WORLD BANK GROUP

THAILAND PUBLIC REVENUE AND SPENDING ASSESSMENT

PROMOTING AN INCLUSIVE AND SUSTAINABLE FUTURE

JUNE 2023

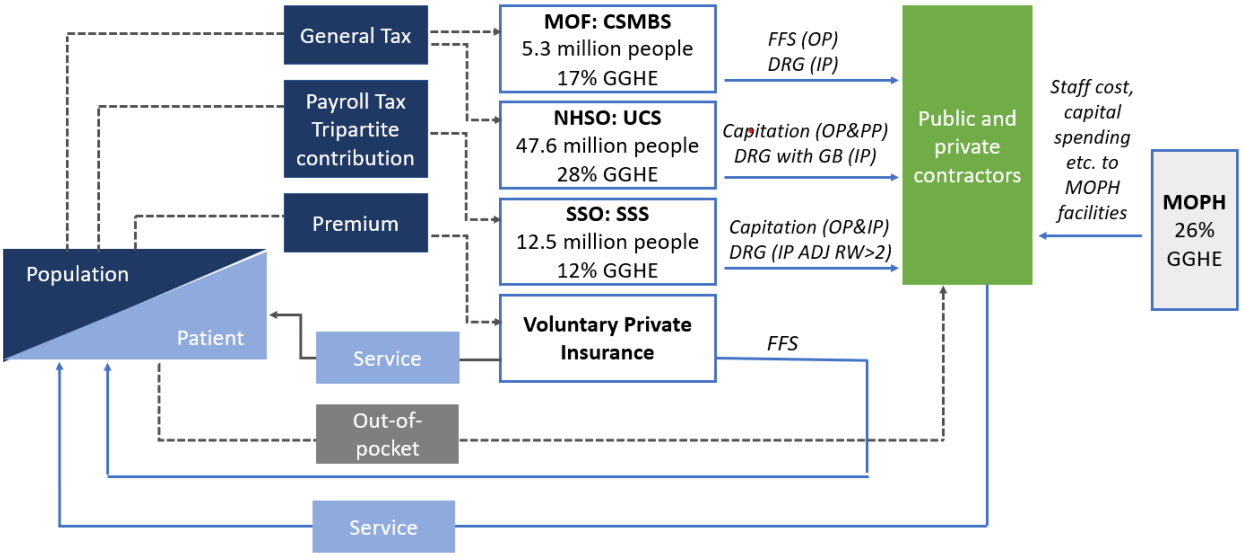
CHAPTER 4
REIMAGINING HEALTH CARE

Chapter 4: Reimagining Health Care

4.1 Introduction

156. Thailand has become internationally known for its success with universal health coverage (UHC) policy and health development. Among a total of 67 million people in 2021, 98 percent were covered by one of three public health insurance schemes (see Figure 4-1). Approximately three-quarters of the population are covered by the Universal Coverage Scheme (UCS) administered by the National Health Security Office (NHSO), and the rest by the Civil Servant Medical Benefit Scheme (CSMBS) administered by the Ministry of Finance's (MOF) Comptroller General's Department (CGD) for civil servants and their dependents, and the Social Security Scheme (SSS) administered by the Social Security Office (SSO) for private sector employees. UHC means that all people have access to the health services they need, when and where they need them, without incurring financial hardship. Two indicators have been used globally to measure progress toward UHC: (i) an indicator measuring coverage of essential health services; and (ii) an indicator measuring financial protection. In Thailand, without accounting for the impact of COVID-19, the latest UHC Service Coverage Index (SCI) of essential health services[52] was 82 percent, 5 percentage points higher than the average of Upper Middle-Income Countries (UMICs); further, only about 2 percent of people spent more than 10 percent of their household total expenditure on health care. The achievement of both UHC indicators ranked top among countries in the Southeast Asia region.[53] Overall, Thailand's health system showed strong resilience in responding to COVID-19, providing timely responses to COVID-19 and other related essential health services to all.[54] However, addressing regional disparities in access to and quality of health services remains a development challenge. *See Box 4-1 for Thailand's Health System at a Glance.*

Figure 4-1: Health Insurance Schemes in Thailand (2021)



Source: The figure is adapted from Thailand UHC & Overview of the Universal Coverage Scheme of the National Health Security Office (NHSO). The number of people enrolled in each insurance scheme is extracted from NHSO Annual Report 2021. The share of government spending on CSMBS, UCS, and SSS is extracted from Thailand National Health Account (2019).

Note: MOF = Ministry of Finance; MOPH = Ministry of Public Health; CSMBS = Civil Servant Medical Benefit Scheme; NHSO = National Health Security Office; UCS = Universal Coverage Scheme; SSO = Social Security Office; SSS = Social Security Scheme; GGHE = General Government Health Expenditure; FFS = fee-for-service; DRG = diagnosis-related group; GB = global budget; OP = outpatient; IP = inpatient; PP = prevention and promotion; ADJ RW = adjusted relative weight.

[52] UHC Service Coverage Index of essential health services is defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases, and service capacity and access among the general and the most disadvantaged population. The indicator is an index reported on a unitless scale of 0 to 100, which is computed as the geometric mean of 14 tracer indicators of health service coverage.

[53] WHO. 2021. Monitoring Progress on Universal Health Coverage and the Health-Related Sustainable Development Goals in the South-East Asia Region: 2021 Update.

[54] "UHC Increases Thailand's Health Resilience." https://eng.nhso.go.th/view/1/DescriptionNews/UHC-increases-Thailand-health-resilience/221/EN-US.

Box 4-1: Thailand's health system at a glance

Health service delivery in Thailand is highly centralized with a dominant role for the public sector. The Ministry of Public Health (MOPH) is the main provider of health services at all levels, especially in rural areas; other ministries also play some roles in health-related activities in various dimensions. Despite the Decentralization Act 1999 mandating all public health services to be gradually devolved to Local Administrative Organizations (LAOs), the progress has been slow in the past 20 years and local governments still play a very limited role in health service delivery. The public health infrastructure comprises community health centers in all subdistricts, secondary care hospitals in all districts, tertiary care facilities in all provinces, and more advanced referral hospitals in all regions. This hierarchical public service delivery system serves as the platform for successful universal health coverage (UHC) implementation.

There is a disparity between health service delivery in urban and rural areas. In rural areas, health service delivery including gatekeeping and referral[a] are enabled by the District Health Systems (DHSs) supported by one million Village Healthcare Volunteers (VHVs). A DHS consists of community health centers and a district hospital. Community health centers are the first point of contact for the population and provide primary health care and prevention and health promotion through nurses and public health workers. District hospitals provide secondary-level outpatient and inpatient care, as well as some prevention and health promotion. And provincial hospitals receive referral cases from district hospitals and offer tertiary care in all clinical specialties. However, the DHS does not exist in major cities; the majority of primary health care providers are private clinics. In Bangkok, there are only 69 public health centers, in contrast to over 6,000 private clinics. People can bypass the gatekeeping and referral system by making out-of-pocket (OOP) payments.

Financing arrangements in the health sector are complex and fragmented. At the central level, the budget is allocated across several agencies and schemes, including the Ministry of Public Health (MOPH) to finance the salaries of central civil servants and capital investment, three agencies to finance the three public health insurance schemes, as well as other ministries with health responsibilities (e.g., Ministry of Education). These agencies, in turn, use a wide range of mechanisms to channel funds to health care providers and Local Administrative Organizations (LAOs) to finance health services and other functions. In addition, at the central level, health taxes, that is, 2 percent additional surcharges from excise tax levied on tobacco and alcohol, are earmarked as the Health Promotion Fund to support all relevant sectors to carry out health promoting activities. The fund is managed by the Thai Health Foundation (ThaiHealth). At the local level, the LAOs play a limited role in financing health services.

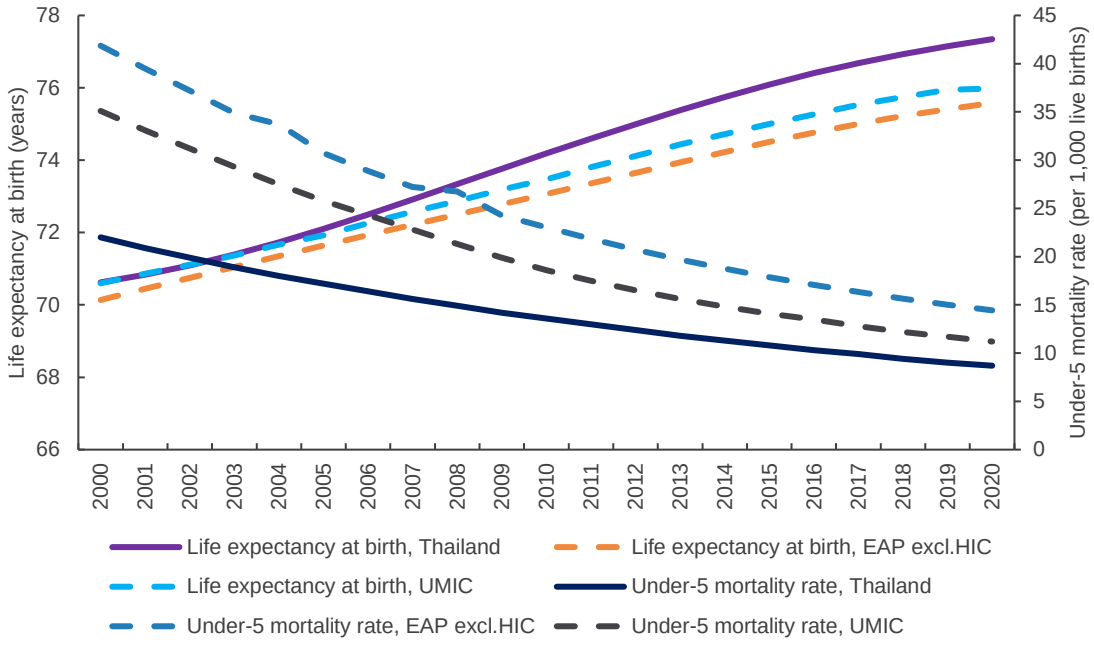
Source: World Health Organization (WHO). 2015. The Kingdom of Thailand Health System Review.

Note: a. Gatekeeping is the term used to describe the role of primary care providers in authorizing access to specialty care, hospital care, and diagnostic tests. Ideally, gatekeeping ensures that patients see specialists only for conditions that could not be managed by primary care providers and are referred to an appropriate specialist, hence saving specialists' time for more complex cases.

157. Thailand has achieved remarkable improvement in population health outcomes in recent decades, with a health system that is relatively equitable compared to other income and regional peers. Life expectancy increased to 77.2 years in 2019, up from 70.6 years in 2000. From 2000 to 2020, the infant mortality rate declined from 19 per 1,000 live births to only 7; the under-five mortality rate declined from 22 deaths per 1,000 live births to 9; the maternal mortality rate decreased from 43 per 100,000 live births to 37. In general, Thailand's key population health outcomes are higher than the average for East Asia and Pacific (EAP) countries excluding High-Income Countries (HICs) as well as UMICs (Figure 4-2).[55] These successes are anchored in (i) long-standing government policy and action toward UHC; (ii) sustained focus on primary health care (PHC) with emphasis on maternal and child health (MCH) and infectious diseases; and (iii) a health workforce with a favorable skill mix, notwithstanding persisting gaps in overall human resources for health.

[55] World Development Indicators.

Figure 4-2: Key Health Outcomes: Thailand vs East Asia and Pacific vs Upper Middle-Income Countries

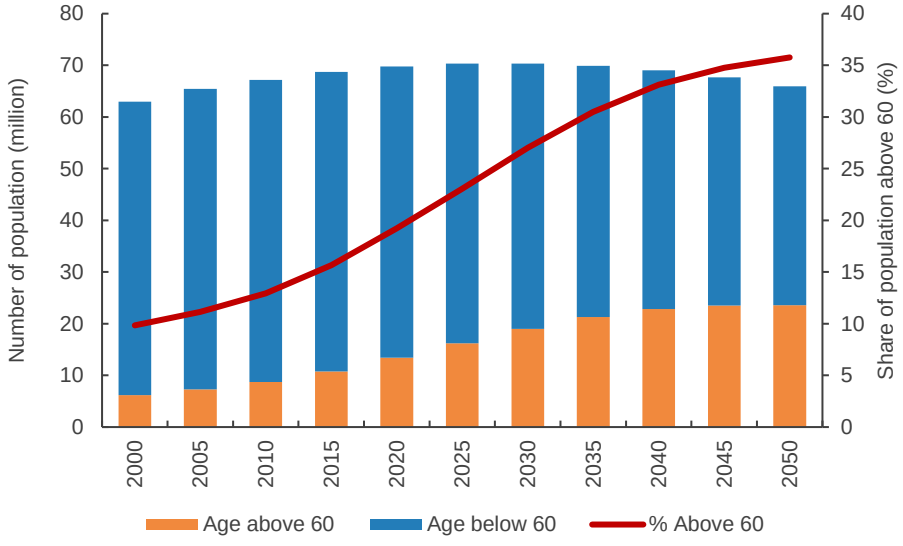


Source: World Development Indicators.

Note: UMIC = Upper Middle-Income Country; EAP = East Asia and Pacific; HIC = High-Income Country.

158. Thailand is rapidly undergoing a demographic transition, which will exert service delivery and expenditure pressures on the health system. Reductions in mortality and fertility trends have led to a rapidly aging society. The total population is expected to peak close to 2030, reaching 70 million, then turn into an accelerated downward trend, dropping to 66 million in 2050. However, the number of people aged 60 or older has been increasing monotonically and will continue on an increasing trend until 2050. As a result, the share of people aged 60 or older was about 10 percent in 2000, then doubled to 20 percent in 2020, and is projected to reach 36 percent by 2050 (Figure 4-3).[56]

Figure 4-3: Population Aging in Thailand

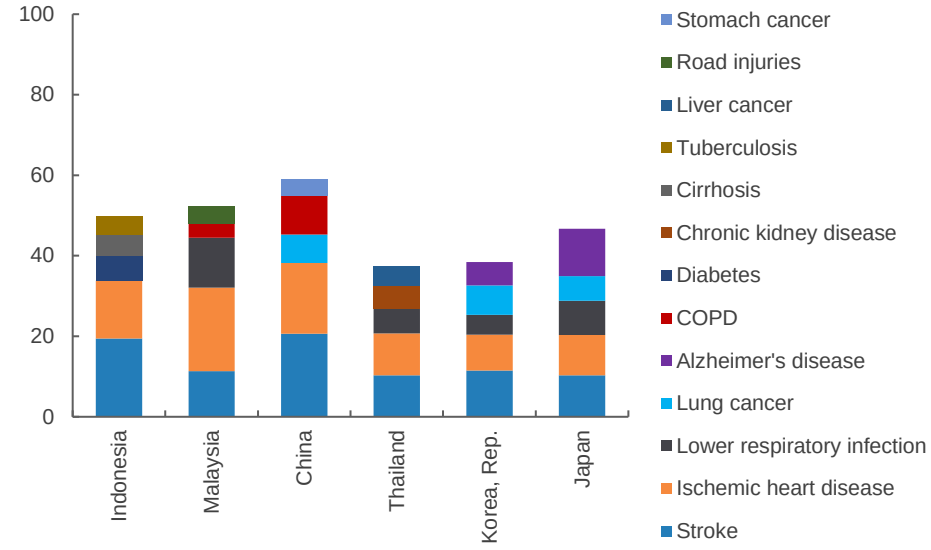


Source: World Population Prospects 2019.

