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Sustainability and Resilience in the Malaysian Health System

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Abbreviations



AMO	Assistant medical officer
AMR	Antimicrobial resistance
ASEAN	Association of Southeast Asian Nations
CAPRI	Center for Asia-Pacific Resilience and Innovation
CSO	Civil society organization
DVS	Department of Veterinary Services
EMR	Electronic Medical Record
GDP	Gross domestic product
HWP	Health White Paper
ICU	Intensive care unit
KOSPEN	Komuniti Sihat Pembina Negara
MAKNA	Majlis Kanser Nasional
MCO	Movement to Control Order
MOH	Ministry of Health
MSQH	Malaysian Society for Quality in Health
NARC	National Antimicrobial Resistance Committee
NCD	Noncommunicable disease
NEML	National Essential Medicines List
NGO	Nongovernmental organization
NIACC	National Infection and Antibiotic Control Committee
NMAAQs	New Malaysia Ambient Air Quality Standard
NMP	National Medicine Policy
NPRA	National Pharmaceutical Regulatory Agency
NTIS	National Technology Innovation Sandbox
OOP	Out-of-pocket
PHSSR	Partnership for Health System Sustainability and Resilience
PM _{2.5}	Fine particulate matter
RMT	Rancangan Makanan BP Tambahan
SDG	Sustainable Development Goal
SDOH	Social determinants of health
TEH	Total expenditure on health
UHC	Universal health coverage
WHO	World Health Organization

Executive summary



Four years since the start of the COVID-19 pandemic, Malaysia's health system has proven remarkably resilient because of efforts by the Ministry of Health (MOH), as well as many actors within the health system, along with civil society, government agencies, and international bodies. As the financially and operationally strained health system recovers and transitions back to normal, the lessons learned must be integrated with critical questions on how to build, restore, and strengthen the health system's sustainability for long-term functioning and resilience in an increasingly interconnected world.

As part of the Partnership for Health System Sustainability and Resilience (PHSSR), the present report contributes to an international research effort to enhance global health and facilitate regional dialogue by using a research framework originally developed by the London School of Economics and further adapted for the Asia-Pacific region by CAPRI, the Asia-Pacific Hub of PHSSR. This report identifies the strengths and weaknesses of the Malaysian health system, investigates its sustainability and resilience, and proposes policy recommendations across seven domains: population health, environmental sustainability, workforce, medicines and technology, service delivery, financing, and governance.

Overview of Malaysia's health system by domain

Domain 1: Population health

Malaysia is an upper-middle-income country; it had a life expectancy at birth of 74.8 years in 2019, among the top three of the Association of Southeast Asian Nations (ASEAN) countries. Despite this, healthy life expectancy at birth was 65.7 years (2019), as Malaysia faces challenges related to noncommunicable diseases (NCDs). Further compounding the strain of NCDs on the health system is Malaysia's rapidly aging population and inequitable health outcomes among vulnerable populations. Although initiatives such as the National Strategic Plan for NCDs and school and community health programs have been implemented to tackle these concerns, greater cross-ministerial and community efforts related to education/training and long-term care are required to reduce health inequities and ensure these efforts benefit the broader community and population.

Domain 2: Environmental sustainability

Significant efforts have been made to monitor and protect environmental quality, including that of water, air, and waste management, and the sustainability of the healthcare sector. However, Malaysia's geography makes it vulnerable to the health impacts of climate change, such as water shortages, flooding, and droughts, and the spread of vector-borne diseases. Effective solutions require a holistic approach that leverages cooperation among ministries, accounts for how the environment affects human health, and promotes the adoption of sustainable practices in healthcare.

Domain 3: Health system workforce

Malaysia faces a critical shortage of healthcare professionals, with projections indicating a deficit of over 103,000 nurses by 2030, exacerbated by uneven distribution across public-private sectors and geographies. The COVID-19 pandemic highlighted the need for flexibility in reallocating healthcare workers and involving external groups, such as the military and police, to optimize patient care and manage workforce shortages efficiently. Going forward, strategies such as task shifting offer a remedy for addressing workforce shortages; however, systematic adoption will require clear guidelines for task delineation, ensuring that healthcare professionals understand their roles and incentives for this model of care.

Domain 4: Medicines and technology

Malaysia maintains rigorous processes to evaluate and approve pharmaceutical drugs and digital health services, spearheaded by the National Pharmaceutical Regulatory Agency and the Malaysian Health Technology Assessment Section. Policies such as the inclusion of generic drugs in the National Essential Medicines List promote access to life-saving medication, although local production capacity remains limited. The COVID-19 pandemic demonstrated the value of telehealth in patient care, as 500,000 patients were monitored remotely by virtual COVID-19 assessment centres, and investments in a national electronic medical record system are in progress. While these initiatives are promising, challenges such as internet access, data interoperability, and financial sustainability of innovative technology require attention.

Domain 5: Health service delivery

Malaysia's healthcare system operates on a dual healthcare service model, with public services funded by taxes and operated by the MOH and private service providers financed through out-of-pocket (OOP) payments and insurance. While both private and public facilities adhere to strict quality standards, the two sectors exhibit disparities in workforce distribution, geographical access, and service comprehensiveness and affordability. Nonetheless, the COVID-19 pandemic highlighted the system's ability to effectively mobilize healthcare services, from establishing a rigorous national COVID-19 vaccination program to modifying workflows to address the surge in hospital capacity. The healthcare landscape in Malaysia demonstrates the potential for bridging gaps and providing quality healthcare services through public-private collaboration.

Domain 6: Health system financing

The COVID-19 pandemic strained Malaysia's national healthcare expenditure, peaking at 5.1% of the GDP in 2021. This surge in healthcare costs was largely due to the extensive care required for patients with COVID-19, the expansion of immunization programs, and increased public health spending. As Malaysia transitions into a postpandemic world, persistently low public health spending will continue to result in a range of issues, including chronic understaffing, high workloads, and critical infrastructure shortages. Increased OOP payments and the rising costs of pharmaceuticals pose threats to the health system, particularly affecting patients with limited financial protection. While the MOH increased its budget by 12% in 2023 compared with 2022, it remains essential to mobilize resources from other governmental and multilateral sources and prioritize economic evaluation to justify funding in health policy planning. Moreover, conversations on social health insurance, employer contributions, and user fees are warranted to diversify funding sources, reduce the MOH's financial burden, and encourage shared responsibility for health.

Domain 7: Health system governance

Malaysia's healthcare system operates within an efficient and well-structured framework led by the MOH alongside various national, local, and private stakeholders. Internal mechanisms, such as quality management systems, audits, and performance monitoring frameworks, and external entities, such as the Auditor-General's Office and the Malaysian Anti-Corruption Agency, play a role in maintaining accountability within the health system. The MOH's Health White Paper (HWP), which was passed by the Parliament in June 2023, outlines a comprehensive 15-year roadmap to reform the healthcare system. Governance of data collection and usage, collaboration among stakeholders, and accountability in financial and resource management can be strengthened according to evolving norms and international standards.

Critical gaps in Malaysia's health system

Despite its strengths, the Malaysian health system faces critical gaps that cut across the seven domains. A lack of coordination and interoperability among actors in the health system may create silos among ministries and between the government and other segments of society. Malaysia's dual system of private and public health services may result in discrepancies in the accessibility and affordability of healthcare, medications, and technologies. It also may cause duplication of diagnostic and treatment efforts and threatens the system's financial sustainability. Moreover, inadequacies in the maintenance, funding, and staffing of public facilities may lead healthcare workers to experience burnout and high work burdens.

These gaps highlight the fact that complex health systems require support beyond the scope of the MOH alone. Therefore, models of health system governance and financing must evolve beyond simply providing basic healthcare and treating acute disease to promote holistic and comprehensive health services. Civil society organizations (CSOs), industry leaders, and entrepreneurs have much to offer in driving health promotion, social support, and innovative solutions in healthcare and public health, but they require infrastructure, incentives, and information to contribute to the MOH's efforts.

Policy recommendations

In recognizing the intersections among challenges in the health system, policy approaches to address them also interact across the domains of health system sustainability and resilience. With Malaysia predicted to "graduate" from middle-income to high-income status in the next 10 years, the 2023 HWP marks the beginning of a multi-decade process of strengthening the health system in its transition from simply meeting basic health needs to promoting holistic and preventive healthcare. The recommendations in this report are outlined in Table 1 and represent crucial steps toward enhancing the sustainability and resilience of healthcare, public health, and the health system to complement the aspirations outlined in the HWP.

Among the recommendations outlined in the table, the involvement of civil society can be strengthened to promote healthy lifestyles, fill workforce gaps, and deliver care at the community level by expanding and financing the social support structures of CSOs and nongovernmental organizations (NGOs). To fully leverage the potential of data and technology in healthcare delivery and decision-making as well as enable interoperability among ministries and institutions, the availability of open data can be continually enhanced.

Technology can also be used to mobilize volunteers and social workers to support a sustainable and resilient health system in facing future challenges. Finally, disease burden projections should be integrated into health budgeting and operational planning to prepare for and address future known challenges as well as known shocks, be they environmental, economic, or health related. The following table outlines all the recommendations identified in the report, organized by domain, and presented in order of priority.

Table 1: Policy recommendations by domain

DOMAIN 1 POPULATION HEALTH	
1A	Subsidize essential high-quality services and equipment for aging, medical, social, and nursing care
1B	Enhance targeted, data-driven health promotion, early screening and patient navigation at the community level
1C	Integrate digital, financial, and health literacy training into school curricula and workplaces
1D	Provide intensive technical capacity upskilling for the least advantaged in the workforce
1E	Train and empower communities to recognize and counteract misinformation
DOMAIN 2 ENVIRONMENTAL SUSTAINABILITY	
2A	Evaluate the long-term health impacts of policies across disciplines
2B	Conduct long-term financial planning and stronger public communications to support the implementation of One Health and climate change and crisis mitigation strategies
2C	Improve green strategic procurement practices for health products and services across the supply chain
2D	Incorporate disease burden projections into health budgeting and operational planning
DOMAIN 3 WORKFORCE	
3A	Develop guidelines within the MOH to incentivize strategic, local adaptation of task shifting
3B	Invest in and support the development of the health workforce
3C	Expand and finance the existing social support structure of CSOs and NGOs
3D	Review emergency surge capacity responses to identify bottlenecks and opportunities
3E	Utilize technology to mobilize volunteers and social workers
DOMAIN 4 MEDICINES AND TECHNOLOGY	
4A	Promote sustainable access to innovative pharmaceutical and digital health products and services
4B	Integrate digital tools into routine care
4C	Support the institutional upgrading of diagnostics and imaging systems
4D	Establish a system for resource sharing between public and private healthcare facilities

DOMAIN 5 SERVICE DELIVERY

- 5A Adopt an integrated care model for NCDs
- 5B Encourage shared responsibility among all parties on the continuum of health

DOMAIN 6 HEALTH SYSTEM FINANCING

- 6A Study “sustainable and equitable progressive contributory models” for healthcare financing, such as social and national health insurance or equivalent efforts
- 6B As social health insurance is rolled out, gradually introduce incentives and coverage to emphasize preventive and holistic care
- 6C Mobilize funding from international donors
- 6D Assess the affordability and scope of existing insurance schemes and examine the barriers to uptake
- 6E Assess how variable medical fees could be used to enhance affordability and cost recovery in public facilities

DOMAIN 7 HEALTH SYSTEM GOVERNANCE

- 7A Strategize public–private partnerships from the local to the national level, including institutionalizing interagency and interministerial collaboration
- 7B Foster collaboration among Malaysia and other Asia-Pacific countries
- 7C Implement “separation of powers” in the MOH
- 7D Enhance the availability of open data in healthcare

Introduction



Four years since the start of the COVID-19 pandemic, Malaysia's health system has proven remarkably sustainable and resilient. This can be attributed to the health system's strong fundamentals and the professionalism, discipline, and competence of the rank-and-file of the Ministry of Health (MOH). Many actors within the health system, along with civil society, government agencies, and international bodies, have played a part in responding to the unprecedented public health crisis that pushed the system to its limits. As the financially and operationally strained health system recovers and transitions back to normal, the lessons learned must be integrated with critical questions on how to build, restore, and strengthen the health system's sustainability for long-term functioning and resilience in an increasingly interconnected world.

As part of the global Partnership for Health System Sustainability and Resilience (PHSSR), this report examines the Malaysian health system from a broad perspective by using a research framework and definitions of "health system sustainability" and "health system resilience" developed by the London School of Economics for PHSSR (Table 2). In this framework, PHSSR adopts the definition of a "health system" promulgated by the World Health Organization's *World Health Report 2000*: "all the activities whose primary purpose is to promote, restore, or maintain health."¹

Table 2: Definitions of health system sustainability and resilience in the PHSSR framework

Health system sustainability	A health system's ability to maintain and improve population health by continually delivering the key functions of providing services, generating resources, financing, and stewardship, incorporating principles of financial fairness, equity in access, responsiveness and efficiency of care, and doing so in an environmentally sustainable manner.
Health system resilience	A health system's ability to prepare for, absorb, adapt to, learn, transform, and recover from crises born of short-term shocks and accumulated everyday stresses in order to minimize their negative impact on population health and disruption caused to health services.

The PHSSR framework consists of the following seven domains, moving from the contextual and locally based to the key components of the health system and finally to the national landscape that shapes and finances health policy:

1. Population health
2. Environmental sustainability
3. Health system workforce
4. Medicines and technology
5. Health service delivery
6. Health system financing
7. Health system governance

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Data were gathered from various sources, including academic research papers, systematic reviews, international reports, legislation development, policies, and guidelines, and official databases, and reviewed by experienced health experts for additional input and structural feedback. The policy recommendations at the end of each section explore strengths and gaps across functions in the health system, presenting 31 recommendations to enhance sustainability and resilience that complement the MOH's recent Health White Paper (HWP). The report calls for relevant stakeholders to proactively consider and act upon recommendations during the recovery phase of the pandemic.

1. DOMAIN 1

Population health



1.1 Key indicators of population health

Malaysia is an upper-middle-income country with a population of 34 million. Life expectancy at birth was 74.8 years in 2019 but declined to an estimated 73.4 years in 2022 due to excess mortality from COVID-19.² This ranks Malaysia third in life expectancy among countries in the Association of Southeast Asian Nations (ASEAN), after Singapore and Thailand, though it is lower than the Western Pacific regional average.³ Despite this high ranking, healthy life expectancy at birth in Malaysia is 65.7 years, which remains 7.7 years shorter than the standard life expectancy at birth of 73.4 years (Table 3).

