Low Salt Network.

### Health service funding and financial access for older people

Thailand introduced universal health coverage in 2002, with the establishment of the UCS for the uninsured, as well as beneficiaries of the former Medical Welfare Scheme for the poor, the elderly, the disabled and children, and the voluntary health insurance scheme for the informal sector (Pitayaransarit, 2004). The UCS covers inpatient and outpatient care, prescription drugs, laboratory investigations, simple dental care procedures, disease prevention, health promotion, and a number of expensive treatments, such as radiotherapy and chemotherapy, surgical procedures and emergency treatment (Srithamrongsawat et al., 2009). The two other main public schemes are the Civil Servant Medical Benefit Scheme, a noncontributory scheme, financed through general taxation, and the Social Security Scheme, financed by equal contributions from employer, employee and the government (Srithamrongsawat et al., 2009).
Total health expenditure as a proportion of GDP has remained about 3–4% over the last decade or so, but with growth in the economy, total health expenditure per capita has increased from US$ 241 in 2000 to US$ 658 in 2013 (Table 4.6). Public expenditure as a proportion of total health expenditure increased from about 56% in 2000 to 64% in 2005, following the introduction of the UCS, and to 80% in 2013. Out-of-pocket payments by patients have decreased from 34% of total health expenditure in 2000 to 11% in 2013 (Table 4.6).

Table 4.6  Trends in health expenditure, 1995–2013

<table>
<thead>
<tr>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>THE* % of GDP</td>
<td>3.5</td>
<td>3.4</td>
<td>3.5</td>
<td>3.8</td>
<td>4.6</td>
</tr>
<tr>
<td>THE US$ PPP per capita (2011 prices)</td>
<td>238</td>
<td>241</td>
<td>345</td>
<td>479</td>
<td>658</td>
</tr>
<tr>
<td>Public expenditure on health as % of THE</td>
<td>47.0</td>
<td>56.1</td>
<td>64.4</td>
<td>74.6</td>
<td>80.1</td>
</tr>
<tr>
<td>OOP† payments as % of THE</td>
<td>42.6</td>
<td>33.7</td>
<td>27.2</td>
<td>14.2</td>
<td>11.3</td>
</tr>
<tr>
<td>OOP payments as % of private health expenditure</td>
<td>80.4</td>
<td>76.9</td>
<td>76.5</td>
<td>55.9</td>
<td>56.7</td>
</tr>
</tbody>
</table>

*THE: total health expenditure; †OOP: out-of-pocket.

The largest proportion of total health expenditure is spent on curative services, with about 34% going to inpatient care and 29% to outpatient care (Table 4.7). Spending on prevention and public health services has ebbed and flowed with peaks in 2002 and 2010, but it in 2012, was only 6.2%.

Table 4.7  Health care spending on types of services, 2000–2012 (%)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Inpatient care</td>
<td>30.8</td>
<td>33.8</td>
<td>30.4</td>
<td>34.3</td>
</tr>
<tr>
<td>Outpatient care</td>
<td>40.7</td>
<td>43.3</td>
<td>42.1</td>
<td>29.2</td>
</tr>
<tr>
<td>Prevention and public health services</td>
<td>8.2</td>
<td>4.9</td>
<td>10.3</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Source: Drawn from Jongudomsuk et al., 2015.

Prevention of NCD risk factors calls for greater priority of health promotion and disease prevention, as the social cost of the four main NCD groups in 2009 was more than US$ 5 billion per year, accounting for 2.2% of Thailand’s GDP (Vichathai & Wongvorathanakul, 2014).
Health care delivery

This section outlines the range of health services for the Thai population, with emphasis on older patients with chronic health problems, in particular, diabetes and stroke. The services outlined in turn are preventive and primary health care, ambulatory care, hospital services and rehabilitation. The policy intention is to integrate most NCD prevention and management within mainstream services, which calls for strengthening overall health services. The MOPH is the dominant health service provider, with an extensive network of health centres and hospitals (Jongudomsuk et al., 2015).

Primary health and outpatient care

At least one primary health care centre serves each subdistrict (or “tambon”) of approximately 5000 people (there are about 7400 subdistricts in Thailand). Rebadged in 2010 as “Tambon Health Promoting Hospitals”, these centres provide primary health care to the catchment population, undertake case coordination with other sectors, and promote community involvement. The staff at these hospitals include three to five personnel, plus a nurse to undertake health promotion, disease prevention and curative care for common illnesses. Only about 5% of these hospitals are staffed with physicians.

Box 4.2 Primary health care and NCDs in Thailand

For primary health care, there are more than 9000 Tambon Health Promoting Hospitals, or health centres, at the subdistrict level. Each health centre is equipped with essential drugs and simple tools to measure blood sugar and blood pressure. At the village level, 5–10 health volunteers help disseminate health information, screen for certain NCDs (e.g. diabetes, hypertension), collect health indicators, and persuade patients to continue with their health advice and care. Currently, about 1 million health volunteers work under the supervision of health centre staff. They also conduct a health census survey of all households in their responsible areas in order to construct family health folders. Information from this survey helps health centre staff set targets for population screening of NCDs, and plan their routine work (e.g. home visits, immunizations).
Hospitals

For more advanced curative care, health centre staff refer patients to community hospitals, with 10–120 beds, which are located in each of Thailand’s 743 districts. For more complicated patients, almost 100 tertiary care hospitals, with more than 250 beds, provide specialized care in each of Thailand’s 77 provinces. Most hospitals (67%) are managed by the MOPH; in addition, more than 300 private hospitals (22% of total hospitals) provide care for the unmet needs of patients who can afford to pay (Srithamrongsawat et al., 2009).

There is at least one hospital, with 30–120 beds, in each district (or “amphoe”), to serve a population of about 50 000 people (Thailand has about 740 districts hospitals). Provincial-level general hospitals provide tertiary care to the 77 provinces (or “changwats”), with each covering a population of about 600 000. District and provincial public hospitals provide 79% of total hospital beds. National-level hospitals are attached to each of Thailand’s 11 medical schools; in addition, there are 300 private hospitals.

Some patients choose to buy medicines from private pharmacies to avoid long waiting time at overcrowded hospital dispensaries. For the technology and drugs for NCDs, Thailand could produce generic drugs of acceptable quality for both communicable diseases and NCDs, with 32% of total drug in 2010. All health centres have therefore been equipped with essential NCD drugs and tools to monitor blood sugar and blood pressure. Some primary care centres include basic drug dispensaries for refilling standard prescriptions.

Informants said that while the primary care centres acted as gatekeepers for referrals to more advanced care, in practice some patients do not wait for a referral, but instead go straight to higher-level hospitals.

