PRIMARY HEALTH CARE SYSTEMS (PRIMASYS)

Case study from Thailand
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Thira Woratanarat,⁎ Patarawan Woratanarat,⁠b Charupa Lekthip⁠a

a. Department of Preventive and Social Medicine, Faculty of Medicine, Chulalongkorn University
b. Faculty of Medicine Ramathibodi Hospital, Mahidol University
# Contents

Acknowledgements ............................................................................. 1  
Abbreviations .................................................................................... 2  
Background to PRIMASYS case studies .............................................. 3  
1. Overview of primary health care system ........................................ 4  
2. Data collection methods ................................................................. 9  
3. Timeline ....................................................................................... 10  
4. Governance and PHC-related infrastructure in Thailand ............... 13  
5. Financing ..................................................................................... 15  
6. Human resources .......................................................................... 17  
7. Planning and implementation. ....................................................... 19  
8. Regulatory processes ................................................................... 21  
   8.1 Regulation and governance of providers .................................... 22  
   8.2 Human resources planning and registration ............................. 22  
   8.3 Regulation and governance of pharmaceuticals ..................... 23  
   8.4 Entry of pharmaceuticals to the market. ................................. 23  
   8.5 Quality of medicines ............................................................... 23  
   8.6 Pricing and market access ....................................................... 24  
   8.7 Regulation of medical devices ............................................... 24  
   8.8 Regulation of capital investment ........................................... 25  
9. Monitoring and information systems .............................................. 26  
10. Policy considerations and ways forward ...................................... 27  
Annex 1. Key informants on primary care system in Thailand ............ 28  
References ....................................................................................... 29
Figures

Figure 1. Timeline of PHC development and relevant policies in Thailand .................................. 11
Figure 2. Region-based health services system in Thailand .......................................................... 13
Figure 3. Governance and PHC-related services infrastructure .................................................... 14
Figure 4. Financial flows of PHC services in Thai health system ................................................... 16
Figure 5. Family medical care team and its components ............................................................... 18

Tables

Table 1. Key demographic, macroeconomic, and health indicators in Thailand ............................... 4
Table 2. Thailand’s demographic, macroeconomic, and health profiles and relevance to primary health care ........................................................................................................................................... 8
Table 3. Key PHC developments in Thailand: barriers and enablers .............................................. 12
Table 4. Health care spending profiles, percentage of total health expenditure ............................. 15
Table 5. Health care spending by source of fund, percentage of total health expenditure ................ 15
Table 6. Profiles of physicians, nurses, community health workers, and traditional practitioners in Thailand ........................................................................................................................................ 18
Table 7. Characteristics of governance structures of three main insurance schemes in Thailand ........................................................................................................................................... 21
Table 8. Policy-related topics for primary care system development in Thailand ............................ 27
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### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
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<tr>
<td>CPIRD</td>
<td>Collaborative Project to Increase Rural Doctors</td>
</tr>
<tr>
<td>DALY</td>
<td>disability-adjusted life-year</td>
</tr>
<tr>
<td>GDP</td>
<td>gross domestic product</td>
</tr>
<tr>
<td>NCD</td>
<td>noncommunicable disease</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PHC</td>
<td>primary health care</td>
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<td>PRIMASYS</td>
<td>Primary Health Care Systems</td>
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</table>
Background to PRIMASYS case studies

Health systems around the globe still fall short of providing accessible, good-quality, comprehensive and integrated care. As the global health community is setting ambitious goals of universal health coverage and health equity in line with the 2030 Agenda for Sustainable Development, there is increasing interest in access to and utilization of primary health care in low- and middle-income countries. A wide array of stakeholders, including development agencies, global health funders, policy planners and health system decision-makers, require a better understanding of primary health care systems in order to plan and support complex health system interventions. There is thus a need to fill the knowledge gaps concerning strategic information on front-line primary health care systems at national and subnational levels in low- and middle-income settings.

The Alliance for Health Policy and Systems Research, in collaboration with the Bill & Melinda Gates Foundation, is developing a set of 20 case studies of primary health care systems in selected low- and middle-income countries as part of an initiative entitled Primary Care Systems Profiles and Performance (PRIMASYS). PRIMASYS aims to advance the science of primary health care in low- and middle-income countries in order to support efforts to strengthen primary health care systems and improve the implementation, effectiveness and efficiency of primary health care interventions worldwide. The PRIMASYS case studies cover key aspects of primary health care systems, including policy development and implementation, financing, integration of primary health care into comprehensive health systems, scope, quality and coverage of care, governance and organization, and monitoring and evaluation of system performance. The Alliance has developed full and abridged versions of the 20 PRIMASYS case studies. The abridged version provides an overview of the primary health care system, tailored to a primary audience of policy-makers and global health stakeholders interested in understanding the key entry points to strengthen primary health care systems. The comprehensive case study provides an in-depth assessment of the system for an audience of researchers and stakeholders who wish to gain deeper insight into the determinants and performance of primary health care systems in selected low- and middle-income countries. Furthermore, the case studies will serve as the basis for a multicountry analysis of primary health care systems, focusing on the implementation of policies and programmes, and the barriers to and facilitators of primary health care system reform. Evidence from the case studies and the multi-country analysis will in turn provide strategic evidence to enhance the performance and responsiveness of primary health care systems in low- and middle-income countries.
1. Overview of primary health care system

With a population of over 68 million, Thailand has a multi-level health care system aiming to improve geographical access to health services and to optimize system efficiency through rational use of services. Thailand has gone through significant epidemiological transitions, evolving from a high fertility and high mortality pattern to low fertility and low mortality. The low fertility rate (below replacement level) and low crude mortality rate have profound impacts on health service and social service development and financing, including the need to respond to a rapidly ageing society (1).

Demographically, the population growth rate slowed from 3% in 1970 to 0.4% in 2015, as a result of an effective family planning programme since the 1970s. There are slightly more females than males, with the male–female ratio changing from 0.996 in 1970 to 0.967 in 2014 (1). The percentage of the population aged 0–14 years decreased from 45.1% to 19.6% during 1970–2010, while the percentage of people aged 65 years and over increased continuously, more than tripling from 3.1% in 1970 to 11% in 2016 (approximately 7.5 million people). The oldest population group (aged 80 years and over) more than tripled over a 40-year period from 0.5 million in 1970 to 1.7 million in 2010. The population of Thailand has been ageing rapidly over the last half century due to declines in both fertility and mortality. The total fertility rate declined from 4.9 births per woman in 1985/1986 to 1.5 in 2005/2006, along with a declining birth rate. The reproductive health situation in Thailand has improved over time based on three indicators – infant mortality rate, under-5 mortality rate, and maternal mortality ratio. In 1980, the infant mortality rate was nearly 50 per 1000 live births, while the under-5 mortality rate was 60. These rates gradually reduced to 11 for infant mortality and 13 for under-5 mortality in 2010. The maternal mortality ratio also fell from 42 per 100 000 live births in 1990 to 26 in 2010. Contributory factors include improvements in maternal and child health services and vaccine coverage (Table 1) (2–4).

As a result of population growth, the population density in Thailand increased from 67.1 people per square kilometre in 1970 to 128.5 people per square kilometre in 2010. The proportion of the rural population residing in non-municipal areas decreased from 86.8% in 1970 to 56.6% in 2010. Rapid urbanization has occurred, with the urban population increasing from 18.7% in 1990 to 43.4% in 2010. In 2015, the data showed that those living in urban areas had increased to 50.4% (1).

| Table 1. Key demographic, macroeconomic, and health indicators in Thailand |
|---|---|---|---|---|---|---|---|
| Total population of country | 34 427 000 | 44 824 000 | 54 548 000 | 60 916 000 | 63 827 000 | 68 147 000 (2016) | National Statistical Office (1) |
| Sex ratio: male–female | 0.996 | 0.992 | 0.984 | 0.972 | 0.953 | 0.967 (2014) |
| Population growth rate (%) | 3.1 | 3.0 | 2.2 | 1.2 | 0.5 | 0.4 (2015) |
| Population density (people/km²) | 67.1 | 87.4 | 106.3 | 118.7 | 128.5 | – |
| Distribution of population (rural/urban, %) | 86.8/13.2 | 83.0/17.0 | 81.3/18.7 | 68.9/31.1 | 56.6/43.4 | 49.6/50.4 (2015) |
## Results by year