Table 3: Selected key population indicators

Population key indicators	Malaysia	Western Pacific Region (as defined by WHO)
Population	33.4 million (2023)	
GDP per capita	13,400 USD (2023)	
Real GDP growth	+4.5% (2023)	
Life expectancy at birth (years)	73.4 (2022)	77.7 years (2019)
Healthy life expectancy at birth (years)	65.7 (2019)	68.6 years (2019)
Birth rate per 1,000 population	13.5 (2021)	
Mortality rate per 1,000 population	6.9 (2021)	
Under-five mortality rate per 1,000 live births	7.4 (2021)	12.0 (2021)
Unemployment rate	3.5% (Q2, 2023)	
Probability of death from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases between age 30 and 70, inclusive	18.4% (2019)	15.6% (2019)

Sources:

"World Health Statistics 2023: Monitoring Health for the SDGs, Sustainable Development Goals," World Health Organization (WHO), May 19, 2023, www.who.int/publications/i/item/9789240074323.

"World Economic Outlook (September 2023) Malaysia," International Monetary Fund (IMF) Datamapper, accessed November 27, 2023, www.imf.org/external/datamapper/profile/MYS.

Health Facts 2022 (Health Informatics Centre Planning Division, 2022), www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/HEALTH%20FACTS/Health_Facts_2022-updated.pdf.

"OpenDOSM," DOSM, accessed September 4, 2023, <https://open.dosm.gov.my>

In 2021, the leading cause of death in Malaysia was circulatory system disease (26.4%), followed by COVID-19 (19.8%), and the number of deaths increased by 34.5% compared with 2020.⁴ Together with respiratory diseases and neoplasms, these four leading causes contributed to 72.3% of total deaths in 2021. Ischemic heart diseases, pneumonia, and cerebrovascular diseases have been consistently among the leading causes of death from 2014 to 2022.⁵

Noncommunicable diseases (NCDs) also pose a substantial health burden and public health challenge in Malaysia. Presently, an estimated one in five adults are living with diabetes, one in three have hypertension, and nearly half are overweight or obese.⁶ These conditions contribute to mortality and years of healthy life lost due to disability (YLD).

According to the World Health Organization (WHO)'s World Health Statistics, the probability of dying from NCDs, including cancer, diabetes, and cardiovascular diseases, is 18.4%, surpassing the average for the Western Pacific region (Table 2). Moreover, NCDs contribute to 71% of premature deaths in Malaysia. In 2010, diabetes mellitus was the major source of disease burden and accounted for 11.1% of all YLD,⁷ followed by asthma (4.3%) and anxiety disorders (4.1%).

1.2 Rise of NCDs and existing solutions

Compounding the strain of NCDs on the health system is Malaysia's rapidly aging population. Population growth has slowed; the total fertility rate declined from 4.9 children per woman in 1970 to 1.8 in 2020.⁸ By 2030, 15% of Malaysia's population is estimated to be 60 years or older.

This demographic shift will increase the prevalence of NCDs and pose financial challenges to the health system. For example, diabetes and hypertension, the prevalence of which increases with age, often coexist, and require patients to take multiple medications regularly. When uncontrolled, these conditions increase the risk of severe complications, which require more medical interventions and care: diabetes can lead to blindness or require amputation, and patients with ischemic heart disease may require surgery.

The resulting financial challenges are considerable. In 2017, cardiovascular diseases, diabetes, and cancer accounted for 16.8% of total health expenditures, mainly related to primary care and outpatient attendance (43%), followed by medications (18%) and diagnosis (17%).⁹ The weight of these challenges on individual health and the broader health system necessitates proactive solutions to reduce NCD prevalence and enable well-being into old age. Malaysia has adopted several policy and community initiatives to address these challenges.

As part of surveillance efforts, the MOH published the National Strategic Plan for NCDs (NSP-NCD) 2016–2025, incorporating NCD monitoring targets for risk factors, morbidity, and mortality identified by the WHO. However, the sustainability of this plan may be challenging because of implementation challenges due to a lack of financial resources, human resources, and support for staff training. These challenges are similar to those in other countries.¹⁰ As the plan covers lifestyle modification initiatives, such as alcohol and tobacco control, and disease-specific action plans, a successful rollout will have health benefits beyond NCD prevention and treatment.

In 2013, the MOH introduced a nationwide community-based intervention program called *Komuniti Sihat Pembina Negara* (KOSPEN) to address NCDs. Through this program, community volunteers are trained to become health enablers, introducing and supporting healthy living practices in their community. Volunteers proactively screen at-risk community members for diabetes and hypertension among other NCDs, as early treatment reduces complications. The community approach is in line with past crisis management methods, whereby civil society quickly assembled and self-organized to support those in need. KOSPEN prompts community members to adopt healthier dietary habits and has been well received.¹¹ The KOSPEN Wellness of Workers program focuses on workplace NCD prevention through initiatives among the working population. Adapting lessons learned from KOSPEN initiatives and early targeted screening strategies, such as a stepwise approach in diabetes management and balancing population health and cost effectiveness, can mitigate complications, such as chronic kidney disease, heart failure, blindness, and amputation. Regarding feasibility and impact, continuity of care plans require integration with state government, nongovernmental organizations (NGOs), and other screening initiatives, ensuring an efficient closed loop of referrals on a strong foundation of primary care.

For NCDs, the WHO advocates an integrated management approach to assess, diagnose, and manage NCDs by using essential evidence-based interventions.¹² Most NCDs are managed at the primary healthcare level. However, primary care in Malaysia is often based on a curative care model that focuses on physical illness as opposed to prevention. In addition, formal rehabilitation facilities for patients transferring out of acute care are inaccessible and expensive. As the population ages,

the demand for skilled nursing care centres is expected to increase. However, nursing home facilities have no minimum standards, and costs vary depending on the extensiveness of care provided.¹³

Programs for promoting “healthy aging” and supporting elderly populations also offer the potential to reduce NCDs. The concept of healthy aging emphasizes both health promotion and disease and injury prevention to maintain quality of life and dignity.¹⁴ Currently in Malaysia, healthcare workers (HCWs), such as clinic nurses, primary care doctors, and private service providers, enable healthy aging by serving as patient navigators who guide patients through the health system and help remove barriers to care.

However, HCWs take on this navigating role because of the scarcity and disease-specific focus of volunteers, social workers, and community health workers. Moreover, common care services for older people – such as housing for the aged, long-term care, and home care – are typically only available in developed areas but expensive or inaccessible in rural settings.¹⁵ Apart from human capital for healthcare and social care, healthy aging requires whole-of-society changes, including structural improvements to welfare, pensions, and financing to address the social determinants of health (SDOH).

1.3 Major policy initiatives to address the SDOH

SDOH play a critical role in community health outcomes. According to the County Health Rankings Model, clinical care accounts for only 20% of the factors influencing health outcomes, whereas health behaviors and social and economic factors, including social class, education, employment, and housing, account for 70%. The remaining 10% are factors in the physical environment.¹⁶ According to the life-course perspective, diseases or poor health manifest as the result of lifetime exposure to and accumulation of risk factors, including SDOH.¹⁷

In Malaysia, income level and socioeconomic status are among the major determinants of health status. Wealthier states – states with higher gross domestic product (GDP) per capita (i.e., Sarawak, Selangor, Pulau Pinang, Melaka, and the Federal Territory of Kuala Lumpur) – typically record longer life expectancies than the national average.¹⁸ The prevalence of NCDs such as diabetes, high blood pressure, and high cholesterol is generally higher among groups with lower socioeconomic status. Similarly, rates of mental health problems and disability tend to be higher in lower-income groups. By contrast, the prevalence of overweight and obesity is highest among people with higher socioeconomic status, although it seems to be increasing even in the lower-income groups.¹⁹ Similar to other countries, COVID-19 affected different subpopulations in Malaysia inequitably.

Reducing health inequities requires action from both the MOH and other government ministries. The MOH analyzes health data with demographic information to reveal trends in marginalized segments of the population and provide insights into addressing the factors of health inequality. Other ministries, especially those responsible for policies such as social protection for unemployed workers, affordable housing, and integrated education programs, are equally responsible for addressing SDOH.

In anticipation of an aging population, the government must engage in interministerial collaboration to holistically map and respond to the healthcare needs and functional well-being of the people. For example, during the pandemic, several rounds of cash assistance schemes helped lessen the financial shock of public health policies to the bottom 40% of earners (B40) in Malaysia. As the long-term socioeconomic effects of the pandemic become apparent, a continued commitment to the “Health in All Policies” principle across policymaking remains crucial for addressing SDOH.

Behavioural science methods also offer opportunities to address SDOH. At the 76th World Health Assembly in 2023, WHO adopted a resolution proposed by Malaysia and other countries to encourage positive behavioral change for better health through evidence-based scientific approaches. Behavioural sciences involve investigation of the drivers of and barriers to health-

related behaviors in a specific context at the cognitive, social, and environmental levels. In public health, behavioral science theory and methods are particularly helpful for the practical implementation of strategies and policies targeting context-specific behaviors and the evaluation of public health interventions.

Malaysia has the highest prevalence of obesity (19.7%) among Southeast Asian countries; therefore, implementing effective primary preventive measures that motivate individuals to adopt a positive, active lifestyle and balanced dietary practices can reduce the risk of NCDs later in life.²⁰ Behavioural science also involves the assessment of factors affecting people's adherence to medical advice and their perceptions and reactions to communications. Fast, simple, easy-to-digest communication materials were among the tools to combat rampant misinformation circulating in social media during the pandemic.

Hence, community champions can be more effective in reaching the community by using targeted messaging, designed with the principles of behavioral science at its core during planning phase of health promotional campaigns. As more data and findings become available on health promotion from a behavioral science lens, the gap lies in how to effectively translate knowledge into policy and guidelines to improve health outcomes.

1.4 School health programs

Since 1975, Malaysia's education system has included health programs known as school health services, implemented by the MOH's Family Health Development Division, to reach target age groups.²¹ In these programs, MOH health teams regularly visit schools (or under specific circumstances, private homes), to provide vaccinations, health promotion, screenings, physical examinations, curative and referral services, dental health, and environmental health services. According to the National Immunization Program,²² eligible children at age 7 receive diphtheria and tetanus booster vaccination, and girls at age 13 receive the human papillomavirus (HPV) vaccine.²³ On average, more than 95% of girls receive two doses of the vaccine.²⁴

Recognizing the requirements of those with special needs, the Ministry of Education also offers special education programs, such as the Special Recovery Program, Inclusive Education Program, Integrated Special Education Program (PPKI), and Special Education Service Centre (3PK); some of these are complemented by peripatetic, audiology, speech-language, occupational therapy, and psychology services.²⁵ However, despite significant progress in legislation with the passing of the Persons with Disabilities Act in 2008,²⁶ existing support for special needs education provision remains inadequate and poorly equipped, without comprehensive assessment practices, instruments, or therapists.²⁷

In 2019, an estimated 12.7% of children aged 5–17 had low height-for-age (i.e., stunting), 15.0% were overweight, and 14.8% had obesity, an increase compared with 2015.²⁸ To address poor dietary practices and malnutrition among children from low-income households, the Ministry of Education implements free school feeding programs known as *Rancangan Makanan Tambahan* (RMT).

Children ineligible for RMT may be enrolled in *Program Hidangan Berkhasiat di Sekolah* (HiTS) to ensure that they receive nutritious school meals, which account for approximately 20%–30% of their daily dietary intake. Unlike RMT, families have to opt for HiTS and pay the program fees. Since 2011, the Healthy School Canteen program has been strengthened, and school canteen operators must comply with nutritional guidelines.²⁹ To promote holistic development, physical education has been incorporated into the curriculum.

There is a strategic initiative called *Sekolah Dalam Hospital* ("Schools in Hospitals" in English) between the Ministry of Education, MOH, and certain university teaching hospitals for school-age children who have chronic illnesses and require long-term hospital stays. The main objective of the program is to ensure that students' academic performance is unaffected during their extended hospital stay, thereby keeping with the vision of "Education for All."

The health benefits of school-based programs are unlikely to reach those from disadvantaged communities, such as those who drop out of school and refugees outside the formal education system. For example, although the national average dropout rate is low at 0.07% for primary students and 1% for secondary students,³⁰ the dropout rate of Orang Asli, the indigenous population of Malaysia, is consistently higher (23.3% in 2018).³¹ Economic difficulties exacerbated by COVID-19 have also increased dropout rates.³² Among intermittent school closures during the COVID-19 pandemic, school health services and school-based vaccination programs took place in health clinics. Therefore, there is a need to “reach the unreached” to ensure equitable access and outcomes.

1.5 Recommendations

To enhance population health, measures that address inequities in the health system and promote health at the community level are required. As Malaysia faces population aging and an increased burden of NCDs, this report makes the following recommendations:

RECOMMENDATION 1A

Subsidize essential high-quality services and equipment for aging, medical, social, and nursing care

Lower costs can improve accessibility to assistive equipment for individuals and families, thereby improving quality of care and well-being for the growing elderly population and reducing the incidence of injury due to frailty.

RECOMMENDATION 1B

Enhance targeted, data-driven health promotion, early screening and patient navigation at the community level

Demographic factors can predict the prevalence of NCDs. Early screening and lifestyle intervention, therefore, must consider demographic factors along with evidence from behavioral science to be effective, relevant, and tailored to specific communities.

RECOMMENDATION 1C

Integrate digital, financial, and health literacy training into school curricula and workplaces

High digital and financial competencies are correlated with self-efficacy, and they help individuals, especially those of lower socioeconomic status, prioritize health and make informed personal and family decisions when seeking healthcare. The resulting network effects are likely to benefit communities; for example, people learning these new skills at the workplace will retire in the coming decades with high self-efficacy.

RECOMMENDATION 1D

Provide intensive technical capacity upskilling for the least advantaged in the workforce

Specific education programs can be created to support unemployed people, individuals in low-income or low-education groups, workers in the informal sector, and older age groups to enhance their job competitiveness in the digital age. Program design may integrate behavioral insights for sustainability to translate into systemic improvement of SDOH and health equity.

RECOMMENDATION 1E

Train and empower communities to recognize and counteract misinformation

With tools to verify accurate and evidence-based information, individuals and communities are less receptive to health misinformation. Patients can make informed decisions about their health and well-being, thereby reducing demand for primary care.