Rehabilitation units were established in some general public hospitals under the Fourth National Health Plan (1977–1981), then extended to all general hospitals and some community hospitals; however, only nine public hospitals have a rehabilitation ward. The majority of rehabilitation services still only offer acute care, and social health protection schemes only finance hospital outpatient and inpatient acute care, not post-hospital
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services. Many patients are discharged early from hospital without a proper ambulatory rehabilitation plan. Although rehabilitation is recognized under both the National Health Security Act and Rehabilitation of Disabled Persons Act, implementation is very slow due to inaction by health care providers and financial constraints.

**NCD programme implementation**

The Royal College of Physicians of Thailand produces national guidelines on NCD management. It also advocates for lifestyle modification, namely healthy eating, physical activity, weight control and smoking cessation. The movement for NCD risk reduction has formed the Network of Fatless Belly Thais, which intends to raise awareness about metabolic syndrome in Thailand (Chavasit et al., 2013). The term “fatless belly” uses waist circumference as a simplified indicator of metabolic syndrome, a cluster of conditions including increased blood pressure, high blood sugar levels, excess body fat around the waist, and abnormal cholesterol levels. When these conditions occur together, they increase a person’s risk of heart disease, stroke and diabetes.

**Diabetes management**

For secondary prevention, the MOPH has undertaken population-level screening programmes to identify cases of diabetes mellitus throughout Thailand since 2004. NHES III and NHES IV showed that 43% of diabetic cases knew about their condition in 2004, compared to nearly 70% in 2009. The apparent increased awareness of diabetes mellitus mostly reflected additional cases identified through the national screening programmes since 2004 (*Table 4.8*).

*Table 4.8  Prevalence of diabetes mellitus patients based on NHES 2004 and 2009 (%)*

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Prevalence</td>
<td>6.9</td>
<td>6.9</td>
</tr>
<tr>
<td>Proportion of detected cases</td>
<td>43.4</td>
<td>69.8</td>
</tr>
<tr>
<td>Proportion of well controlled cases among detected cases</td>
<td>29.3</td>
<td>43.5</td>
</tr>
</tbody>
</table>

*Source: National Health Examination Surveys.*
Informants said that NHES IV showed that the diabetes screening programme was effective, since over two thirds of diabetes mellitus cases knew they had the condition in 2009, compared to less than half in 2004. Further, considerably more diabetes cases were well controlled in 2009 than in 2004.

Several related activities have contributed to the improvement of diabetes care, including an educational programme, a checklist questionnaire to detect complications and a diabetes risk score (Srancharoenpong & Hanning, 2012; Swaddiwudhipong et al., 1999; Oba et al., 2011). The diabetes risk score is a simple tool that was developed by medical practitioners at a leading medical school in Thailand. They used data from their cohort study of more than 3000 patients to devise a score that was used by 1 million health volunteers throughout the country to identify high-risk people. The score is based on a set of variables, without laboratory tests, including age, sex, BMI, waist circumference and history of diabetes in parents or siblings (Aekplakorn, 2006).

**Box 4.3 Patient pathway for diabetes management**

People with diabetes symptoms and people aged 35 years and over are screened using a blood sugar test by health volunteers or health centre staff at Tambon Health Promoting Hospitals. Health centre staff check for suspicious levels of sugar using a fasting plasma glucose test. They refer patients above the cut-off level to a physician in order to confirm a diagnosis of diabetes. Staff may suggest lifestyle modification to people with at-risk blood sugar levels and make an appointment for a follow-up test in 3–6 months (depending on the risk scores of these cases).

For diagnosed cases without complications, the patient is referred to a trained nurse at the health centre, but if secondary level care is required, the patient is referred to a physician at a district-level community hospital. For serious complications, such as a diabetes crisis, stroke or late-stage kidney disease, the patient is referred for specialist care in a provincial or regional hospital.

Despite these programmes, gaps remain, with several studies showing that less than half of diabetes patients have their disease under control. Both the MOPH and the NHSO have introduced a case management process under the concept of a chronic care model. Moreover, the MOPH’s current policy
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has a clear direction to improve diabetes care in public sector hospitals in order to prevent a progression to chronic kidney disease (Kongprasert, 2015). Areas of improvement include surveillance, screening, treatment and prevention of complications, with several guidelines produced by the MOPH (Potisat, 2015).

As the major insurance funder, the NHSO reimburses the cost of a yearly check-up for diabetes patients. It has also developed training programmes on diabetes management for MOPH staff, including foot care (with Theptarin Hospital); case management for diabetic care at the hospital level; and systems management for NCD prevention and control at the provincial level.

**Box 4.4 Diabetes complication: Thai universal health coverage and renal replacement**

Guidelines on the prevention of diabetes mellitus complications are produced by the Bureau of NCDs, Department of Disease Control, MOPH. These guidelines cover diabetes retinopathy, diabetes nephropathy and diabetes foot ulcers. In addition, the NHSO has introduced a form of pay-for-performance intended to improve quality of care, by making additional payments to hospitals that undertake specific activities, such as annual checks for blood glucose, and eye and foot screening. A study from Khlong Khlung community hospital, Kamphaeng Phet Province, with experts from the Bhumirajanakarindra Kidney Institute, the Kidney Foundation of Thailand, and the Royal College of Physicians, showed that renal replacement therapy could be postponed by seven years using early interventions with diabetes patients. This intervention involved home visits by a multidisciplinary team four times a year for patients with chronic kidney disease stage 3. Thus, in 2015, the new MOPH policy has focused on prevention of kidney disease for diabetes and hypertensive patients in order to reduce the burden of end-stage kidney disease that is expected to consume a substantial budget in the future (Kongprasert, 2015).

**Stroke management**

As the leading cause of death and disability among Thai people, stroke has received considerable attention over the past decade. Cerebral infarction (ischaemic stroke) accounts for over half of all stroke cases in Thailand. This condition can be successfully treated if patients come to the hospital
within a short period after experiencing signs and symptoms of stroke. The recommended treatment for acute ischaemic stroke patients, based on international standard guidelines, is intravenous recombinant tissue plasminogen activator given within 4.5 hours of the onset of ischaemic stroke (Hacke, 2008). The evidence from Thailand and internationally showed that stroke fast-track services increase the rate of thrombolytic treatment, thereby improving stroke outcomes (Muengtaweepongs et al., 2012).

Thailand launched its Stroke Fast Track programme in 2008 to ensure that people with acute ischaemic stroke were quickly given intravenous thrombolytic treatment to reduce brain damage and improve subsequent quality of life (see Box 4.5). Most patients in Thailand, however, arrive at the hospital later than the optimal window of time (Muengtaweepongs et al., 2012). The referral network within an area is one barrier, despite the links that are supposed to exist between several levels of hospitals: rural, provincial, regional and university hospitals (NHSO, 2013). This referral system must be strengthened, as most Thai patients who received thrombolytic therapy were transferred from a smaller hospital in this stroke referral network (Muengtaweepongs et al., 2012).