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>GDP per capita (US$)</td>
<td>710</td>
<td>1,480</td>
<td>2,720</td>
<td>1,930</td>
<td>4,150</td>
<td>5,977.4 (2014)</td>
<td>Office of National Economic and Social Development Board (2)</td>
</tr>
<tr>
<td>GDP per capita, purchasing power parity (PPP) (US$)</td>
<td>1,050</td>
<td>2,800</td>
<td>4,550</td>
<td>4,800</td>
<td>8,120</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Income or wealth inequality (Gini coefficient)</td>
<td>44.2</td>
<td>45.3</td>
<td>43.5</td>
<td>42.8</td>
<td>40.0</td>
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</tr>
<tr>
<td>Life expectancy at birth (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>--</td>
<td>National Statistical Office (1)</td>
</tr>
<tr>
<td>Top 5 main causes of death (ICD–10 classification)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>--</td>
<td>Burden of disease, Thailand, and Ministry of Public Health, Thailand (3, 4)</td>
</tr>
</tbody>
</table>

### Total mortality rate, adult (per 1000)
- M: 236.7
- F: 204.8
- Others: --

### Infant mortality rate (per 1000 live births)
- M: 46.3
- F: 26.4
- Others: --

### Under-5 mortality rate (per 1000 live births)
- M: 60
- F: 31.8
- Others: --

### Maternal mortality rate (per 100,000 live births)
- M: 42
- F: 40
- Others: 26

### Immunization coverage under 1 year (%)
- Measles: 99%
- DTP3: 90%
- Hepatitis B3: 46%
- Hib3: 90% (2013)

### Total health expenditure as proportion of GDP (%)
- M: 3.8
- F: 3.8
- Others: 3.9 (2012)

Continues…
Life expectancy at birth has gradually increased, reaching 70 years for males and 77 years for females in the mid-2000s, with a period of stagnation due to the HIV/AIDS epidemic in the 1990s (7). Life expectancy of females exceeds that of males, due to higher mortality rate among men attributable to accidents, risk-carrying work and unhealthy behaviours, though women suffer more from disability (1).

Adult mortality has been declining over time for both males and females. For males, the mortality rate declined from nearly 240 per 1000 in 2000 to 205 per 1000 in 2010. The mortality rate among females decreased from 117 per 1000 in 2000 to 101 per 1000 in 2010, though stagnation was observed from 1997 to 2003, possibly due to HIV/AIDS. The decline in adult, infant and under-5 mortality rates indicate improved life expectancy at birth for both males and females (3, 4). Overall data indicate that noncommunicable diseases have become the main causes of death, whereas infectious and parasitic diseases have declined.

The Thailand economy has improved over time, as reflected in the increase in gross domestic product (GDP) per capita per year from US$ 700 in 1970 to nearly US$ 6000 in 2014, and a decline in the Gini coefficient (measuring income and wealth inequality) from 44.2 in 1970 to 40.0 in 2010. Total health expenditure as a proportion of GDP increased from 3.5% in 1998 to 6.5% in 2014. Regarding trends in source of financing for health expenditure, before the economic crisis in 1997, household out-of-pocket expenditure was the major contributor to health care spending, but that subsequently dropped from 44.5% in 1994 to 12.4% in 2011, due to full implementation of the Universal Coverage Scheme in 2002 (2, 5, 6).

Primary health services in Thailand are generally provided through networks of health centres, mostly at subdistrict (tambon) level, termed “tambon health-promoting hospitals” and run by the Ministry of Public Health; and public health centres run by the Bangkok Metropolitan Administration. The public health centres, which are available only in Bangkok, are staffed by between one and three physicians and allied health personnel, and provide curative,
preventive, and promotive (but rarely rehabilitative) services. The health centres or tambon health-promoting hospitals are usually located in the rural areas of provinces and are mainly staffed by non-physician staff such as nurses or public health officers. Promotive and preventive services are the main functions of these health centres. However, they also offer some basic curative and rehabilitative care to people living in their catchment areas (4).

Throughout the 1970s and 1980s, Thailand implemented reforms designed to increase geographical access to primary health care (PHC) services by increasing and improving the rural health infrastructure and increasing the supply of PHC providers outside the large urban centres. From 1982 to 1986, the Government of Thailand halted new investments in urban hospitals and invested the money earmarked for these facilities into building rural district hospitals and health centres. The government built at least one PHC centre in all subdistricts in the country (9762 in total) and community hospitals in over 90% of districts, doubling the number of these hospitals by the mid-1990s (4).

In 2014, The Bureau of Policy and Strategy, under the Ministry of Public Health, electronically conducted the survey for Thailand's public health resources report. Those resources included all 13 health service regional networks in accordance with the latest National Health Services System Policy. There were 13 357 health facilities providing public health services at all health system levels (primary, secondary, and tertiary care), including 13 036 governmental health facilities (98%) and 321 in the private sector (2%). However, the data from the 13th region (Bangkok Metropolitan Area) were still incomplete, especially for the private sector (4).

With regard to health services utilization, unless there is reimbursement through the national health insurance scheme and social security scheme, any patients in Thailand can, without any filtering by general practitioners or family physicians, access medical specialists. Such a system is prone to inefficiency, redundancy, and unnecessary diagnosis and treatments. To increase the efficiency and effectiveness of the health system, the Ministry of Public Health, following consultation with other major stakeholders, has announced a restructuring of national health services, which involves implementation of district health systems to enhance community-based and multisectoral collaboration, introduction of service plans to strategically counteract major health problems and strengthen both infrastructure and the service system, and establishment of primary care clusters with family care teams in the community, with the aim of providing better quality of essential health services (4, 8, 9).

The family care team is led by a family physician working with a multidisciplinary team in the community (4). The role of the family physician is to provide primary and secondary care while reducing the burden of tertiary care providers by preventing unnecessary referral of patients to tertiary care. It is estimated that at least 6000 family physicians are needed, and that target can be achieved in the next 10 years.

A summary of Thailand’s demographic, macroeconomic, and health profiles, and their relevance to PHC, is provided in Table 2.

Table 2. Thailand’s demographic, macroeconomic, and health profiles and relevance to primary health care

<table>
<thead>
<tr>
<th>Profile</th>
<th>Summary</th>
<th>Relevance for primary health care</th>
</tr>
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<tbody>
<tr>
<td>Demographic profile</td>
<td>Thailand has evolved from a status of high fertility and high mortality to low fertility and low mortality, with the fertility level of 1.6 in 2010 being below the replacement level. This has had profound impacts on health service and social service development and financing, which need to respond to a rapidly ageing society.</td>
<td>The ageing society will pose large long-term financial burdens on Thailand and increase the critical needs of health care and long-term care systems. Functional limitations and difficulties with self-care and other activities of daily living increase sharply with age. Approximately 40% experience at least one such difficulty. Urbanization, with smaller family sizes, also requires advanced planning to handle challenges at community level through the primary care system.</td>
</tr>
</tbody>
</table>

Continues…
Since 1999, the major causes of death have been noncommunicable diseases (NCDs). The proportions of disability-adjusted life-years (DALYs) lost due to NCDs were 58.5%, 64.6% and 75.0% in 1999, 2004 and 2009, respectively, while communicable diseases contributed 27.7%, 21.2% and 12.5% in the same years. The burden from a few preventable causes, such as traffic injuries, ischaemic heart diseases, diabetes and alcohol dependence or harmful use, is still high and challenging.

Currently, major restructuring of the health services system is being undertaken in Thailand. The main changes include focusing on primary care provision in the community through a multisectoral approach involving implementation of district health systems, aligning existing health services for more effective and efficient processes through introduction of service plans, and establishing multidisciplinary family care teams at the community level (7–9).