2. DOMAIN 2

Environmental sustainability



2.1 Regulation and monitoring of environmental quality

Malaysian authorities recognize the crucial link between health and environmental quality. The National Environmental Health Action Plan outlines priorities and challenges in environmental health and facilitates interministerial collaboration to avoid duplication. It also establishes thematic working to cover air quality, water and sewerage, waste, climate change, environmental health emergencies, and health impact assessment.³³ The Malaysian Department of Environment, under the Ministry of Environment and Water, monitors various environmental indicators.

According to the New Malaysia Ambient Air Quality Standard (NMAAQS), the annual mean concentration of fine particulate matter (PM_{2.5}) should not exceed 15 µg/m³,³⁴ but this limit is more lenient than that adopted by the WHO in 2021 (5µg/m³). The annual mean concentration of PM_{2.5} in urban areas in Malaysia (15µg/m³) has been considerably consistent for the past five years; however, seasonal and regional fluctuations are common and may periodically impact the respiratory system.^{35 36 37} Motor vehicle usage and industrial activities are significant contributors to PM_{2.5} pollution.^{38 39} Increases in PM_{2.5} concentration also display distinct spatial and seasonal patterns tied to monsoons.⁴⁰

NMAAQS includes criteria for five other pollutants: inhalable particulate matter (PM₁₀), sulphur dioxide, nitrogen dioxide, ground-level ozone, and carbon monoxide. In 2020, 65 ambient air quality monitoring stations monitored pollutant levels in Malaysia. Additional laws and legislation are in place for the prevention and control of air pollution.⁴¹

Despite efforts to measure and regulate air quality, the health impacts of air pollution by PM_{2.5} and nitrogen dioxide alone were estimated to cost the Malaysian economy MYR 303 billion annually, resulting from work absenteeism, healthcare spending, and disability.⁴² The age-standardized mortality rate attributed to household and ambient air pollution is 76.5 per 100,000 population.⁴³

Water quality must meet the 2004 National Standard for Drinking Water Quality. The majority of the population (94%) has access to safely managed drinking water. However, surface water quality is declining due to inappropriate waste disposal and water pollution. No specific regulation addresses soil or groundwater contamination in Malaysia.

Regarding waste management, Malaysia generated 1.17kg of municipal solid waste per capita per day in 2009, following Singapore and Brunei in the ASEAN region.⁴⁴ This is similar to the amount of electronic waste (e-waste) generated, at 7.6kg per capita annually. The 1974 Environmental Quality Act is the main legislation in Malaysia regulating the release of hazardous waste into the environment. Primary waste treatment methods are incineration, sanitary landfilling, and open dumping, with a 50%–60% recycling rate for metal, paper, and plastic. Limited recycling infrastructure is available for e-waste, perhaps contributing to low public awareness of the appropriate disposal of hazardous materials. Major gaps lie in strategy development and projects for treating emerging waste streams (i.e., plastic, healthcare, and e-waste), and a more mature management scheme is required for industrial waste and municipal solid waste.

Communities have moderate to high awareness and knowledge of the health risks of vector-borne diseases (dengue and leptospirosis) and poor hygiene (diarrhea) caused by improper domestic waste management.⁴⁵ Further implementation strategies will bridge the gaps between environmental awareness and sustainable behavioral change to improve environmental health.

2.2 Sustainable practices in healthcare

If the global healthcare sector were a country, it would be the fifth largest carbon emitter in the world (4.4%).⁴⁶ Healthcare facilities consume considerable resources and generate substantial hazardous waste. The total amount of healthcare waste generated worldwide has steadily increased by 2%–3% each year.⁴⁷ People in the informal recycling sector are particularly vulnerable to illnesses induced by improperly managed medical waste.

In Malaysia, clinical waste is classified under the 2005 First Schedule of Environmental Quality (Scheduled Wastes) Regulations. Agencies authorized by the Malaysian Department of Environment manage clinical waste, from its collection to its transport and disposal. Pre-segregation using colour-coded labels allows non-contaminated waste to be recycled or disposed of cost effectively. The most common disposal method is incineration after volume reduction and inertization. Other less common methods include biological management using enzymes and inertization using lime. Because of the COVID-19 pandemic, the quantity of clinical waste grew by 43.9% to 57.4 metric tons between 2020 and 2021.⁴⁸ Temporary cold-room facilities were used to store waste prior to scheduled disposal.

The healthcare supply chain accounts for the most carbon emissions (70%) within the global healthcare sector, followed by healthcare facilities and vehicles (17%) and energy generation (12%). Paradigm shifts in sustainable procurement and green buildings⁴⁹ have been proposed to reduce the carbon footprints of transport and energy, respectively. Some sustainability programs in the MOH focus on energy management, indoor air quality, and 3R (reduce, reuse, and recycle).⁵⁰ Both primary and secondary disease prevention can significantly reduce the high carbon footprint associated with intensive treatments, such as long-term dialysis for patients with kidney failure.

Rather than arising purely from environmental concerns, sustainable practices in healthcare management, such as lean management⁵¹ and upcycling, can balance the socioecological effects and cost efficiency of health services. The MOH has established programs for sustainable healthcare and published the Carbon Neutral Healthcare Facilities Blueprint. The blueprint identified key focus areas – greenhouse gas emission reduction, safe environment, and green building and facilities – and strategies of carbon healthcare emissions to meet Malaysia's long-term environmental targets.⁵² Among other initiatives, the Global Green and Healthy Hospitals Agenda is an international network of health organizations dedicated to reducing the environmental footprint of the health sector with 10 interconnected sustainability goals. Several local private hospital groups are part of the network.⁵³

2.3 Risks and threats of climate change

According to the 2021 WHO Health and Climate Change Global Survey Report, only 11 of 46 countries that report having a climate change and health vulnerability and adaptation assessment in place have reached a “high” or “very high” level of implementation. However, half of WHO members, including Malaysia, did not participate in the survey, precluding comparative analysis. Limited data availability and resource constraints are two common challenges to assessing climate change in some countries.⁵⁴

Due to its extensive coastline, Malaysia is highly susceptible to natural disasters, such as monsoon-related floods, shoreline erosion, and climate change.⁵⁵ Climate-related disasters occur at the interconnection of environmental and societal processes, with implications for human health.⁵⁶ In recent years, heat waves, floods, and transboundary haze have become more frequent.⁵⁷ Although casualties of climate-related disasters have been relatively low in Malaysia, climate change is increasing the risks of vector- and water-borne diseases and health problems linked to air pollution.

Apart from the immediate damage and health impacts of climate change–induced disasters, water and food security are at risk in the long run. Although the water supply coverage has increased, per capita availability of water has been decreasing due to increasing demand for agricultural and household purposes.⁵⁸ In 2014, up to 25% of the population, particularly low-income households, had insufficient dietary intakes and diversity. Malaysia's food security gap is predicted to increase to 40% over the next 40 years if access to nutritious food is disrupted by a changing climate. Early-season droughts and floods may result in yield reductions of up to 60%.⁵⁹ Food and water shortages will further increase the cost of living and contribute to internal displacement and distress.

Since 2014, Malaysia has been involved in working toward the Sustainable Development Goals (SDGs).⁶⁰ It ratified the Paris Climate Agreement and its own nationally determined contribution in

November 2016.⁶¹ The Department of Statistics Malaysia demonstrates the country's commitment to the SDGs by identifying data gaps and the monitoring progress on 175 of 248 economic, environmental, and health indicators with 71% data availability in 2021 compared with 41% in 2018.

At the local level, an environmental impact assessment with health assessments is legally required for activities prescribed under the Environmental Quality (Prescribed Activities) Order of 2015.⁶² In addressing ongoing air pollution and haze issues, Malaysia participates in several multilateral and bilateral initiatives, including the Acid Deposition Monitoring Network in East Asia, ASEAN Working Groups on Sub-Regional Fire Fighting Arrangement for Sumatra and Borneo, and the ASEAN Agreement on Transboundary Haze Pollution.

2.4 Preparation for emerging pathogens and zoonotic diseases

Vector-borne diseases are the second leading environmental health issue in Malaysia.⁶³ Vector mating and feeding behavior and the availability of breeding sites depend on meteorological factors (e.g., temperature, rainfall, and humidity). Climate-related health research has studied the development of pathogens (within vectors and hosts). For instance, dengue viruses develop faster at higher temperatures, thus decreasing the incubation period and increasing the likelihood of disease transmission. Dengue fever, which is endemic in the region, is also likely to increase as rainfall is projected to become more intense and variable. The importance of a One Health approach is increasingly recognized because zoonotic diseases are expected to increase with climate change and urbanization. The five priority zoonotic diseases in Malaysia (according to the MOH and Department of Veterinary Services [DVS]) are rabies, highly pathogenic avian influenza, leptospirosis, brucellosis, and malaria.⁶⁴

In 2004, the Zoonotic Disease Control Sector was established under the Disease Control Division of the MOH. Currently, 125 animal diseases (zoonotic diseases and those with economic impact) are notifiable diseases listed under the Animal Act of 1953.⁶⁵ In addition, Malaysia developed the National Strategic Plan for Zoonosis and the Manual on Zoonosis Joint Response of 2019, facilitating collaboration between the MOH and DVS. It has also established a interministerial National Antimicrobial Resistance Committee (NARC), which oversees and coordinates national antimicrobial resistance (AMR) containment strategies. The technical working groups cover awareness and education, surveillance and research, infection prevention and control, and appropriate use of antimicrobials.

The Malaysian Plan on Antimicrobial Resistance (MyAP-AMR) 2017–2021 was the country's first 5-year national action plan, with the most recent being MyAP-AMR 2022–2026. Given the multifaceted nature of AMR, the NARC now also involves environmental and plant health to ensure a more comprehensive One Health approach. With these committees and plans in place, challenges lie in aligning competing priorities on disease surveillance and control among agencies with limited resources and technology. The Disease Control Division is currently in the planning phase of developing one comprehensive information system for the surveillance of all diseases and integration with other relevant information systems in the MOH.

In Malaysia, infection prevention and control governance are organized into multi-tier infection and antibiotic control committees overseeing the infection prevention and control, which spans the national, state, hospital, and district levels. The National Infection and Antibiotic Control Committee (NIACC) coordinates national efforts to reduce healthcare-associated infections and promote judicious antimicrobial use. The NIACC addresses all infection prevention and antibiotic control activities involving MOH healthcare facilities and university hospitals under the Ministry of Education.

Despite these challenges, Malaysia remains a regional leader in health security. In 2022, Malaysia's International Health Regulations core capacity score was 89, which is higher than the Western Pacific average of 73. The score reflects the average of 15 self-assessed indicators for the country's

public health surveillance and response. Malaysia scored 56.4 on the Global Health Security Index in 2021, ranking 27th of 195 countries.⁶⁶ In general, Malaysia scores above the global average in all seven domains studied in the Index. Action plans for responding to common zoonotic diseases and responsible parties have been established. Data are limited on national strategy, which incorporates steps for identifying and reducing the risk of zoonotic diseases spreading from animals to people.

2.5 Recommendations

The need for environmentally sustainable systems cuts across health, the economy, and society. Given the interconnectedness of human, animal, and environmental health, the following recommendations can be considered to enhance resilience and sustainability:

RECOMMENDATION 2A

Evaluate the long-term health impacts of policies across disciplines

Traditionally, health policy and systems have been combined in research. To provide supporting evidence on health impacts, the National Institutes of Health may consider extending its scope beyond health policy to aspects that affect long-term health, focusing on the SDOH as well as the impact of climate change and the environment on health and preparing recommendations on how to strengthen health services to respond to environmental threats.

RECOMMENDATION 2B

Conduct long-term financial planning and stronger public communication to support the implementation of One Health, climate change, and crisis mitigation strategies

Measures taken to mitigate the risk of climate change and emerging diseases do not necessarily yield immediate observable benefits, necessitating long-term financial planning and stronger public communications to effectively allocate resources, promote sustainable healthcare practices, and safeguard public health. For instance, One Health activities track zoonotic diseases, monitor AMR, and ultimately enhance global health security and will benefit from long-term financial planning and stronger public communication. A routine high-level task force on One Health can help coordinate the resources and activities of all government agencies.

RECOMMENDATION 2C

Improve green strategic procurement practices for health products and services across the supply chain

Procurement practices in both public and private healthcare facilities may be enhanced to save costs and account for the environmental impacts of global supply chains. Strategic partnerships with industry can promote sustainable and green procurement – for example, by reducing plastic packaging and air miles associated with product consumption. Moreover, such partnerships can ensure the availability of resources and medicines for all patients, even through a crisis.

RECOMMENDATION 2D

Incorporate disease burden projections into health budgeting and operational planning

The impact of climate change, pathogenic threats, and environmental threats are best quantified as “disease burdens,” which is a concept familiar to clinicians, policymakers, and budget-holders allocating financial and human capital. Non-health metrics, such as the carbon intensity of economic growth or persons displaced by floods, may be less familiar to clinicians and health system experts. Therefore, regular surveillance of pathogens, diseases, climate change, and environmental parameters can enhance outbreak preparedness and enable better management of health risks associated with climate change at the national and facility levels. In other words, enhanced data collection, analytics, and projections can help the MOH plan for budget, human capital, and service expansion.

3. DOMAIN 3

Workforce



3.1 Critical healthcare workforce shortage

In 2021, Malaysia had 77,755 doctors, 18,575 pharmacists, and 115,230 nurses. The overall doctor-to-population ratio is 1 to 420, and the nurse-to-population ratio is 1 to 283, both being above the WHO recommendations.⁶⁷ However, challenges remain in achieving the optimal distribution and supply of HCWs in both private and public health facilities.

Table 4: Selected health human resources indicators, 2021

Healthcare profession	Total number of HCWs	HCW: population ratio
Doctors	77,755	1:420
Dentists	12,574	1:2,597
Pharmacists	18,575	1:1,758
Nurses	115,230	1:283
Community nurses	20,816	1:1,569
Assistant medical officers	23,329	1:1,400

Sources: Health Facts 2022 (Health Informatics Centre Planning Division, 2022), www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/HEALTH%20FACTS/Health_Facts_2022-updated.pdf.