**Box 4.5 Thai Stroke Fast Track programme**

The MOPH Stroke Fast Track programme aims to integrate stroke management within each of the 13 regions, focusing on a hospital in each region. Information on the signs and symptoms of stroke has been disseminated throughout the country, and medical personnel have been trained in awareness of these signs to refer patients promptly for further treatment with higher health facilities (Tiamkao, 2013). The staff at provincial or regional hospitals are being trained to investigate for ischaemic stroke and provide prompt treatment for confirmed cases using CT scans (see Box 4.6).

Rehabilitation for patients with ischaemic stroke must consider mental as well as physical problems, while very dependent patients need medical and social care from formal and informal caregivers, in addition to home visits by health personnel. While many small and fragmented services exist
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within both hospitals and home care, stronger leadership is needed to push this policy forward.

Informants said that because regional hospitals are usually overcrowded, stabilized post-stroke patients should be referred back to a community hospital as a step-down hospital, or to their local health centre, with a discharge plan for continuing care sent via a provincial web-based information system.

Box 4.6 Patient pathway for stroke management

When acute stroke is suspected, most patients come to a local hospital, so it is important that these facilities can either provide or refer patients for appropriate treatment. Staff at the front desk should be trained to quickly recognize initial stroke symptoms and, if necessary, transfer the patient immediately to an advanced care hospital in the stroke network (Muengtaweepongsa et al., 2012).

When patients arrive at the emergency room of a main hospital, emergency nurses should ask screening questions about signs of suspected stroke. Since patients diagnosed with acute ischaemic stroke should ideally receive treatment within 4.5 hours, on-duty emergency physicians should notify the stroke team immediately and initiate essential blood tests and a CT scan in order to assess the clinical condition. The neurologist should explain thrombolytic treatment to the patient and family before treatment proceeds in the emergency room (Nipaporn et al., 2013). The patient should be monitored several times daily until discharge, with a final evaluation performed after three months.

A stroke unit has an important role in improving the quality of stroke care. There are at least 110 stroke units throughout the country. If patients have no complications, they should receive physical rehabilitation until discharge. The average length of stay for stroke patients is 10.7 days for haemorrhagic stroke and 6.3 days for ischaemic stroke, compared to much shorter stays of 4.1 days in the United States of America.

The neurologist makes two appointments for post-discharge follow-up at the main hospital, then refers the patient back to the local hospital. Patients who live far from hospitals, or do not have supportive caregivers, may be lost to follow-up (Nipaporn et al., 2013). Therefore, subacute and long-term care should be developed to help stroke patients receive effective and appropriate treatment.
Health professionals

Over the past decade, the government has increased the medical workforce to fill staff vacancies in rural facilities (Matichon Online, 2013). The big increase in the number of physicians and nurses between 2006 and 2010 was largely due to the government programme, implemented in 2005, to increase the health workforce (Sirirak, 2005). In 2010, there were 26 244 physicians and 138 710 registered nurses working in Thailand (Table 4.9).

Table 4.9  Distribution of health workforce, 2006–2010

<table>
<thead>
<tr>
<th>Category</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>18 918</td>
<td>19 584</td>
<td>21 051</td>
<td>22 651</td>
<td>26 244</td>
</tr>
<tr>
<td>Dentists</td>
<td>8809</td>
<td>9337</td>
<td>9646</td>
<td>9926</td>
<td>11 847</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>7937</td>
<td>7940</td>
<td>8565</td>
<td>8390</td>
<td>8700</td>
</tr>
<tr>
<td>Registered nurses</td>
<td>101 664</td>
<td>101 143</td>
<td>105 398</td>
<td>109 797</td>
<td>138 710</td>
</tr>
<tr>
<td>Public health generalists</td>
<td>29 684</td>
<td>30 552</td>
<td>26 964</td>
<td>27 372</td>
<td>37 774</td>
</tr>
<tr>
<td>Physiotherapists</td>
<td>1438</td>
<td>1168</td>
<td>1385</td>
<td>1248</td>
<td>1499</td>
</tr>
</tbody>
</table>


In 2009, 12 791 doctors (53.5% of the total) worked for MOPH, 5427 (22.7%) worked in other ministries, 1028 (4.3%) in hospitals owned by local governments, 4088 (17.1%) worked on full-time basis in the private sector, and 547 (2.4%) in state enterprises. For nurses, 73% worked in the MOPH and only 10% worked in the private sector (Jongudomsuk et al., 2015).

Medical schools have increased their output of medical graduates, from 500–700 physicians per year in 1992 to 1434 physicians in 2009, with more than 2300 physicians projected to graduate in 2016. The government expects more than 9000 physicians to graduate between 2013 and 2017 (Secretariat of the Cabinet, 2013), meaning that the population ratio of physicians will soon reach 1 to 1500 (Matichon Online, 2013). Fully trained geriatricians in Thailand, however, do not even total a dozen, with fewer than five geriatricians fully trained per year.

Relying only on fully trained internists for elderly care (i.e. geriatricians) is not an effective strategy. Other types of physicians also need better
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knowledge and skills to provide health care to elderly patients (Box 4.7). Therefore, a shorter programme could be developed to train other groups of physicians. In 2014, these groups numbered 4777 internists (medical specialists in internal diseases of adults), 401 rehabilitation doctors and 6277 family doctors (HISRO Thailand, 2012). Other groups needed to provide medical, nursing, rehabilitation and social care to elderly people were estimated to number almost 150 000 people in 2020 (Table 4.10).

Table 4.10 Estimated health workforce needed for elderly care in Thailand in 2020

<table>
<thead>
<tr>
<th>Workforce</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregivers</td>
<td>105 967</td>
</tr>
<tr>
<td>Nurses</td>
<td>33 880</td>
</tr>
<tr>
<td>Acute/chronic care</td>
<td>8620</td>
</tr>
<tr>
<td>Disabled/dependent group</td>
<td>3708</td>
</tr>
<tr>
<td>Inpatient care</td>
<td>21 552</td>
</tr>
<tr>
<td>Physiotherapists</td>
<td>3708</td>
</tr>
<tr>
<td>Health workers</td>
<td>3708</td>
</tr>
<tr>
<td>Psychologists/social workers</td>
<td>2155</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>149 418</strong></td>
</tr>
</tbody>
</table>

*Source: IHPP, MOPH, 2014.*

Informants said that medical education in Thailand is still geared towards acute treatment rather than prevention and management of chronic health conditions. Physicians do not have the knowledge and skills to counsel patients on lifestyle modification or to lead a multidisciplinary NCD team.
Box 4.7 Training health professionals in diabetes management

Theptarin Hospital is a private diabetes and general hospital with a 100-bed capacity. It has established multidisciplinary teams for diabetes mellitus patients, which serve as a model for diabetes care for other hospitals.

The MOPH and NHSO have collaborated with Theptarin to train MOPH personnel in diabetes management of patients regarding lifestyle modification and foot care. Since 2008, more than 2500 health professionals have been trained by Theptarin, in addition to 306 physicians and 1199 other health personnel. Of these trainees, 958 have been trained in foot care, a programme first introduced by Theptarin.