<table>
<thead>
<tr>
<th>Profile</th>
<th>Summary</th>
<th>Relevance for primary health care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macroeconomic profile</td>
<td>GDP per capita per year increased from US$ 700 in 1970 to nearly US$ 6000 in 2014, while the Gini coefficient (measuring income and wealth inequality) fell from 44.2 in 1970 to 40.0 in 2010. Total health expenditure as a proportion of GDP increased from 3.5% in 1998 to 6.5% in 2014. Before the economic crisis in 1997, household out-of-pocket expenditure was the major contributor to health care spending, but that subsequently dropped from 44.5% in 1994 to 12.4% in 2011, due to full implementation of the Universal Coverage Scheme in 2002. Despite favourable economic growth, income distribution has not improved much – the Gini index has never gone below 40. The fiscal space, measured by a tax burden of 16–17% of GDP, though not high compared to Organisation for Economic Co-operation and Development (OECD) countries, is slightly higher than the average of middle-income countries, facilitating government spending on health and education. Given the limited fiscal space, investment in health infrastructure in the 1980s and 1990s was only possible as a result of political commitment and prioritized investment in district health systems, and temporary slowing down of investment in provincial health infrastructure.</td>
<td>Expanding health insurance coverage with a medicines benefit to the entire Thai population has increased access to essential medicines in primary care. However, increasing access is challenging for the government health facilities that serve most of the Thai population at primary care level, due to their limited resources and related infrastructure. At present, government health facilities take most responsibility for the Universal Coverage Scheme and the Civil Servants Medical Benefits Scheme, and nearly half of those in the Social Health Insurance Scheme, which may be approximately 55–60 million people. However, the private sector is not heavily involved in the primary care market, and it may be a challenging task for Thailand to develop an innovative care model of public-private partnership in coming years.</td>
</tr>
<tr>
<td>Health profile</td>
<td>Since 1999, the major causes of death have been noncommunicable diseases (NCDs). The proportions of disability-adjusted life-years (DALYs) lost due to NCDs were 58.5%, 64.6% and 75.0% in 1999, 2004 and 2009, respectively, while communicable diseases contributed 27.7%, 21.2% and 12.5% in the same years. The burden from a few preventable causes, such as traffic injuries, ischaemic heart diseases, diabetes and alcohol dependence or harmful use, is still high and challenging.</td>
<td>The greatest public health benefits are gained through prevention. These benefits can be achieved if risk factors are identified and mitigated through appropriate interventions. If NCDs and other preventable illnesses are detected at an early stage and appropriate controls initiated, their severity can be significantly reduced. The burden of NCDs usually falls disproportionately on the lower socioeconomic groups, who often face higher exposure to risk factors and have limited access to health services. Diseases such as diabetes and cardiovascular illnesses are often not detected until they reach advanced levels. In response to the increasing impact of NCDs, the Ministry of Public Health has increasingly directed its attention to prevention and control initiatives, such as identifying major behavioural risk factors classified by province, collection and analysis of NCD and injury mortality and morbidity data, monitoring trends, and evaluating the results of implemented interventions. NCD and injury prevention and control programmes emphasize public health and primary care approaches (rather than secondary and tertiary treatment), which require effective multisectoral collaboration. Traffic injury prevention and tobacco and alcohol control programmes cannot be implemented by the health sector alone. The Royal Thai Government has demonstrated a strong commitment to the control of tobacco use and alcohol consumption by drafting legislation, particularly in the area of advertisement. However, there remains the persistent challenge of effectively reducing risky behaviour (smoking and alcohol consumption) and increasing regular exercise and healthy diets. With respect to mental health, the Department of Mental Health, Ministry of Public Health, is in the process of developing the National Strategy on Mental Health based on the Tenth National Health Development Plan. The success of these programmes is reliant on effective planning, implementation, monitoring, and evaluation of multisectoral interventions.</td>
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2. Data collection methods

Since the PHC system is of critical importance to modern-day Thailand, relevant stakeholders have been engaged in research and development processes aimed at restructuring, reorganizing and strengthening the primary care system at all levels. For the purposes of this report, secondary data were collected through searching available documents from relevant databases, such as the Ministry of Public Health and its affiliates, the World Health Organization and the World Bank. Primary data collection was done through several meetings with key informants to gather information on service plans, health systems development and research. Annex 1 presents a list of key informants on the primary care system in Thailand.

The PHC system in Thailand is closely integrated at all levels. Key informants were therefore selected from among stakeholders representing a range of constituencies, including academia, PHC system development, policy formulation and implementation, health service planning, research and development, and operational levels in both public and private sectors, thereby obtaining input from all aspects of the PHC system. Although the public sector has mainly been responsible for PHC provision in Thailand, there are increasing calls for greater private sector contribution. The process of health system reform is very active in the country, with major policy changes including introduction of a region-based health services system, district health system governance, and service plans for PHC.
3. Timeline

The Ministry of Public Health is the core agency in the Thai public health system. The development of the ministry began in 1888 as the Department of Nursing under the Ministry of Education. In 1918, it became the Public Health Department under the Ministry of Interior. The Ministry of Public Health was established in 1942 according to the Reorganization of Ministries, Sub-Ministries and Departments Act, B.E. 2485 (1942). Since then, there have been several reorganizations, first in 1972, a second in 1974, a third in 1992, and a fourth in 2002 (4, 8).

In 1999, the Decentralization Act was adopted by Parliament in order to transfer various activities held by central ministries, including education and health services, to local government organizations. However, in late 2002 all health care decentralization movements were suspended because of changes in government policy. During that time, the establishment of the National Health Security Office responsible for the Universal Coverage Scheme resulted in a major shift of financial power from the Ministry of Public Health to the National Health Security Office. The conventional supply-side financing through annual recurrent budget allocation to health care facilities owned by the Ministry of Public Health ended, with the service-related budget transferred to the National Health Security Office. Allocation was then based on the catchment population for outpatient services and the service load for inpatient services. However, the ministry still retains responsibility in the areas of regulation, consumer protection, implementation of related public health laws, and health services provision. This shift, splitting the role of purchaser (National Health Security Office) and provider (Ministry of Public Health), has had major ramifications for the ministry and its relationship with the National Health Security Office (4, 8).

The development of PHC in Thailand is depicted in Figure 1. In 1913, public health and medical offices (named as “osot sapa”) were established in only some provinces. In 1932, rural health services were implemented in highly populated areas: first-level health centres with a physician (“suk sala”), and second-level health centres with no physician, followed by several piloted projects in diverse areas over a four-decade period aiming to expand more accessible health services to the population and to respond to the challenge of emerging infectious diseases (8).

In order to strategically organize planning and policy formulation for comprehensive health services, the Office of the Permanent Secretary was established in 1972 at the Ministry of Public Health, and provincial health offices were assigned to oversee both curative and preventive health infrastructures in each province (4,8).

During 1978, the year of the Alma-Ata Declaration on Primary Health Care, PHC was recognized as a national health development priority under the Health for All Policy. Advocacy was considered as an important factor in creating the Office of the Primary Health Care Committee, implementing the Charter for Health Development, and strategic developments at community level, including introduction of village health volunteers and village health communicators. An innovative public health tool that successfully improved accessibility for the poor was founded in 1983 – the “health card”. Measures to combat shortages of human resources, money and materials and to counteract use of non-standardized methods included such directed interventions as the PHC campaign with basic minimum needs, setting up village development funds, and establishing an Association of Southeast Asian Nations (ASEAN) training centre for PHC development with four regional training centres. Sociodemographic and political changes, as well as identified needs to unify the implementation processes toward health equity, coverage and access, prompted the Ministry of
Figure 1. Timeline of PHC development and relevant policies in Thailand

Thailand Primary Health Care System Development

1932
Starting Rural Health Services

1950
Tropical Diseases Control Program

1964
Wat Boat project

1966
Sarapee and Banpai projects

1968
Health centers

1974
Lampang, Samoeng, Nonethai projects

1975
Expanded community hospitals

1978
PHC as national health development strategy under Health for All Policy

1979
Community of national PHC

1980
Office of PHC committee
The Charter for Health Development

1981
Village health volunteers (VHV) and Village health communicators (VHC)

1983
Health card project

1984
• PHC campaign with basic minimum needs
• Village development fund
• ASEAN Training Center for PHC Development
• 1984–6 Four regional training centers for PHC development

1985
7 projects for population quality of life

1991
Community PHC centers

1993
VHVs clubs

1994
All VHVs were upgraded to VHVs

1997
• Regional center at Yala (very south of Thailand)
• New constitution with economic crisis

1998
National budget re-allocation

2001
• Decentralization Act
• National health insurance Act/Universal Coverage Policy
• Thai Health Promotion Foundation

2002
• Village of health management
• Office of PHC turned into PHC division
• Endorsement of Primary Care Services Policy

2004
PHC was transferred to be under local administrative organizations

2007
• National Health Act
• Tambon health fund with strategic roadmap

2009
VHVs as community health managers

2010
Tambon health management project

2011
Upgrade health centers to Tambon health promotion hospital (THPH)

2013
Support essential materials and resources to VHVs
Public Health to reallocate resources and restructure significant community-based components, for example by upgrading all village health communicators to village health volunteers (8).

