Partnership for Health System Sustainability and Resilience
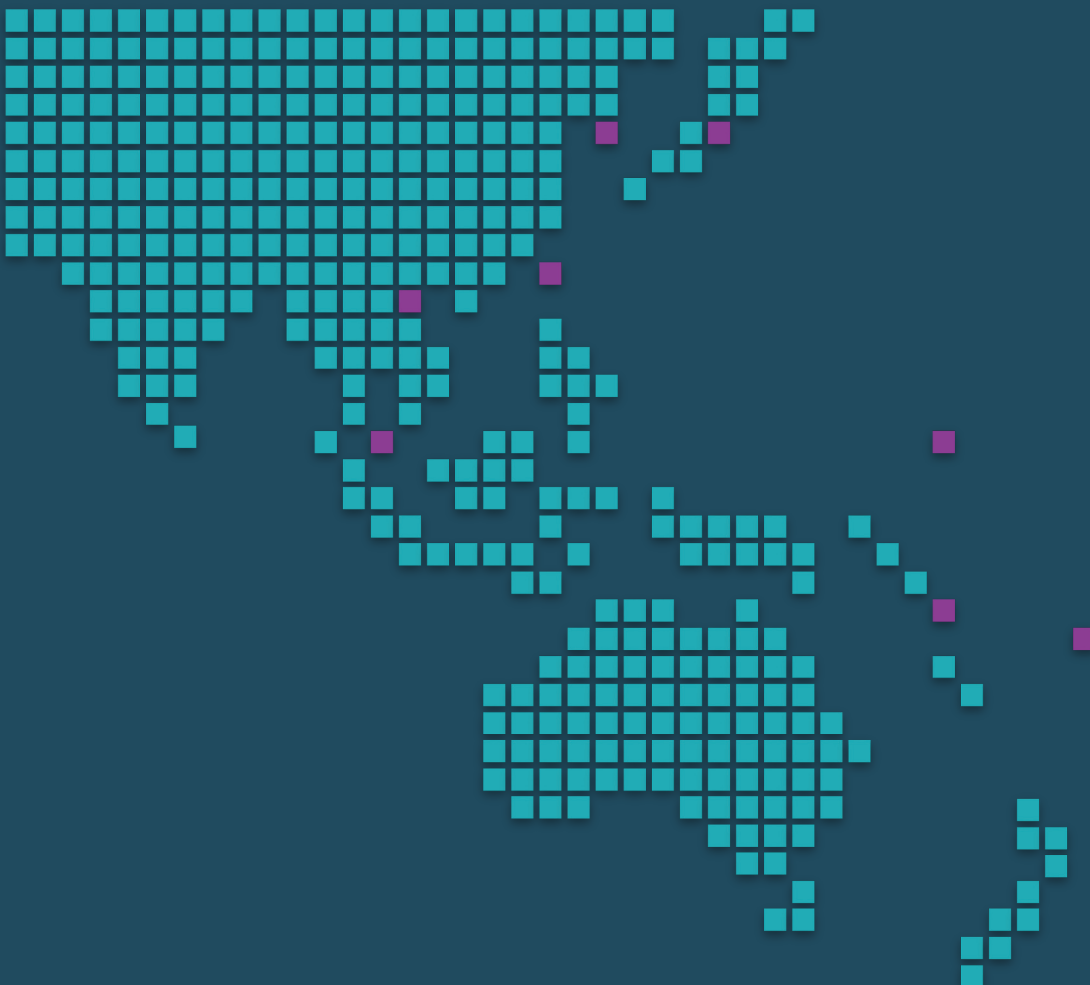
Japan, Republic of Korea, Malaysia, the Pacific Islands, Taiwan, and Vietnam

Sustainability and Resilience in Asia-Pacific Health Systems

Syaru Shirley Lin, Alistair Lang

April 2024

Authors

Syaru Shirley Lin, Center for Asia-Pacific Resilience and Innovation

Alistair Lang, Center for Asia-Pacific Resilience and Innovation

Contents

Key messages

The authors of this Asia-Pacific summary report have identified some of the key challenges facing health systems in the region. The report also outlines examples of how policymakers and stakeholders are tackling these challenges, paving the way toward sustainable and resilient health systems.

AGING SOCIETIES

Key Issues

- Populations of high-income economies in the Asia Pacific are rapidly aging, driven by rising life expectancies and declining birth rates.
- Population aging and decline affect the sustainable financing of national health insurance systems and increase the demand for long-term care.

How the region is responding

- Since 2006, Japan has promoted a community-based integrated care system to ensure that older people have comprehensive access to support services and healthcare in their vicinity. South Korea has piloted a similar system since 2019, resulting in shorter hospital stays and reduced costs.
- Japan and South Korea have each maintained long-term care insurance since the 2000s to cover all or a portion of physical care and daily living assistance at home and in nursing care facilities for older people.