Significant disparities exist in HCW distribution between urban and rural areas in Malaysia, ranging from 1 doctor per 178 people in the capital city of Kuala Lumpur to 1 per 776 people in the less dense state of Sabah in 2021.⁶⁸ Unequal distribution between states also occurs among other professions, including nurses, assistant medical officers (AMOs, equivalent in scope of practice to Physician Assistants in the US), pharmacists, and dentists. Additionally, urban areas have a higher density of primary care clinics and HCWs per capita (2.2 clinics and 15.1 HCWs per 10,000 people) than rural areas (1.1 clinics and 11.7 HCWs per 10,000 people), raising concerns about equitable access to care.⁶⁹

Modeling of the supply–needs gap, which is the gap between the anticipated supply of HCWs and the anticipated number of HCWs required to meet the healthcare needs of a population, suggests current and future workforce shortages. This model projects that the undersupply of doctors will continue until 2026, after which the supply of doctors will exceed the projected need by 10% in 2030.⁷⁰

Similar predictions have been made for dentists and pharmacists. While there are sufficient seats in medical schools for prospective doctors, the existing supply challenge can be partly attributed to the limited vacancies of medical internships and specialist training opportunities, resulting in longer waiting time for medical graduates to complete appropriate training and attain specialization.⁷¹

By contrast, the supply–needs gap for nurses is expected to widen beyond 2030 as needs grow faster than supply, even when both clinic and community nurses were included in the simulation. By 2030, Malaysia is estimated to have a shortage of at least 103,000 nurses if baseline parameters remain constant.⁷² To achieve the required number of nurses in 2030, institutions with nursing programs must produce at least 10,000 nurses per year from 2024 to 2030, an extraordinarily difficult endeavor given that Malaysia adds only 3,000–4,000 nurses annually to its supply.

AMOs provide initial first aid and treatment in emergencies, triage patients, and provide health education, among other roles. The AMO shortage continues, and the need for AMOs will likely increase with the addition of new facilities, specialties, and subspecialties. Currently, Malaysia has

19,544 AMOs in public service (15,387 permanent AMO positions that have been filled and 4,157 AMO contracts), with the remainder in the private sector. According to Medical Development Division projections, 22,900 AMOs are required by 2025. Aligning the supply of healthcare professionals with projected needs remains an organizational and systemic challenge.

Compounding this workforce crisis is the pandemic's heavy toll on healthcare professionals' mental health. As many as 62% of permanent HCWs have considered leaving the health service.⁷³ Understaffing, overcrowding, heavy work burden, lack of career development, and burnout are among the many issues voiced.⁷⁴

3.2 Task shifting as a solution for the workforce crisis

Task shifting, referring to the rational distribution of healthcare tasks among HCWs – particularly from more to less specialized tasks – has become an important strategy for addressing workforce shortages and improve access to care in many countries, including Malaysia. This approach is a considerably quicker remedy than providing basic and professional training to produce more HCWs, which often takes years.

In the long term, stringent criteria for student intake into medical schools should be established to prevent an excess of medical graduates while creating opportunities for career development among medical officers. Applying the experience of using task shifting for HIV service delivery, the WHO released a set of 22 global recommendations focused on adopting task shifting as a public health initiative, creating a supportive regulatory environment for implementation, ensuring continuous quality of care, and optimizing the organization of clinical care services without compromising patient safety.⁷⁵

Task shifting supports physicians in primary care and can help address gaps in demand for health services.⁷⁶ Expanding the roles of pharmacists, AHPs, nurses, and AMOs may yield comparable quality of care in the management of NCDs with appropriate training, clinical protocols, monitoring and evaluation, clinical audits and a transition period in place.⁷⁷ The COVID-19 pandemic, during which nationwide task shifting resulted in doctors taking additional responsibilities, provides additional evidence of the value of this practice.⁷⁸

For example, 128 personnel from 6 institutions across Malaysia were mobilized by the National Institutes of Health for screening, case detection and health management at overwhelmed quarantine centers.⁷⁹ Similarly, AMOs and nurses were deployed to different wards or facilities, including COVID-19 assessment centers (CACs), with some AMOs and nurses taking on expanded tasks to minimize the number of personnel entering high-risk wards.

Although task shifting shows promise, a potential problem arises from a lack of clear task delineation, which can create inefficiency and reduce productivity. Within the present healthcare landscape, this problem is most likely to arise among nurses and AMOs, who have similar and overlapping duties. However, AMOs and nurses have different training backgrounds, in which nursing focuses on inpatient care and AMOs focus on paramedics. To address such issues, redefining job and training scopes has been proposed. For instance, responsibilities in emergency, hemodialysis, and outpatient departments can be delegated to AMOs, whereas services in psychiatry wards and school health can be covered by nurses, enhancing human resource planning.

Another challenge in task shifting is its limited formal recognition and regulation. Without appropriate financial arrangements or professional reassurances, HCWs may view task shifting as additional workload without an incentive structure. Crucially, task shifting is not intended to replace the need for skilled workers. The operation of mobile clinics by personnel without medical certification should occur only under greater scrutiny, such as physician supervision of medical assistants, to ensure safety and uphold quality standards.⁸⁰

To mitigate the impact of critical healthcare shortages, one consideration could be to implement and expand integrated digital solutions and tools to expedite healthcare processes and free up valuable time for doctors, nurses, and medical assistants to focus more on patient care (see Domain 4). The government can also optimize and bridge public and private services, such as decanting primary care patients (see Case Study 2) and strengthening referral mechanisms. The quality of such a strategy can be ensured through mandatory accredited continuous training. In a proof-of-concept study of a referral network, a standardized protocol and education workshop on acute coronary syndrome improved the quality of intervention referrals in Penang General Hospital.⁸¹

3.3 Resilient adaptations in healthcare services

The strain on Malaysia's health system during the COVID-19 pandemic required effective task allocation and workload redistribution to manage the surge in healthcare needs. Importantly, the Malaysia Strategy for Emerging Diseases and Public Health Emergencies (MYSED) II Workplan (2017–2021) has a flexible implementation timeframe to accommodate differences in national planning cycles and capacities across the country in the International Health Regulations implementation agenda.

Hospitals reassigned healthcare professionals based on their skills and expertise, designating specialists from various departments to dedicated COVID-19 care units, where their knowledge and experience were most needed. Flexible workforce allocation allowed for the rapid deployment of resources and optimized patient care when the state of Sabah faced the country's third wave of COVID-19 infections in September 2020. The involvement of the military, police, and volunteers also enhanced the capacity of contact tracing, screening and testing, vaccination, and quarantine measures.⁸²

The Environmental Health Officer and Assistant Environmental Health Officer were involved in deployment to the International Points of Entry for traveler screening, quarantine measures and enforcement of the Prevention and Control of Infectious Disease Act 1988 [Act 342]. Deployment of resources by delegation of authority under the Prevention and Control of Infectious Disease Act 1988 [Act 342] to other government agencies also enhanced the capacity of enforcement activities by the Environmental Health Officer and Assistant Environmental Health Officer.

During the pandemic, leave applications were frozen for essential HCWs. Freezing leave applications and carefully managing rotation schedules also helped to ensure adequate staffing levels, although considerations were made for staff with children and comorbidities, given the heightened infection risks. Nurses undergoing post basic training were recalled, and at least 3,000 retired nurses returned as volunteers.⁸³

However, workers' welfare was considered whereby work schedules accounted for family support availability, childcare facilities for HCWs were established, and psychological first aid was provided. Civil society organizations (CSOs), NGOs, and volunteers, often independently managed, were involved in social welfare (e.g., by providing free food or face masks), counseling support via hotlines, and administrative support in vaccination programs.

As temporary pandemic facilities conclude their operations and healthcare professionals return to their original posts, applying learnings from the pandemic will be critical for clearing the backlog of up to 200,000 procedures unrelated to COVID-19 in MOH hospitals as of November 2021.⁸⁴

3.4 Recommendations

The lessons learned from the pandemic's emergency surge capacity should inform more effective task allocation and workload distribution among healthcare professionals. As the health system recovers from the pandemic, the following recommendations can help the system prepare for future challenges:

RECOMMENDATION 3A

Invest in and support the development of the health workforce

The HWP and Malaysian Health Coalition have both emphasized the importance of human resources in the health system.⁸⁵ Enhancing incentives, working conditions, and training opportunities can help attract and retain talent to increase the system's sustainability and resilience. Appropriate attention must be placed on retaining talent both in the public system (reducing brain drain to the private sector) and in Malaysia (reducing brain drain to other countries).

RECOMMENDATION 3B

Develop guidelines within the MOH to incentivize strategic, local adaptation of task shifting

Task shifting among nurses, AMOs, and doctors can address human resource constraints to a degree in resource-limited settings with local adaptation. MOH guidelines to incentivize and implement task shifting must consider worker compensation, evaluation, and integration processes to strengthen task allocation and distribution in local contexts. Task shifting is crucial and can help increase access, reduce costs, and improve HCW satisfaction and empowerment, provided that appropriate training, clinical protocols, monitoring and evaluation, clinical audits, and a transition period are in place.

RECOMMENDATION 3C

Expand and finance the existing social support structure of CSOs and NGOs

Strategic government and healthcare provider collaboration with CSOs and NGOs can help free up stretched resources. They may fill gaps in patient navigation and psychosocial support with oversight, ensuring patients receive timely medical attention and have appropriate medical information. Strengthening CSOs and NGOs should be seen as helping the government deliver comprehensive care rather than competing with the government.

RECOMMENDATION 3D

Review emergency surge capacity responses to identify bottlenecks and opportunities

Such a review may identify ways to optimize resource distribution, streamline operational processes, and prepare the healthcare system to respond effectively to potential emergencies or crises. The review must include multiple government agencies and be led at the highest levels of government, as surge capacity is an all-of-society effort.

RECOMMENDATION 3E

Utilize technology to mobilize volunteers and social workers

Networks of trained volunteers may improve patient access to information and healthcare services, particularly in underserved areas, and relay accurate healthcare information related to lifestyle and nutrition to the community. Technology helps coordinate these additional human resources to provide support effectively. Volunteers and social workers can be deployed to CSOs and NGOs, and they are crucial in supporting HCWs in regular health facilities, especially for the social care elements of healthcare.

4. DOMAIN 4

Medicines and technology



4.1 Approval, harmonization, and adoption of new medicines

The pharmaceutical industry generated MYR 3.4 billion for Malaysia's GDP in 2022.⁸⁶ Malaysia's well-established pharmaceutical sector, with more than 445 companies, covers a significant portion of the healthcare supply chain, with a total market value of MYR 7.5 billion in 2018.⁸⁷

At the core of the trusted pharmaceutical landscape is the National Pharmaceutical Regulatory Agency (NPRA), responsible for rigorously assessing new medicines for safety, quality, and efficacy before granting marketing authorization.⁸⁸ This process includes reviewing scientific data, clinical trials, and relevant documentation provided by pharmaceutical companies as well as ensuring compliance with international standards, such as good manufacturing practices and good clinical practices. It generally takes 12–15 months for a new medicine to be approved in Malaysia following its approval in the US; however, a more streamlined approval process will improve Malaysians' access to new medicines.

For new drugs, the NPRA has a regular review period of 365 days and a priority review period of 180 days. The median total assessment time is 279 days. Pharmaceutical companies took a median of 131 days to respond to questions in 2017; delays can occur because the companies may require information collated from multiple sources. To optimize efficiency, time limits have been proposed for keeping scientific assessment to 100 days and applicant response time to 6 months as well as allowing only a maximum of five review cycles.⁸⁹ Special circumstances, such as the evaluation of COVID-19 vaccines, may entail expedited review with more officers allocated to a case.

Malaysia introduced the idea of pharmaceutical harmonization among ASEAN member states.⁹⁰ In 1999, this led to the development of the ASEAN Pharmaceutical Product Working Group. This group is responsible for harmonizing pharmaceutical regulations and eliminating technical barriers to the trade of pharmaceutical products.⁹¹ It comprised representatives from the national regulatory agencies (NRAs) of ASEAN member states and has developed a common set of application guidelines and technical requirements for marketing authorization.⁹²

When at least three NRAs agree to participate, joint assessments are conducted on a voluntary basis to achieve a joint decision, irrespective of any participating country's technical capacity.⁹³ Such harmonization by regulatory agencies of different countries has accelerated pharmaceutical evaluation and decision-making.

After a medicine receives regulatory approval, its adoption is influenced by pricing negotiations, outreach to doctors, and inclusion on the MOH's Medicines Formulary. The private sector tends to adopt new medicines faster and more frequently than the public sector. However, public reimbursement also requires evidence of safety and efficacy at an early stage (i.e., at least 12 months after registration) before application for the MOH's Medicines Formulary.⁹⁴

4.2 Access to generic drugs and biosimilars

Generic drugs are bioequivalent to proprietary branded drugs, and their properties must be demonstrated through bioequivalence studies during registration. The medicines in the National Essential Medicines List (NEML), first published in January 2000, are listed by their chemical entities regardless of whether they are branded or generic, and the use of generic names in prescriptions is mandatory at public facilities.⁹⁵ Thus, the NEML not only upholds the principles of accessibility and affordability but also encourages the prudent procurement and prescription of medicines across healthcare facilities.

In 2017, the third edition of the National Medicine Policy (NMP) strengthened the government's position on generic drugs. The provision, under section 3.4.8 "Implementation of Generic Medicines Policy," addresses the accessibility of medicine to further encourage the procurement of generic drugs.⁹⁶ The NEML is regularly reviewed and updated to align with the WHO's Essential Medicines

List and as required by the NMP for domestic marketing, procurement, and training curriculum updates. This policy aims to increase healthy competition in pharmaceutical pricing and improve access to medicines.

Manufacturers of generic drugs, comprising mainly small and medium-sized enterprises, contribute to an estimated 1.5% of Malaysia's GDP.⁹⁷ The government has provided various forms of incentives to bridge investments and expertise gaps in an effort to expand local production of generic drugs for export.⁹⁸

Related to generic drugs, a biosimilar is a new biologic product developed to be highly similar in terms of quality, safety, and efficacy to an already registered, well-established reference product. However, unlike generic medicines, a biosimilar is not identical to its reference product. To regulate this emerging sector, Malaysia released comprehensive guidelines for biosimilars in 2018, outlining a stringent regulatory process for marketing approval to maintain the quality, efficacy, and safety of biosimilars.⁹⁹

Between 2008 and 2020, NPRA approved 24 biosimilar products. Most clinical trials on biosimilars approved in Malaysia involved monoclonal antibodies with reduced complexity.¹⁰⁰ Position statements issued in 2022 on the use of biosimilars in MOH facilities do not allow automatic substitution and require informed decisions by physicians and patients when switching to or from biosimilars or among biosimilars.¹⁰¹

A survey revealed that the main factors preventing the prescription of biosimilars among oncologists were patient preferences (40%) and an absence of biosimilars in hospitals (34%).¹⁰² By contrast, the main concern among hospital pharmacists in another study was the efficacy of these alternatives.¹⁰³ Implementing a prescriber-oriented rating system for biosimilar drugs can enhance confidence in their interchangeability and reliability.