Several years after the introduction of the new Constitution in 1997, the Decentralization Act, National Health Insurance Act, Universal Coverage Policy, and the Thai Health Promotion Foundation were deployed in order to streamline the public health and health care services system, and to ensure health security for the population. The Decentralization Act endorsed the official roles of community-level actors, enhancing their ability to contribute to health system development. In addition, projects and funds were implemented at subdistrict (tambon) level, and health centres were redefined as tambon health-promoting hospitals. District health systems were also formed to foster local action through multisectoral collaboration in health systems development (9). Table 3 assesses the barriers and enablers pertinent to key PHC developments in Thailand.

Table 3. Key PHC developments in Thailand: barriers and enablers

<table>
<thead>
<tr>
<th>Development</th>
<th>Barriers</th>
<th>Enablers</th>
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<tbody>
<tr>
<td>Village health communicators, village health volunteers, health centres</td>
<td>Limited resources</td>
<td>Health inequity</td>
</tr>
<tr>
<td>Decentralization in health system</td>
<td>Changes in government policy</td>
<td>None</td>
</tr>
<tr>
<td>Establishment of National Health Security Office responsible for Universal</td>
<td>Impact on Ministry of Public Health</td>
<td>Policy advocacy</td>
</tr>
<tr>
<td>Coverage Scheme</td>
<td>administration and on balance of power between purchase and provider, which has created resistance and some friction</td>
<td></td>
</tr>
<tr>
<td>District health systems, service plans, primary care clusters, family care</td>
<td>None</td>
<td>Policy advocacy</td>
</tr>
<tr>
<td>teams</td>
<td></td>
<td>Financial impact of Universal Coverage Scheme on government health care facilities</td>
</tr>
<tr>
<td></td>
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<td>Sustainable Development Goals and National</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Economic and Social Development Plan</td>
</tr>
</tbody>
</table>

Sources: 8–17.
4. Governance and PHC-related infrastructure in Thailand

The Thai population is eligible for health services financially covered by three main schemes – the Universal Coverage Scheme, the Civil Servants Medical Benefits Scheme, and the Social Health Insurance Scheme. Structurally, there is at least one tambon health-promoting hospital in each subdistrict, which covers approximately 5000 people. At the district level, there is at least one district hospital with 30–120 beds covering a population of around 50,000. At the provincial level, there is a general hospital covering a population of approximately 600,000, and some general hospitals have been upgraded to regional hospitals for referrals. At the top level of the system, there are 11 medical school hospitals, five of them located in Bangkok. PHC in Thailand is mostly provided by government health care facilities at all levels. At present, the Thai Government aims to control total health expenditure and reduce the burden of work for higher-level health care facilities by strengthening PHC at community level (4, 8, 9).

Three governance models have recently been implemented:

- **Region-based health services system.** Thirteen regional management offices have been established in order to manage and reallocate available resources effectively and efficiently (Figure 2) (4, 9).

- **District health system.** Health management at district level aims to coordinate and work effectively through multisectoral collaboration. The district health system is the official mechanism at local level to streamline Health in All Policies, strengthen implementation and monitor progress, as well as operating as a channel to co-invest available resources from local stakeholders into health systems development (4).

- **Primary care cluster.** Health prevention, promotion, and other primary care services are provided comprehensively through family care teams comprising family physicians and local multidisciplinary health personnel (4, 9).

The relationship among major stakeholders and their roles in PHC in Thailand is shown in Figure 3 (4, 8, 9). Most human resources are in the government-based system, except those in private hospitals and private clinics.
Figure 3. Governance and PHC-related services infrastructure

Key: NHSO, National Health Security Office; MoPH, Ministry of Public Health; CSMBS, Civil Servants Medical Benefits Scheme; SSO, Social Security Office; FDA, Office of Food and Drug Administration; OPS, Office of Permanent Secretary; DOH, Department of Health; DDC, Department of Disease Control; PHO, Provincial Health Office; RH/GH, regional hospital/general hospital; DHO, district health office; DH, district hospital; PCU/HC/THPH, primary care unit/health centre/tambon health-promoting hospital; LHF, local health fund; DHS/PCC, district health system/primary care cluster; THPF, Thai Health Promotion Foundation; NHCO, National Health Commission Office; MONRE, Ministry of Natural Resources and Environment; MOI, Ministry of Interior.
5. Financing

The Thai health care system has been financed by a mixture of health financing sources, including general taxes, social insurance contributions, private insurance premiums and direct out-of-pocket payments. Health expenditure is income elastic; in the 1997 Asian economic crisis, for example, health spending was reduced by both the government and households. The Universal Coverage Scheme, which was fully implemented in 2002, significantly increased the public share of total health spending, while household out-of-pocket payments strikingly decreased. This is because the scheme is financed by general taxation, with a huge coverage of more than 75% of the total population. After achieving universal coverage in 2002, there have been three major public insurance schemes providing health insurance coverage for the entire population (9, 12):

- Civil Servants Medical Benefits Scheme, which covers around 5.2 million people (as of early 2010), specifically government employees and their dependents (parents, spouses and children) as well as pensioners;
- Social Health Insurance Scheme, which covers approximately 13.9 million employees (as of early 2016) in the formal sector for non-work-related health care expenditures;
- Universal Coverage Scheme, which covers the rest of the population, nearly 49 million people in 2016, and replaces all previous government-subsidized health insurance schemes, namely the health card, voluntary health card or low-income card scheme for the poor, the disabled, the elderly, and children aged under 12 years, and including all previously uninsured people.

Regarding the financing sources for PHC mentioned above, the public share of total health expenditure significantly increased while household out-of-pocket payments dramatically declined after the Universal Coverage Scheme was fully implemented in 2002 (Tables 4 and 5) (1, 8). Overall financial flows are shown in Figure 4 (8, 9).

Table 4. Health care spending profiles, percentage of total health expenditure

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Outpatient care</td>
<td>42.6</td>
<td>40.7</td>
<td>42.1</td>
<td>29.2</td>
</tr>
<tr>
<td>Ancillary services</td>
<td>0.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Prevention and public health services</td>
<td>7.1</td>
<td>8.2</td>
<td>10.3</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Source: National Statistical Office (1).

Table 5. Health care spending by source of fund, percentage of total health expenditure

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Government general expenditure</td>
<td>41.7</td>
<td>50.8</td>
<td>66.6</td>
<td>68.4</td>
</tr>
<tr>
<td>Social health insurance</td>
<td>2.9</td>
<td>5.3</td>
<td>7.7</td>
<td>7.3</td>
</tr>
<tr>
<td>Out-of-pocket</td>
<td>44.5</td>
<td>33.7</td>
<td>14.2</td>
<td>11.6</td>
</tr>
<tr>
<td>Private voluntary health insurance</td>
<td>1.8</td>
<td>3.0</td>
<td>5.6</td>
<td>4.7</td>
</tr>
<tr>
<td>Traffic insurance</td>
<td>2.4</td>
<td>2.6</td>
<td>2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>Employer benefit</td>
<td>6.2</td>
<td>4.0</td>
<td>2.1</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Source: Thailand health systems review (8).
Figure 4. Financial flows of PHC services in Thai health system

(CMBS: Civil Servant Medical Benefit Scheme; UCS: Universal Coverage Scheme; SHI: Social Health Insurance)
6. Human resources

Over the last four decades, Thailand has directed substantial investment and planning into strengthening its PHC system to attain universal health coverage. To achieve this goal, Thailand has recognized the need to reduce the high levels of inequality between income groups and between rural and urban populations. Thailand’s health reforms have prioritized strengthening district health systems with a strong pro-rural and pro-poor focus. Many of Thailand’s reform initiatives were directed towards two major goals: (a) expanding the geographical accessibility of effective primary health care; and (b) protecting the poor from unaffordable health costs and improving the financial accessibility of primary health care (13).

During 1960–1975, around 25% of physicians trained in Thailand emigrated out of the country, primarily to the United States and the United Kingdom. This created a shortage of physicians throughout the country, particularly in rural areas. Starting in 1972, Thailand required all graduates from public medical schools to work for three years in the public health facilities in Thailand or pay a significant penalty fee (14).