CLIMATE CHANGE

Key issues

- The region, particularly the Pacific Islands Countries and Territories (PICTs), is highly vulnerable to the impacts of climate change, including rising sea levels that endanger infrastructure and drinking water, ocean warming and acidification that threaten food security, and climate-induced anxiety.
- Other countries in the region are also experiencing increases in temperature-related illnesses and vector-borne diseases, posing challenges for aging societies like South Korea, Japan, and Taiwan, where older adults are vulnerable to heat exposure.

How the region is responding

- The 1995 Yanuca Declaration outlining the "Healthy Islands" vision for PICTs is a pivotal step in promoting holistic well-being, including consideration of environmental forces. In addition, Fiji's 2016 National Climate Change and Health Strategic Action Plan outlines measures to mitigate the health impact of climate change. These measures include identifying vulnerable communities, enhancing access to health services, and investing in resilient infrastructure.

- Japan and Taiwan have introduced climate change adaptation measures, such as early warning and forecasting systems for extreme weather as well as environmental education.

DIGITAL HEALTH

Key issues

- Digital health technology, such as telemedicine and electronic medical records, holds immense promise for addressing the region's healthcare challenges, including expanding access to care; improving patient outcomes; and navigating the complexities of an aging population, climate change, and workforce shortages.
- The widespread adoption of digital health, however, is hindered by infrastructure and capacity constraints, security and privacy concerns, and regulatory considerations.

How the region is responding

- South Korea and Japan are both developing medical information exchange systems to facilitate the sharing and access of electronic medical records among healthcare institutions.
- Taiwan's My Health Bank app stores personal health data, while Vietnam's Public Health Portal offers information on drug prices and treatments. These are just two examples of the numerous digital health solutions emerging in the region to address various needs.

HEALTHCARE WORKFORCE

Key Issues

- Lower-middle-income countries, such as Vietnam and the PICTs, lack the requisite number of healthcare workers (HCWs) to meet basic healthcare needs. Meanwhile, higher-income countries such as Japan and South Korea enjoy a more robust workforce but still face challenges in providing comprehensive care, especially in the face of an aging population and increasing healthcare demands.
- Challenging working conditions and insufficient investments in training and opportunities have resulted in high turnover, including outmigration, and uneven distribution of HCWs.

How the region is responding

- During the COVID-19 pandemic, several Asia-Pacific governments implemented various initiatives to enhance work environments, including subsidies (e.g., Taiwan), mental health counseling centers and labor consultations (e.g., South Korea), rest opportunities at local hotels (e.g., Vietnam). Restrictions on working hours have also been introduced in some countries.
- Measures like regulating physician numbers by specialty and region (e.g., Japan) and implementing clinical rotations across areas (e.g., Vietnam) have been implemented to address unequal distribution and shortages of HCWs.
- Several health systems have used task shifting to better leverage HCWs during the COVID-19 emergency. For instance, Malaysia's assistant medical officers eased the workloads of physicians and nurses.

Introduction

The world is emerging from the COVID-19 pandemic with a renewed focus on health. The tragic loss of life and immeasurable impact on human health worldwide will take many years to be fully understood, but it is clear that many health systems were stretched to a breaking point; reforms will be needed if we are to be better prepared for future shocks. The Asia-Pacific region, bearing the initial brunt of the pandemic, remains vulnerable to ongoing challenges but offers valuable solutions and lessons for the global community.

Painting a comprehensive picture of an entire geographical region is always precarious with no two countries ever experiencing the exact same set of conditions. The vast expanse of the Asia Pacific, as classified by the World Bank under East Asia and Pacific, introduces inherent variations, especially in economic development; the region has some of the highest income economies in the world (e.g., Japan, South Korea) and others that fall into the lowest quartile (e.g., Cambodia, Solomon Islands). This economic disparity will naturally result in significant variation in the health systems of each territory.

However, in characterizing the common problems and solutions, the connections both within and beyond the region become increasingly evident. For example, healthcare workforce shortages are partly driven by "brain drain" between countries and regions, and digital health solutions have the potential to alleviate these shortages. Moreover, amid shared challenges, the distinctive responses from both the region as a whole and individual countries provide valuable learning opportunities for the global community, highlighting the need for pan-regional collaboration to build more sustainable and resilient health systems.