In terms of innovative medicines, it is critical to balance access to new drugs with healthcare costs. When innovative treatments become available, the healthcare sector can deliver better patient care while appropriately rewarding innovation in sustainable ways.

4.3 Digital health services and technologies

4.3.1 Regulatory environment and government support

In Malaysia, 97% of the population has access to the internet.¹⁰⁴ Reports from the Ministry of Communications and Multimedia indicate ongoing efforts to improve digital infrastructure, including expanding broadband coverage and promoting digital literacy programs. These serve as the groundwork for adopting digital health services that have already begun to transform the landscape of health delivery.

Since the publication of the Telemedicine Blueprint by the MOH in 1997, several government efforts have encouraged and regulated the use of digital and telehealth in the country's healthcare system.¹⁰⁵ For example, the government's Digital Economy Blueprint includes a framework to accelerate the innovation and adoption of technology for healthcare-related products and the inclusion of blockchain in the Malaysia Health Data Warehouse (MyHDW). Government support for innovation is exemplified by research programs, such as the National Technology Innovation Sandbox (NTIS) and Online Healthcare Services Regulatory Lab.

The Malaysian Health Technology Assessment Section evaluates health technology at all points in the product lifecycle. Health technology includes pharmaceuticals, medical devices, procedures, programs, and diagnostics, which are assessed for safety, efficacy, cost effectiveness, and other organizational, social, ethical, and legal aspects. The assessment involves multidisciplinary experts and patient representatives, and the review time depends on the type of assessment and complexity

of the topic. This provides timely advice to health providers and policymakers to allow appropriate implementation and/or adoption of health technologies and to facilitate budgetary planning.

Despite these efforts, a scoping review found that Malaysian telemedicine guidelines overlook certain aspects, including reimbursement structures and service fees, user feedback mechanisms, and the range of choices offered to users.¹⁰⁶ System design and data pipeline of the platforms and products must be protected and updated for privacy and security with advancement of the sophisticated technology amid the rising threats of potential cyberattacks and data breaches.

4.3.2 Application of digital health

During the COVID-19 pandemic, outpatient visits in public health facilities dropped by as much as 19.5% between 2019 and 2020 after Malaysia implemented a country-wide lockdown.¹⁰⁷ Patients avoided follow-up consultations and unnecessary clinic visits for fear of infection, even though medical visits were not necessarily restricted.

Healthcare providers turned to telemedicine platforms, mobile health applications, and remote patient monitoring devices to ensure patients' access to care. Patients with milder symptoms were isolated and monitored at home, after triage through teleconsultation by a virtual CAC. To illustrate the capabilities of digital health, more than 500,000 patients were monitored using virtual CACs when selected hospitals neared full capacity.¹⁰⁸

Virtual services continue to expand as health services return to normal. For example, as part of the MOH's latest digitalization initiatives, the Electronic Medical Record (EMR) Project aims to reduce congestion in hospitals and clinics with the use of virtual live consultations supported by a national EMR system.

4.3.3 Remaining challenges

Despite the opportunities, there remain several challenges associated with digital health services. Uneven access to reliable internet connections and variations in digital literacy levels are prevalent. However, the main gaps lie in interoperability, meaning the ability of different healthcare systems and technologies to communicate, share, and use data effectively and efficiently. Achieving effective interoperability can be complex due to technical, legal, and ethical challenges, and ensuring data standardization, implementing secure data-sharing protocols, addressing privacy concerns, and navigating regulatory requirements are all part of the process.

Moreover, although virtual consultations are available in primary health clinics through free video conferencing services, a quarter of funding for these solutions comes from subsidies or pandemic-driven corporate social responsibility initiatives, raising concerns about the financial sustainability of the practices and their integration into routine care.¹⁰⁹ Hence, technology integration and strategic public-private partnerships can reduce the costs of implementing innovative technologies, increase access to digital health services and tools, increase interoperability between public and private providers, and reduce the risk of a digital health inequity gap.

4.4 Recommendations

Medicines and technology can fundamentally change how Malaysian residents receive care. As the health system moves beyond the COVID-19 pandemic, learnings from the last 3 years can be adopted to enhance sustainability and resilience in healthcare as well as the pharmaceutical and technological sectors. With these learnings in mind, this section outlines the following recommendations:

RECOMMENDATION 4A

Promote sustainable access to innovative pharmaceutical and digital health products and services

Essential medications should be accessible and affordable for all individuals, and this will be crucial as Malaysia's population ages. The relevant government unit should investigate how to improve medicine accessibility by collaborating across sectors, including improving the resilience of medicine supply chains by diversifying vendors and suppliers. In addition, the government must implement ways to increase sustainable access to medical technology and digital health products and services to improve population health. Emergency Use Listing procedures can be formally incorporated as a standing procedure in the NPRA and the Medical Device Authority for crisis response.

RECOMMENDATION 4B

Integrate digital tools into routine care

Temporary mechanisms implemented during the pandemic, such as virtual consultations and remote patient management, can be integrated into routine guidelines and care to increase access and reduce costs. Addressing the interoperability of systems and unstable digital infrastructure in certain regions will be key for a streamlined provider and patient experience. In this respect, the nationwide implementation of 5G mobile communications will allow for an effective digital health clinical ecosystem.

RECOMMENDATION 4C

Support institutional upgrading of diagnostics and imaging systems with consideration for their cost savings and interoperability

Adopting economically viable, up-to-date technology increases healthcare quality and facilitates integration across different systems, thereby enhancing overall healthcare efficiency. Providers should carefully consider the long-term benefits and potential cost savings of phasing out obsolete technology against the immediate financial implications and challenges of undertaking such upgrades. In addition, measures to ensure cybersecurity and privacy related to patient data should be addressed via institutional upgrades.

RECOMMENDATION 4D

Establish a system for resource sharing between public and private healthcare facilities

Malaysia should encourage the effective use of private service providers' underutilized medicines stockpile, medical equipment, and laboratory diagnostic capacity. This can reduce congestion in public facilities and improve efficiency for both public and private providers. Rather than nationalizing private healthcare resources, the philosophy of this approach is to promote resource sharing by using market prices and not resource consolidation under the care of the government.

5. DOMAIN 5

Service delivery



5.1 Quality assurance and accreditation in public and private facilities

Health facilities in Malaysia, both public and private, are required to adhere to established quality standards and regulations. The Malaysian Society for Quality in Health (MSQH) is the national accrediting body for healthcare facilities and services and has been awarded the International Society for Quality in Health Care (ISQua) accreditation certification. MSQH was conceived as a collaborative effort among the MOH, the Association of Private Hospitals of Malaysia, and the Malaysian Medical Association. Healthcare facilities voluntarily adopt the accreditation process of the MSQH to demonstrate their commitment to patient safety and quality of care.¹¹⁰

Quality is upheld in public healthcare facilities through institutionalized quality assurance programs and clinical audits. Clinical audits are integrated into the system to ensure ongoing improvement in healthcare delivery. The Accreditation and Standard Unit from the MOH's Medical Development Division acts as a technical committee to coordinate the implementation and monitoring of the accreditation certification process of public hospitals. The Occupational Safety and Health Unit also plays a vital role in ensuring that public healthcare facilities comply with the requirements of the Occupational Safety and Health Act 1994 and Environmental Quality Act 1974.

Meanwhile, oversight of private healthcare operators falls under the purview of the Medical Practice Division of the Private Medical Practice Control Section (CKAPS), upholding the requirements of the Private Healthcare Facilities and Services Act of 1998.¹¹¹ Compliance with these standards, covering infrastructure, equipment, human resources, patient care, and infection control, is monitored through regular inspections, audits, and accreditation renewal.

Financial incentives, primarily through tax-deductible schemes, are an integral part of quality improvement in private healthcare. For example, hospital maintenance and international accreditation are tax deductible, encouraging hospitals to seek international accreditation and improve quality of care. Evidencing this commitment, Malaysia scored 95% in the Health Care category of the International Living Annual Global Retirement Index 2019.¹¹²

The high quality and affordability of Malaysia's health services have made the country a preferred destination for healthcare tourism. In 2018, the market for healthcare tourism brought in approximately US\$362 million, primarily to the private sector.¹¹³ The number of healthcare tourists visiting Malaysia, with most coming from neighboring countries, primarily Indonesia, has increased in recent years. The Joint Commission International, an international organization that assesses health facilities, has recognized many medical facilities and services in Malaysia.¹¹⁴ Its accreditation serves as a proxy for patients to gauge safety and quality of care, incentivizing health facilities to attain recognition.

5.2 The public–private health service model

Malaysia has a dual healthcare service model in which public healthcare facilities provide highly subsidized services funded by taxes and private healthcare services adopt a fee-for-service scheme from out-of-pocket (OOP) payments or insurance. Malaysia scores relatively well in the universal health coverage (UHC) service coverage index, at 72 points out of a possible 100 (the higher the score, the better the UHC).¹¹⁵

In the public healthcare system, primary care doctors generally serve as gatekeepers for patients seeking specialized care, where referrals are required. However, some private specialist hospitals accept outpatient visits without a referral, which can lead to over usage of healthcare services arising from a lack of integration in patient medical records across hospital information systems as well as patients' wishes to get a second opinion.

The imbalance of health services between public and private providers is apparent in three aspects:

Workforce distribution: Most outpatients (64%) receive care in public primary healthcare facilities. However, these public facilities account for only 28% of all primary healthcare facilities, whereas the remaining 72% are private. Although the ratio of hospital beds to doctors has improved over the last 20 years, high workloads and understaffing in public services have pushed HCWs to the private sector, creating competition for a limited pool of workers.

Geography: Private clinics and hospital networks are predominantly near urban agglomerations, such as the Klang Valley.¹¹⁶ Remote rural areas are primarily served by public health services. Local governments may need to bear higher operational and logistical costs incurred in maintaining facilities, delivering services, and providing worker incentives.

Comprehensiveness and affordability of health services: The types of and geographical distribution of private healthcare services are driven by perceived importance and demand by patients (and their ability to pay for such services). Because sicker and poorer patients are more likely to use the public health system, public health services may struggle to absorb increased costs. Concurrently, public services must fill gaps where private services are unavailable, especially in preventive care, with limited resources. The lack of coordination between public and private health services results in duplication, lack of continuity, and some underutilization of high-end technology.

5.3 Healthcare delivery in a pandemic

The pandemic was one of the most significant health crises faced by the Malaysian health system since the country's independence in 1957. The first case was reported on January 24, 2020, but until mid-March 2020, case numbers were low and largely imported. The Malaysian government imposed a Movement to Control Order (MCO) on March 18, 2020, after a sudden rise in cases and difficulty in contact tracing. The MCO measures and aggressive screening approaches helped to reduce the spread of disease early in the pandemic.¹¹⁷

However, the situation subsequently worsened amid increasing viral spread and ongoing political instability, resulting in the declaration of a national state of emergency from January 2021 to August 2021.¹¹⁸ At one point during this time, in July 2021, Malaysia recorded 483.72 confirmed infections per million people, the highest in Asia.¹¹⁹ The excess death toll was reportedly 13%–24% that same year and older adults with comorbidity of NCDs were classified as high risk of mortality, highlighting the complexity of care needs.¹²⁰

To manage the surge of COVID-19 cases, an immediate reorganization of resources within the chronically understaffed and underfunded public health system was necessary. Several committees and task forces were activated, and activities were implemented for effective control of the pandemic in 2020–2022. Below are some examples.

1. The national COVID-19 Immunization Program (PICK), administered by the Special Committee for Ensuring Access to COVID-19 Vaccine Supply (JKJAV) led by a coordinating minister and co-chaired by the Minister of Health and Minister of Science, Technology, and Innovation (see Case Study 1). In October 2022, at least 80% of the total Malaysian population had received two doses of vaccine.¹²¹
2. The Greater Klang Valley Special Task Force was initiated to maintain surge capacity at the height of the pandemic. Later, its name was changed to National Rapid Response Task Force, widening its geographical scope to cover the entire country.
3. Activities such as daily press conferences by the Crisis Preparedness and Response Centre, daily meetings with the Director-General of Health, mobilization of the workforce, contact tracing, and community empowerment.

The capacity of intensive care units (ICUs) in designated COVID-19 hospitals reached near capacity at the height of the pandemic.^{122 123} By repurposing hospital wards, postponing nonemergency

appointments, and mobilizing workers from less-affected zones, the MOH increased the availability of hospital beds, ICU beds, and ventilators. Additional temporary quarantine centers were set up with the help of the army to free up spaces and beds in hospitals for patients with severe COVID-19.

For instance, Sungai Buloh Hospital in the state of Selangor expanded its original capacity of 900 beds to almost 2000 beds by renovating an old neighboring hospital. When hospital ICUs became overcrowded, hospital administrators also identified daycare centers and operating rooms that could be converted into ICUs.¹²⁴ Clinic workflows were also redesigned to lower the risk of spreading disease, and the contact tracing mobile application MySejahtera educated patients on alternatives to overcrowded healthcare facilities.

Moreover, the involvement of multiple stakeholders in the pandemic response, especially the cooperation of the private health sector, was well received. Patients with other medical conditions were redirected to alternative private hospitals that played a vital role in screening and vaccination (see Case Study 2). Private health screening labs also offered equipment for polymerase chain reaction tests and genomic sequencing.

5.4 Recommendations

Delivering high-quality health services, even at times of unprecedented challenges such as the COVID-19 pandemic, is essential to safeguarding the well-being of Malaysia's population. Several critical issues within the healthcare system remain, including disparities between public and private providers, inadequate coordination, and challenges in emergency preparedness. To address these challenges and enhance the overall quality of health services, the following recommendations are proposed:

RECOMMENDATION 5A

Adopt an integrated care model for NCDs

Individuals with NCDs require comprehensive and sustainable continuity of care. A holistic approach, involving active participation from the community as well as public, private, and traditional healthcare providers, can help minimize gaps in care, manage symptoms and improve life satisfaction. Task shifting, social prescribing, and strengthening primary healthcare systems are crucial for reducing the burden of NCDs, as well as strengthening an all-of-government approach to address the SDOH.