In the era of the Alma-Ata Declaration and Health for All, Thailand deployed physicians to rural areas, resulting in a fourfold increase in the number of rural-based physicians from 300 to 1162 by the mid-1990s. To supplement those numbers and further incentivize physicians to work in rural locations, the Collaborative Project to Increase Rural Doctors (CPIRD) began in 1974, which provided medical education opportunities to those with a rural background; students were recruited from rural regions, trained, and returned to their home area to practise. The CPIRD has been successful, with a rate of 14.9% of physicians leaving rural areas over an 11-year period, compared to 17.6% of physicians not under the CPIRD. However, long-term success has still been challenging; it was found that in the fourth year of the Ministry of Health rural service programme, only 51% of CPIRD physicians and 44% of non-CPIRD physicians remained (15).

The distribution of physicians between rural and urban areas has fluctuated over time, influenced by the rise in the number of private hospitals, which are primarily in urban settings and serve wealthier populations. In 2007, doctor density in Bangkok was 10 times higher than that in the most rural areas of the country. In response, to incentivize physicians to work in rural hospitals, the government created a financial scheme that supplemented physician income with a monthly allowance, and in 2008, physicians in rural areas received 10–15% more per month compared to new physicians in urban, non-private hospitals (14).

To further expand the primary health care workforce in rural areas, Thailand introduced village health volunteers to engage closely with people in the community. Their responsibilities include promoting primary health care across the country, helping control communicable diseases, and providing basic care services to the local areas. The village health volunteers offer home visits to provide follow-up care and serve as a link between clinical care and community resources. At these home visits, village health volunteers might take the patient’s blood pressure, provide emotional and mental support through family counselling and informal conversations, and provide information on healthy lifestyles. Additionally, they also help with various community projects and connect residents with traditional medicine resources. The village health volunteers are from the local community, which helps ensure that they fully understand the cultural context of their community’s health care needs and can provide appropriate physical and emotional support to individuals and families. Up to now, there are approximately 700 000 trained volunteers throughout the country (12).
Thailand’s village health volunteers have proved effective in contributing to successes in public health activities, such as HIV prevention and control, avian flu surveillance, and oral health in children, to the extent that the World Health Organization identified the programme as a global model for community-based public health (12).

However, it is widely accepted in Thailand that information on the numbers and distribution of the health care workforce are not reliable, and urgent measures are needed to strengthen the information system. Available data indicate that the numbers of doctors, dentists, pharmacists and nurses have increased over time. The number of health personnel per 1000 population was 0.39 for physicians (2014), 2.3 for professional nurses (2014), and 2.9 for community health workers (2000) (14).

The Ministry of Public Health has restructured the primary care system by dividing the country into 13 region-based health service areas, supported by district health systems that encompass multisectoral collaboration (4). Each area is served by a multidisciplinary team led by a family medicine physician working with allied health professionals in the form of a family care team, as defined in Figure 5 (4, 9). However, the numbers of related professionals are still inaccurate, and are estimated to be inadequate. For instance, 6000 family medicine physicians are needed in the system, but it will take 10 years to produce that number (4, 9). A summary of health personnel data in Thailand is shown in Table 6.

![Figure 5. Family medical care team and its components](image)

![Table 6. Profiles of physicians, nurses, community health workers, and traditional practitioners in Thailand](table)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of physicians per 1000 population</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>0.39</td>
</tr>
<tr>
<td>2014</td>
<td>0.47</td>
</tr>
<tr>
<td>Number of nurses per 1000 population</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>1.97</td>
</tr>
<tr>
<td>2014</td>
<td>2.30</td>
</tr>
<tr>
<td>Estimated number of community health workers</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>497 037</td>
</tr>
<tr>
<td>2014</td>
<td>612 943</td>
</tr>
<tr>
<td>2015</td>
<td>679 476</td>
</tr>
<tr>
<td>2016</td>
<td>697 402</td>
</tr>
<tr>
<td>2017</td>
<td>696 018</td>
</tr>
<tr>
<td>2000 (16)</td>
<td>2.9 per 1000 population</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relative geographical distribution (number of health personnel: number of population)</th>
<th>Physicians</th>
<th>Nurses</th>
<th>Community health workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangkok</td>
<td>2014</td>
<td>1.722</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>2014</td>
<td>1:1634 to 1:4153</td>
<td></td>
</tr>
<tr>
<td>Bangkok</td>
<td>2014</td>
<td>1.203</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>2014</td>
<td>1.373 to 1.653</td>
<td></td>
</tr>
<tr>
<td>Bangkok</td>
<td>No data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>Total, 2017</td>
<td>696 018</td>
<td></td>
</tr>
</tbody>
</table>

| Proportion of informal providers and practitioners of traditional complementary and alternative medicine, out of the total health care workforce | 2016 | Approximately 10% (20 000:200 000) |

Sources: 8, 9, 15, 16.
Primary health care (PHC) under the Universal Coverage Scheme is delivered through contracting units for primary care, which have minimum staffing requirements and consist of networks of tambon health-promoting hospitals and a district or other hospital. In rural areas, where qualified staff are available only in hospitals, the health centres have to collaborate with the district hospital to constitute a contracting unit for primary care, which often consists of a network of public services in the district, so that one contracting unit is equivalent to one district. In urban settings there could be several hospitals in the same area and several doctors in health centres. Each contracting unit for primary care can comprise several health centres plus one hospital, or a group of health centres or even private clinics if they fulfil the human resources criteria. Private clinics have often formulated a contracting unit with only one PHC unit, and this contracted PHC unit is called a “warm community clinic”. In 2010, there were 937 contracting units for primary care and 11,051 contracted PHC units in the public sector, and 218 contracting units for primary care and 224 contracted PHC units in the private sector. Secondary care and tertiary care are provided by the hospitals, mainly on referral up the system (from PHC to district to provincial or regional). For the Social Health Insurance Scheme, patients must go to the registered health facility, whereas the Civil Servants Medical Benefits Scheme offers more flexible ways for the patients to get access, by electronic payment at registered point of care or non-registered health facilities with later reimbursement (4, 8, 9).

The number of outpatient contacts per person per year increased continuously from 2.0 in 2004 to 3.6 in 2010. In 2009, the figures showed that PHC services were provided through 10,347 health centres or tambon health-promoting hospitals, 17,671 clinics, 992 outpatient departments of public hospitals, and 322 outpatient departments of private hospitals. All health centres or tambon health-promoting hospitals are under the Ministry of Public Health and their main staff are junior sanitarians (two years of training) and technical nurses (two years of training). However, after the implementation of the Universal Coverage Scheme, numbers of registered nurses (four years of training) increased from 1,766 in 2006 to 10,274 in 2011, though shortages of human resources are still encountered in many areas (8).

Private pharmacies in the community have served the population at the front line as a conveniently accessible self-care system with affordable out-of-pocket expenditure, but must be operated by a registered pharmacist. Population health promotion and preventive services in Thailand are mostly provided under the Universal Coverage Scheme. In addition, the Thai Health Promotion Foundation Fund, financed by an additional surcharge on tobacco and alcohol excise tax, supports social determinants of health activities, managed by an autonomous public organization. Emergency medical services, including pre-hospital and hospital accident and emergency services, are now effectively universal and are fully financed by general taxation, with patients able to access the nearest emergency department when necessary. Pre-hospital care is divided into first response, basic life support, intermediate life support and advanced life support. Access to rehabilitation services and assistive devices has increased, but those in urban areas have much greater access than those in rural areas. Dental and oral health services are available at all levels of the public health system, though there are still regional differences in dentist availability. In Thailand, long-term care and palliative care are culturally considered as family members’ responsibility (spouse, children, and grandchildren). Higher numbers of elderly and those patients in need of long-term care without access to family-based care are an urgent issue for State and private care provision, through home-based supportive services, paid caregivers, or institutional care. More cases in need of human rights protection are noted (8, 9).
In response to emerging health problems and the major burden of disease in Thailand, the Ministry of Public Health has taken the lead in restructuring the national health system by deploying three main policies (4, 8, 9):

- **Region-based health services system.** The aims of this policy are to facilitate better sharing of related resources within each region – not only finances, but also human resources, information, medicines and technologies – and to strengthen the referral system across care levels within regions to enable more efficient services. However, results from the Bureau of the Inspector, Office of the Permanent Secretary, Ministry of Public Health, demonstrate high variability across different regions and service plans.