[56] World Population Prospects 2019.

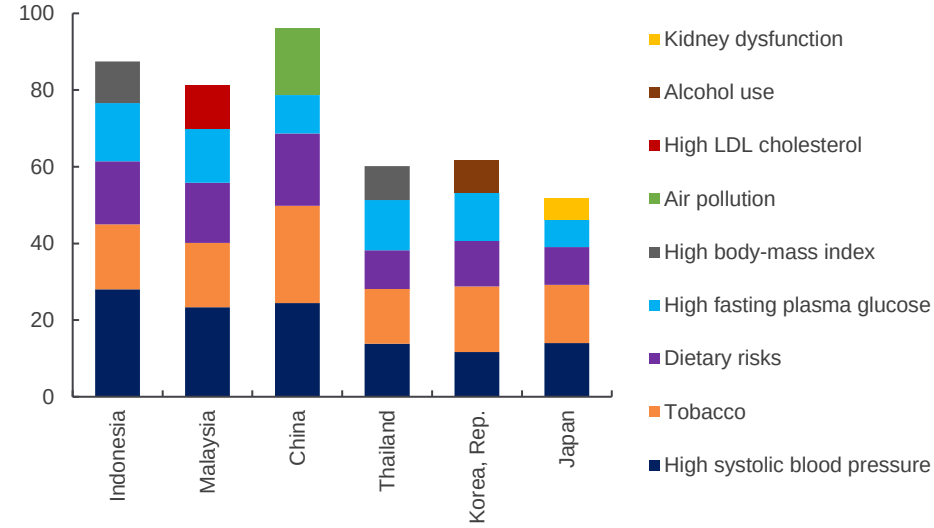
159. An evolving disease burden poses new challenges. Lifestyle, environmental, and demographic changes have resulted in a growing burden of noncommunicable diseases (NCDs), which require long-term as opposed to episodic care. In 2019, 76.3 percent of deaths were caused by NCDs, a 12.6 percentage-point increase compared to 2000. The top five causes of death were ischemic heart disease, stroke, lower respiratory infection, chronic kidney disease, and liver cancer, accounting for 37.3 percent of total deaths. Tobacco, high systolic blood pressure, high fasting plasma glucose, dietary risks, and high body mass index are prominent risk factors. See Figure 4-4 and Figure 4-5 for a comparison of the top five causes and risks of deaths among selected countries.[57] Meanwhile, Thailand is exposed to an increased risk of emerging infectious diseases and natural disasters. Some emerging infectious and reemerging diseases have already been found in Thailand, including Avian Influenza, Influenza A/H1N1 2009, Middle East Respiratory Syndrome (MERS), and Zika virus infection.[58]

Figure 4-4: Top Five Causes of Deaths, 2019



Source: IHME. Global Burden of Disease.
Note: COPD = Chronic obstructive pulmonary disease.

Figure 4-5: Top Five Risks of Deaths, 2019



Source: IHME. Global Burden of Disease.
Note: LDL = Low density lipoprotein.

[57] IHME. Global Burden of Disease.
[58] Thailand National Strategic Plan for Emerging Infectious Diseases (2017–2021). http://e-lib.ddc.moph.go.th/pdf/material_370/material_370.pdf.

160. Thailand has been making substantial efforts to address health risk factors. For instance, according to the Health Promotion Foundation Act in 2001, the Thai Health Promotion Foundation (ThaiHealth), an autonomous government agency, has been dedicated for the past 20 years to the promotion of healthy lifestyles in communities, workplaces, schools, and families with high importance placed on contributing to better health among vulnerable populations. In terms of policies and regulation, Thailand became a party to the World Health Organization (WHO) Framework Convention on Tobacco Control in 2005; and in 2017, the Tobacco Products Control Act became effective as the primary piece of legislation governing tobacco control in Thailand. Furthermore, Thailand introduced fiscal policies to promote healthy diets, such as Sugar-Sweetened Beverage Tax in 2017, as well as the tobacco tax and alcohol tax. Nevertheless, evidence showed that there still needs to be better implementation of policies. Tobacco use was persistently the number one risk factor in past decades. In 2019, 9.3 percent of total disability-adjusted life years (DALYs)[59] and 14.2 percent of total deaths could be attributed to tobacco use.[60] Smoking among Thais aged 15 years or above is on a downward trend. Yet regional differences remain, and the south of Thailand has the highest prevalence of smokers.[61]

161. As in many countries, the COVID-19 pandemic hit Thailand with a double shock—health and economic.[62] As of June 28, 2022, COVID-19 had directly caused almost 4 million deaths with estimated excess deaths of over 10 million worldwide,[63] and triggered an economic recession. Thailand is currently moving through the transition from pandemic to endemic and recovering from the economic impact of COVID-19.

162. Given constrained fiscal space and growing health spending needs, improving efficiency in health spending is key. In the short term, Thailand needs to reorient the health system towards integrated care delivery, which improves value-for-money and creates better health outcomes; in the medium term, a multisectoral approach should be further promoted to prevent NCDs by reducing major risk factors. Financing and purchasing arrangement and eHealth solutions, among many others, need to be strengthened to enable health system reorientation.

163. The overall objective of this chapter is to review the efficiency, adequacy, and outcomes of government spending on health. The chapter is organized as follows. Section 2 undertakes a rapid assessment of spending adequacy before the pandemic. Section 3 focuses on spending efficiency with a focused discussion on: (i) delivery and purchasing of NCD care, and (ii) improving efficiency and sustainability of public health insurance schemes. Section 4 provides a brief assessment of spending efficiency during the pandemic. Section 5 presents projections of health spending needs up to 2050. Section 6 summarizes recommendations.

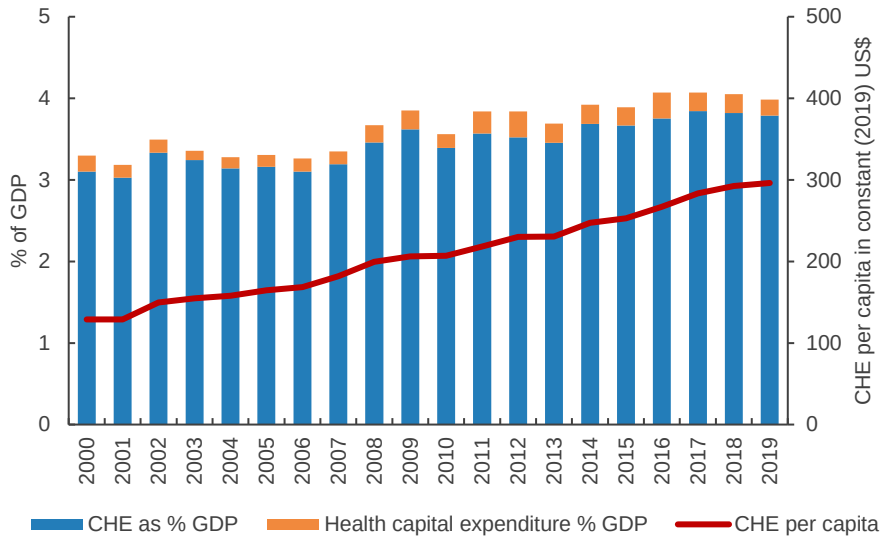
4.2 Spending adequacy before the pandemic

164. Thailand's total health expenditure (THE)[64] has been rising but is lower than that of other countries in the same income category or that of neighboring countries. Albeit with some fluctuations, there had been a slight upward trend in THE as a proportion of GDP between 2000 and 2019, ranging from 3.2 to 4.1 percent. On average, the current health expenditure (CHE) accounted for 94.1 percent of THE from 2000 to 2019; the rest was spent on capital formation. The CHE per capita in constant (2019) US$ increased from $129 in 2000 to $296 in 2019 (Figure 4-6).[65] The average annual growth rate of CHE was 4.5 percent, which was slightly higher than that of GDP (3.4 percent). Despite doubling from 2000 to 2019 in Thailand, CHE remains low relative to comparator countries. In 2019, while Thailand's CHE per capita was $296

[59] One DALY represents the loss of the equivalent of one year of full health. DALYs for a disease or health condition are the sum of the years of life lost due to premature mortality and the years lived with a disability due to prevalent cases of the disease or health condition in a population.
[60] IHME. https://www.healthdata.org/Thailand.
[61] Thai Health Project. 2021. "Health Behaviors Thai Health 2021," p. 10. Nakhon Pathom: Institute for Population and Social Research, Mahidol University.
[62] C. Kurowski. D. B. Evans, A. Tandon, P. H.-V. Eozenou, M. Schmidt, A. Irwin, J. Salcedo Cain, E. S. Pambudi, et al. 2021. "From Double Shock to Double Recovery: Implications and Options for Health Financing in the Time of COVID-19." Health, Nutrition and Population Discussion Paper. World Bank, Washington, DC.
[63] *The Economist.* https://www.economist.com/graphic-detail/coronavirus-excess-deaths-estimates.
[64] Total health expenditure consists of current health expenditure (CHE) and capital health expenditure (i.e., expenditure on capital formation). The latter accounted for approximately 0.2–0.3 percent of GDP in recent decades.
[65] WHO Global Health Expenditure Database.

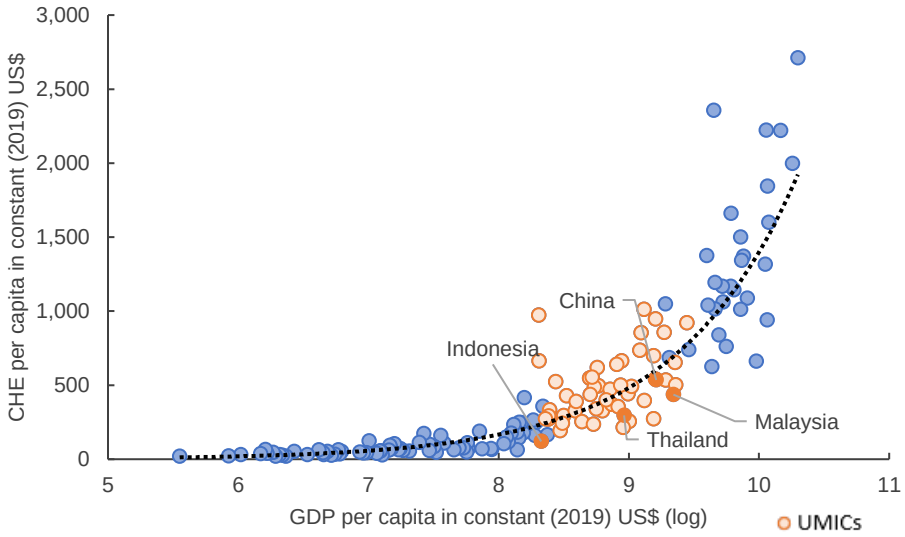
(3.8 percent of GDP), it was $414 (5.1 percent of GDP) and $555 (5.9 percent of GDP), respectively, for EAP countries excluding HICs and UMICs (Figure 4-7).

Figure 4-6: Total Health Expenditure in Thailand



Source: WHO Global Health Expenditure Database.
Note: CHE = Current health expenditure.

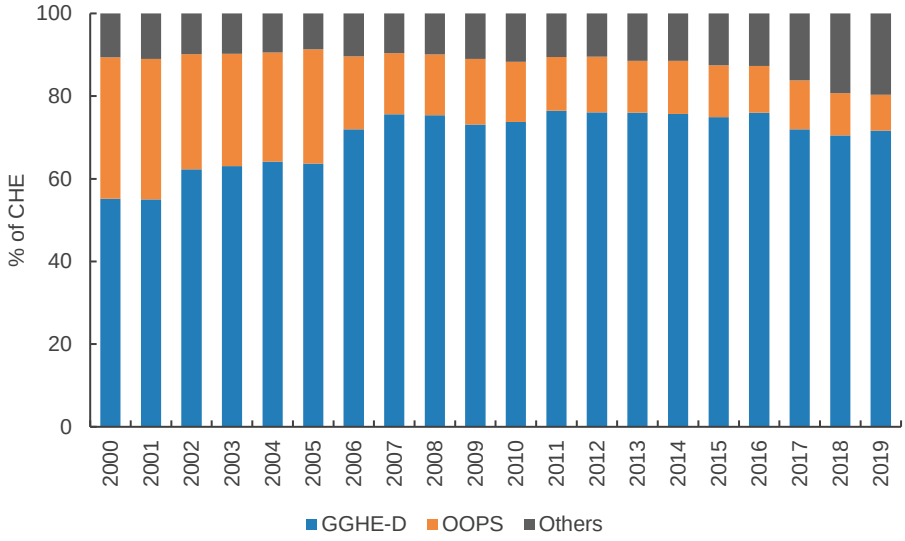
Figure 4-7: Current Health Expenditure in Upper Middle-Income Countries in 2019



Source: WHO Global Health Expenditure Database.
Note: CHE = Current health expenditure; UMICs = Upper Middle-Income Countries.

165. In Thailand, the government plays a significant role in health financing. Domestic general government health expenditure (GGHE-D) as a proportion of CHE increased from 50 percent in 2000 to 70 percent in 2006 and was maintained approximately 70–75 percent thereafter (Figure 4-8). The share of direct out-of-pocket (OOP) payments has decreased sharply, from 34 percent in 2000 to only 9 percent in 2019, which was significantly lower than for comparator countries (Figure 4-9). This is in part due to the government's high commitment to UHC.

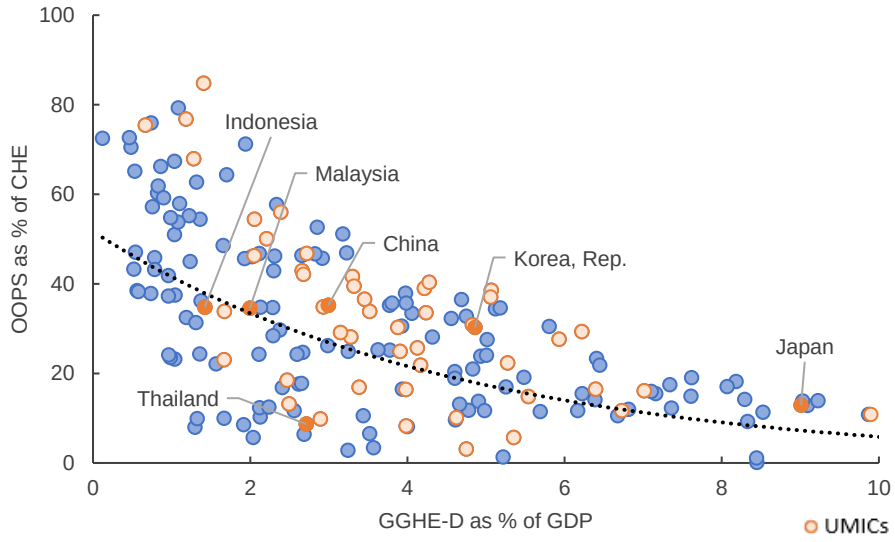
Figure 4-8: Composition of Current Health Expenditure in Thailand



Source: WHO Global Health Expenditure Database.