RECOMMENDATION 5B

Encourage shared responsibility among all parties on the continuum of health

Aligning private interests and incentives helps strengthen shared responsibility to enhance comprehensive care for all, which may further strengthen healthcare access, delivery, and sustainability across the healthcare ecosystem. Specifically, shared ownership and interests improve access to services, covering prevention, primary care, specialized treatment, and long-term management.

RECOMMENDATION 5C

Harmonize medical records between primary and secondary care and between the public and private sectors

The mechanisms by which medical records are shared efficiently and safely across various healthcare facilities should be reviewed to improve coordination and minimize redundancies. Interoperability among information systems may streamline data exchange processes and reduce healthcare costs of continuity of care. Harmonized patient records can improve healthcare quality (with more data and analytics as well as more accurate and complete patient information), allow interoperability between the public and private sectors, and deliver better care during a pandemic.

RECOMMENDATION 5D

Evaluate the feasibility and expand innovative delivery models using digital tools with public and private providers

To mitigate the direct implications of the maldistribution of public and private HCWs and geographical barriers to healthcare, digital tools involving telehealth, remote patient monitoring, and mobile clinics may be expanded or adapted to fit local contexts, drawing from experiences during the pandemic. Financial sustainability, efficacy, and patient acceptability are three critical components of the evaluation criteria for regulatory approval, reimbursement, and integration with clinical protocols.

CASE STUDY 1

National COVID-19 Immunization Program



The largest public–private partnership undertaken in Malaysia: National COVID-19 Immunization Program (PICK)

Malaysia's National COVID-19 Immunization Program (PICK), launched in February 2021, represented a pivotal commitment to reducing infections and achieving widespread vaccination coverage. The program unfolded in three phases, initially targeting frontline workers, healthcare professionals, and senior citizens, and subsequently expanded to include all adults aged 18 and above. Coinciding with a surge in outbreaks, the MOH embarked on an unprecedented public–private partnership by appointing the ProtectHealth Corporation (ProtectHealth) to accelerate vaccine delivery by engaging private medical practitioners. Established on December 29, 2016, ProtectHealth is a private company fully owned by MOF Inc (itself fully owned by the Ministry of Finance). ProtectHealth coordinates and manages healthcare service initiatives, including healthcare financing, as directed by the MOH. Directors of ProtectHealth include senior leaders in the MOH and Ministry of Finance.

ProtectHealth significantly expanded vaccination capacity with a network of over 2,000 private clinics, hospitals, ambulatory care centers, and specialist clinics across the country. From April 2021 to June 2022, they delivered over 38 million vaccine doses. The government reimbursed participating private providers for the doses of vaccines delivered. The introduction of off-site integrated vaccination centers, capable of administering up to 15,000 doses daily in densely populated areas, further streamlined the process.

NGOs such as the Malaysian Medical Relief Society and Majlis Kanser Nasional played a vital role in reaching underprivileged, rural, and remote communities. An in-house digital system and vaccine control system were developed and deployed for quality assurance, service satisfaction, and in-time monitoring. Capacity-building programs were transformed into a self-learning online training module and assessment to optimize and standardize practices, thus enabling more providers to support the program.

To combat misinformation and vaccine hesitancy, Malaysia's MOH; Ministry of Science, Technology, and Innovation; and healthcare providers launched extensive campaigns. ProtectHealth's customer relationship management system addressed queries from providers and vaccine recipients via calls and emails. The corporation also facilitated coordination with the Malaysia Vaccine Administration System (MyVAS) and MySejahtera, a mobile application for contact tracing, self-quarantining, and vaccination appointments, despite these systems not being directly under the company's purview.

As necessitated by the evolving COVID-19 outbreak pattern, PICK has operated dynamically and adapted to supply and demand fluctuations. Timely data analysis of vaccination trends was tightly linked to the opening and closing of vaccination centers, as well as communication strategies and policymaking of the COVID-19 Immunization Task Force.

With over 98% of adults having received at least two vaccine doses, the wide vaccination coverage has saved lives, facilitated the gradual easing of public health restrictions, and supported economic recovery. This successful collaboration has strengthened trust between the government and private healthcare providers, setting the stage for ongoing and future collaborations. Examples of current programs include PeKa B40 and Skim Perubatan MADANI, which enable patients in the B40 population to seek free or affordable acute primary care services in private medical clinics.¹²⁵ This multi-stakeholder collaborative approach demonstrates the essential infrastructure needed for effective service referral and resource sharing within Malaysia's public–private healthcare system beyond the country's recovery phase.

CASE STUDY 2

Patient decanting during the COVID-19 pandemic



Public–private coordination to maintain services in a crisis: Patient decanting during the COVID-19 pandemic

As the Delta variant of COVID-19 spread throughout Malaysia, on July 20, 2021, the MOH issued an order to transfer all patients without COVID-19 from public hospitals in the populous Klang Valley to private hospitals.¹²⁶ An estimated 15,000 patients without COVID-19 were decanted, or moved, from July through December 2021.¹²⁷ With a referral from a specialist at a public hospital, these patients were transferred to private hospitals for treatment and procedures in cardiology, obstetrics and gynecology, neurosurgery, and general surgery.¹²⁸ The government absorbed the cost of care for decanted patients up to a predetermined amount, and the decanted patients did not have to pay the difference.

This strategy was designed to free up capacity at public hospitals facing overwhelming demand for COVID-19 treatments while also reducing the risk of in-hospital COVID-19 infections among patients and HCWs. Moreover, decanting was a way to address the considerable backlog of procedures unrelated to COVID-19 that had built up over the first year and a half of the pandemic.

In January 2022, the Association of Private Hospitals Malaysia described the decanting process and reimbursement structure as a “fruitful” means of encouraging public–private partnerships.¹²⁹ Where the private sector has more capacity than public hospitals to provide diagnostics, imaging, and surgeries, the government can purchase private sector services that reduce costs and wait times for patients. The outsourcing initiative was not without drawbacks, though. One university hospital noted instances of delayed payments, patients transferring back to the public sector upon testing positive for COVID-19, and expenditures exceeding expected amounts. These issues decreased over time, signaling room for improvement for future decanting mechanisms.¹³⁰

As Malaysia moves away from the pandemic emergency, decanting between public and private healthcare service providers opens the possibility to optimize service delivery. Decanting patients to private hospitals for diagnostics and imaging has been recommended to address pandemic-era backlogs, and as of September 2023, the MOH was in negotiations to continue the practice after the emergency stage of the pandemic.¹³¹ Furthermore, the MOH has earmarked MYR 200 million from the 2024 budget to step up cooperation to outsource patients to military, university, and private hospitals, aiming to alleviate overcrowding in public facilities.¹³²

Moving forward, challenges lie in creating a pricing model for routine – rather than emergency – circumstances. Whereas public sector purchasing of healthcare services from the private sector created a win-win situation for the MOH and private hospitals during the pandemic emergency, sustainably relieving pressure on the public hospitals in the long term by routing patients to the private sector will require continual operational coordination and financing before nonemergency routine decanting arrangements are built into standard procedures. Public–private coordination that builds on the success of decanting during the COVID-19 pandemic can accelerate service delivery, reduce patient wait times, and contribute to long-term sustainability in Malaysia’s healthcare system.

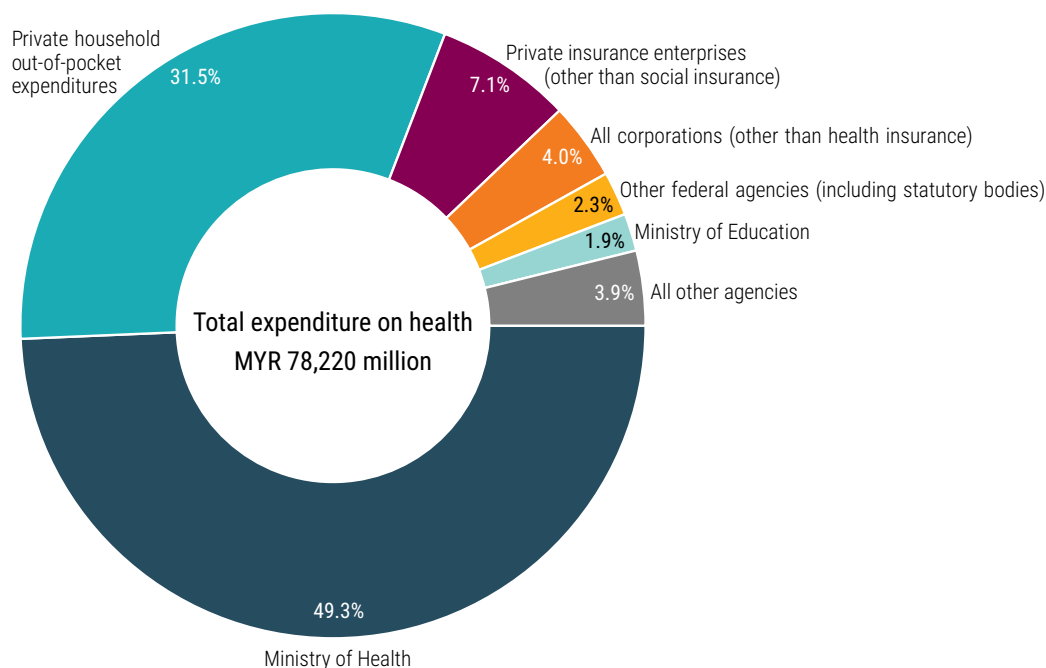
6. DOMAIN 6
Financing



6.1 Sources of financing

In Malaysia, healthcare is funded through a mix of private and public sources. Public sources include taxes paid to local and federal governments, social security funds, and other public entities. Private sources include OOP payments, private insurance premiums, corporations, nonprofit institutions, etc. Among these, the MOH is the largest source of funding, accounting for 49% of total expenditure on health (TEH), or MYR 38.6 billion, in 2021 (Figure 1).

Figure 1: Total Expenditure on Health by Sources of Financing, 2021



Source: Malaysia National Health Accounts (MNHA) Planning Division MOH Malaysia, "MNHA Steering Committee Meeting 2022" (PowerPoint presentation, MNHA Steering Committee Meeting 2022, November 10, 2022), [www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/MNHA/Slaid_Pembentangan_Mesyuarat_Jawatankuasa_Pemandu_MNHA_2022_\(10_Nov_2022\)_-_NATIONAL_HEALTH_EXPENDITURE_2011-2021.pdf](http://www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/MNHA/Slaid_Pembentangan_Mesyuarat_Jawatankuasa_Pemandu_MNHA_2022_(10_Nov_2022)_-_NATIONAL_HEALTH_EXPENDITURE_2011-2021.pdf).

Public health services are heavily subsidized by the government, and patients are charged only a nominal fee to access services. Conversely, private health services require OOP payments or co-payments with insurance coverage, purchased individually by only 22% of Malaysians.¹³³ OOP payments accounted for 32% of TEH (MYR 24.6 billion) in 2021 (Figure 1) and funded 75% of Malaysia's private healthcare services. This figure is higher compared with that of other upper-middle-income (32%) and Western Pacific (25.9%) countries. Most OOP payments are made by wealthier households; according to the 2014–2015 survey data, with the richest 20% of Malaysian households accounted for 47.0% of all OOP payments while the poorest 20% accounted for 4.9%.¹³⁴

6.2 Main financing challenges ahead

Malaysia's public-private healthcare system faces three pressing financial challenges that have implications on healthcare quality and equitable access.

First, public spending on health remains consistently low, resulting in a range of issues including chronic understaffing, high workloads, and critical infrastructure shortages.¹³⁵ Compounding this issue is inefficient healthcare utilization. Patients can seek care at very low costs at heavily subsidized facilities, ensuring equitable health access to patients of lower socioeconomic status.

However, these patients may have lower health literacy or challenges to access primary care, thereby utilizing healthcare only when their conditions worsen, incurring substantially higher costs than they would if they had sought early treatment or preventive care. Additionally, an aging population requires more extended and specialized care, adding to the financial burden on the health system.¹³⁶

On a macro level, the annual healthcare costs of cardiovascular diseases, diabetes, and cancer in Malaysia exceed MYR 9.65 billion.¹³⁷ Aging societies typically experience slowing GDP growth, rendering increased investment in health more challenging. Data suggests that a 1% increase in Malaysia's old-age dependency ratio (i.e., the ratio of older, economically inactive people to working-aged people) will decrease the GDP growth by 6.6%.¹³⁸

Second, OOP payments are steadily rising from 1.3% to 1.6% GDP over the last 10 years since 2011.¹³⁹ Nearly half of total OOP expenditures are in private hospitals and outpatient services. Moreover, private insurance plays a comparatively minor role in total healthcare financing, accounting for 7% of TEH compared with OOP payments at 32% of TEH in 2021 (Figure 1). With higher OOP payments, patients with limited financial protection are especially at risk.¹⁴⁰ Vulnerable groups including those aged 50 years and above, rural, self-employed, unemployed, and those with lower education levels were reportedly more likely to be uninsured, creating higher risks of catastrophic healthcare spending.¹⁴¹

Third, the price of pharmaceutical goods is on the rise.¹⁴² In 2016, the public sector financed approximately 32% of Malaysia's total pharmaceutical expenditure amounting to MYR 6.4 billion. Moreover, since 2004, the most significant expenses in OOP payments have consistently been attributed to pharmaceutical products, which include prescriptive and non-prescriptive medicine, vitamins, and health supplements.¹⁴³ However, additional analysis is needed to determine the pharmaceutical categories driving rising costs.

There is also a notable contrast in the accessibility of generic drugs in the public and private sectors. In the public sector, under the NMP, generic drugs are generally more available than their brand-name counterparts.¹⁴⁴ On the other hand, pharmaceutical products in private hospitals have large price variations and higher mark-ups than in retail pharmacies. Prices in the public sector are typically only 1.5 times international reference prices but could reach 8.4 times reference prices in the private sector.

Several factors are likely to contribute to this discrepancy, including market dynamics and differences in procurement practices. Nonetheless, as OOP payments are more prevalent in the private sector, it is necessary to explore strategies to enhance affordability and accessibility to such vital services.

6.3 High cost of the pandemic on the health system

The pandemic took a significant toll on Malaysia's TEH. Three key observations from the 2021 national health expenditures data (Table 5) reflect the scale of this impact.