The MOPH and NHSO have set targets for expanding training on foot care and prevention of diabetic foot and its complications (e.g. amputation). During the past five years, the percentage of diabetes patients who received education on self-foot care and who received a complete foot examination have increased, from around 40% and 45% in 2010 to 72% and 67% in 2015, respectively. Rates of foot ulcers and amputation among diabetes patients have seen decreasing trends, from 2.2% and 0.5% in 2010 to 1.7% and 0.1% in 2015, respectively (NHSO & MedRestNet, 2015).

Community services and family care

The Thailand community care policy, based on a detailed costing model using actuarial estimates and projected expenditures, sets out several options for long-term care (Sakunphanit & Wongsin, 2013; Prasitsiriphon et al., 2014). Long-term care expenditure on severely dependent people living below the poverty line was projected to cost about 0.1% of government revenue from 2012 to 2020. Including universal health coverage would increase expenditure by 0.2% of GDP. Including people with moderate disability would increase expenditure to 1.1–1.4% of government revenue.

After consultation and modifications, the government announced a trial programme for the 2016 fiscal year, which will be undertaken in 1000 subdistricts for 100 000 people with severe disabilities (NHSO, 2015). Local governments will provide 500 million baht for social care, while the National Health Security Fund will provide a budget of 1150 million baht, plus another 50 million baht for the salaries of care managers and paid caregivers.
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The programme involves both health and social sectors, and is managed by a district committee chaired by the district chief officer (Fig. 4.7).

**Fig. 4.7** Thai community care district management structure

![Diagram of Thai community care district management structure]

Source: Lakbenjakul 2013.

Although a series of surveys by the National Statistical Office showed that over 90% of elderly care has typically been provided by family members, the size of households in Thailand has gradually decreased. Therefore, in the future, it will not be possible for elderly people to be cared for solely by their families. The proportion of elderly people living with children decreased from about 66% in 2002 to 57% in 2011. During the same period, the proportion of elderly people living alone or with spouses increased slightly from 21% to 26% (Prachuabmoh et al., 2013). From 2007 to 2011, elderly people relied less on their children for their source of income, a decrease from 52% to 40% (Knodel et al., 2013).

Historically, Thai society has depended on families to care for elderly family members, and generally believes that families and communities
should be encouraged to take care of their own members. While government “aged care” policies have promoted community care by volunteers, it has become clear that severely dependent people, in particular, need more formal and reliable help. The Royal Thai Government therefore announced a new community care policy in 2011, based in part on a project developed in Lam Sonthi District, Lopburi Province (see Box 4.8).

**Box 4.8 Lam Sonthi District community care**

The Lam Sonthi community care model combines health care and social care, with village caregivers paid a small salary from local government. All citizens of Lam Sonthi District who need long-term care are eligible, depending on their condition, amount of family support and household socioeconomic status. The programme is managed by a district committee chaired by the district chief officer and includes representatives from health facilities and local government (Fig. 4.7). Health facilities are responsible for health care services, while local government is responsible for social care, environment modification and employing caregivers.

**Key issues for elderly patients**

**Access to health care**

Since 2002, the implementation of the UCS has not only increased the proportion of Thai people with health insurance to nearly 100%, but also facilitated the delivery of primary care and integrated health care. With a structure of 9768 health centres, 743 community hospitals, and 93 provincial and regional hospitals, the UCS has introduced a gatekeeping duty for health personnel in the lower facilities to assess potential patients for further treatments in higher facilities and transfer their health information to these facilities. A recent NHSO report showed that the rate of outpatient visits has risen during the past decade, from 2.45 visits per person per year in 2003 to 3.17 visits per person per year in 2014 (153 605 794 total visits in 2014). The rate of inpatient care has also increased from 0.094 admissions per person per year in 2003 to 0.117 admissions per person per year in 2014 (5 682 749 total admissions in 2014) (NHSO, 2014). Almost half of all outpatient visits in 2014 occurred in health centres (46%), while just over a third (35%) occurred in community hospitals. Access to care is the
central principle underpinning these developments in the Thai health care system. However, a report from World Bank in 2016 showed that the lack of affordable transportations and the lack of caretakers were major obstacles of access to health facilities of poor elderly patients (Osornprasop S, & Sonderqaard L M, 2016).

As NCDs, including diabetes, hypertension, stroke and ischaemic heart conditions, are common problems for elderly people, the MOPH considered setting up elderly clinics within hospitals, but this idea became redundant with the advent of NCD clinics. The integration of these services is expected to improve efficiency of the health care delivery system.

The government has introduced several national strategies to help elderly people gain access to proper care (NHSO, 2014), including long-term care (NHSO, 2016). As tertiary care hospitals are overcrowded, the length of stay for stroke patients has been reduced to about six days, and some hospitals have set up procedures to transfer patients to lower-level health facilities. For example, in Saraburi Province, before discharging stroke patients from a regional hospital, information on the treatment and care plan is sent via a provincial web-based information system to referral hospitals and health centres in order to ensure continuity of patient care.

**Responsiveness of health services and health professionals**

The MOPH has collaborated with other stakeholders to set up comprehensive strategies to respond to the needs of elderly people, incorporating social, economic and environmental factors. The MOPH is responsible for maintaining the health of elderly people, with particular emphasis on health promotion and disease prevention. Its health plan aims to screen elderly people for key conditions and disorders including: activities of daily living, falling risk, health and nutrition status, oral hygiene, diabetes, hypertension, eye diseases, depression, dementia, osteoarthritis, and incontinence symptoms. After screening, the MOPH aims to educate high-risk groups in lifestyle modification to prevent dependency.

In 2015, the NHSO was allocated a budget of 600 million baht (US$ 17 million) to fund long-term care for severely dependent elderly people. The
MOPH has issued a standard on hospital care for elderly patients and runs a training programme for community caregivers. Currently, the MOPH has trained 4000 caregivers and 900 care managers.

Public hospitals in Thailand have been designed to be age-friendly. All public hospitals provide wheelchairs and a ramp or sloping pathway at the entrance, while the vast majority have installed handrails in the toilets (Piensriwachara, 2013). At the subdistrict level, almost all health centres have moved their outpatient clinics from the second floor to the first floor (Hoontakul et al., 2008). The NHES monitors a range of factors that could be used to assess the responsiveness of health services to the ageing population. Moreover, almost all Thai hospitals participate in a hospital accreditation programme, which is intended to improve quality of care. For example, this programme requires hospitals to ensure a safe physical environment to reduce the risk of accidents and adverse events.

**Quality of care provided to elderly patients**

The quality of health promotion messages and disease prevention could be improved. For example, according to the 2013 health survey, while more than 80% of elderly people had been screened for diabetes, hypertension and osteoarthritis, only one third had been assessed for depression on their daily functioning, and only one third of diabetes patients knew their blood glucose level.