Note: CHE = Current health expenditure; GGHE-D = Domestic general government health expenditure; OOPS = Out-of-pocket spending.

Figure 4-9: Share of Out-of-Pocket Spending versus Government Health Expenditures



Source: WHO Global Health Expenditure Database.

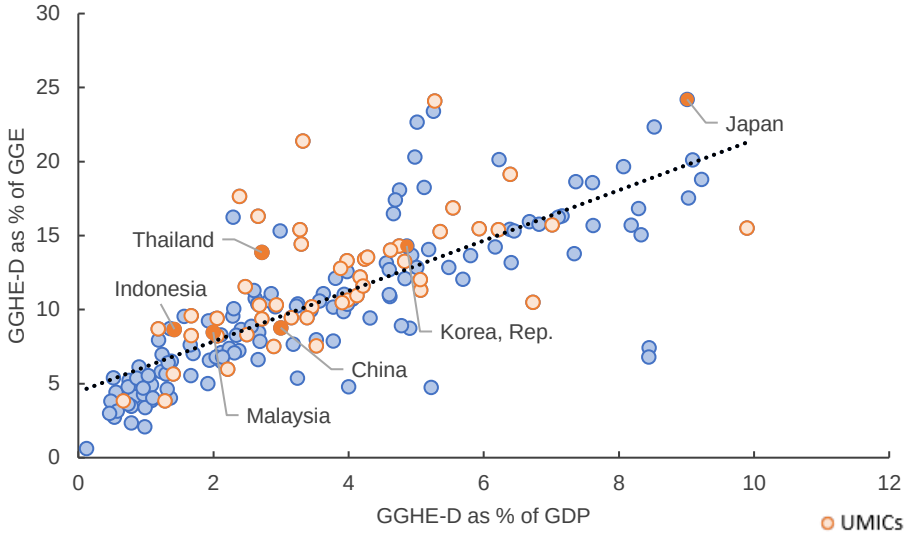
Note: OOPS = Out-of-pocket spending; CHE = Current health expenditure; GGHE-D = Domestic general government health expenditure; UMICs = Upper Middle-Income Countries.

166. The health sector has been consistently prioritized in government spending in Thailand. The GGHE-D as a share of general government expenditure (GGE) remained largely stable between 2000 to 2019, at approximately 15 percent. Nevertheless, GGHE-D as a share of GDP was relatively low compared to many other UMICs due to relatively low GGE (Figure 4-10). The GGHE-D per capita in constant (2019) US$ was tripled between 2000 and 2019, from $71 to $212. This increase in public financing for health can be broken down into contributions from overall economic growth; from changes in overall government spending as a proportion of GDP; and from changes in the prioritization of health spending in government budgets.[66] In Thailand, the real increase in public financing with an annual growth rate of 5.8 percentage points appeared to be driven mostly by economic growth (3.3 percentage points), followed by changes in overall

[66] A. Tandon, J. Cain, C. Kurowski, A. Dozol, and I. Postolovska, 2020. "From Slippery Slopes to Steep Hills: Contrasting Landscapes of Economic Growth and Public Spending for Health." *Social Science & Medicine* 259: 113171.

government spending (2.0 percentage points). The priority for health in government budgets only accounted for 0.5 percentage points (Figure 4-11). This is not surprising as the health sector already had a relatively high prioritization in the government budget in 2000.

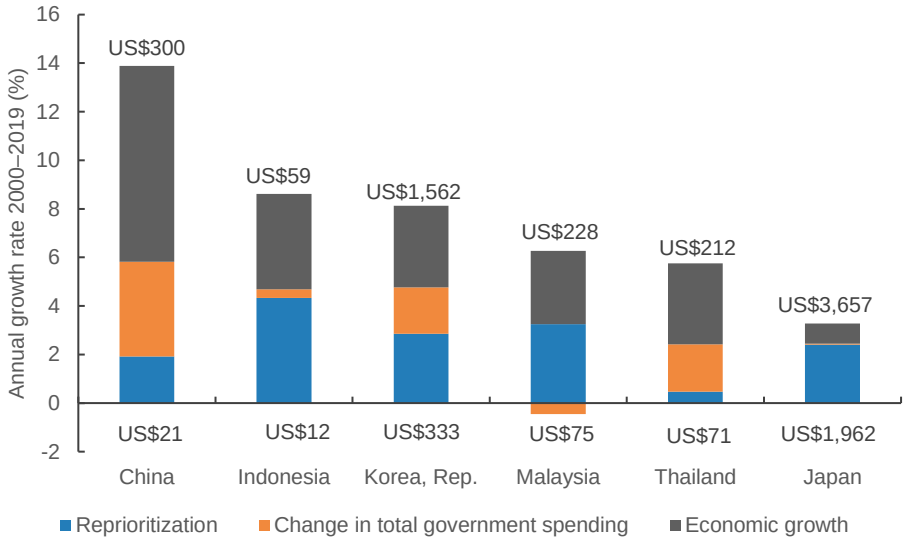
Figure 4-10: General Government Health Expenditure, 2019



Source: WHO Global Health Expenditure Database.

Note: GGHE-D = Domestic general government health expenditure; GGE = General government spending; UMICs = Upper Middle-Income Countries.

Figure 4-11: Decomposition of Growth in Domestic General Government Health Expenditure

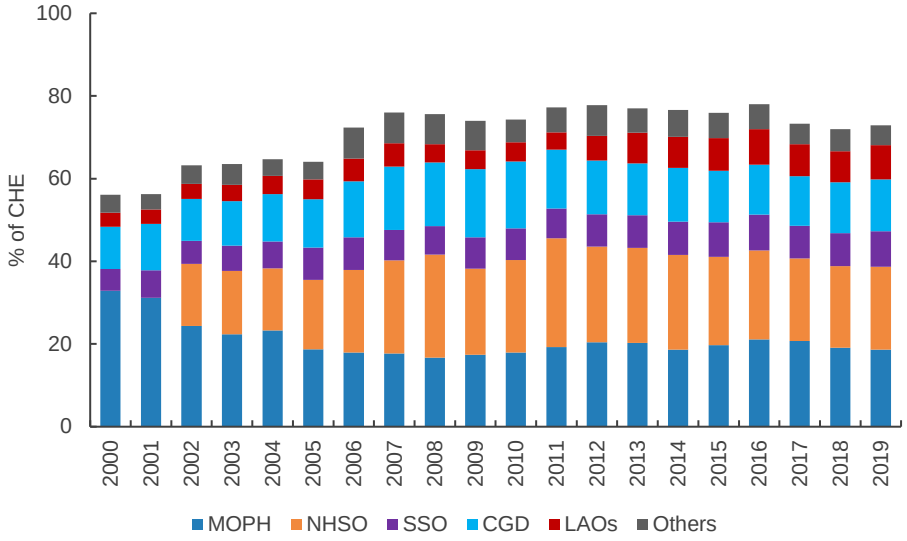


Source: Estimated by the author using WHO Global Health Expenditure Database.

167. Local Administrative Organizations (LAOs) still play a limited role in financing health services. Several government financing agents administer public health spending, including the Ministry of Public Health (MOPH), the National Health Security Office (NHSO) for UCS, the Social Security Office (SSO) for Social Security Scheme (SSS) as well as the Workmen's Compensation Fund (WCF), Comptroller General's Department (CGD) of the Ministry of Finance (MOF) for CSMBS, LAOs, state enterprises, the Public Independent Agency, and other ministries. The MOPH, together with three public health insurance schemes (UCS, SSS, and CSMBS), financed about 60 percent of CHE. Although decentralization of the health

system had been on the government agenda since 1999, the LAOs' role had not been strengthened much; the share of LAO spending as a share of CHE never went beyond 10 percent (Figure 4-12).[67]

Figure 4-12: Government Health Expenditure by Financing Agents in Thailand



Source: Thailand National Health Accounts.

Note: CHE = Current health expenditure; MOPH = Ministry of Public Health; NHSO = National Health Security Office; SSO = Social Security Office; CGD = Comptroller General's Department; LAOs = Local Administrative Organizations.

168. Overall, before the COVID-19 pandemic, government spending on health was sufficient to make good progress on UHC goals.

- The benefit packages of the three public health insurance schemes are comprehensive with zero copayment at the point of service. All three schemes cover both ambulatory and inpatient care, including accident and emergency and rehabilitation services. The prevention and health promotion for beneficiaries in all three schemes are covered by UCS. The initial benefit packages were comprehensive with an explicit negative list such as cosmetic surgeries, and services of unproven effectiveness such as stem cell treatment. The packages have been gradually expanded to cover more interventions that are subjected to rigorous Health Technology Assessment.[68]
- The prevalence of unmet health care needs was low and not due to the cost of treatment. A recent study assesses the trend, between 2011 and 2019, of prevalence and reasons for unmet health care needs and identifies population groups who had unmet needs, using the nationally representative Health and Welfare Survey. The prevalence of unmet needs remained lower than 3 percent between 2011 and 2019. The poor, the elderly, and people living in urban areas had higher unmet needs than their counterparts. Long waiting times was the main reason for unmet need, while the cost of treatment was not an issue.[69]
- Thailand achieved a high level of financial risk protection. According to the latest estimates, only 2.2 percent of people spent more than 10 percent of their household's total expenditure on health care; and approximately zero people were pushed into poverty (at $1.90 level) because of OOP health spending.[70]

[67] Thai National Health Accounts.
[68] World Health Organization (WHO). 2015. The Kingdom of Thailand Health System Review.
[69] V. Vongmongkol, S. Viriyathorn, Y. Wanwong, W. Wangbanjongkun, and V. Tangcharoensathien. 2021. "Annual Prevalence of Unmet Healthcare Need in Thailand: Evidence from National Household Surveys between 2011 and 2019." *International Journal for Equity in Health* 20 (1): 1–10.
[70] WHO. 2021. Monitoring Progress on Universal Health Coverage and the Health-Related Sustainable Development Goals in the WHO South-East Asia Region: 2021 Update.

169. Nevertheless, rising health costs for the government will continue.

- First, Thailand's aging population places new demands on the health system, not only in terms of service delivery but also with respect to cost escalation. It is well-established empirically that aging itself does not drive up health care costs.[71] Nevertheless, the combination of poor health outcomes and health systems' inability to address NCDs and control costs drives up health spending. From 2000 to 2019, Thais' life expectation at age 60 increased from 20.8 years to 23.6 years, whereas healthy life expectation at age 60 increased from 15.6 years to 18.0 years.[72] In other words, on average, people at age 60 would have 5.6 years of life in poor health in 2019 compared to that of 5.2 years in 2000, which results in increased demand for health care and associated costs.
- Second, the growing prevalence of NCDs will further burden health service delivery and result in further cost escalation. The NCD epidemic is projected to continue to grow. According to the International Diabetes Federation's latest estimate,[73] the number of diabetes patients in Thailand increased fourfold in the past 20 years, from 1.5 million in 2000 to 6.1 million in 2021, and will reach 6.7 million in 2030; among the existing 6.1 million diabetes patients, 39.7 percent were not diagnosed. This low rate of diagnosis is a major vulnerability for the Thai health system, as late diagnosis might result in patients requiring complex procedures and management, often at a much higher cost than for prevention or routine care. The cost pressure could originate from (i) screening, detection, and management; and (ii) substantial treatment and rehabilitation costs for end-stage complications such as cardiovascular disease and renal failure. Medical costs associated with treatment can be very large. Total diabetes-related health expenditure in Thailand was estimated to reach $4 billion in 2021,[74] accounting for about 0.8 percent of GDP in that year.[75]
- Finally, the introduction and expanded use of new drugs, procedures, and other medical technology also push up health spending. The benefit packages of public health insurance schemes have been gradually expanded since 2002, and there is expectation and pressure for further expansion to include some new drugs and more procedures. Technological advances in the health sector over the last several decades have been substantial but also costly; technological advance is likely to continue to drive an increase in health care costs.

4.3 Spending efficiency before the pandemic

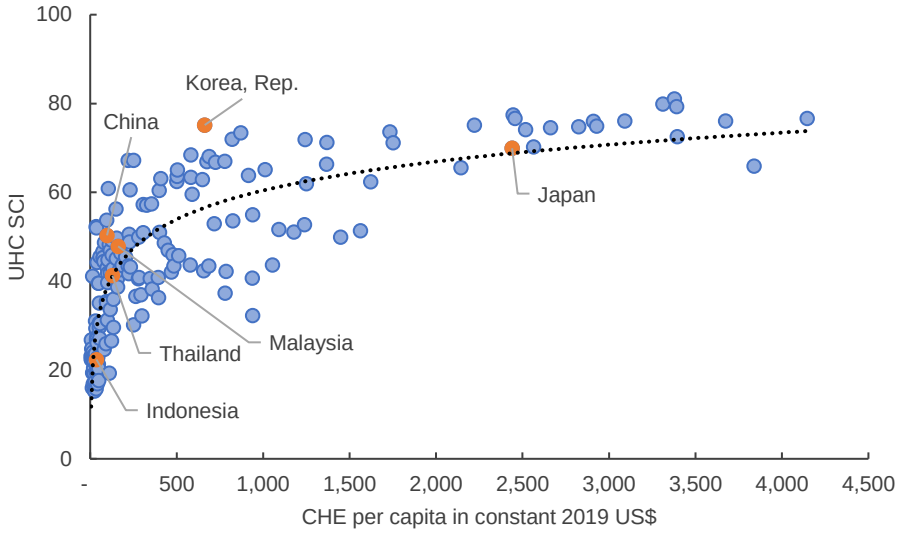
170. Overall, the Thai health system provides relatively good value-for-money. It achieved good health outcomes despite relatively low levels of THE per capita and the proportion of GDP devoted to health (about $311 per capita and 4.0 percent of GDP, respectively, in 2019). In addition to the life expectancy and maternal and child health indicators presented in the Introduction section, Thailand performed well on the UHC Service Coverage Index (SCI).[76]

171. Thailand's UHC SCI doubled between 2000 and 2009 with a relatively low increase in health spending. The UHC SCI measures coverage of essential services among the general and the most disadvantaged population using 14 tracer indicators on (i) reproductive, maternal, newborn, and child health; (ii) infectious diseases; (iii) NCDs; and (iv) service capacity and access. It increased from 41 in 2000, which was lower than that of Malaysia and China, to 83 in 2019, which surpassed these two countries and is approaching the level of Japan. While the CHE per capita of Thailand was $296 in 2019, it reached $437, $535, and $4,360, respectively, for Malaysia, China, and Japan (Figure 4-13).