Table 5: National Health Expenditure 2021

Total Expenditure on Health (TEH)	RM78,220 million
Current Health Expenditure (CEH)	RM67,746 million
TEH as % of GDP	5.1%
CHE as % of GDP	4.4%
Per capita expenditure on health	RM2,401
TEH from public sources of financing	RM45,250 million (57.9% of TEH)
TEH from private sources of financing	RM32,969 million (42.1% of TEH)
MOH expenditure on health	RM38,586 million (49.3% of TEH)
TEH (when ranked by healthcare provider) is highest for hospitals	RM39,405 million (50.4% of TEH)
TEH (when ranked by healthcare function) is highest for curative care services	RM45,204 million (58.1% of TEH)
Private household out-of-pocket expenditure (OOP)	RM24,643 million (1.5% of TEH)
OOP expenditure (when ranked by healthcare provider) is highest for private providers	RM11,423 million (46.4% of total OOP expenditure)
OOP expenditure (when ranked by healthcare function) is highest for outpatient services	RM9,983 million (40.5% of total OOP expenditure)

Source: Malaysia National Health Accounts (MNHA) Planning Division MOH Malaysia, "MNHA Steering Committee Meeting 2022" (PowerPoint presentation, MNHA Steering Committee Meeting 2022, November 10, 2022), [www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/MNHA/Slaid_Pembentangan_Mesyuarat_Jawatankuasa_Pemandu_MNHA_2022_\(10_Nov_2022\)_-_NATIONAL_HEALTH_EXPENDITURE_2011-2021.pdf](http://www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/MNHA/Slaid_Pembentangan_Mesyuarat_Jawatankuasa_Pemandu_MNHA_2022_(10_Nov_2022)_-_NATIONAL_HEALTH_EXPENDITURE_2011-2021.pdf).

First, 2021 saw the highest TEH (5.1% of GDP) in recent years. This substantial increase was driven by the provision of care to patients with severe COVID-19, expansion of the immunization program, and increase in public health spending (e.g., on laboratories, data management, and education). This represents a significant departure from the historical TEH, i.e., 2.5–3.8% of GDP since 2000.¹⁴⁵ Moreover, domestic general government health expenditure (GGHE-D) was 8.6% of general government expenditure as of 2020.¹⁴⁶

Second, spending on immunization increased 22-fold from 2019 to 2021, reaching MYR 5.4 billion, mainly due to nationwide COVID-19 vaccination efforts. In comparison, overall spending on all classes of preventive care, including immunization, disease prevention, surveillance, early detection, and health education programs, was only MYR 3.8 billion in 2019. Immunization spending is expected to return to baseline after the cease of the national COVID-19 immunization campaign. Hospital expenditure accounted for half of all expenditure by healthcare providers in 2021. This is consistent with the observation that curative care services accounted for 58% of spending by the functions of care.

Third, ambulatory care spending increased substantially for services outside of medical clinics, mainly driven by increased demand related to COVID-19 cases. For example, spending in the “other” ambulatory services category, including diagnostic labs, blood and organ banks, ambulance services, and family planning, reached 39.5% of total ambulatory care spending in 2021. This represents an almost two-fold increase compared with the same value in 2020. This also surpasses expenditure in both public (26.8%) and private (29.9%) medical clinics, suggesting that this group of services may have expanded considerably in response to demand.

6.4 Risk evaluation and financial mechanisms for a crisis

Effective planning and budgeting are crucial for crisis management, as they provide the foundation for informed decision-making, resource allocation, and swift response to mitigate the impact of unforeseen events. Regarding planning, the MOH performs regular risk evaluations and plans its strategy on a 5-year basis. The evaluation of 2016–2020 assessed various categories of risks, identifying responsible parties and stakeholders involved and rating the impact on people, reputation, finance, operation, and regulation. This evaluation also provided a list of prevention and mitigation actions, each accompanied by specific timelines.¹⁴⁷

The budgeting process considers historical disease burdens, trends in annual expenditures, and discipline-specific funding requests. However, how the projections of disease burdens, especially those stemming from climate-sensitive diseases, are used to refine budget allocation annually is unclear. Moreover, details regarding national financing to increase capacity for potential epidemic risks between 2018 and 2020 have not yet been made public, except for those related to the COVID-19 response.¹⁴⁸ Apart from predictive analysis, calls have increased for more economic evaluation in health policy planning to justify funding and serve as the basis of evaluation.

The budgeting process helps to ensure that several financial mechanisms are accessible at both the national and state levels in public health emergencies.¹⁴⁹ These mechanisms include state-level trust funds, the National Disaster Relief Trust Fund managed by the National Disaster Management Agency, and the 15% contingency fund in the annual MOH budget with emergency disbursement mechanisms. The National Disaster Relief Fund promotes voluntary contributions from private organizations and people based on the philosophy of shared responsibility. At the regional level, Malaysia also has access to the ASEAN Agreement on Disaster Management and Emergency Response Fund, although health emergencies are not considered disasters warranting the use of the agreement.

The COVID-19 pandemic serves as a tangible testament to the necessity of effective financial mechanisms. An estimated MYR 7.6 billion was spent on the COVID-19 response, which is likely an underestimation due to limited information on OOP and corporate expenditures and the costs of digital technology.¹⁵⁰ Potentially as a COVID-19-related effect, MYR 36.1 billion has been allocated to the MOH's annual budget in 2023, a 12% increase from MYR 32.4 billion in 2022.¹⁵¹

Although the MOH plays a considerable role in spearheading Malaysia's public health strategy and financing, the shared responsibility for health cannot be overlooked to achieve UHC goals. With per capita health expenditures increasing by 69% over the past decade, the financial burden on the MOH has considerably increased. In other words, tax-based financing alone is insufficient; conversations on social health insurance, employer contributions, and user fees are warranted to diversify the sources of funds and encourage shared responsibility for health.

6.5 Recommendations

The financial landscape of Malaysia's healthcare system has undergone significant shifts, most notably due to the profound impact of the COVID-19 pandemic. As the nation grapples with evolving challenges in health financing, strategic measures are urgently needed to ensure sustainable and equitable healthcare services. The following recommendations address these pressing concerns and aim to enhance the overall health financing framework:

RECOMMENDATION 6A

Study “sustainable and equitable progressive contributory models” for healthcare financing, such as social and national health insurance or equivalent efforts

The term “sustainable and equitable progressive contributory models” is from the HWP, passed in Parliament in June 2023. Malaysia can study, communicate, pilot, and progressively expand population-based health insurance schemes or models to facilitate risk-pooling, reduce OOP costs, and enhance access to affordable healthcare services. The initial pilot can help determine the suitable design of benefit packages, claim processes, premium rates, and governing bodies. This stepwise approach, with well-defined contributions from private donors/funders, may shift part of the subsidy responsibility away from the government and promote sustainable financial protection and equitable healthcare access. Whether to start and the exact mechanism of starting social health insurance in Malaysia will depend on the deliberations of the HWP implementation process and should include benchmarking using the experience of countries such as Taiwan, Japan, Thailand, and Indonesia.

RECOMMENDATION 6B

As social health insurance is rolled out, gradually introduce incentives and coverage to emphasize preventive and holistic care

Current insurance coverage is predominantly tuned to curative care (e.g., medical procedures, inpatient fees, and prescriptions) to minimize moral hazard. The government can consider expanding the insurance regulatory framework to incentivize preventive coverage (disease prevention and/or complication prevention) in insurance policies. This coverage should further encompass comprehensive services provided by clinicians, such as dentists, nutritionists, psychologists, and therapists, for overall population health.

RECOMMENDATION 6C

Mobilize funding from international donors

Malaysia may access international financing facilities after a comprehensive assessment of readiness to address climate-related health challenges and emerging infectious diseases. Separately, but relatedly, the MOH may integrate climate change and pandemic preparedness components into relevant portfolios to improve resilience.

RECOMMENDATION 6D

Assess the affordability and scope of existing insurance schemes and examine the barriers to uptake

Relevant units may identify the population excluded from the private insurance landscape (i.e., personal or employer-provided insurance) and provide recommendations to harmonize the benefit packages between insurers and between the public and private sectors. The intention is to improve public coverage and reduce the disparity between public and private coverage and access. The market assessment may open opportunities within existing institutions to address the root cause of insufficiencies in package demand or supply. This exercise can be completed among the Ministry of Human Resources, Ministry of Finance, and Bank Negara Malaysia as a joint effort to formalize the economy and reduce the size of the informal economy.

RECOMMENDATION 6E

Assess how variable user fees could be used to enhance affordability and cost recovery in public facilities

By identifying appropriate pricing benchmarks, along with workflow optimization, this proposed assessment can help strike a balance between long-term financial sustainability and health equity, while reducing wastage and inefficiencies in the health system. Notably, user fees must not reduce access or health-seeking behaviors. This recommendation is consistent with plans outlined in the HWP, which states, “the range of fees and charges in public healthcare facilities will be reviewed to be more commensurate with different affordability levels, while still maintaining the safety nets and current affordability levels for lower-income households.”

7. DOMAIN 7

Governance



7.1 Governance structure and leadership

The key decision-making body in the Malaysian health system is the MOH, which is also the largest provider of health services. The MOH is responsible for centrally administering civil service-based public health services from health promotion to curative and rehabilitative care. The MOH is led by the Minister of Health and operates in a predominantly centralized structure with various divisions and departments (Figure 2).

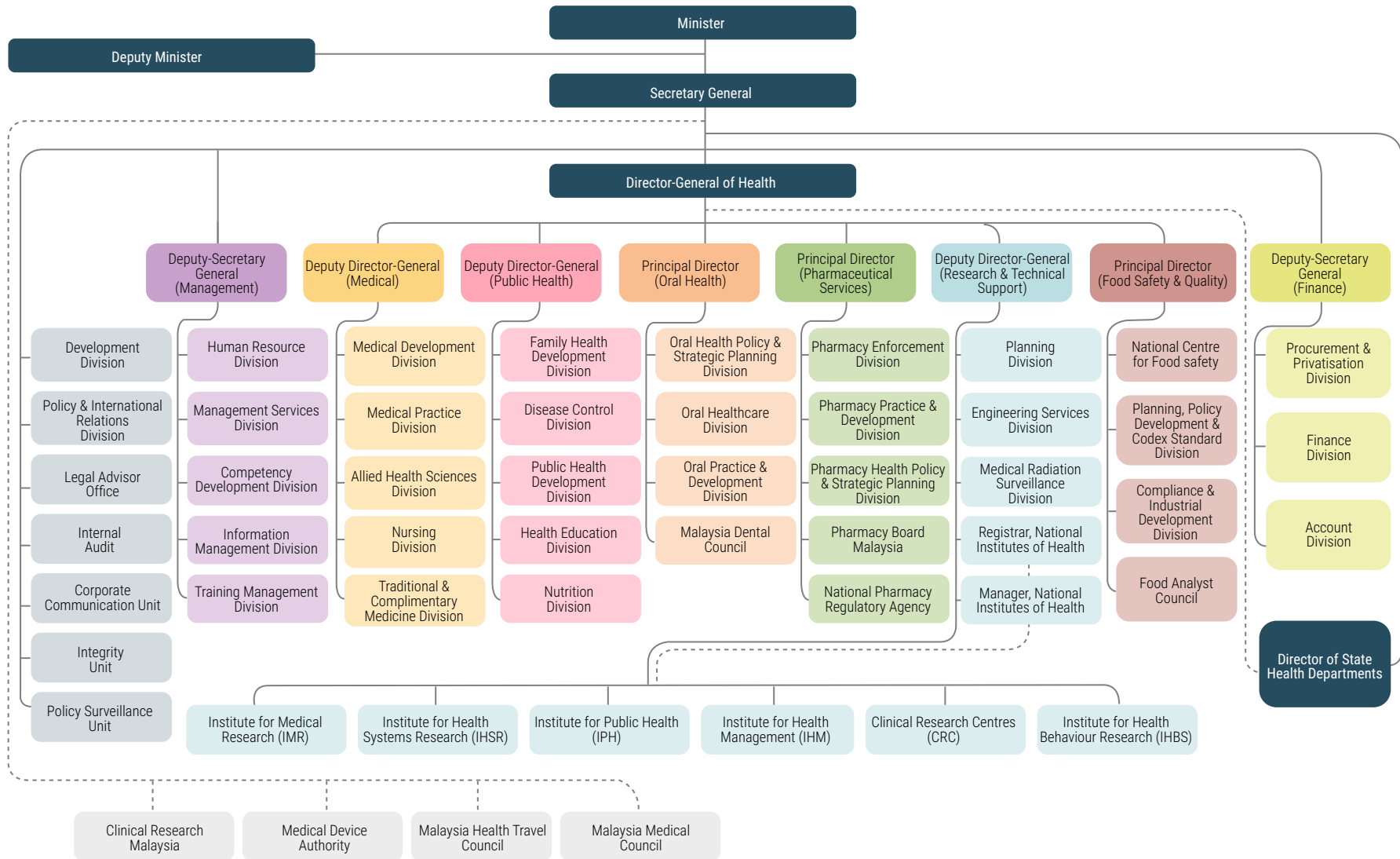
The Director-General then delegates authority to the Deputy Director-General or Principal Director of seven portfolios, each of which is further divided into respective divisions and departments. Regarding governance, the finance and account divisions report to the Deputy-Secretary General. Additionally, the MOH maintains relationships with statutory bodies, namely Clinical Research Malaysia, the Medical Device Authority, the Malaysia Health Travel Council, and the ProtectHealth Corporation. This structure enables the MOH to play a pivotal role in regulating stakeholders, setting health-related policies and standards, and ensuring quality of care across systems.

Driving the state-level health agenda is the director of a state's health department, with federal guidance on centralized planning and budget allocation. From there, the chain of command cascades to district health offices, which monitor primary care clinics and conduct other public health duties, including disease surveillance and community health promotion. Each level determines information flow and supervision in a progressively decentralized manner.

Additional intersectoral involvement is achieved through collaboration between government agencies from different sectors with shared health-related interests. For example, the Department of Aboriginal (Orang Asli) Affairs works with the MOH to provide health services to the indigenous population. The Ministry of Higher Education oversees university teaching hospitals, and the Ministry of Defence manages several military hospitals and medical facilities. The Ministry of Home Affairs oversees drug rehabilitation facilities, the Department of Social Welfare supervises nursing homes for older people, and the Ministry of Housing and Local Government offers some health care and environmental health services. This intersectoral collaboration increases the MOH's capacity to address a broad spectrum of health-related challenges and promotes a holistic approach to public health management.