- **Health services development plans.** These plans, also known as service plans, comprise primary and holistic health care. Health facilities under the Ministry of Public Health use the 15 service plans as the basis for implementation of their operational plans. The goals of the service plans include care provision by the family care teams, establishment of long-term community care systems, and health promotion for the elderly, disabled and vulnerable groups.

- **District health systems.** These call for multisectoral collaboration in the community using such strategic approaches as “U-CARE” – an acronym denoting Unity district health team, Community participation, Appreciation, Resource sharing and human development, and Essential care provision. It is also believed that the district health system could be an active participatory model that can harmonize upstream and downstream processes of the health services system in Thailand.
8. Regulatory processes

Every health scheme has its own rules and regulations, adding to the complexity of the health care system in Thailand. In 2008, nearly 77% of hospitals were public, mostly owned by the Ministry of Public Health, and a few by other ministries, while 22% were private and 1% were state and local government enterprises. There were 17,671 private clinics, mostly single practice, and 17,187 private pharmacies in 2009, almost all located in urban municipalities. Each ministry and local government has its own regulation mechanisms for its own hospitals. Private health medical institutions are licensed and relicensed annually under the Sanatorium Act, 1998 (Medical Premises License Act) in line with stipulated quality and standards. The Bureau of Sanatorium and Art of Healing, Department of Health Services Support, Ministry of Public Health, is responsible for overseeing all private health care providers.

There are three public health financing schemes covering the entire population. The Social Health Insurance Scheme covers private sector employees (without dependents, except for maternity benefits); the Civil Servants Medical Benefits Scheme covers civil servants, pensioners and their dependents (including spouses, children aged under 20 years and parents); and the remaining population is covered by the Universal Coverage Scheme. All schemes have been established by specific laws.

- The Social Health Insurance Scheme is a part of the comprehensive social security system, as mandated by the Social Security Act, 1990, for non-work-related conditions; and the Workmen’s Compensation Act, 1972 (amended in 1974) for work-related injuries, disabilities and mortality. The Social Security Office of the Ministry of Labour manages the Social Health Insurance Scheme.
- The Civil Servants Medical Benefits Scheme is mandated by the Royal Decree on Medical Benefits of Civil Servants, 1980, and its major amendment in 2010. The Ministry of Finance Comptroller-General Department manages the scheme.
- The Universal Coverage Scheme is mandated by the National Health Security Act, 2002. By law, the National Health Security Office is responsible for managing the Universal Coverage Scheme.

The characteristics of the governance and management structures of the three public health insurance schemes are shown in Table 7. Note that they are public agencies and use public funds, and are all are therefore subjected to financial audit by an internal auditor and external audit by the Auditor-General.

All services, diseases and health conditions are covered by the health insurance schemes, with a few exceptions. The benefit packages differ as a result of different paces of historical evolution of these schemes.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Universal Coverage Scheme</th>
<th>Social Health Insurance Scheme</th>
<th>Civil Servants Medical Benefits Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of organization</td>
<td>Autonomous public agency</td>
<td>Social Security Office under Ministry of Labour</td>
<td>Bureau of the Comptroller-General Department of the Ministry of Finance</td>
</tr>
<tr>
<td>Governing board</td>
<td>Administrative board chaired by Minister of Public Health</td>
<td>Administrative board chaired by the Permanent Secretary of the Ministry of Labour</td>
<td>Advisory board chaired by the Permanent Secretary of the Ministry of Finance</td>
</tr>
<tr>
<td>Administrative budget</td>
<td>0.93% (2015)</td>
<td>8.11% (2015)</td>
<td>Negligible</td>
</tr>
</tbody>
</table>
8.1 Regulation and governance of providers

Each ministry and local government has its own regulation mechanisms for its own hospitals. Private health medical institutions are licensed and relicensed annually under the Sanatorium Act 1998 (Medical Premises License Act) in line with stipulated quality and standards. The Bureau of Sanatorium and Art of Healing, Department of Health Services Support, Ministry of Public Health, is responsible for overseeing all private health care providers. Historically, the Medical Premises License Act has only applied to the private sector; all public providers are exempt from licensing. At present, the Royal Thai Government is under the process of launching a new Medical Premises Act to cover both public and private sectors by putting in place a national hospital accreditation system (4, 8, 9).

8.2 Human resources planning and registration

Several agencies are involved in the planning and management of human resources for health: the Ministry of Public Health, the main employer of the health care workforce; the Ministry of Education, overseeing training institutions; the National Economic and Social Development Board, for macroeconomic policy; the Civil Service Commission, for public sector employment and postgraduate training; the Bureau of the Budget, overseeing the annual budget proposals; and the professional councils, responsible for the licensing or relicensing of professionals. All these organizations work in isolation, lacking coordination and synergies (18).

In 2006, the Ministry of Public Health led the development of the National Strategic Plan for Human Resources for Health 2007–2016 in consultation with partners. The plan was discussed in the National Health Assembly, from where a resolution was submitted and endorsed by the Cabinet in April 2007. A National Human Resources for Health Committee, comprising representatives of all relevant organizations, was established to facilitate the implementation of the National Strategic Plan. It also serves an advisory role to the Cabinet on human resources for health issues (19).

The first National Medical Education Forum was convened in 1956. Since then, the forum has been held every seven years to review progress and redirect medical education in line with country health and health system needs and the requirements of medical curriculum reforms. The forum includes medical education constituencies and the Ministry of Public Health. As most decisions by the National Medical Education Forum have concentrated on medical curriculum reform, it has tended to lose sight of the increasing proportion of specialists, despite concerns voiced by the Ministry of Public Health (8).

All training institutions, public and private, must be accredited by the Ministry of Education, while curricula are accredited by concerned professional councils before student recruitment. The numbers of training institutions and their graduates in 2009 are summarized as follows:

- **Medical doctors**: 19 medical schools (18 public, 1 private). The average annual number of medical doctor graduates between 2000 and 2009 was 1423.
- **Dentists**: 10 dental schools (9 public, 1 private). The average annual number of graduate dentists between 2000 and 2009 was 415.
- **Pharmacists**: 14 pharmacy schools (11 public, 3 private). The average annual number of graduate pharmacists between 2000 and 2009 was 1159.
- **Nurses**: 75 nursing schools (65 public, 10 private). The average annual number of graduate nurses between 2000 and 2009 was 5091.

The professional councils — Medical, Dental, Pharmacy, and Nursing and Midwifery — are responsible for their particular national licence examination, as required by all students to obtain a licence for professional practice, in order to ensure similar qualifications and professional standards regardless of their training institutions.
8.3 Regulation and governance of pharmaceuticals

The Thai Food and Drug Administration of the Ministry of Public Health is the national regulatory agency for pharmaceutical products, which, according to Thai laws, include modern and traditional medicines and biological preparations (Drug Act B.E. 2510, 1967). Regulation of psychotropic substances and narcotics with therapeutic uses is under the responsibility of the Food and Drug Administration. To undertake pre- and post-marketing control of all pharmaceuticals, the Food and Drug Administration works closely with the Department of Medical Sciences of the Ministry of Public Health, which is the national laboratory agency (4).

8.4 Entry of pharmaceuticals to the market

Market authorization is required for all pharmaceuticals, either locally manufactured or imported. Exceptions have been given to importation and production managed by public agencies, including Ministry of Public Health departments, the Government Pharmaceutical Organization, the Defence Pharmaceutical Factory and the Thai Red Cross Society (4).

Production of medicines in hospitals and freshly prepared products for individual patients are also exempt from the regulations, as stated in Drug Act B.E. 2510, 1967. However, the production of psychotropic substances and narcotics for any purposes has to follow the provisions of respective laws. It should be noted that despite the exception, the Government Pharmaceutical Organization – the Ministry of Public Health-controlled state enterprise – voluntarily follows the market authorization requirements (4).

Market approval of pharmaceutical products generally involves assessments of their safety, efficacy, effectiveness and quality. Importers or manufacturers of particular products are required to submit application for registration, together with the content of container labels and package leaflets, drug formulas (active and non-active ingredients and their amounts), and dossiers showing that the products meet legal requirements. For new drug products – that is, products containing new chemical entities, new combinations or those with new routes of administration – evidence from preclinical and clinical studies are mandatory submissions (4, 8).