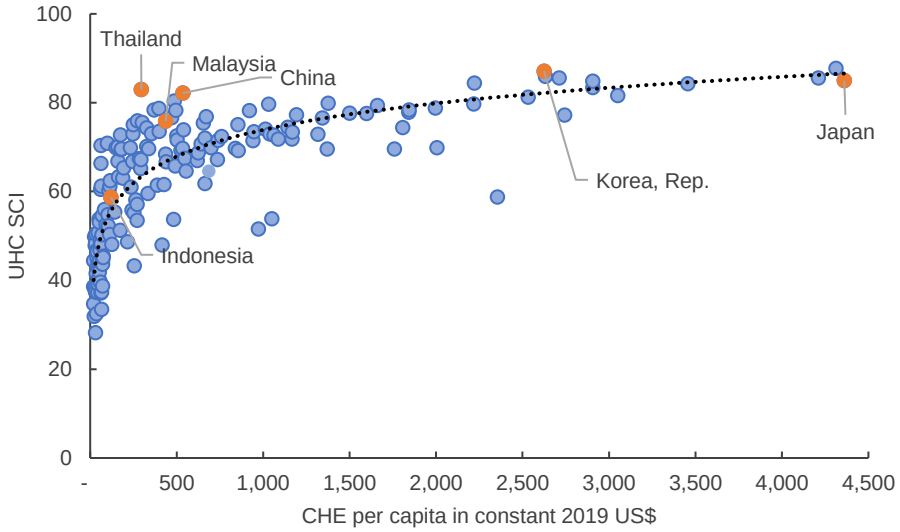
[71] Scott L. Greer, Julia Lynch, Aaron Reeves, Michelle Falkenbach, Jane Gingrich, Jonathan Cylus and Clare Bambra, eds. *Ageing and Health: The Politics of Better Policies.* Brussels: European Observatory on Health Systems and Policies. https://eurohealthobservatory.who.int/publications/m/ageing-and-health-the-politics-of-better-policies
[72] WHO Global Health Observatory.
[73] International Diabetes Federation. 2021. *Diabetes Report 2000–2045* (10th ed.). Thailand. https://diabetesatlas.org/data/en/country/196/th.html.
[74] Ibid.
[75] World Bank. https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=TH.
[76] WHO Global Health Observatory.

Figure 4-13: Universal Health Coverage Service Coverage Index, 2000 vs 2019

2000



2019



Source: WHO Global Health Observatory.

Note: UHC = Universal health coverage; CHE = Current health expenditure.

172. Nevertheless, there is potential for efficiency gains. To this end, the discussion will be focused on (i) delivery and purchasing of NCD care, and (ii) improving efficiency and sustainability of public health insurance schemes.

Delivery and purchasing of NCD care

173. NCDs not only result in health costs but also economic costs. A recent study[77] estimated that the annual cost of four main NCDs (cardiovascular disease, diabetes, cancer, and chronic obstructive pulmonary disease [COPD]) to the Thai economy was approximately 1.6 trillion baht (B), equivalent to 9.7 percent of its 2019 GDP. Within this, 9 percent (about THB 139 billion and over 20 percent of the CHE in 2019) was attributed to public spending on treatment; and the majority of the remaining 91 percent was attributed to the loss of productivity due to premature death or disability. It is evident that NCDs negatively affect socioeconomic development and long-term fiscal sustainability of the government.

[77] United Nations. 2021. "Prevention and Control of Noncommunicable Diseases in Thailand—The Case for Investment." https://thailand.un.org/en/159788-prevention-and-control-noncommunicable-diseases-thailand-case-investment

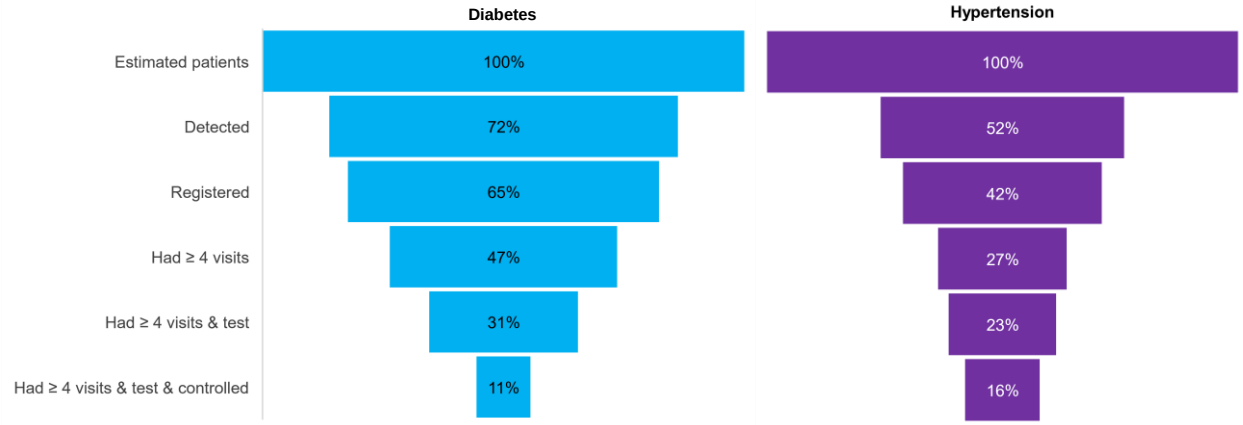
174. However, the system is not well-prepared to prevent, detect, and manage the existing burden of NCDs per the evidence below.

175. Treatment and control rates for hypertension and diabetes are relatively low. A recent cascade analysis among UCS members above 15 years indicated that gaps existed at all stages of the NCD patient journey—detection, registration in the NCD management system, regular follow-ups, and laboratory testing. The cumulative shortfall resulted in a rather low control rate, 11.3 percent and 15.9 percent, respectively, for diabetes and hypertensive patients (Figure 4-14).[78] Uncontrolled hypertension and/or diabetes increases the risk of a range of severe complications such as heart attack, heart failure, kidney disease, stroke, and cognitive decline, which impose significant health and economic costs. Some countries, such as Canada, Costa Rica, Germany, the Republic of Korea, and the United States, have implemented a set of policies and programs related to hypertension detection, treatment, and control and achieved high hypertension treatment rates (Figure 4-15).[79]

176. Improvement in the admission rate of Ambulatory Care Sensitive Conditions (ACSCs)[80] has been limited. Data from the UCS showed that from 2006 to 2021, the admission rate of ACSCs showed little reduction, and for certain conditions, it even increased (Figure 4-16). The poor performance on this indicator, the admission rate of ACSCs, indicates a need for improving service performance, quality of care, and effectiveness of NCD treatment and control in outpatient settings.

177. Progress in reducing the premature mortality rate from NCDs has been stagnating. While the premature mortality rate[81] in Thailand had been consistently lower than that of Indonesia, Malaysia, and China, it has been higher than that of Japan and Korea. Since 2013, limited progress had been made in reducing the premature mortality rate in Thailand, stagnating at about 14 percent (Figure 4-17). If this stagnating trend continues, Thailand would be at risk of not achieving Sustainable Development Goal (SDG) Target 3.4.1, which is to reduce premature mortality from NCDs by a third by 2030 relative to 2015 levels. It is worth noting that the premature mortality rate steadily dropped by over 50 percent (from 15.5 to 7.3 percentage points) in Korea between 2002 to 2019, indicating there is considerable scope to improve NCD-related health policies and service delivery in Thailand.

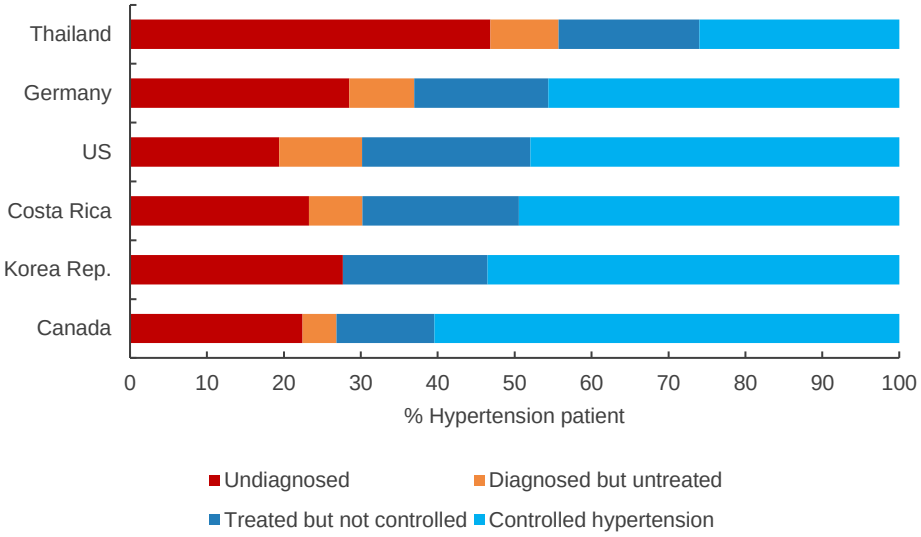
Figure 4-14: Diabetes and Hypertension Cascade Analysis among Universal Coverage Scheme Members above 15 years



Source: International Health Policy Program. 2020. "Report on the Effective Coverage Programs: Diabetes and Hypertension Services." https://ihppthaigov.net/publication/comprehensive-report-on-effective-coverage-assessment-projects-2020.

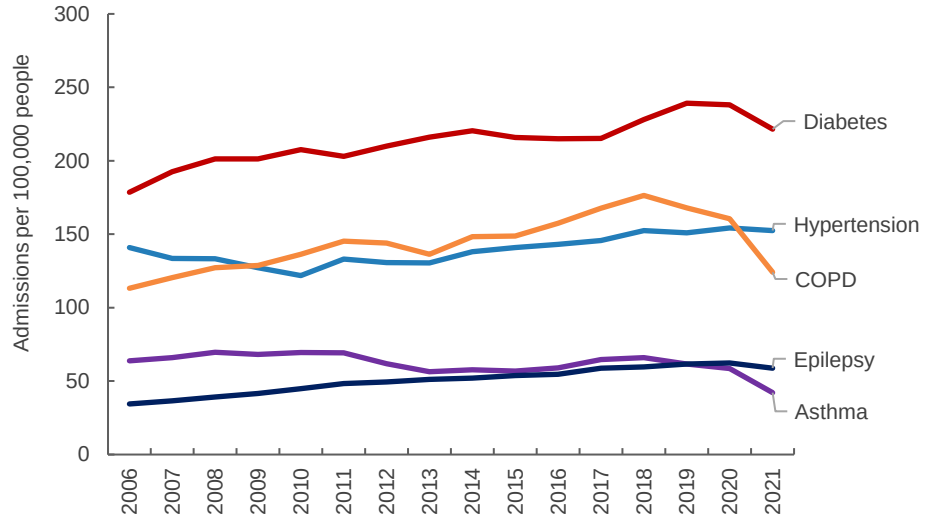
[78] International Health Policy Program. 2020. "Report on the Effective Coverage Programs: Diabetes and Hypertension Services." https://ihppthaigov.net/publication/comprehensive-report-on-effective-coverage-assessment-projects-2020.
[79] NCD Risk Factor Collaboration (NCD-RisC). 2021. "Worldwide Trends in Hypertension Prevalence and Progress in Treatment and Control from 1990 to 2019: A Pooled Analysis of 1201 Population-Representative Studies with 104 Million Participants." *The Lancet*.
[80] Ambulatory care sensitive conditions (ACSCs) are conditions where effective community care and case management can help prevent the need for hospital admission. Admissions for ACSCs are not only a sign of the poor overall quality of primary and community care but also burden the public health budget and use resources that could be better used for other health actions.
[81] Premature mortality rate is defined as probability (percent) of dying between the exact ages between 30 and 70 years from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases. Data were extracted from WHO Global Health Observatory. This is the indicator measuring achievement of SDG 3.4.1.

Figure 4-15: Hypertension Cascade Analysis among People Aged 30–79 Years Old



Source: Calculated by author using (i) data from NCD Risk Factor Collaboration (NCD-RisC). 2021 "Worldwide Trends in Hypertension Prevalence and Progress in Treatment and Control from 1990 to 2019: A Pooled Analysis of 1201 Population-Representative Studies with 104 Million Participants." The Lancet 398 (10304); and (ii) gender ratio from World Development Indicators.

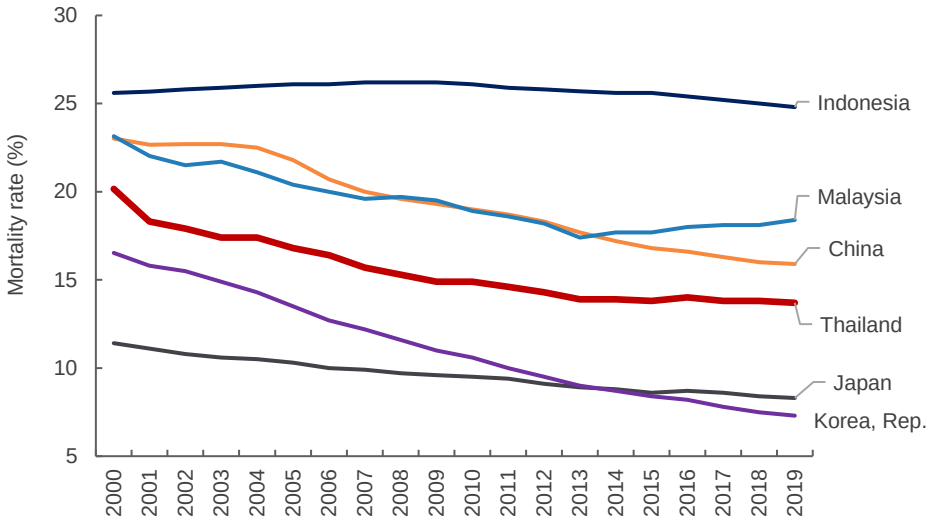
Figure 4-16: Admission Rate of Ambulatory Care Sensitive Conditions among Universal Coverage Scheme Members



Source: Thailand National Health Security Office Annual Report 2017–2021.

Note: COPD = Chronic obstructive pulmonary disease.

Figure 4-17: Premature Mortality Rate



Source: WHO Global Health Observatory.

178. The suboptimal outcomes indicate the challenges in service delivery for NCD patients. An accessible and equitable health system that integrates population-based prevention with the entire continuum of care is one of the key considerations for reducing the NCD disease burden.[82] Thailand achieved UHC more than a decade ago and is top-ranked in the UHC Service Coverage Index. Therefore, accessibility in and of itself is not an issue. The issue lies in how to translate those high levels of access to more integrated, better quality of care. Several issues are hindering the effectiveness and efficiency of service delivery.