The quality of acute care services has improved with more staff, adequate funds to procure drugs and technologies, and protocols on the management of diseases such as diabetes mellitus. Clinical performance is also better monitored, with measures including an evaluation survey by the NHSO to assess the quality of diabetic care in hospitals.

For rehabilitation and long-term care, almost all MOPH hospitals provide rehabilitation services, however, utilization remains low at three visits per person per year (Jongudomsuk, 2015). More rehabilitation and long-term care is needed at health centres and at the community level, close to patient homes. In 2015, the MOPH introduced a policy called “subdistrict role model” to strengthen community collaboration with other stakeholders, including families, local government, the private sector and government
agencies, in the provision of services to dependent elderly people in the community. This policy should enhance community care for dependent elders by improving access to health information, home health care, family care services and community caregivers.

**Summary and conclusion**

The number and percentage of elderly people in Thailand has increased rapidly compared to other countries in the region, with 30% of the population projected to be aged 60 years or over by 2040. The old-age dependency ratio is also expected to rise from about 12% in 2010 to 23% in 2025 (UN Population Division, 2015). The leading NCDs (stroke, diabetes, ischaemic heart disease and COPD) are accompanied by disabilities and dependency in old age, making strategies to mitigate the burden of these diseases a top priority for government. With the number of dependent elderly people projected to double from 140 000 to 280 000 within the next 10 years, health system responses must be developed and strengthened without delay. Most elderly people wish to continue living independently with good health and with dignity. The government should therefore seek to move the whole society to a health-promoting community for elderly people.

For most elderly people, the conventional services provide effective comprehensive care for acute conditions, ranging from primary care at the subdistrict level to tertiary care at a minimal cost to society (4.6% of GDP). However, challenges remain, including setting up comprehensive stroke services that encompass good post-hospital care.

In terms of long-term care, the community-based system is in the early stages of building capacity to serve the needs of the dependent population. Setting up effective and efficient services for an ageing population remains a current and future challenge for policy-makers in Thailand.
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Thai country case study


Thai country case study


Thai country case study

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Chapter 5: Reflections on health service responses to NCDs in older populations

Vasoontara Yiengprugsawan, Judith Healy, Hal Kendig, Julie Byles
Reflections on health service responses to NCDs in older populations

This cross-cutting chapter reflects on the two country case studies, noting similarities and differences between health services for older people with NCDs, and also identifying emerging issues. While noting both leading and lagging services, the chapter focuses on initiatives in the two countries that other low- and middle-income countries in the region may find relevant. There is considerable potential for countries in the Asia-Pacific region to learn from each other in developing innovations and adapting their health services to address the many challenges of an ageing population and NCDs.

Similarities and differences between countries

Sri Lanka and Thailand are emerging Asian economies with rapidly ageing populations. Similar to other countries in the Asia-Pacific region, patterns of mortality and morbidity have shifted to a high proportion of NCDs, especially among older populations. Sri Lanka and Thailand share a culture of respect for older people, as well as Buddhist values that uphold the importance of family care. Both countries have adopted a policy of universal health coverage, largely achieved in Thailand, while in Sri Lanka out-of-pocket payments by households for health care remain high (46% of total health expenditure). Both countries have an extensive network of health services, but public sector services in Sri Lanka in particular need greater investment in staff, medicines and facilities. Both countries have programmes under way to prevent and manage NCDs, with Thailand further advanced in implementing these programmes.

Thailand undertakes regular population-level surveys of health and disability, while Sri Lanka is in the process of establishing such surveys; for example, a STEP survey of NCD surveillance was undertaken in 2015. If health services in these countries are to respond to increasing numbers of older patients, better information is needed on the use of health services by age group; for example, 60% of hospital admissions in Hong Kong Special Administrative Region (Hong Kong SAR) public hospitals are people aged 60 years and over (Hong Kong Hospital Authority, 2013). While annual reports on hospital admissions in Sri Lanka and Thailand contain information on medical conditions, age is seldom included. Further, NCD conditions are documented separately, although multiple morbidities are prevalent among older populations.
Both countries have national policies on ageing and NCDs with dedicated funds and strategies at various stages of implementation. In Sri Lanka the take-up of funds for NCD programmes is said to be slow, however, since health professionals and health services lack sufficient capacity to design and implement new programmes. NCD resources in both countries are generally directed more to curative than preventive health services.

Programmes to promote active healthy ageing among older populations, and to support people remaining in their homes, call for more attention. **Fig. 5.1** sets out a schema that centres older people within their environment. Patient-centred care also requires health services to educate older people on taking more charge of their health; to provide home-based support to older people and family caregivers; and to invest in networks of social and community services.

**Fig. 5.1 Conceptual framework on population ageing and health services**

![Conceptual framework](image)

Source: Authors’ compilation.

**Health care issues for older people**

Effective NCD prevention requires attention to opportunities and risks at critical points across the entire life span, including later life. Current NCD prevention policies in both countries focus on people under 65 years. The prevalence of NCDs rises with age, however, as does the seriousness of consequences for both health and independence. Most people aged over 65 years can potentially maintain or improve their general health and quality of life, or mitigate the adverse effects of existing chronic conditions. A positive approach to ageing, however, may require an attitude shift on the part of both older people and health professionals; informant interviews in both countries drew attention to often low expectations.
Responsiveness of mainstream health services to the situations of older people is essential to a well-functioning and comprehensive health service, including prevention and treatment. Effective care for older people with NCDs will not result from improvements to only small segments of health care. For example, best practice health care now avoids segregating people into separate “silos” labelled “aged care” or “NCD care”. Separate programmes can lead to inefficiency, poorer quality services, and limited rather than comprehensive care. Older people with chronic conditions may need access to a range of services: screening programmes; essential medicines; primary, secondary and tertiary health services; rehabilitation after illness or injury; and disability aids and services. Those who lack or have limited family care, or whose dependency needs are very great, may require home-based services or residential care. International policies on ageing and NCDs, however, urge greater priority for primary health care, as these services potentially have the capacity to deliver the bulk of health care.

Lack of integration across health services – a common problem for many health systems – remains a key issue in both countries. Responding to NCDs requires the various parts of a health system to interact in order to address complex health care needs. As the country case studies in relation to adult-onset diabetes and stroke show, both conditions require health staff to develop case management skills in order to ensure continuity of care for people, who often have multiple health problems, across a range of medical and social services, and to provide ongoing rather than episodic care.