Modern medicines are classified into three categories: over-the-counter drugs, dangerous drugs, and specially controlled drugs. Over-the-counter products can be distributed through any premises, without requirement for the qualifications of the sellers. Dangerous and specially controlled medicines are available only in pharmacies, clinics and hospitals, and may only be dispensed by pharmacists or medical doctors. Dispensing of specially controlled drugs requires a physician’s prescription. The sale and dispensing of traditional medicines is allowed by traditional drug stores under supervision of licensed traditional doctors or pharmacists. Advertisement of pharmaceutical products of all categories is regulated by the Food and Drug Administration. Advertising medicines requires Food and Drug Administration approval of the materials, soundtrack and related scripts. Only over-the-counter and traditional drugs can be advertised to the general public (4, 8).

8.5 Quality of medicines

Registration of all locally produced or imported medicines requires that information on their specifications, including quality standards, protocols for quality assurance and testing, be submitted to the Food and Drug Administration. Bioequivalence data are required in the case of generic drugs whose original products have obtained approval in the country since 1991. Product samples submitted with registration files are sent to the Department of Medical Sciences laboratory for testing of their quality and analysis (4).

The quality of pharmaceutical products manufactured in Thailand is ensured through the enforcement of good manufacturing practice. Compliance with good manufacturing practice standards among local drug producers is inspected...
by Food and Drug Administration officials. Regarding foreign-based manufacturers, the Thai authorities request good manufacturing practice certificates issued by national regulatory agencies in the country of origin. At the post-marketing phase, Food and Drug Administration inspectors and pharmacists in provincial health offices, in collaboration with Department of Medical Sciences scientists, monitor the quality of pharmaceutical products on the market through testing of samples from the shelves (4).

Container labels, leaflets, expiration, registration status and storage conditions are also inspected during the official visits to drugstores. Pharmacovigilance as recommended by the World Health Organization is overseen by the Food and Drug Administration as an integral part of post-marketing control of medicines. Major sources of information on adverse drug reactions are mandatory reports by all health care professionals in hospitals, clinics and pharmacies. For new drugs, the manufacturers and importers are responsible for safety monitoring and reporting for at least two years after market approval (20). The monitoring period will be extended in cases where questions arise (4).

8.6 Pricing and market access

Price regulation of pharmaceutical products is not well established in Thailand. There has been no mechanism in place to control retail and wholesale prices and margins; however, price negotiations are conducted daily at different levels, such as the Subcommittee for the Development of the National List of Essential Medicines, the National Health Security Office, which is responsible for the Universal Coverage Scheme as a strategic purchaser, and the pharmacy and therapeutic committees in individual hospitals. The Reference Pricing Scheme for drugs on the National List of Essential Medicines is promulgated by the appropriate subcommittee under the Committee for National Drug System Development (4, 8).

However, reference prices recommended by this scheme are effective only for drugs purchased by government hospitals and health programmes. The National List of Essential Medicines is referred to as the pharmaceutical benefit package by all three health insurance schemes (Civil Servants Medical Benefits Scheme, Universal Coverage Scheme and Social Health Insurance Scheme). The formulation of this list is undertaken by a subcommittee under the Committee for National Drug System Development. The drugs to be listed must have market approval by the Food and Drug Administration. The subcommittee reviews the safety, effectiveness and some elements concerning quality of the products, in comparison with drugs of the same category. Prices, health needs and burden of disease are also taken into account. Cost–effectiveness and budget impacts are analysed for expensive drugs (4).

At national level, there is no regulation regarding generic substitution. Although guidelines on this practice exist in public and private hospitals, significant variations occur across settings (21). It has been argued that the capitation payment applied by the Social Health Insurance Scheme and the Universal Coverage Scheme and its consequences for budget constraints encourages the use of generic drugs, especially in hospitals; generic substitution is de facto applied extensively for beneficiaries covered by the Social Health Insurance Scheme and the Universal Coverage Scheme (22).

8.7 Regulation of medical devices

The Medical Device Control Division of the Food and Drug Administration is responsible for regulating, controlling and monitoring the use of medical devices in Thailand. By law, a device is licensed in the market if it achieves the performance intended by the manufacturer and meets standards for personal safety. Unlike pharmaceutical products, there is no requirement for clinical efficacy evaluation from randomized control trials before market approval. The Medical Device Control Division also controls post-marketing, such as inspection of manufacturing factories and implementation of appropriate measures when unsafe medical devices are reported. According to the revised Medical Device Act B.E. 2551 (2008), the assessment of the social, economic and ethical impacts of medical devices with a cost exceeding 100 million baht (US$ 3.3 million) is
mandatory before market authorization (23). The Ministry of Public Health needs to designate health technology assessment units inside and outside the country to conduct these assessments, the costs of which shall be shouldered by the industry. There is neither a price ceiling nor a reference set for medical devices or services provided. Price is determined entirely by market demand and supply. There is no reimbursement list for medical devices. Their distribution is controlled implicitly by the suppliers.

The coverage of use of medical devices varies greatly across the three public health insurance schemes. The Civil Servants Medical Benefits Scheme covers almost all medical devices using a fixed-rate fee-for-service payment, whereas the Universal Coverage Scheme and Social Health Insurance Scheme include use of medical devices as part of their basic health care packages and support based on prepaid capitation. As a result, inequitable access to and use of expensive medical devices, for example computed tomography (CT) scans, magnetic resonance imaging (MRI) and mammography, have been noted between the beneficiaries of the three public health insurance schemes (4).

8.8 Regulation of capital investment

During the early phase of health care infrastructure development in Thailand, the National Economic and Social Development Board and the Ministry of Public Health played a pivotal role in planning for capital investment through the use of the five-year National Economic and Social Development Plan (4, 8). As a result, Thailand rapidly built up good geographical coverage of rural health care infrastructure in the 25 years between the first plan (1961–1966) and the fifth plan (1982–1986) (24). A capital investment plan was developed later based on the demand of public hospital managers, or local resources mobilized by reputable monks, with reference to criteria such as standards of hospitals at different levels. During the last two decades, the government has established specific policies to improve health care infrastructure, and these have led to a substantial increase in the capital investment budget. These policies included:

- Decade of Health Centre Development (1992–2001);

Before the implementation of the Universal Coverage Scheme in 2002, the highest proportion of the capital investment budget to the total health budget was 34.0% in 1997, and the average proportion of the capital investment budget to the total health budget during 1994–2001 was 21.16% (26).

The Universal Coverage Scheme totally changed the planning and capital budget allocation. The budget for the scheme was calculated on a per capita basis (capitation rate). Part of the capitation budget covers capital replacement or depreciation cost, calculated as 10% of the budget for ambulatory and inpatient care, and this was intentionally misinterpreted by the Bureau of the Budget as a capital investment budget and affected their capital investment plan for some years. The National Health Security Office managed this capital replacement budget by transferring part of it directly to their contracted health care providers and keeping some to manage at the central level to strengthen health care infrastructure at the PHC level and some excellent centres, such as trauma, cardiac and cancer centres, in consultation with the Ministry of Public Health. This capital replacement budget was reduced from 10% of the curative budget to 6% in 2012. The Ministry of Public Health complained that the new system operated after the establishment of the Universal Coverage Scheme substantially decreased its total capital investment budget. The Bureau of the Budget then allowed the Ministry of Public Health to request a capital investment budget directly from the government (4, 12).

Private sector investment in infrastructure is usually focused in urban provincial areas, where people have high purchasing power. The government has a policy to support private investment in poorer areas where there are inadequate health care facilities through corporate income tax incentives for eight years and import duty exemption for major medical devices (4, 22).
9. Monitoring and information systems

In 2016 a report from the Bureau of the Inspector, Office of the Permanent Secretary, Ministry of Public Health, indicated that the information system should be strengthened in order to achieve more effectiveness and efficiency of PHC services. Information on PHC implementation in nongovernmental sectors was lacking and not well organized. Additionally, some reflections from private sector representatives showed that the primary care level was not attractive from the business viewpoint due to the limited profit margins – one reason why most of the primary care services in Thailand have been the responsibility of government health care facilities. Only small to medium-sized private hospitals currently provide primary care services to their clients, whilst others mostly invest their resources in strengthening specialized care (3, 7).