179. First, the primary health care system in Thailand has not yet reached its full potential. Primary health care has been a cornerstone of the Thai health system for several decades, and importantly, the Primary Health System Act became effective in April 2019. Nevertheless, there is room to improve the effectiveness of primary health care in line with the evolving challenges facing the health care system. On the one hand, the bypassing of primary health care is evident, especially in urban areas. In contrast to the limitations in access to health care in rural areas, urban areas, such as Bangkok, have a rich choice of health care providers and higher demand for health care as a result of improved socioeconomic status. People can bypass primary health care through out-of-pocket payments. Besides, the high mobility of residents and lower interconnectedness of communities in urban areas has restricted the roles that the 15,000 Village Healthcare Volunteers (VHVs) in Bangkok could play in providing outreach services and follow-up. Consequently, the mechanisms for early diagnosis, appropriate and efficient referral, and long-term care (LTC) for NCDs were generally not functioning, which not only caused the inefficient use of hospital services, and a rise in health spending but also compromised health outcomes. On the other hand, primary health care reforms are still works-in-progress with various ongoing initiatives. Thailand has been exploring new models of primary health care based on multidisciplinary teams or networks of providers in recent years, such as the establishment of primary care clusters with family care teams in the community[83] and the introduction of the three-doctor policy.[84] But these new models are still to prove their worth.

180. Second, financing and purchasing mechanisms provide limited incentives for care coordination and integration across levels of care. The MOPH, NHSO, CGD of MOF, SSO, ThaiHealth, and LAOs share major financing roles for NCD prevention and treatment services in Thailand. In general, prevention services are financed by ThaiHealth, NHSO, and LAOs; treatment services are financed by three public health insurance schemes; and community-based long-term care (LTC) is financed by NHSO in some rural areas. Payments are made to service providers according to the types of care, such

[82] J. E. Bennett, V. Kontis, C. D. Mathers, M. Guillot, J. Rehm, K. Chalkidou, A. P. Kengne, et al. 2020. "NCD Countdown 2030: Pathways to Achieving Sustainable Development Goal Target 3.4." *The Lancet* 396 (10255): 918–34.
[83] World Health Organization. 2017. "Primary Health Care Systems (PRIMASYS): Case Study from Thailand." Geneva.
[84] Human Resources for Health Research and Development Office (HRDO). 2020. "The Conversation with Dr. Samrerng Yangkratoke's Push for Three-Doctor Policy." https://hrdo.org/en/the-conversation-with-dr-samrerng-yangkratokes-push-for-three-doctor-policy/.

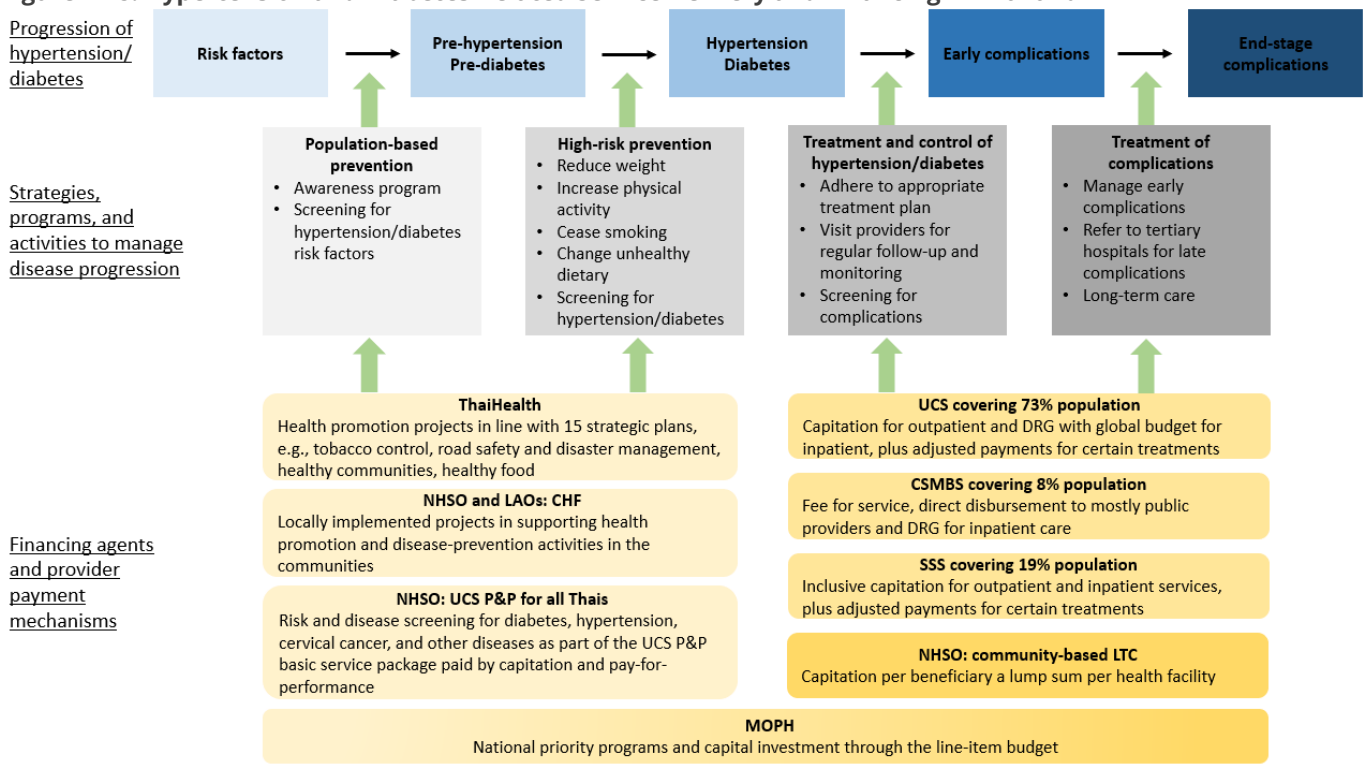
as preventive care, outpatient care, inpatient care, and LTC. The provider payment methods vary. In addition, MOPH provides line-item budgets to some national priority programs and capital investment (Figure 4-18). In general, with appropriate performance monitoring and evaluation systems in place, the existing provider payment systems encourage high-quality service provision for each type of care. However, they do little to support new care models that improve care coordination or develop services for patients with multiple morbidities who need to seek coordinated care across levels of care. Frequently, the fragmented health financing results in fragmented care, with suboptimal health outcomes.

181. Third, there is a lack of information-sharing among service providers. In general, health information systems (HISs) are in place but only function within a facility. In other words, the HISs are not interoperable across health care providers. If a patient is referred from a rural district hospital to a provincial hospital, he/she needs to carry paper-based medical records. Although many providers are equipped with advanced technology in urban areas, challenges persist in information-sharing among service providers. Several initiatives have been launched in recent years such as the "BMA Doctor" application that allows users to access their medical records at all 11 hospitals under the Medical Service Department of BMA.[85] Information challenges are even more pronounced between health care and social care services.[86] This is particularly so for patients with multiple morbidities who need to seek coordinated care across levels of health care as well as social care. It is worth noting that the MOPH has a well-articulated eHealth Strategy (2017–2026) in place. It aims to improve the safety, quality, and efficiency of patient care by enabling access to electronic health records and by supporting clinical practice, service management, research, and policy through the availability of appropriate evidence and data.[87] In addition, the Digital Health Strategy (2021-2025) was developed to provide a framework and guidelines for digital health implementation through the concept of good governance and the participation of different sectors towards empowering patients and achieving the vision of health for all.[88] Currently, Thailand is at the beginning of this complex journey to encourage the development and safe use of health data.

182. In the context of rapid urbanization and aging, innovations should be encouraged, and much more attention should be paid to improving the integration of service delivery across levels of health and social care, especially in urban areas. The bypassing of primary health care through out-of-pocket payments is one of the major barriers to care coordination and integration. Moreover, it increases the financial burden on public health insurance schemes as well as the households. Currently, roughly 50 percent of the country's 70 million population live in urban areas, which increased from 30 percent in 2000 and is projected to rise to 70 percent by 2050.[89] Meanwhile, people aged 60 or older are projected to reach 36 percent of the population by 2050, up from 20 percent in 2020. If no action is taken, urban aging would further affect the sustainability of UHC and, most importantly, hinder economic and social development in Thailand.

[85] "BMA and KBank Team Up to Launch the 'BMA Doctor,'" March 4, 2022. https://www.kasikornbank.com/en/news/pages/bma-doctor-app.aspx.
[86] Asian Development Bank (ADB). 2020. "Lessons from Thailand's National Community-Based Long-Term Care Program for Older Persons." Manila.
[87] eHealth Strategy, Ministry of Public Health (2017–2026). http://team.sko.moph.go.th/content/view/?id=307.
[88] Digital Health Strategy, Ministry of Public Health (2021-2025).
https://ict.moph.go.th/upload_file/files/263bec94c161efb9d61d3b1116dee9a4.pdf
[89] World Urbanization Prospects: The 2018 Revision.

Figure 4-18: Hypertension and Diabetes-Related Service Delivery and Financing in Thailand



Source: Author.

Note: NHSO = National Health Security Office; LAO = Local Administrative Organization; CHF = Current health financing; UCS = Universal Coverage Scheme; P&P = Prevention and promotion; DRG = Diagnosis-related group; CSMBS = Civil Servant Medical Benefit Scheme; SSS = Social Security Scheme; LTC = Long-term care; MOPH = Ministry of Public Health.

Improving efficiency and financial sustainability of public health insurance schemes

183. The achievement of UHC in Thailand through three public health insurance schemes has been remarkable and well-recognized globally. All three public health insurance schemes provide comprehensive benefit packages for different population subgroups and adequate financial risk protection. Two of the schemes (i.e., UCS and CSMBS) are financed by general taxation and one (i.e., SSS) by social health insurance with tripartite contribution from the government, the employer, and the employee (see Figure 4-1). For a country like Thailand with a large informal sector, a contributory insurance scheme for the entire population would be challenging to implement. Nevertheless, there are several opportunities to improve the efficiency of public health insurance schemes to enhance the overall financial sustainability of UHC, particularly in the context of fiscal constraints and rising health care needs in the post-COVID era.

184. First, strengthening strategic purchasing[90]arrangements, including the provider payment mechanism, can contribute to improvements in the efficiency of health spending. There were few differences in the benefit packages between UCS and CSMBS, yet health expenditure per member of UCS was only about 25 percent of CSMBS during the past decade.[91] In 2020, CSMBS spent approximately THB 14,630 per member while UCS spent THB 4,000 per member, of which, outpatient services accounted for about 70 percent.[92] One of the reasons behind this is that the beneficiaries of CSMBS are on average older than those of UCS, resulting in a higher risk profile. It was estimated that the average age of CSMBS and

[90] Purchasing is considered strategic when these allocations are linked, at least in part, to information on provider performance and the health needs of the population they serve, with the aim of realizing efficiency gains, increasing equitable distribution of resources and managing expenditure growth. Strategic purchasing is about defining: (i) What to buy: Which services will respond to the needs of the target population? How will they be defined? (ii) From whom to buy: Which providers, public and/or private, will be able to deliver effectively those services? And (iii) How to buy: How will providers be paid? At what rates? What are contracting terms, and how will compliance be monitored? For more information, see: https://www.who.int/activities/making-purchasing-more-strategic.

[91] W. Patcharanarumol, W. Panichkriangkrai, A. Sommanuttaweechai, K. Hanson, Y. Wanwong, and V. Tangcharoensathien. 2018. "Strategic Purchasing and Health System Efficiency: A Comparison of Two Financing Schemes in Thailand." *PLoS ONE* 13 (4): e0195179.

[92] CSMBS expenditure data were provided by CGD of MOF. UCS data were extracted from the *NHSO Annual Report (2021).*

UCS beneficiaries was 49 and 37 years old, respectively, in 2020.[93] Nevertheless, at least part of this difference can also be attributed to how the health providers are paid.

- The UCS relied more on strategic purchasing for health services whereas CSMBS passively reimbursed the cost of health services. Specifically, for outpatient services, UCS paid an age-adjusted capitation[94] to the district health systems that carry out gatekeeping functions; in contrast, CSMBS paid fee-for-service to health providers in a service delivery system where patients have direct access to public hospitals and specialists (see Figure 4-1). It is well documented that fee-for-service provides incentives for providers to increase the volume and intensity of service provision but no incentives to control cost. Furthermore, although both UCS and CSMBS were financed by general taxation through an annual budget allocation, UCS applied a close-end budget for cost containment whereas CSMBS had an open-end budget. While harmonizing purchasing arrangements across the three schemes is progressing, this process could be further accelerated.
- For CSMBS, a change in billing process moderately but persistently increased outpatient utilization through both visiting rates and treatment intensity. The beneficiaries previously had to pay out-of-pocket payment first and then receive their reimbursement. The current billing system allows hospitals to charge and get paid by the government directly. Although the new billing process improved operational efficiency, a study indicates that patients with lower utilization rates (conditional on illnesses) prior to this change increased their health care utilization more than those with higher utilization rates.[95]

185. Second, the multipayer and multischeme system has a significant impact on administrative costs. In Thailand, the governance, and health system and financing administration cost accounted for about 16 percent of CHE in 2019, which was much higher than for all of its peers (all of its peers' share of administrative costs were below 10 percent).[96] The multipayer and multischeme system duplicates the investment (e.g., IT system, capacity building) as well as the activities (e.g., claims processing, benefits management, purchasing and contracting), which results in an additional burden at the provider level.

186. In addition to improving the efficiency of health spending as a means of enhancing financial sustainability, more effort could be made to monitor the size and risk pooling of three schemes. Currently, about 20 percent of the population is covered by SSS, and the majority of them are the working-age population. For SSS, two-thirds of revenue were generated in the form of contributions from mandatory earmarked payroll taxes (i.e., the employee's contribution and the employer's contribution), and the rest were raised from general taxation (i.e., the government contribution). This means SSS is much less of a burden on the government's general taxation than UCS and CSMBS. Two main factors would affect the size of SSS. On the one hand, aging will raise the old-age dependency ratio, that is, increase ratios of those aged 65+ relative to those in the working-age population group of 15–64 years, which potentially puts downward pressure on the size of SSS as some people opt for UCS upon retirement. On the other hand, the growing informal sector would shift more working-age population from the formal sector to the informal sector, which also potentially puts downward pressure on the size of SSS. It is worth exploring the potential of SSS expansion, which could be viewed as an option for enhancing the financial sustainability of UHC. Nevertheless, the change in risk pooling of three schemes should be closely monitored during this process.

[93] It was estimated using data from the NHSO Annual Report Fiscal Year 2020 (Figure 17). For all the age groups except the age group 80+, the median age of each age group is used for that group (e.g., for the age group 0-4, 2 years old is used). For the age group 80+, 80 years old is used.