Strengthening primary health care is a policy goal in both countries, in order to intervene early and reduce NCD risk factors. Both national health plans aim to focus on early modifiable risk factors to promote healthy ageing, which require changes to both the environment (e.g. healthier food in markets) and personal behaviour (e.g. providing nutritional information to facilitate healthier food choices). Environmental change calls for a whole-of-government approach; for example, providing public spaces in crowded cities so that people can enjoy green places and be more physically active. If health policy-makers are to implement effective health promotion and NCD prevention strategies, they need to understand the interrelationships and pathways of NCDs and their risk factors (Fig. 5.2).
Fig. 5.2 Conceptual framework of NCD risk factors

Globalization; urbanization vs international government policies (e.g. tobacco control)

Major noncommunicable diseases, e.g.
- Cardiovascular diseases
- Chronic obstructive pulmonary disorder
- Diabetes
- Cancers

Cluster of immediate factors, e.g.
- Raised blood glucose
- Raised blood pressure
- Raised blood lipid
- Excess body mass index

Exposure to common modifiable risks, e.g.
- Unhealthy diets (high in sugar, salt, or fat)
- Physical inactivity and sedentary lifestyle
- Excess tobacco and alcohol consumption

Source: Adapted from WHO 2010. STEPwise approach to NCDs.

Multiple comorbidities are more common among older patients than younger patients, for example, diabetes and cardiovascular conditions and related complications. Both country case studies found that the health workforce was not adequately prepared to deal with the complex needs of older people with chronic disease and disability. This remains the case even in countries with long-standing older populations. Health services are often not designed to manage the “multiple morbidities” common among older patients, but are rather organized around single specialties, or at best around “co-morbidities”, which assumes that one condition is dominant (Anderson, 2011; Nolte & Knai, 2015). From a multiple morbidity perspective, the person, rather than the condition, should be central to management (Guthrie et al., 2011). However, the delivery of hospital services in Sri Lanka and Thailand is generally organized around single conditions centred around specialist consultants. Further, many NCD conditions are long-term in nature, and older patients take longer to recover from an illness, accident or surgical intervention. This calls for step-down or slow-stream care and rehabilitation, and for arrangements to be made for follow-up care and continuing management.

Examples of promising health care programmes

The following sections identify promising initiatives in the two countries under the service headings of health promotion, primary health and preventive care, ambulatory and inpatient hospital services, and community services and family care. The chapter concludes by advocating
for training of health professionals and more attention to ensuring age-friendly health services.

**Health promotion**

Sri Lanka and Thailand have both established community-based initiatives aimed at empowering older people to participate in policies and programmes that affect them. Sri Lanka has established elders committees, now numbering more than 11,000, in villages and at higher levels, which are supported by divisional social service departments.

Both countries use community groups to educate people about NCD risk factors and provide information on healthy diets. Thailand enlists about 1 million volunteers in villages around the country to collect information on community health needs, provide information and conduct basic health screening (e.g. weight, blood pressure and blood sugar levels). This approach offers a potentially effective and sustainable model of health promotion, especially for a low- to middle-income country where local cultures and institutions remain strong.

Sri Lanka employs public health doctors at the Ministry of Health divisional level; traditionally, these doctors concentrated more on maternal and child health and infectious diseases, but they now also undertake health education with community groups on NCD prevention. Ayurveda practitioners in Sri Lanka who practice traditional medicine and focus on living a healthy life also have a role in reducing NCD risks.

While responsibility for messages about health risks resides with the ministry of health, other sectors are crucial in creating health-promoting environments through strategies such as urban planning, taxation and legislation. Higher-level political support is usually necessary to build political commitment between the ministry of health, other national government departments and community partners. For example, in Thailand, the intersectoral National Committee on the Elderly is chaired by the Prime Minister, and the implementation of national plans is regularly monitored. Thailand has also passed legislation to control tobacco and reduce smoking, as well as levying a “sin tax” surcharge on tobacco.
and alcohol sales, which funds health promotion campaigns such as the Network of Fatless Belly Thais.

**Primary health and preventive care**

Primary health care is generally regarded as the crucial level of health care for responding to NCDs. If primary care is to meet a large portion of the health needs of a rapidly ageing population, low- and middle-income countries urgently need to strengthen their primary health care systems, which in many countries remain the poor relation to hospitals (HelpAge International, 2014).

Sri Lanka has an extensive network of primary care centres based on a hospital model (the divisional-level government hospitals), but these hospitals are said to be underused by the population, who instead go directly to secondary care hospitals or private doctor clinics. The “gatekeeper” referral system, whether through public or private gatekeepers, no longer functions. Sri Lanka allows public sector doctors to practice privately: informants thought that about two thirds of government hospital doctors (about 10 000 doctors) also worked in private clinics. Given numerous private clinics, more than half of medical consultations occur in the private sector, and while there are no data, these patients are probably people who can afford to pay. A two-tier system is emerging with local divisional hospitals for poor, rural and older people, and private doctor clinics for others. This comes with higher costs to government if people seek primary care from expensive secondary care hospitals. Government strategies to strengthen primary care include a plan to upgrade old facilities, train more staff (most divisional hospitals now have a doctor), and increase their supply of medication and equipment.

Thailand has at least one primary health care centre (or Health Promoting Hospital) in each subdistrict ("tambon"), totalling more than 9000 centres nationwide. These have several staff including a trained nurse, but only a few have a physician. In relation to NCDs, each centre has essential drugs and equipment to undertake simple tests. While these centres are meant to act as gatekeepers, in practice, due to long waiting times and limited comprehensive health services, some patients bypass them and go straight to secondary care hospitals despite having no referral.
Sri Lanka now has about 800 Healthy Lifestyle Centres attached to hospitals to run basic NCD screening tests; these have been set up progressively since 2011. People are referred to the centres from the hospital or by community health workers, but can also walk in without a referral. These centres do not screen people over the age of 65 years. Thailand has comprehensive population-level preventive care strategies, such as check-ups for NCD risk factors, using its country-wide network of health centres. Primary health care screening and early treatment can identify and monitor blood pressure, blood glucose and cholesterol, and so mitigate cardiometabolic risks. While screening and case-finding has been a success, effective follow-up and treatment for NCDs, including access to essential medicines, has been less successful, although it is improving.

Clinical protocols offer guidelines to health professionals in order to promote and standardize good clinical practice, both in primary care and more advanced care. The uptake of clinical protocols typically varies across countries and across health conditions. Sri Lanka informants regarded the uptake of protocols as poor, given the absence of clinical governance and regular audits. For example, compliance with clinical protocols on diabetic management, such as blood sugar tests and regular eye and feet examinations, was low in secondary care hospitals.

One way to improve substandard care, apart from training and supervising staff, is to adapt international clinical protocols to a country’s context, in terms of capacity of staff and availability of equipment. For example, the NIROGI project designed a diabetic foot screening protocol for use in diabetes care clinics, which trains both clinicians and patients in foot care and risk assessment. The Royal College of Physicians of Thailand has produced guidelines on NCD management. Thai experts have also produced a simplified diabetes risk management scoring system suitable for use by health volunteers. The scoring system is based on a set of variables that do not require laboratory tests, including age, sex, BMI, waist circumference, and history of diabetes in parents or siblings.