Furthermore, several councils and boards regulate the registration of qualified healthcare professionals (Table 6). The private sector, including private medical clinics, dental clinics, hospitals, and other services, is regulated under the Private Health Care Facilities and Services Act of 1998. The Registrar of Societies regulates health-related NGOs, which are required to abide by all applicable laws and regulations.

Figure 2: Organizational structure of Malaysia's MOH



Source: Annual Report 2021 (MOH Malaysia, [accessed November 28, 2023]), www.moh.gov.my/moh/resources/Penerbitan/Penerbitan%20Utama/ANNUAL%20REPORT/Annual_Report_MoH_2021-compressed.pdf.

Table 6: Regulation of HCWs

Healthcare profession	Applicable regulation	Registration body
Medical doctors	Medical Act 1971	Malaysian Medical Council
Dentists	Dental Act 1971	Malaysian Dental Council
Assistant medical officers	Medical Assistants (Registration) Act 1977	Medical Assistants Board
Nurses	Nursing Board under the Nurses Act 1950	Nursing Board
Nurses with post basic training in midwifery Community nurses	Midwives Act 1966	Midwives Board
Pharmacists	Registration of Pharmacists Act 1951	Pharmacy Board
Opticians and optometrists	Optical Act 1991	Optical Council
Assistant medical officers	Act 180 Medical Assistants (Registration) Act 1977	Medical Assistants Board
Allied Health Professionals	Allied Health Professions Act 2016	Malaysian Allied Health Professions Council
Counsellors	Counsellors Act 1998	Malaysian Board of Counsellors

7.2 Evidence-informed goal setting

The Malaysia Plans, issued by the Economic Planning Unit of the Prime Minister's Department, outline the government's overall strategies, priorities, and commitments for every five-year cycle.¹⁵² The 12th Malaysia Plan (12MP) for 2021–2025 was tabled in September 2021. A midterm review of the 12MP, incorporating input from engagement sessions and international reviewers, occurred in late 2023 to evaluate and realign progress and priorities.¹⁵³

The MOH prepared the HWP, which was passed in Parliament in June 2023. The HWP outlines a 15-year health reform roadmap with 4 pillars and 15 strategies to strengthen the Malaysian health system.¹⁵⁴ The four pillars of reforms are (1) transforming health service delivery, (2) advancing health promotion and disease prevention, (3) ensuring sustainable and equitable health financing, and (4) strengthening the health system's foundation and governance. Developed through extensive stakeholder consultations, the HWP outlines short-, medium-, and long-term activities spanning 5, 10, and 15 years, with increasing complexity. The action plan for the medium and long term is less detailed, creating opportunities for stakeholders to co-create the details of implementation with the government. Although planning is largely a top-down exercise, the MOH requires its state and local personnel to conduct analyses to identify challenges specific to their purview. After establishing needs and obtaining consensus, technical working groups develop goals, plans of action, and performance indicators.

The accuracy and availability of data are key to effective planning and governance. Malaysia has satisfactory data collection tools for disease surveillance and monitoring of health indicators. The MOH collects routine data through various tools such as the National Health and Morbidity Survey, National Health Accounts, and multiple infectious diseases surveillance systems (e.g., notifiable diseases, laboratory-based surveillance, DVS, and the Foreign Worker's Health Screening System).¹⁵⁵ Disease registry databases such as the National Diabetes Registry, National Cancer Registry,¹⁵⁶ and the National Renal Registry enable the monitoring of specific diseases and their treatment outcomes. Malaysia also performs well in tracking indicators in the WHO NCD Global Monitoring

Framework, especially outcome and exposure monitoring.¹⁵⁷ However, on the individual level, there is no mandate to centralize EMR across healthcare facilities (see Recommendations in Section 4).

Although numerous data are available, the challenges of multiple data sources, varying formats, and inconsistent data collection practices can hinder data integration and interoperability, thereby delaying the dissemination of evidence for data-driven policymaking. In several countries, including South Korea and Singapore, open government data has seeded health projects. Even though Malaysia has an open data initiative, the utilization of aggregated data and the frequency of updates are low, with relatively minimal contribution from the MOH.¹⁵⁸ Even though interministerial data practices effectively support both routine surveillance and analysis and emergency response, there is considerable untapped potential for data sharing and health analytics. As such, consensus on an open data framework or legislation can enhance efficiency and facilitate safe data sharing and transfer to guide resource allocation, inform policies, and design interventions.

7.3 Accountability and ownership

The MOH uses various internal mechanisms, such as quality management systems, internal audits,¹⁵⁹ and performance monitoring frameworks, to ensure quality and accountability within the health system. These processes help identify areas for improvement, address deficiencies, and ensure adherence to established standards. For example, public hospital directors and clinicians are monitored using key performance indicators (KPIs) to ensure high-quality healthcare delivery. Systematic collection, analysis, and dissemination of data also enable early detection of potential problems, help identify variations in clinical practices and outcomes among healthcare professionals, and eventually improve patient outcomes. In addition to these internal processes, several external entities play vital roles in maintaining accountability and transparency in the monitoring and evaluation processes. These include the Auditor-General's office, whistleblowing processes, and the Malaysian Anti-Corruption Agency.

Despite these multifaceted efforts, Malaysia faces certain gaps in its accountability framework. Notably, the country currently lacks a legislative or impartial ombudsman to address public complaints effectively. Additionally, professional boards lack external accountability to either the state or the public. Although critics and observers from professional coalitions and think tanks have voiced their stances in the media, they have limited assertive power in the MOH decision-making process.

Putting these accountability mechanisms into practice, a report by the Auditor-General highlighted discrepancies in the management of funds and resources by the MOH at the federal and state levels.¹⁶⁰ The MOH's centralized planning at the federal level provides little incentive for cost-effective service delivery at local facilities. These facilities are primarily evaluated using predefined KPIs and targets, and the revenue they generate may not be retained at the facility level.

Consequently, appropriate budget allocation based on needs becomes more critical at the federal level, far away from local, district or state-level leaders. Otherwise, there is little flexibility to redirect resources based on utilization and progress. Considering these challenges, the HWP proposed separating the service provider and assessor roles and increasing the autonomy of hospital centers; both measures would contribute to independence and stronger accountability at the local level.

The need for accountability in the decision-making of health systems is rooted in the fact that a society with high trust in government is more likely to engage in positive health behaviors.¹⁶¹ Fortunately, doctors are among the most trusted professionals by Malaysians despite deteriorating confidence and trust in the government.¹⁶² However, the design of health programs has typically been top-down, lacking community participation in decision-making. This limits effective assessment of the local context in the design stage, often resulting in challenges in program communication and policy implementation.

7.4 Recommendations

The effective governance of Malaysia's health system has helped to ensure careful planning, leadership, and delivery of high-quality healthcare to its citizens. However, as with any complex system, improvement is required in some areas to ensure the ongoing smooth operation of this system. The recommendations outlined below are aimed at addressing key challenges and further strengthening the governance of Malaysia's healthcare system:

RECOMMENDATION 7A

Strategize public–private partnerships from the local to the national level, including institutionalizing interagency and interministerial collaboration

When local authorities are empowered to initiate partnerships with the private sector, their financial authority and flexibility can increase, thereby improving governance and accountability. Collaboration between the private and public sectors at the national level may focus on high-level partnerships, whereas at the local level, service providers can achieve creative cooperation to fill gaps based on local contexts. Community and citizen participation in policymaking is crucial for shared governance, goal setting, and service delivery. Interagency and interministerial efforts are crucial, but collaboration must be institutionalized and made routine, rather than ad hoc.

RECOMMENDATION 7B

Foster collaboration among Malaysia and other Asia–Pacific countries

Sharing knowledge, best practices, and resources enhances regional resilience and facilitates the deployment of effective strategies to address public health and environmental sustainability challenges collectively. This is particularly true for the broadly open borders of Southeast Asia, an interconnected region of 650 million people who can benefit from shared information, resources, and programming for public health and health systems strengthening, to increase sustainability and resilience.

RECOMMENDATION 7C

Implement the “separation of powers” in the MOH

The HWP states, “the restructuring of the MOH’s role is a critical component of the health reform and is key to improve efficiency in service provision, management and governance of the health system as well as to reduce duplication of functions and activities.” It goes on to state, “with greater independence from MOH, the performance and responsiveness of the provider and purchaser functions would also be improved, ultimately resulting in better quality and value-for-money healthcare services in the country.” To improve efficiency and coordination within the healthcare system, arms-length entities bearing separate governance, assessment, and quality assurance responsibilities can promote transparency and accountability as a general principle at various levels of healthcare provision.

RECOMMENDATION 7D

Enhance the availability of open data in healthcare

De-identified open data with sufficient granularity offers transparency to healthcare professionals, researchers, and the public. This may facilitate evidence-based decision-making and optimization in healthcare delivery, attract international research collaboration, and accelerate policy development. A strong, transparent, public-access, and comprehensive dataset will help decision-makers allocate resources, plan strategy, and be accountable to citizens. This dataset must be supported by a consensus framework on data privacy, collection, use, and protections.

8. Reflections and conclusions



Malaysia has a reasonably effective health system that must be strengthened to make it fit-for-purpose for future needs. With the nation predicted to “graduate” from middle-income status in the next 10 years, the needs of the health system have evolved from eliminating infectious diseases and meeting basic health needs to prioritizing disease prevention and empowering the population to age healthily and affordably. The 2023 HWP marks the beginning of a multi-decade process of strengthening the health system in these ways. To complement the aspirations outlined in the HWP, the recommendations presented in this report serve as crucial steps toward enhancing the sustainability and resilience of healthcare, public health, and health systems in Malaysia.

The seven domains of the PHSSR framework, derived from the WHO’s building blocks of health systems, function like a network, interacting with one another across the functions of the health system. For instance, Malaysia’s healthcare system is commendable for its high quality of care services accessible to most of the population, the responsiveness and agility of the workforce during the pandemic, and accelerated adoption of teleconsultation services enabled by a financing and governance framework that enabled that flexibility. In public health, legal instruments for monitoring the environmental factors of population health are in place, and lessons from previous outbreaks inform current protocols and practices in health system governance, financing, and the application of technologies to promote population health. At the health system level, strong governance and financing policies across ministries have ensured equitable access to quality health services and medications at public facilities.

Critical gaps in the health system

Despite these strengths, core gaps in the sustainability and resilience of the health system have been exposed by the COVID-19 pandemic, crossing different domains of this framework. First, a lack of swift coordination among actors in the health system creates silos among ministries, among healthcare providers, and between the government and other segments of society (Domains 1 and 5). This lack of interoperability extends to data and technologies available in the healthcare system (Domain 4), creating inefficiencies and challenges in the continuity and sustainable financing of patient care (Domains 5 and 6).

Second, Malaysia’s healthcare service model inherently distinguishes between private and public services. The model has two consequences. First, it creates discrepancies in the accessibility and affordability of services, medications, and technologies. Second, the discontinuity between the services may duplicate diagnostic and treatment efforts as patients traverse the health system (Domains 1, 5, and 6). Surging OOP expenditures with little financial protection for patients, especially in the aging population, represent a particular area of financial unsustainability and inequity, and inadequacies in the maintenance, funding, and staffing of public facilities result in HCWs experiencing burnout and high work burdens (Domain 3).

Finally, the health system is in transition as the Malaysian population ages and reckons with the health effects of a changing environment. The context in which healthcare and public health are delivered is changing – NCDs are growing in prevalence and health is becoming vulnerable to climate change (Domains 1 and 2). Models of health system governance and financing, including the piloting of social health insurance to reduce the financial burden on the MOH (Domains 6 and 7), must evolve beyond simply providing basic healthcare and treating acute disease to promote holistic and comprehensive health services. CSOs, industry leaders, and entrepreneurs have much to offer in driving health promotion, social support, and innovative solutions in healthcare and public health, but they require the infrastructure, incentives, and information to contribute to the MOH’s efforts.

Finally, these gaps highlight that complex health systems require support beyond the scope of the MOH alone. In health system governance, competing policy priorities may limit interministerial dialogue on the SDOH and cooperative effort to manage funding for mitigating the risks of

pandemics and climate change (Domain 7). Routine evidence-based policy design and evaluation will require information systems and data accessible at all levels of society and within all ministries of government. A strong and cohesive government can bring together other stakeholders, including private healthcare providers, insurance and pharmaceutical industries, and the community, to form a robust health system and enable people to live long, healthy lives.

What's next: Enhancing the HWP aspirations

The tabling of the 2023 HWP in Parliament marks a shift in thinking about the sustainability and resilience of Malaysia's health system, including an aim to achieve Health in All Policies. Many recommendations outlined in this report are complementary to the aspirations set out in the HWP. Acting on these recommendations will require inputs from actors across the domains of the health system to remove silos in health policymaking, improve health outcomes, and prepare the system for future challenges, both known and unknown.

In recognizing the intersections among challenges in the health system, policy approaches to address them also interact across the domains of health system sustainability and resilience. Specifically, expanding and financing the social support structure of CSOs and NGOs as well as utilizing technology to mobilize volunteers and social workers (Domains 3 and 4) can enhance the role of civil society in promoting healthy lifestyles, filling workforce gaps, and increasing the quality and efficiency of care at the community level.

Moreover, enhancing the availability of open data (Domain 7) and integrating digital, financial, and health literacy into school curricula and workplaces (Domain 1) can enable the public to not only access national information systems across disciplines but also contribute to the self-efficacy in health. Initiatives to improve the efficiency and sustainability of service delivery, such as by adopting integrated, innovative, and interoperable care models (Domain 5) and studying and piloting social or national health insurance (Domain 6) can contribute to the financial sustainability of the health system as well as the system's resilience against the coming challenges of climate change and aging society (Domains 1 and 2).

Incorporating disease burden projections into health budgeting and operational planning (Domain 2) can prepare the system for challenges that will increase in severity over time, such as climate-related disease and chronic NCDs, as well as unpredictable challenges and shocks such as natural disasters, future pandemics, economic downturns, or even cyberattacks.

The implementation of health system reforms and the successful execution of the recommendations outlined in this report heavily rely on strong political will and commitment. Sustained efforts, supported by political leadership, are imperative to drive transformative changes and prioritize health in the national agenda. Partnering civil society and the private sector in innovative problem-solving can help support MOH to organize and deliver health outcomes, encouraging a shared responsibility among people across sectors and disciplines to contribute to a more sustainable and resilient health system for Malaysia. Strong political will and collective commitment from all facets of society can steer Malaysia toward a future-proof health system that is sustainable and resilient.

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