[94] Capitation payment is a prospective lump sum payment per enrolled patient covering a range of services.

[95] Wasi, N., Panpiemras, J., & Manachotphong, W. (2021). The Impact of a Billing System on Healthcare Utilization: Evidence from the Thai Civil Servant Medical Benefit Scheme. Oxford Bulletin of Economics and Statistics, 83(1), 228-251

[96] WHO Global Health Expenditure Database. https://apps.who.int/nha/database/Select/Indicators/en/.

4.4 Spending efficiency during the pandemic

Overall budget and spending on COVID-19 emergency response in the health sector[97]

187. As in other countries, COVID-19 has been driving a sharp increase in Thailand's health spending. Before the onset of the COVID-19 pandemic, 2.3 percent of Thailand's government annual budget, totalling THB 138,000 million, had been allocated to the health sector for fiscal year 2020.[98] An additional THB 208,000 million was allocated for the COVID-19 emergency response in the health sector from March 2020 to January 2022,[99] of which 33 percent (THB 69,000 million) was sourced from the THB 1 trillion 2020 Borrowing Act, 51 percent (THB 106,000 million) from the THB 500 billion 2021 Borrowing Act, and the rest from the government's own reserves and the transfer of nonessential budget allocations.[100]

188. The additional injection of funds was critical for the COVID-19 emergency response in the health sector. The budget for 2020 was mostly authorized to finance VHVs' outreach and surveillance in their local communities (THB 11,969 million, 6 percent).[101] Later on, vaccine procurements dominated the early 2021 budget approval (THB 77,744 million, 37 percent). The largest and final significant budget approval was recorded in late 2021 to provide COVID-19-related prevention, treatment, and vaccination services operated by NHSO (THB 82,800 million, 40 percent). The rest of the budget (THB 35,446 million, 17 percent) was approved for laboratory capacity enhancement, medical equipment and supplies, and surveillance (Table 4-1). Overall, budget execution was efficient. By October 2021, more than 95 percent of the approved budget was utilized and rapidly distributed to the relevant bureaus and departments.[102]

Table 4-1: Main Programs and Approved Budget for COVID-19 Emergency Response in the Health Sector

Year	Program	Approved budget (Unit: million baht)	Department
2020	VHV supporting funds	10,394	Health Support Services
	Medical equipment and supplies	4,504	Disease Control and Office of the Permanent Secretary
	UHC supplementary financing	3,000	NHSO
	Others	3,710	Various departments
	Subtotal	*21,608*	
2021	Vaccine procurement	77,744	Disease Control and National Vaccine Institute
	UHC supplementary financing	79,800	NHSO
	Others	28,807	Various departments
	Subtotal	*186,351*	
	Total (2020 and 2021)	**207,959**	

Source: See footnote of the paragraph above.

Note: VHV = Village Healthcare Volunteer; UHC = Universal health coverage; NHSO = National Health Security Office.

Factors affecting the efficiency of health spending for the COVID-19 emergency response

189. Various public financial management (PFM) measures facilitated an effective and accountable health sector response.[103] PFM is especially critical during public health emergencies like COVID-19, as prompt execution is paramount in financing crisis mitigation and resolution. To facilitate prompt budget execution and payment to frontline health care facilities during COVID-19, the budget execution authority was fully decentralized to budget-holder departments, as authorized by the cabinet, within their approved operation plans and legislative mandates. In terms of expenditure reporting and auditing, NHSO, as the main purchaser, utilized post payment auditing as a major mechanism to not slow down payments. Moreover, accountability was safeguarded through the enforcement of respective rules and regulations. On the provider side, the internal audit and reporting of all hospitals were mandated by the MOPH hospital

[97] The analysis covers the period from March 2020 to January 2022, and it is based on publicly available information. Thus, it might not provide a comprehensive picture of health financing for the COVID-19 response in Thailand.
[98] Parliamentary Budget Office analysis 2018–2020, published in October 2019.
[99] Parliamentary Budget Office analysis for Monitoring of Borrowing Acts, published January 2022.
[100] https://www.bbc.com/thai/52917890.
[101] https://www.hfocus.org/content/2021/12/23912.
[102] The Third/2021 Committee of the rapid utilization of government expenditure meeting, dated November 29, 2021.
[103] S. Sachdev, S. Viriyathorn, S. Chotchoungchatchai, W. Patcharanarumol, and V. Tangcharoensathien, 2022. "Thailand's COVID-19: How Public Financial Management Facilitated Effective and Accountable Health Sector Responses." *The International Journal of Health Planning and Management.*

revenue regulation; the Office of the Auditor General conducted on-site external audits of health care facilities. On the purchaser side, the NHSO was subject to internal accounting and procurement audit and external financial and operations audit by the Audit Subcommittee, appointed by the Governing Board.

190. The NHSO acted as the single budget holder and payer for most COVID-19-related prevention and vaccination services. These services include laboratory screening and testing for high-risk exposure, quarantine, vaccine deployment, treatment costs for adverse events following immunization (AEFI) as an outpatient, and AEFI compensation. The treatment cost for positive cases and AEFI are paid by individuals' public health insurance schemes. Using a single budget holder and payer ensured consistency in the benefit package design, resource allocation criteria, provider payment methods, and selection of providers. As a result, this ensured efficiency and accountability in budget execution. An important lesson from the role played by NHSO in the COVID-19 response is the importance of governments having robust institutional structures to purchase and finance health care. Thailand effectively leveraged the NHSO, which has a long-standing mandate for strategic purchasing of routine services, to deliver during an unprecedented health shock.

191. Nevertheless, regulatory hurdles potentially resulted in some delays and inefficiencies in the COVID-19 response, particularly in the procurement of medical equipment and supplies and vaccines. In 2017, a Government Procurement and Inventory Management Act was promulgated and enforced. Additional protocols, such as electronic government procurement, were established to improve transparency in the procurement process. The rigid procurement process was a way of establishing strong controls and robust spending management, which was seen as a strength before COVID-19. Nevertheless, this process caused delays in the context of a fast-evolving pandemic. Furthermore, vaccine procurement did not start until 2021, as the government procurement protocols were not in favor of Advanced Purchase Agreements, which were widely used globally as part of a strategy to provide up-front financing for COVID-19 vaccines and to accelerate their development and availability. To sum up, COVID-19 underscored the need for more agile and adaptive procurement processes to meet the unexpected surge in demand.

Innovations facilitated COVID-19 prevention and control and essential service delivery

192. Thailand effectively leveraged the Community Health Fund (CHF) to mount an effective response to the pandemic at the community level. To tackle community health problems and community health services to reach underprivileged groups, the CHF was set up with matching funding from the NHSO and local governments. It primarily aims to support health-related activities that are carried out by communities and organizations based on community needs and readiness.[104] Nevertheless, the utilization of CHF did not reach its full potential before COVID-19. By the end of fiscal year 2019, the balance brought forward reached about THB 4 billion.[105] One of the main barriers that caused the inefficient use of CHF before COVID-19 was CHF budget rules. The rules set by the NHSO are broad and open for interpretation to afford LAOs greater flexibility and encourage the efficient use of the fund. Nevertheless, fund utilization is subjected to random audits conducted by the State Audit Office, which does impose a set of strict rules. To effectively leverage the CHF for the COVID-19 response, guidelines and notifications were issued to encourage the use of CHF and streamline the rules. For instance, the National Health Security Board issued a notification[106] to enable LAOs to use the CHF to support epidemic prevention and control; and to accelerate the project approval process during the pandemic. It allows the CHF committee chairman of each LAO to directly approve health-related projects with less than THB 100,000 per project during the pandemic. Thanks to various adaption measures, the CHF was well-utilized by LAOs to support COVID-19 prevention and control. By February 2022, CHF had supported 57,108 projects with a budget of THB 2.6 billion to tackle COVID-19 and run

[104] CHF supports projects under five schemes, including Scheme 1 to support health facilities and public health agencies, Scheme 2 to support health promotion and disease prevention activities among organizations and groups of people, Scheme 3 to support centers for children or elderly or disabled, Scheme 4 to support administration and development of CHF, and Scheme 5 to support in case of epidemic or disasters.

[105] NHSO Community Health Fund Balance Report. https://obt.nhso.go.th/obt/balance_report.

[106] Announcement of the National Health Security Board on criteria to support Local Administrative Organizations' operation and management, https://dhes.moph.go.th/wp-content/uploads/2020/05/1-3_%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%81%E0%B8%B2%E0%B8%A8%E0%B8%97%E0%B9%89%E0%B8%AD%E0%B8%87%E0%B8%96%E0%B8%B4%E0%B9%88%E0%B8%99-%E0%B8%893.pdf.

health promotion and disease prevention projects at the community level.[107] *See Box 4-2 for a case study on how Phuket Municipality Used the Community Health Fund to Support COVID-19 Prevention and Control in the Community.*

Box 4-2: Phuket Municipality used the Community Health Fund to support COVID-19 prevention and control in the community

There are 533 registered Village Healthcare Volunteers (VHVs) and 20 public health workers in Phuket Municipality to provide community health services to approximately 80,000 residents. In 2019, 240 projects were financed by the Community Health Fund (CHF) with a budget of THB 22.4 million.

During COVID-19, following notification from the National Health Security Board on the use of CHF to support COVID-19 prevention and control, the Medical Department of Phuket Municipality, which is responsible for public health and CHF management, made substantial efforts in improving CHF utilization to support COVID-19 prevention and control in the community. From the onset of the COVID-19 pandemic to May 31, 2022, 945 projects were financed by CHF with a budget of THB 124.1 million. In line with one of the CHF adaptation measures, the CHF committee chairman of Phuket Municipality could directly approve health-related projects with less than THB 100,000 per project during the pandemic. Five projects were approved between 2020 to 2021 with the CHF budget of THB 246,550.

One exemplar project was to engage VHVs in preventing the spread of COVID-19 and provide a COVID-19 vaccination campaign for community residents. This project had a budget of THB 86,000 and was carried out successfully from May to September 2021. The beneficiaries were 50 VHVs and 500 residents including those from vulnerable groups. The project consisted of a range of activities such as (i) a seminar attended by VHVs to equip them with essential knowledge of COVID-19 prevention and vaccination; (ii) community engagement carried out by VHVs including COVID-19 public health campaign, registering and following up with residents for vaccination; and (iii) procuring equipment for COVID-19 prevention and control in the community. The evidence showed that 80 percent of VHVs who attended the seminar had adequate knowledge of COVID-19 prevention and the benefit of vaccination, and 80 percent of target residents registered and were vaccinated. Importantly, the project demonstrated a successful collaboration among community leaders, VHVs, and the Phuket Municipal authority.

This case study indicated the importance of introducing flexibility in the use of CHF to enable timely and context-specific responses to health emergencies without compromising on accountability. Moreover, the close collaboration among community leaders, VHVs, and Local Administrative Organizations (LAOs) provided timely and tailored public health services to the community.

Source: Case study conducted by the National Health Foundation and commissioned by the World Bank.

193. Digital transformation in health service delivery was accelerated during COVID-19, which largely facilitated the COVID-19 response and essential service delivery. In fact, MOPH had been promoting digital transformation in health service delivery a couple of years before the pandemic; nevertheless, progress was limited as neither patients nor doctors saw the necessity of digital transformation.[108] To respond to evolving health care needs, both in terms of the surge of COVID-19 cases and in maintaining essential health services, many digital health platforms were launched during COVID-19, both by government agencies as well as by private entities. For instance, MOPH launched Mor Prom mobile application for COVID-19 infection tracker, vaccine appointments, digital vaccination records, and risk communication; the NHSO in collaboration with other government departments introduced a telemedicine BKK HI/CI Care platform to monitor COVID-19 patients with mild symptoms at home and at community isolation centers; a telemedicine startup company created the mobile application Doctor Raksa, which allows patients to have online consultations and get prescription filled via an online pharmacy and delivered.[109] Importantly, the Department of Medical Services, MOPH, piloted a "New Normal of Medical Services" model that was enabled and facilitated by digital health solutions. This model not only provided people with access

[107] NHSO COVID-19 Epidemic Prevention Project Supported by Community Health Fund (excluding Bangkok Metropolitan Administration). https://datastudio.google.com/reporting/1d164c84-4e67-48bd-ab2c-44026b25e626/page/QRXYC.
[108] Thailand Today 2021, EP62: "New Normal of Medical Services Campaign: Director-General of the Department of Medical Services Dr. Somsak Akksilp." https://www.youtube.com/watch?v=lnvlSL8eVV8.
[109] "Telemedicine for Thailand—Doctor Raksa." https://www.boi.go.th/upload/content/DR.raksa.pdf.

to appropriate, quality, and timely medical services during COVID-19 but also has had profound implications for service delivery in the post-COVID era. *See Box 4-3 for A New Normal of Medical Services Model for Noncommunicable Disease Management during COVID-19.*

Box 4-3: A new normal of medical services model for non-communicable disease management during COVID-19

The New Normal of Medical Services Model. The Department of Medical Services, MOPH, introduced a "New Normal of Medical Services" model to provide people with access to appropriate, quality, and timely medical services during COVID-19. The new service delivery model includes new service delivery arrangements related to the dental room, the emergency room, the operating room, and noncommunicable disease (NCD) care. The model was first piloted in Pattani Province, and, thus, is referred to as the Pattani Model. Under this model, patients with different diseases are classified into three "traffic light" groups—green, red, and yellow—based on the need for direct medical care and risk of COVID-19 infection. Patients who do not need to visit the health care facility are supported by online consultation and drugs are delivered to them, often by Village Healthcare Volunteers (VHVs). Arrangements for patients who need to visit health care facilities are modified, taking into account the patient pathway and the need to maintain physical distancing.

The "Shared Care Plan" for NCD care. Under the Pattani Model, a series of guidelines and innovative practices were developed including a "Shared Care Plan" for hypertension and diabetes care. "Shared Care Plan" links patient care responsibilities across levels of health facilities, VHVs, and patients. With assistance from VHVs, patients are enabled to define goals and treatment plans, and to self-monitor conditions like measuring blood pressure or blood sugar levels using portable devices. Self-monitoring data are then sent to telecommunication platforms. The medical staff analyzes the data and triages patients into different groups—green, yellow, and red—according to their conditions. However, in all cases, a doctor can be consulted through various channels such as online consultation or a hotline in case of urgent problems. To promote the "shared care plan," the National Health Security Office (NHSO) introduced additional top-up payments to incentivize providers to use telemedicine and medicine delivery. The reimbursement of NCD telemedicine by the NHSO increased rapidly from 3,767 to 73,338 visits from April to September 2021.

Group	Seeing doctors face-to-face	Seeing doctors via telemedicine	VHV home visit	Drug refill without seeing doctor
Green Well-controlled	Once every other time	Y	N	Y
Yellow Moderately controlled	Once every other time	Y	Y	Y
Red Not well-controlled with serious problems	Every time	N	Y	N

Policy implications. The "New Normal of Medical Services" model is a win-win solution for patients and providers. For patients, this new service delivery model shifted away from hospital-based medical care, so they could receive care at home through telemedicine. For providers, it reduced hospital congestion and unnecessary hospital visits. As a result, not only would doctors have more time for each necessary consultation but there would also be a reduced risk of infection. From a health system perspective, the successful scale-up and implementation of the "Shared Care Plan" would improve care coordination and, consequently, health outcomes and spending efficiency.