Health information management has been carried out through two subsystems: population-based and facility-based. The population-based health information system includes household surveys regularly conducted by the National Statistical Office, and civil registration. The facility-based health information system includes clinical, health, and management information systems. However, clinical and health information systems are yet to be strengthened, since registries are scattered among health care facilities and linking them remains a challenge. For the information management system, facilities within the Ministry of Public Health have both 12-file and 18-file standard data as electronic databases, but using different software. Exchange of data between health care facilities is limited and can be done only for administrative data, especially claim data and some health service activities. In practice, the primary health care indicators collected at operational health facilities (tambon health-promoting hospitals) are mostly in the form of outputs with limited outcomes, and reliability is still questionable. This may be due to frequent changes in policy level and different IT systems implemented by different financing sources (including the three public health insurance schemes) (4, 9).

Recently, the Ministry of Public Health has established an online health data centre to act as a centrally located database that archives key health indicators and performance indicators to help monitor progress in the operation of all health facilities. This tends to be more uniform and synchronized than previous systems.
10. Policy considerations and ways forward

Studies by Woratanarat et al. in 2015/2016 showed that primary care services were understood differently by health professionals, academics and the general public (27). The surveys of nearly 3000 people under the Civil Servants Medical Benefits Scheme and the Social Health Insurance Scheme demonstrated that they expected primary care services to have six essential services to accommodate their needs: (a) treatment for general illnesses; (b) emergency medical services; (c) health promotion services; (d) preventive services; (e) continuous care for chronic diseases; and (f) rehabilitative services. However, it did not matter to those surveyed whether all services were provided at one place or only at traditional health facilities (8, 9, 27).

A call for innovative service models was raised in order to make PHC services more culturally appropriate, more efficient, more participative, and more widely adopted. Effective coverage should also be considered as a metric for measuring services system performance. Weaknesses in district health system and primary care cluster implementation, and in the region-based health services system, need to be closely monitored in the context of increasing concerns about health equity, calls for harmonizing benefits among different health schemes, and limited resources in the government sector. During implementation in the community, serious concerns have been raised by experts that current obstacles faced in the primary care system are related to system governance and community self-reliance rather than clinical competency issues. It is recommended that system managers at national, regional, and local levels explore how to enhance the horizontal relationship among major stakeholders and decentralize tasks and decisions to those in the community. Important policy-related topics to be explored for primary care system development are summarized in Table 8. At present, Thailand is moving toward a context-based and people-centred health system in order to improve effectiveness, efficiency, and equity for all.

Table 8. Policy-related topics for primary care system development in Thailand

<table>
<thead>
<tr>
<th>Priorities</th>
<th>Type of respondent</th>
<th>Health system level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovative models for primary care services</td>
<td>Public health experts and academicians</td>
<td>Regional and national</td>
</tr>
<tr>
<td>Governance model to ensure self-reliance and community participation for sustainability</td>
<td>Public health experts, academicians, and community</td>
<td>District, regional, and national</td>
</tr>
<tr>
<td>Effective interventions and effective coverage in each area</td>
<td>Public health experts, academicians, and community</td>
<td>District and regional</td>
</tr>
</tbody>
</table>
### Annex 1. Key informants on primary care system in Thailand

<table>
<thead>
<tr>
<th>Name and position</th>
<th>Main area of expertise</th>
<th>Main constituency represented</th>
<th>Level of health system at which active</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms Rati Sanguanrat</td>
<td>Health services system administration</td>
<td>Department of Health Services Support, Ministry of Public Health</td>
<td>District, regional and national</td>
<td>Knowledge exchange forum on primary care and noncommunicable disease service plans</td>
</tr>
<tr>
<td>Research manager</td>
<td>Health research management</td>
<td>Health Systems Research Institute</td>
<td>District, regional and national</td>
<td></td>
</tr>
<tr>
<td>Dr Pomnipol Tantrathiwut</td>
<td>Hospital administration</td>
<td>Private Hospital Association</td>
<td>Regional and national</td>
<td></td>
</tr>
<tr>
<td>Deputy Secretary-General</td>
<td>Public health</td>
<td>National Health Commission</td>
<td>District, regional and national</td>
<td></td>
</tr>
<tr>
<td>Dr Jakrit Ngowsin, Deputy Secretary-General</td>
<td>Health insurance and management</td>
<td>National Health Security Office</td>
<td>District, regional and national</td>
<td></td>
</tr>
<tr>
<td>Mr Thanapol Dokkaew, Chairman</td>
<td>Networking</td>
<td>Chronic Disease Patient Network</td>
<td>Community</td>
<td></td>
</tr>
<tr>
<td>Ms Aree Khumpitak</td>
<td>Networking</td>
<td>AIDS Access Foundation</td>
<td>Community</td>
<td></td>
</tr>
<tr>
<td>Ms Yuwadee Akaniwan</td>
<td>Social Health Insurance Fund management</td>
<td>Social Security Office</td>
<td>District, regional and national</td>
<td></td>
</tr>
<tr>
<td>Ms Worawan Arparat</td>
<td>Health promotion</td>
<td>Thai Health Foundation</td>
<td>District, regional and national</td>
<td></td>
</tr>
<tr>
<td>Dr Suphathra Sriwanichakorn, Director</td>
<td>Primary care</td>
<td>Office of Community-based Health Care Research and Development</td>
<td>District, regional and national</td>
<td>Forum on health services system development towards continuity and coordinated care</td>
</tr>
<tr>
<td>Dr Worawut Kowachirakul, Director</td>
<td>Hospital administration</td>
<td>Sansai Hospital, Chiang Mai province, Ministry of Public Health</td>
<td>District</td>
<td></td>
</tr>
<tr>
<td>Dr Aree Nisapanan, Director</td>
<td>Hospital administration</td>
<td>Satuk Hospital, Buriram province, Ministry of Public Health</td>
<td>District</td>
<td></td>
</tr>
<tr>
<td>Dr Somchart Sujaritrungsri, Director</td>
<td>Hospital administration</td>
<td>Don Pud Hospital, Saraburi province, Ministry of Public Health</td>
<td>District</td>
<td></td>
</tr>
<tr>
<td>Dr Orawan Tavetipong, Director</td>
<td>Hospital administration</td>
<td>Khao Yoi Hospital, Phetchaburi province, Ministry of Public Health</td>
<td>District</td>
<td></td>
</tr>
<tr>
<td>Dr Patara Saenchaisuriya</td>
<td>Community care</td>
<td>Faculty of Public Health, Khon Kaen University</td>
<td>District, regional and national</td>
<td>Forum on research for strengthening primary care system</td>
</tr>
<tr>
<td>Director and Research Manager</td>
<td>Health systems research</td>
<td>Health Systems Research Institute</td>
<td>District, regional and national</td>
<td></td>
</tr>
<tr>
<td>Dr Supachok Vejapunbhesaj</td>
<td>Health care administration</td>
<td>Bureau of Policy and Strategy, Ministry of Public Health</td>
<td>District, regional and national</td>
<td></td>
</tr>
<tr>
<td>Dr Komatra Chengstsiansup, Director</td>
<td>Anthropology</td>
<td>Society and Health Institute</td>
<td>District, regional and national</td>
<td></td>
</tr>
<tr>
<td>Dr Taweekiat Boonyapaisalcharoen</td>
<td>Health policy</td>
<td>National Health Commission</td>
<td>District, regional and national</td>
<td></td>
</tr>
</tbody>
</table>
References

17. Primary health care performance initiatives (http://phcperformanceinitiative.org/promising-practices/thailand).
This case study was developed by the Alliance for Health Policy and Systems Research, an international partnership hosted by the World Health Organization, as part of the Primary Health Care Systems (PRIMASYS) initiative. PRIMASYS is funded by the Bill & Melinda Gates Foundation, and aims to advance the science of primary health care in low- and middle-income countries in order to support efforts to strengthen primary health care systems and improve the implementation, effectiveness and efficiency of primary health care interventions worldwide. The PRIMASYS case studies cover key aspects of primary health care systems, including policy development and implementation, financing, integration of primary health care into comprehensive health systems, scope, quality and coverage of care, governance and organization, and monitoring and evaluation of system performance. The Alliance has developed full and abridged versions of the 20 PRIMASYS case studies. The abridged version provides an overview of the primary health care system, tailored to a primary audience of policy-makers and global health stakeholders interested in understanding the key entry points to strengthen primary health care systems. The comprehensive case study provides an in-depth assessment of the system for an audience of researchers and stakeholders who wish to gain deeper insight into the determinants and performance of primary health care systems in selected low- and middle-income countries.