**Ambulatory and inpatient hospital services**

Public hospitals are major providers of both ambulatory and inpatient care in Sri Lanka and Thailand, and secondary care hospitals also provide
a large (but unknown) proportion of primary health care, including early
detection and treatment of NCDs. Hospital outpatient clinics are said to
be overcrowded. The press of patients leaves staff little time to clearly
explain risk factors and treatments or provide referrals back to primary
care services for continuing management. This is a serious shortcoming for
NCD management of older patients who may have multiple and ongoing
conditions. Discharge planning from hospitals for continuing-care patients
is not a well-established hospital procedure in either country. Thailand,
however, has begun to train nurses to act as case managers for diabetes
patients and to educate patients in self-care and adherence to treatment
regimes.

Poor links between primary care and hospitals are also problematic,
especially when timely referrals are essential in cases such as diabetes
complications, stroke events and late-stage kidney disease. Thailand’s
Stroke Fast Track programme was set up in 2008 to reduce brain damage
from stroke events and improve subsequent quality of life. The programme,
which aims to ensure people receive rapid intravenous thrombolytic
treatment, links hospitals across regional stroke networks to improve
appropriate and rapid referrals. Thailand has a stroke unit in each of its 13
regional hospitals as part of this tertiary care referral network. Sri Lanka
has established specialist stroke units with multidisciplinary teams and
varying levels of facilities in eight hospitals nationwide.

In Sri Lanka, almost all secondary and tertiary hospitals were said to have
a diabetic clinic that included a medical specialist and a diabetic nurse
educator. In Thailand, health personnel in the district primary care centres
are trained and have the equipment to check for diabetic symptoms; while
physicians in secondary hospitals can manage early-stage or stable cases of
diabetes, and refer onwards to tertiary hospitals for serious cases or those
with complications.

Rehabilitation units have been established in some secondary care hospitals
in Thailand. Few such rehabilitation services exist in Sri Lanka, except
those provided by disability nongovernmental organizations, which are
gearied more towards people with disabilities due to injuries incurred in
the civil war or the 2004 tsunami. Limitations in rehabilitation services can
put substantial physical and financial burdens on the family; for example,
providing care for stroke patients at home is a challenging task for family members, and few education and support programmes are available.

Community services and family care
Sri Lanka and Thailand rely primarily on the family to care for older members, as do many other countries. Community surveys in Sri Lanka report that about 75% of older people live with a spouse and/or children; in Thailand the number of elderly people living with their children has decreased from 66% in 2002 to 56% in 2011. While government policies in both countries continue to promote family care as the mainstay for dependent elderly people, family household patterns are changing and people are living longer, and also living with chronic conditions. Expert informants in both countries drew attention to the heavy burden that elderly people with serious diabetic and stroke complications can place upon families, no matter how willing and able their families are to shoulder the burden of care. Governments in both countries are therefore seeking ways to bolster community care.

For example, the Royal Thai Government has announced its intention to roll out a community care model based on the Lam Sonthi District community care. This model combines local health and social care agencies, undertakes case management of dependent people living at home, and pays a small wage to village caregivers.

Some aged care homes and nursing homes are being built and operated by private providers in urban areas, mainly catering to wealthier people. Given the likely growth of the aged care residential sector, government agencies should set up mechanisms for licensing homes and monitoring quality standards.

Training health care professionals
Both countries have begun to train staff in providing care for older patients and those with chronic conditions, which requires attention to health personnel’s knowledge, skills and attitudes. In both countries, general physicians provide most medical care for older people, since there are few specifically trained geriatricians. The Sri Lanka Medical Council and
the Royal College of Physicians of Thailand have both started training programmes for specialist geriatricians.

Primary care physicians in OECD countries report that they regard themselves as not well prepared to care for patients with multiple chronic illnesses (Osborn et al., 2015). Since these are countries where physicians typically see older patients, physicians in Sri Lanka and Thailand are also likely to regard themselves as underprepared. Several training programmes are under way, although these are usually specialist and small in scope, including the NIROGI training project in Sri Lanka and the Theptarin Hospital project in Thailand, both projects that focus on diabetic foot care.

OECD countries with ageing populations, well-established health systems, and well-trained nurses are moving towards expanding the role of nurses in NCD care. For example, nurses may take over selected medical tasks (usually under supervision), case management and patient education (Nolte & Knai, 2015). This is an area of opportunity that Sri Lanka and Thailand, with their well-trained nurses, should explore.

Age-friendly services
This monograph concludes by returning to the theme of age-friendly services. Age-unfriendly health services emerged as a common issue in the two country case studies. Such problems included lack of priority for elderly patients (e.g. long waiting times); excessive visits (e.g. diabetes, hypertension and stroke patients automatically being given monthly appointments); and little explanation or written advice on what treatments patients should follow (e.g. medications, diets). The physical design of government hospitals also presented barriers for older people and people with disabilities, despite national disability legislation requiring new hospitals to ensure easy access for the disabled. In Sri Lanka, informants said that health facilities, especially those in old buildings, should improve basic physical accessibility: install ramps or elevators, reduce walking distances between hospital departments, make signs more readable, provide more seats and toilets, and ensure wheelchair access. Such barriers are common in many countries. Drawing on guidelines for age-friendly primary health care (WHO, 2008), focus groups of elderly people in Hong Kong SAR reported difficulties with transport to health facilities,
inadequate signage, facilities not designed for mobility impairment, long clinic waiting times, and onerous appointment procedures (Woo et al., 2013). Thailand has introduced some initiatives to improve access for older patients, such as providing wheelchairs and a ramp or sloping pathway at the entrance of each hospital.

Countries can learn from the experiences of high-income Asian countries with already advanced ageing populations, such as Japan and the Republic of Korea (Kwon, 2008; Tamiya et al., 2012). These countries highlight the need for integrated health services, trained aged care specialists, and long-term care for dependent people. Asian countries with large elderly populations have adopted age-friendly ideas. For example, another study in East Asia proposed age-friendly practices for hospitals in four areas: management policy, communication and services, physical environment, and care processes (Chiou & Chen, 2009). Singapore’s new National Heart Centre has incorporated many age-friendly features in its physical design, including wheelchair access throughout, sensor-activated lights and doors, non-slip floors, and colour-coded signage and directions (SingHealth, 2013).