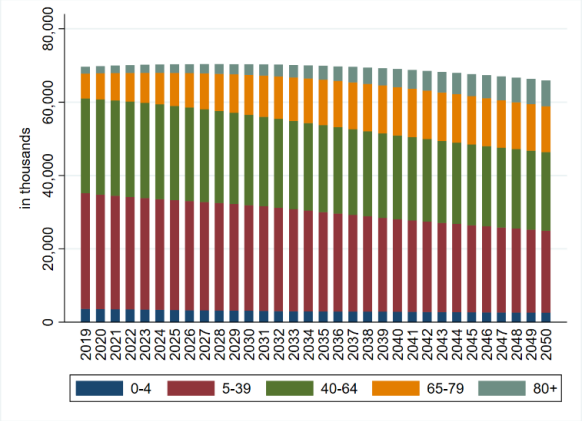
Source: Case study conducted by the National Health Foundation and commissioned by the World Bank.

4.5 Health system in the post-COVID era: Spending projections

194. To understand the likely trajectory of future health spending needs, a standard growth accounting model was applied to project health financing needs in Thailand up to 2050 using the Thailand Health and Welfare Survey (2019 and 2021) datasets. The projection was based on a series of fiscal scenarios that rely upon the decomposition of spending growth into three factors: income, demographic, and residual factors.[110,111] The income factor that resembles the variation in health spending caused by the variation in income is calculated from projections of GDP growth and income elasticity of health care demand assumptions. The demographic factor is estimated based on demographic characteristics of the population, which vary over time, and a medical cost curve by capita, age, sex, and mortality status. Lastly, the residual accounts for factors that are not explained by demographics and income, such as medical technology and innovations.[112]

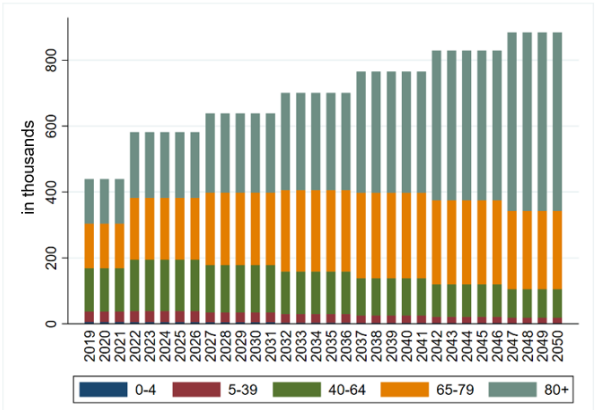
195. The population of Thailand is aging over time, with medical cost curves increasing for older populations. Figure 4-20 shows the share of the population aged 5–39 is expected to decline, while the share of the population aged 65 and above is expected to increase.[113] Figure 4-20 shows projected deaths in Thailand until 2050. The number of deaths is expected to double by 2050. Figure 4-21 and Figure 4-22 show the medical cost curve by (i) public and private financing, and (ii) survivorship and nonsurvivorship (which refers to the status of the patient after the medical care) for different age and gender groups. [114]

Figure 4-19: Population Projection, by Age Group



Source: World Population Prospects.

Figure 4-20: Mortality Projection, by Age Group



Source: World Population Prospects.

[110] C. De la Maisonneuve, and J. O. Martins. 2015. "The Future of Health and Long-Term Care Spending." *OECD Journal: Economic Studies* 2014 (1): 61–96.

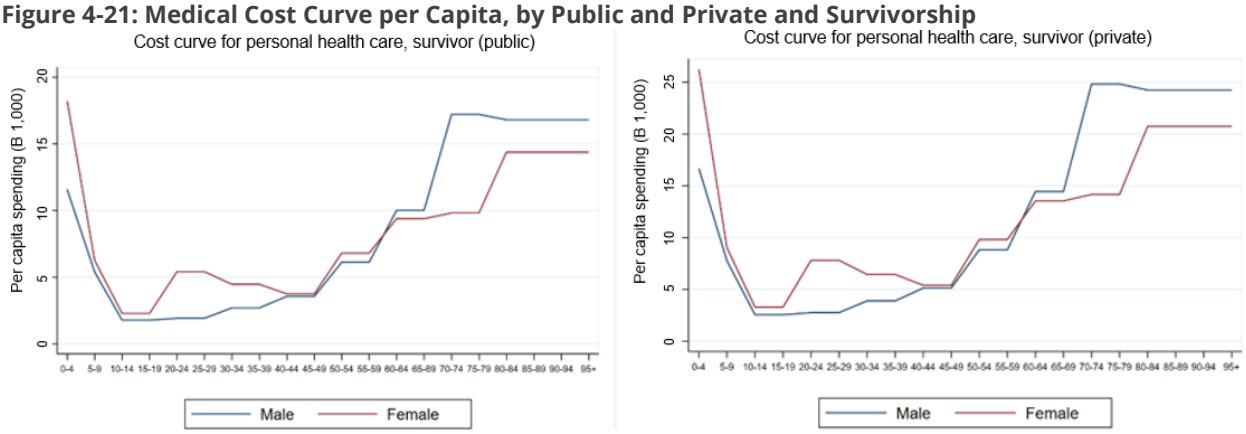
[111] R. Rocha, I. Furtado, and P. Spinola. 2021. "Financing Needs, Spending Projection, and the Future of Health in Brazil." *Health Economics* 30 (5): 1082–94.

[112] It is important to highlight that, strictly speaking, the projections should not be interpreted as projections of spending, but rather as financing needs. What will happen with spending, however, will depend on the ability of the government and society to actually respond to these needs with more resources.

[113] Population and mortality projections until 2050 disaggregated by age and sex are extracted from the United Nations World Population Prospects 2022. https://population.un.org/wpp/Download/Standard/Population/.

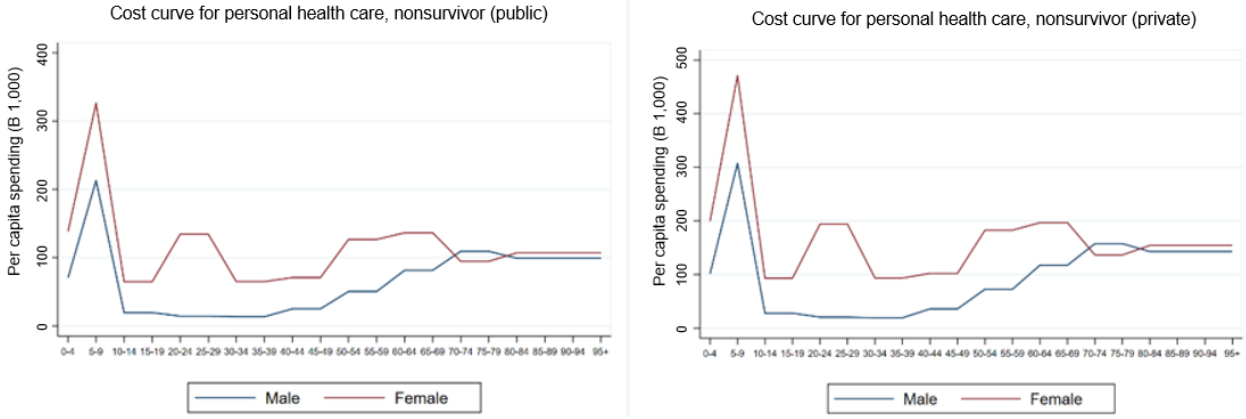
[114] The medical cost curves were calculated using the 2019 National Health Account data by applying weights from pooled Thailand National Health and Welfare Survey data (2019 and 2021). The weights were obtained by calculating the health care cost during inpatient admission, annualized outpatient visits, and use of health promotion services. The weight is the share of health care cost of a specific age-sex group to the total health care cost.

Figure 4-21: Medical Cost Curve per Capita, by Public and Private and Survivorship



Source: Estimated by the author using Thailand Health and Welfare Survey 2019 and 2021.

Figure 4-22: Medical Cost Curve per Capital, by Public and Private and Nonsurvivorship



Source: Estimated by the authors using Thailand Health and Welfare Survey 2019 and 2021.

196. Our analysis suggests that Thailand will face increased spending pressures in the health sector. Table 4-2 presents projected financing needs in Thailand until 2050. Health spending as a share of GDP increased from 3.5 percent in 2010 to 3.8 percent in 2019. Using our baseline scenario in which (i) income elasticity equals 1, (ii) GDP projections are as per the baseline scenario in Chapter 1, and (iii) the residual is set equal to zero, health financing needs as a share of GDP would grow to 4.5 percent in 2030 and 4.8 percent in 2050. This would represent an increase from the observed spending of THB 652 billion in 2019 to THB 1,741 billion by 2050 (2019 prices). In 2050, public financing would account for about 3.5 percent of GDP whereas private financing would be 1.3 percent. Demographic factors would account for about a quarter of the overall growth of total projected health financing needs. An aging population combined with relatively ineffective control of NCDs as well as certain weak cost control mechanisms in the health system is expected to exert significant pressure on health financing needs.

197. These projections must be interpreted with caution. It is important to note that these estimates do not account for possible changes in cost structure, improvement in quality, or technological changes. The literature suggests that technology has been the main driver of long-term health spending, more than income or demographics.[115] However, in the standard growth accounting model, technology is included in the residual and assumed to be zero in our projections. This implies that the actual growth in Thai health spending could be greater than that indicated by the baseline scenario. Following the literature, sensitivity analysis was carried out using ±0.75 deviation of the residual. In some cases, the

[115] A. Marino, and L. Lorenzoni. 2019. "The Impact of Technological Advancements on Health Spending: A Literature Review," Organisation for Economic Co-operation and Development (OECD) Health Working Papers, no. 113, OECD Publishing, Paris, https://doi.org/10.1787/fa3bab05-en.

projected total health financing needs as a share of GDP would exceed 5 percent.[116,117] This is not necessarily of concern from an efficiency perspective, given that investments in health systems generally provide good value for money, with their contribution to longer lives and productivity far outweighing their costs. On average, Organisation for Economic Co-operation and Development (OECD) countries spent more than 8 percent of GDP on health in the past decade; most of this spending comes from public financing.[118] Nevertheless, a larger rise in health spending would create additional pressures on overall long-term fiscal sustainability, as discussed in Chapter 1.

Table 4-2: Health Financing Needs Projection

	Income elasticity	GDP growth rate	Residual	Observed health spending as a share of GDP (in billion baht, 2019 prices)		Projected health financing needs as a share of GDP (in billion baht, 2019 prices)		
				2010	2019	2030	2040	2050
Base scenario:								
Total	1	World Bank estimates	0	3.5%	3.8% (651.9)	4.5% (958.9)	4.7% (1320.3)	4.8% (1741.0)
Public				2.5%	2.8% (475.9)	3.3% (700.0)	3.5% (963.8)	3.5% (1271.0)
Private				1.0%	1.0% (176.0)	1.2% (258.9)	1.3% (356.5)	1.3% (470.1)
Sensitivity analysis								
Residual:								
Total	1	World Bank estimates	***+0.75***	—	—	4.8% (1038.2)	5.5% (1536.7)	6.1% (2179.2)
Public						3.5% (757.9)	4.0% (1121.8)	4.4% (1590.8)
Private						1.3% (280.3)	1.5% (414.9)	1.7% (588.4)
Total			***-0.75***	—	—	4.1% (885.2)	4.1% (1133.1)	3.9% (1388.7)
Public						3.0% (646.2)	3.0% (827.1)	2.8% (1013.0)
Private						1.1% (239.0)	1.1% (305.9)	1.0% (374.9)

Source: Estimated by the author using Thailand Health and Welfare Survey 2019 and 2021.

4.6 Conclusion and recommendations

198. The Thai health system has provided relatively good value-for-money to date; nevertheless, given rising health care needs and potential public health threats, efforts must be made to reimagine health care for the future. Despite a relatively low level of spending devoted to health, Thailand achieved remarkable improvements in population health outcomes in recent decades, with a relatively equitable health system compared to its peers. This well-performing health system provided a solid foundation for an effective response to COVID-19. However, with demographic and epidemiological transitions well underway, and a growing risk of emerging infectious diseases and natural disasters, it is important to reimagine health care for the future. This is to meet society's continued expectations for better services but also to improve human capital and productivity to match the country's economic and social development status.

[116] The government uses total health spending as a share of GDP less than 5 percent as a means of measuring health financing sustainability.
[117] Using "excess cost growth" methodology, a recent World Bank report projected that public expenditure on health care would increase from 2.9 percent of GDP in 2018 to 5.5 percent of GDP in 2060. M. Bandaogo, and R. Van Doorn. 2021. "The Macroeconomic and Fiscal Impact of Aging in Thailand." Washington, DC: World Bank.
[118] OECD Health Statistics 2022.

199. The opportunity for transforming the health system has never been greater. The COVID-19 pandemic catalyzed positive change and innovations in health financing and service delivery, which should be sustained in the post-COVID era. Furthermore, it is time for the government to build on this opportunity and take strategic action with a long-term vision—to advance a highly effective, efficient, and people-centered health system that stays ahead of the curve during the demographic and epidemiological transition as well as urbanization. A few key recommendations are summarized below.

Recommendation 1: Harness digital technology to advance health system transformation to the next level

200. Sizable investment is required for a successful digital transformation in the health sector, but the returns are even greater. The COVID-19 pandemic catalyzed digital transformation in the health sector and highlighted the potential benefits of using data and digital technologies. Building capacity for such a digital transformation, that is, providing the right information to the right people at the right time, in the post-COVID era requires sizeable investment. Nevertheless, the returns could be even greater in the long term, such as reducing health system waste and improving health outcomes. It has been estimated that the direct health and economic benefits of a digital transformation across OECD health systems would approach $600 billion annually—roughly about 8 percent of OECD health expenditure. Delaying this transformation has negative impacts on both health outcomes and health budgets.[119]

201. A nationwide interoperable health information system (HIS) with electronic health records (EHR) at its core is the foundation for effectively delivering and paying for people-centered integrated care. It would enable health care providers to access comprehensive health and medical history about their patients regardless of where and when they sought care. As a result, care could be better coordinated by different providers and integrated with other services, achieving better health outcomes and less duplication and waste in health services. This is of significance for the growing number of people who have multiple comorbidities and require care across levels. Moreover, it could be a game changer for the challenges facing cities where the health care–seeking behavior is more diverse and the traditional gatekeeping and referral system is hardly functioning. Furthermore, an interoperable HIS could enable better payment models. Payment systems that encourage integration and that cover entire care pathways, better outcomes, and efficiency have been discussed for some time, such as additional payments, bundled payments, and population-based payments.[120] The success and sustainability of these non-traditional payment models heavily relies on an information system with the capacity to integrate data on inputs, outputs, processes, and outcomes.

202. Such a digital transformation requires strong political commitment and leadership. Institutional and organizational bottlenecks are the main barriers to a successful digital transformation in the health sector. To this end, the most crucial role of the government is to build an enabling policy environment and ecosystem where both public and private sectors could be engaged collaboratively and seamlessly in line with their comparative advantages and toward the same objective. It is worth noting that some progress has been made to this end recently. The Office of the Prime Minister issued the appointment of the National Digital Health Commission in 2022, which is chaired by the designated Deputy Prime Minister, and co-deputy chaired by the Minister of Public Health and the Minister of Digital Economy and Society. The Commission consists of members from key stakeholders including relevant government agencies, professional organizations, academic institutes, and experts. Current government priorities include building institutional and operational capacity; formulating or modernizing relevant governance frameworks, especially in terms of the governance of health data; and reshaping fundamental policy settings, processes, and workflows such as reorienting service delivery and health financing models.

203. Investing and empowering people is indispensable for advancing health system transformation. The government should take the lead in investing and empowering people. On the one hand, this includes not only investing in the digital capacity of the health workforce but also shifting their mindset from traditional health service delivery to digitally enabled, people-centered integrated care. On the other hand, it also includes investing in the digital health literacy of the

[119] OECD. 2019. "Health in the 21st Century: Putting Data to Work for Stronger Health Systems." *OECD Health Policy Studies.* Paris: OECD Publishing. https://www.oecd-ilibrary.org/social-issues-migration-health/health-in-the-21st-century_e3b23f8e-en.
[120] OECD. 2016."Better Ways to Pay for Health Care." *OECD Health Policy Studies.* Paris: OECD Publishing, Paris. https://www.oecd.org/publications/better-ways-to-pay-for-health-care-978926425 8211-en.htm.

public, especially those living in less developed areas, and empowering them to use their own medical information, take greater control of their health, and proactively communicating with their health care team.

Recommendation 2: Reduce fragmentation to better meet health system objectives

204. Thailand needs a stronger and more coherent policy response to deliver and pay for people-centered integrated care for the entire population. To respond to both the chronic care needs of an aging population and support any future health emergency or health security threats such as COVID-19, Thailand should aim to build an integrated service delivery system, including LTC. Such an integrated service delivery system should be accessible to and the first choice for everyone regardless of the insurance status or place of residence. The diverse health care–seeking behavior in urban areas should be considered and addressed in the design. In addition, innovative payment models should be explored to ensure the functioning of an integrated service delivery system and meet health system objectives, such as bundled payments. Bundling payments for several activities into one single payment for chronic conditions is increasingly seen as optimal. The payment rate is calculated based on information from clinical guidelines to reflect activities covered in the care pathway. There is strong empirical evidence that this type of provider payment method controls the cost and improves quality of care, irrespective of country, medical procedure, condition, or applied research methodology. It is worth noting that payment and delivery of people-centered integrated care for the entire population requires a nationwide interoperable HIS with EHR at its core. In other words, it is to be enabled by a successful digital transformation in the health sector.

205. Purchasing arrangements and mechanisms for health services across three public health insurance schemes could be harmonized. Given the substantial expertise required to implement the strategic purchasing of health services, the management of CSMBS could be entrusted to an agency that has demonstrated expertise in this area. Taking a step further, the management of all three public health insurance schemes could be entrusted to one agency, which will not only ensure progress in harmonizing the purchasing mechanisms of health services but also improve operational efficiency. In terms of purchasing mechanisms, given that fee-for-service with open-end budget results in inefficiency in service delivery and cost escalation, reforms should be explored to address these issues. To this end, three reforms in CSMBS may make a difference: (i) require beneficiaries to select and register with a contractor provider; subsequently, (ii) change the payment for outpatient services from retrospective fee-for-service to prospective risk-adjusted capitation payment; and (iii) change the budget from open-end to close-end.

Recommendation 3: Realign the roles and responsibilities of various stakeholders toward promoting population health

206. The COVID-19 pandemic gave new impetus to the overdue decentralization of the health system in Thailand. However, the risks and unintended consequences should be mitigated to the best possible extent. Thailand has a highly centralized and dominant public health system, and its efforts at decentralization has been limited during the past two decades. It was announced in October 2021 that over 3,300 subdistrict health promotion hospitals with about 22,000 personnel would be transferred to Provincial Administrative Organizations (PAOs) in October 2022.[121] This would be the first time that the facilities were transferred to PAOs; in the past, decentralized facilities were transferred to Subdistrict Administrative Organizations (SAOs). Decentralization in the health sector presents both opportunities and risks. Therefore, there is an urgent need to establish more clearly the roles and responsibilities of different stakeholders and to establish mechanisms of central oversight and accountability to mitigate the risks associated with further decentralization.

207. A multisectoral approach should be further promoted to prevent NCDs by reducing major risk factors, promoting healthy lifestyles and supporting evidence-based policy making. Many of the social, environmental, and economic determinants of health have origins that extend beyond the health sector and health policies. Therefore, it is important that the impact on health be considered across sectors and at all levels of governance. The successful implementation of NCD prevention, addressing major risk factors and promoting healthy lifestyles requires effective intersectoral action for health across the sectors, and across ministries, academia, nonprofit organizations, business owners and the public. The underlying determinants of NCDs are complex, addressing them not only requires government leadership and implementation capacities but must also be guided by evidence, especially health behavior science and rigorous impact evaluation. Special emphasis needs to be placed on exploring innovations for behavioral change towards

[121] "Transferring Tambon Health Promotion Hospital to LAOs for Connecting Public Health System, Referral, and Treatment (in Thai)," February 11, 2022. https://www.hfocus.org/content/2022/02/24444.

healthy lifestyles, building a functioning monitoring and evaluation and impact evaluation system, building ownership and capacity among various stakeholders to improve their policy performance and policy outcomes, and building effective communication and dissemination mechanisms to share information with stakeholders and the public.[122]

Recommendation 4: Monitor and address inequities to ensure no one is left behind

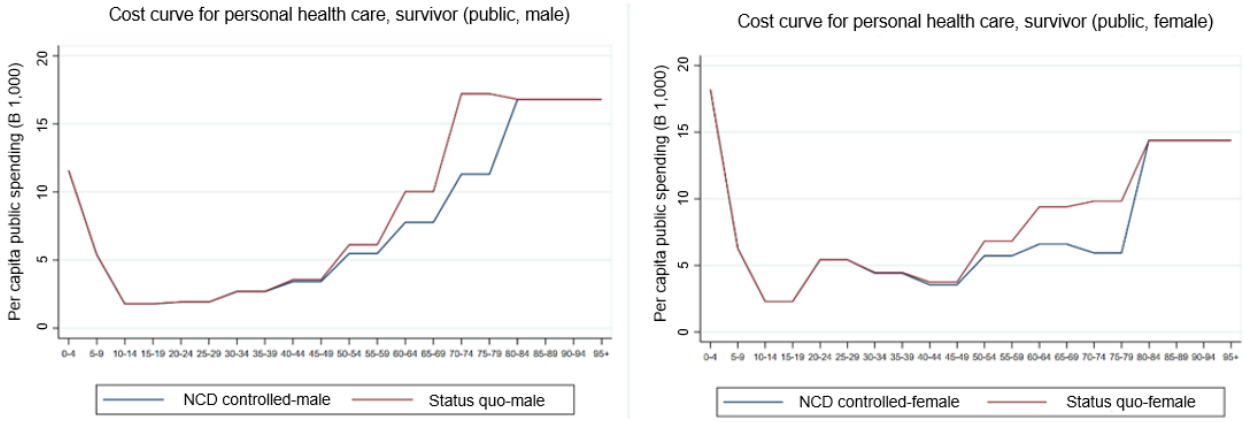
208. Some reforms and innovations may improve overall health system efficiency but have unintended consequences on equity, which should be monitored and course-corrected along the way. As one of the key health system objectives, equity should be actively managed in policy making and implementation. For instance, investing in digital technology could potentially improve health system performance; nevertheless, it may also reinforce and exacerbate existing health inequities since digital transformation may favor the already more well off while others are left behind. Decentralization of the health system may also result in equity concerns given the disparities in the technical and financial capacity of LAOs, which in turn, may cause inequities in health outcomes. Digital transformation in the health sector will bring in more reliable data in a systematic way, which should be utilized for evidence-based policy making toward a stronger and more equitable health system.

Potential fiscal impacts of implementing these recommendations

209. One of the expected outcomes of building an integrated service delivery system is to effectively respond to chronic care needs of an aging population, resulting in better management and control of NCDs. Figure 4-23 shows the cost curve for patients with diabetes, hypertension, and/or hypercholesterolemia who had received (i) hypertension and/or diabetes screening, and (ii) health education and promotion during outpatient visits to public health providers, versus those who had not. It was estimated that the health financing needs in the public sector as a share of GDP could decrease by about 0.3 percentage points by 2030 (from 3.3 percent to 3.0 percent) if better screening and health promotion mechanisms were put in place.[123]

210. Improvements in the purchasing mechanisms of public health insurances could result in significantly reduced costs. As noted above, there is potential to reform the CSMBS so that (i) the provider payment for outpatient services changes from retrospective fee-for-service to a prospective capitation payment; and (ii) the budget changes from open-end to close-end. In 2020, CSMBS spent approximately THB 14,630 per member while the more efficient UCS spent THB 4,000 per member, even though the benefit packages are largely similar. Taking the higher risk profile of CSMBS into account, if CSMBS reforms cut this difference by even half, it could result in a reduction of health sector costs of about 0.2 percentage points of GDP.

Figure 4-23: Medical Cost Curve per Capita (Public Only), Disaggregated by Noncommunicable Disease Care



Source: Estimated by the authors using Thailand Health and Welfare Survey 2019 and 2021.

[122] Sutayut Osornprasop, SirinyaPhulkerd, and Sueppong Gowachirapant. 2018. "Lessons Learned from Thailand's Obesity Prevention and Control Policies (English)." Washington, DC: World Bank Group. http://documents.worldbank.org/curated/en/397481548340562764/Lessons-Learned-from-Thailands-Obesity-Prevention-and-Control-Policies.

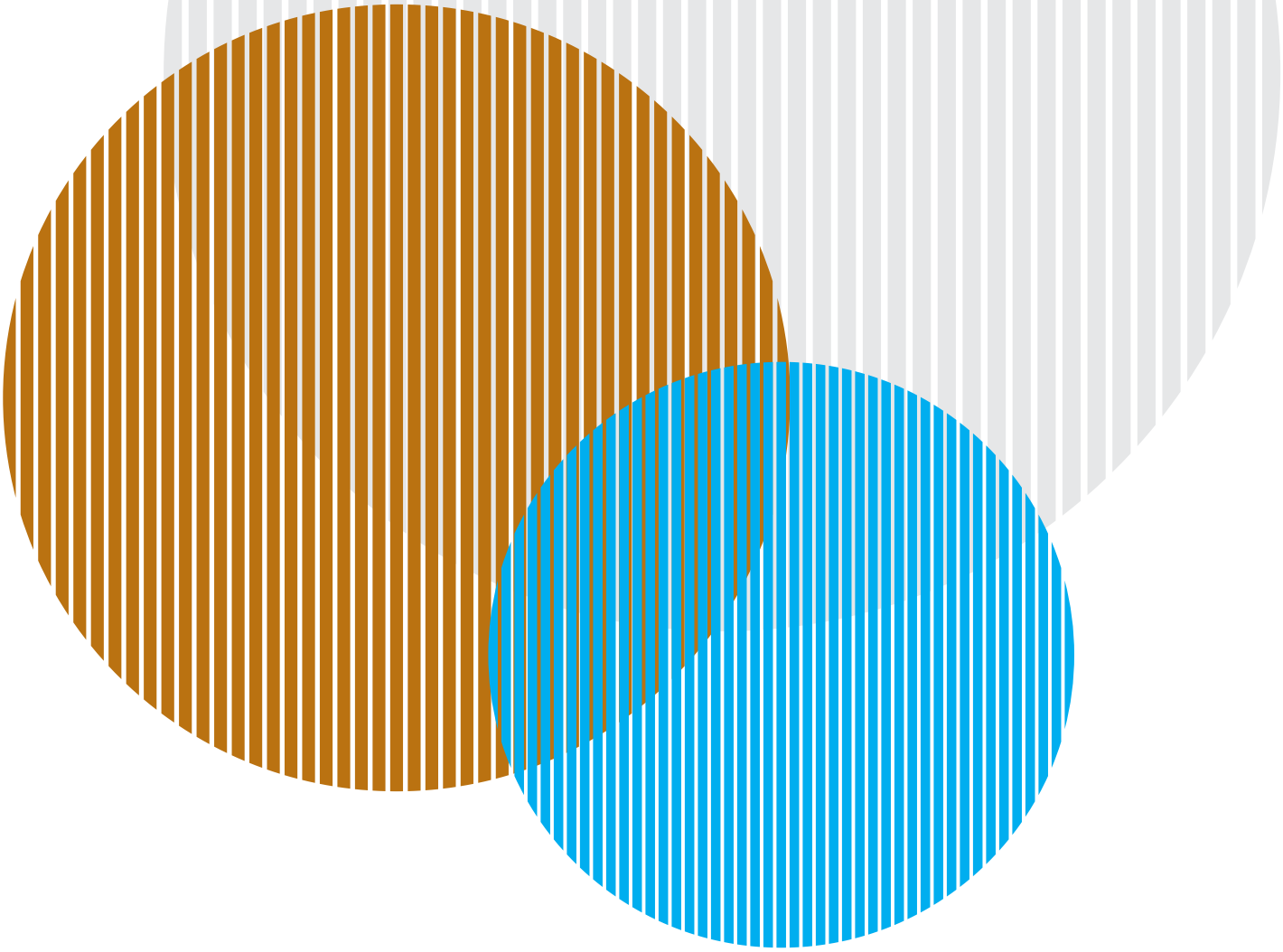
[123] The estimation follows the same methodology as the projection of health financing needs.

Table 4-3: Public Financing Needs under Different reform scenarios

	Observed health spending as a share of GDP (in billion baht, 2019 prices)	Projected financing needs as a share of GDP (in billion baht, 2019 prices)		
	2019	2030	2040	2050
Base scenario only				
Public spending (status quo)	2.8% (475.9)	3.3% (700.0)	3.5% (963.8)	3.5% (1271.0)
Public spending with better NCD care		3.0% (635.6)	3.1% (876.5)	3.2% (1156.0)
Public spending with better NCD care and CSMBS reforms		2.8% (593.2)	2.9% (820.0)	3.0% (1083.8)

Source: Estimated by the author using Thailand Health and Welfare Survey 2019 and 2021.

Note: NCD = Noncommunicable disease; CSMBS = Civil Servant Medical Benefit Scheme.



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