**Concluding remarks**

NCDs are inextricably related to the processes of ageing and improving economic and social development. The increasing burden of NCDs is attributable to both an increase in risk factor prevalence and growing numbers of older people. In turn, chronic diseases are the greatest threat to healthy ageing, contributing to morbidity, disability and dependency among older people. The rate of both NCDs and population ageing are expected to rise rapidly in the next two to three decades. These rapid transitions in low- and middle-income countries in Asia mean that health services planning must respond to both more elderly patients and more NCD cases as people live longer. The tracer conditions in the Sri Lanka and Thailand case studies – adult-onset diabetes and stroke – are examples of common causes of mortality and morbidity that are on the rise. To respond to increasing numbers of older patients, health services need to monitor changes in demand, by building capacity to improve information on health services use by age group.
While NCDs develop progressively over the life span, many risk factors are amenable to prevention and amelioration. This suggests that health promotion and disease prevention and screening need to be strengthened to enable a healthier environment and to promote behavioural change on risk factors. These measures should target populations earlier in the life course – as emphasized by the WHO global and regional policies on NCDs.

Given the growing costs of NCDs to health systems in countries with limited resources, these conditions warrant higher priority in strengthening primary health services and adapting hospital acute care towards cost-effective responses to chronic conditions and comorbidities through middle and later life. Both country case studies highlight the importance of training health professionals in elderly care, making services more responsive to elderly patients, designing age-friendly facilities, integrating the different levels and types of health services, developing rehabilitative services, and linking health services to community care. These reforms require both intermediate and long-term strategies in order to respond to NCDs and ageing populations in the future.
References


Reflections on health service responses to NCDs in older populations


Appendix A: Country template

1. National policy for an ageing population
   - Does your country have a policy/strategy/plan for responding to the ageing of its population? When was this policy produced? What was the impetus?
   - Does the policy advocate promoting active ageing and healthy ageing?
   - What does the policy say about the priority given to institutional care, community-based care and family care?

2. What are key issues for dependent older people in your country?
   For example, changing family patterns that leave older people more isolated; health impacts of earlier decades of war and/or poverty; access to health services, pension coverage; behaviours that increase NCD risks, such as smoking, excess alcohol consumption, obesity

3. Health professionals
   - In your country, what types of health professionals usually treat elderly people?
   - Do health services employ geriatricians? Approximately how many, where are they located (e.g. tertiary hospital), and where are they trained?
   - Are there national plans to increase the number of health professionals with specialty training in geriatrics?

4. Hospitals and outpatient services
   Physical design
   - Does the hospital offer an age-friendly environment? For example, do older patients have to navigate steps and long corridors? Are wheelchairs provided?
   - Has the hospital designed its wards and risks in order to reduce the risk to vulnerable older patients (e.g. accessible toilets and showers, non-slip floors)?
Reflections on health service responses to NCDs in older populations

**Specialized services**
- Does the hospital have a service able to assess and treat older patients with multiple health problems? Is there a geriatric consultation service at the hospital?
- Does the hospital have a multidisciplinary team able to assess medical and psychosocial issues of older patients? For example, do staff assess the risk of falls for elderly patients?

**Links between hospitals and rehabilitation services**
- Is there an integrated plan after hospital discharge, e.g. referral to outreach rehabilitation services?

5. **Community-based services and family caregivers**
- Does your country have community-based services to support older people to remain in their own homes, e.g. visiting nurses, meal services, help with housework and shopping, day centres for older people?
- Are there formal support services for caregivers?
- What is the extent of residential care (including nursing homes) available in the country?

6. **Key informant interviews**
Select 10–20 key informant interviews to compare, contrast and validate expert opinions. These could include a combination of: 1) health care providers (e.g. primary care physicians, specialists); 2) health managers; 3) non-health care providers, including community and civil societies; and 4) patients and their families. By using information on projections of ageing and NCDs, in your view, how would the health system cope with anticipated rises in the older population?

- What is the current strength of the system (e.g. primary health care) and what could be done (e.g. prevention, early diagnostic tests), especially regarding the tracer conditions, diabetes and stroke?
- What is the weakness of the current health system? What can be done now to improve and cope with the anticipated ageing population?
• What is the current link between health care providers, health managers, non-health providers (community), and elderly patients and family? What are the experiences of these key groups, and what would they wish their experiences to be?
• What are the current protocols and guidelines in your country for the tracer conditions (diabetes and related complications, e.g. kidney diseases, feet/eye health, and stroke)? Have these been followed? If not, which areas can be improved?

**Sri Lankan case study**

**Study method**

We developed the interviewer guide based on the consensus of the expert group involved in the study and by conducting a few pilot interviews. The interviewer guide was based on broader issues that need to be addressed in the present study. These include strengths and weaknesses of the present health system in dealing with NCDs and an increasingly elderly population, and possible solutions to the above problems.

**Data collection**

Interviews were conducted between August and September 2015 in different locations in Sri Lanka. Most of the interviews were conducted by telephone. Interview times varied from 30 minutes to one hour. The principal investigator took notes at the time of the interview and a detailed report was written on the same day. Four groups of key informants were selected for the study.

• Clinicians – consultant endocrinologist, consultant neurologist, consultant rheumatologist, consultant geriatrician
• Primary care physicians – two part-time physicians, one primary care (government) doctor, one nursing officer
• Administrators – two consultant community physicians at the national level or regional director of health services, director of base hospital (secondary care level)
• Civil society – social service officer and two community workers
Thai case study

Key informant interview methods

We employed in-depth interviews face-to-face and via telephone with 20 key informants from five groups: four policy-makers, three professional groups (civil society), four hospital administrators, five to six health care providers, and four patients and relatives. The main purpose of the interviews was to understand current situations regarding the provision of health services to elderly people using two tracer conditions – diabetes mellitus and cerebrovascular diseases (stroke). The interviews employed a semi-structured questionnaire with three main questions: current practices (including strengths and weaknesses), policy on services and challenges. The length of each interview ranged from 15 minutes to two hours.

Characteristics of informants:

• For the policy-makers, each key informant had a different experience on health services for elderly people: an official producing national NCD clinic and diabetes guidelines; two officials who had worked on elderly issues, a national focal point for policy on the elderly from the Ministry of Public Health and a high-level official from the National Health Security Office; and a former Minister of Public Health.

• For the professional group, we interviewed a geriatrician, a neurologist and an endocrinologist who are active in professional society and the Royal College of Physicians of Thailand.

• For the hospital directors, we interviewed a famous owner of a private diabetes hospital in Thailand, and three directors of community hospitals who are active in developing a service for diabetes patients and geriatric patients.

• For health care providers, we interviewed an endocrinologist from a famous medical school, two physicians in community hospitals, two nurses, and a health worker from a health centre.

• For the patient group, we interviewed two diabetes mellitus type 2 patients and two stoke patients, accompanied by their relatives.
Appendix B: Maps

Reflections on health service responses to NCDs in older populations

The Asia Pacific Observatory on Health Systems and Policies (the APO) is a collaborative partnership of interested governments, international agencies, foundations, and researchers that promotes evidence-informed health system policy regionally and in all countries in the Asia-Pacific region. The APO collaboratively identifies priority health system issues across the Asia-Pacific region; develops and synthesizes relevant research to support and inform countries’ evidence-based policy development; and builds country and regional health systems research and evidence-informed policy capacity.