The Partnership for Health System Sustainability and Resilience (PHSSR) has conducted an in-depth examination of health systems in the region, resulting in published country-level reports on Japan, Republic of Korea, Malaysia, the Pacific Islands (with specific attention to the Republic of Marshall Islands, Tonga, and Vanuatu), Taiwan, and Vietnam. The selection of these areas is purposeful, strategically capturing a spectrum of economic classifications, including examples of high, upper-middle and lower-middle income economies.[i] Furthermore, the chosen areas exhibit diverse geographical characteristics that influence climate-related issues, underscoring the need for adaptable and resilient health systems.

Syaru Shirley Lin is Founder and Chair of the Center for Asia-Pacific Resilience and Innovation (CAPRI), Research Professor at the Miller Center of Public Affairs at the University of Virginia, and a Nonresident Senior Fellow in the Foreign Policy Program at the Brookings Institution. She can be reached at shirley@caprifoundation.org.

Alistair Lang is a Research Coordinator at CAPRI. He can be reached at alistair@caprifoundation.org.

[i] The World Bank classifies economies into four income groups based on gross national income per capita data in U.S. dollars: low (<$1,135, in 2022), lower-middle ($1,136–$4,465), upper-middle ($4,466–$13,845), and high (>$13,846) income. See World Bank. World Bank country and lending groups, accessed January 22, 2024, https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.

The Center for Asia-Pacific Resilience and Innovation (CAPRI), serving as the PHSSR's Asia-Pacific research hub and having spearheaded four of the six aforementioned country-level reports,[ii] has prepared the following Asia-Pacific Summary Report. This report considers the common issues affecting health systems in the region, and is divided into four main sections accordingly:

Aging societies – Low birth rates and high life expectancies are increasing the age of populations in several Asia-Pacific countries, straining conventional healthcare systems.

Climate change – Environmental changes exacerbate health risks and threaten infrastructure, especially in island states.

Digital health – Technological advancements are reshaping care delivery, offering both opportunities and challenges in access and equity.

Healthcare workforce – Challenging working conditions and limited opportunities drive healthcare workers out of the sector and abroad, threatening care delivery.

In each section, this report demonstrates the impact of these issues on the region and highlights measures taken to overcome them, citing findings from PHSSR country-level reports, unless otherwise indicated.

The PHSSR

The PHSSR is a nonprofit, multisector, global collaboration with a unified goal of building more sustainable and resilient health systems. It is active in over 30 countries and has published 29 reports to date on its commissioned independent research, providing evidence-based recommendations to strengthen health systems. This work, which includes country-specific findings as well as combined overarching global insights and disease-specific analysis, is conducted by experts worldwide with first-hand knowledge and experience of their national health systems.

After the pandemic, many health systems remain in a perilous state as accumulating pressures and increasing demands have reached a crisis point. The PHSSR seeks to facilitate cross-border and cross-sectoral collaboration to accelerate the strengthening of health systems by enabling international knowledge exchange and collaboration with health system stakeholders.

The Asia–Pacific research hub

CAPRI is a nongovernmental, nonpartisan, international organization committed to enhancing global resilience and promoting innovative governance by drawing on the experience of the Asia-Pacific region through comparative public policy research.

CAPRI hosts the partnership's first regional research hub, coordinating reports on the sustainability and resilience of health systems in the Asia-Pacific region. Building on previous studies of Japan and Vietnam facilitated by LSE (Table 1), in 2024, CAPRI conducted research into national health systems of Malaysia, the Pacific Islands Countries and Territories (PICTs), South Korea, and Taiwan (Table 2). This research was led by the listed research leads, and will expand to additional countries and territories in the coming years.

[ii] The reports on Vietnam and Japan were published by the PHSSR in 2021 and 2022, respectively, and coordinated by LSE. See Table 1 of this report for additional information.

Table 1: 2021-2022 Asia-Pacific PHSSR country reports and research leads, coordinated by LSE

Report	Research Lead
Japan	Hiroaki Miyata, Professor and Chair, Department of Health Policy Management, Keio University School of Medicine
Vietnam	Tran Thi Mai Oanh, Director, Health Strategy and Policy Institute

Table 2: 2024 Asia-Pacific PHSSR country reports and research leads, coordinated by CAPRI

Report	Research Lead
Malaysia	Swee Kheng Khor, Chief Executive Officer, Angsana Health
Pacific Islands	Collin Tukuitonga, Associate Dean, Health and Medical Sciences Faculty, University of Auckland
South Korea	Minah Kang, Professor, Department of Public Administration, Ewha Womans University
Taiwan	Feng-jen Jean Tsai, Director and Professor, PhD and Master Program in Global Health and Health Security, Taipei Medical University

Aging societies

The Asia-Pacific region is experiencing a significant demographic shift, with aging populations becoming an increasingly prevalent phenomenon. The Asian Development Bank estimates that one in four people in the region will be 60 years or older by 2050, representing a three-fold increase from 2010.[1] Although the Asia Pacific is not the region with the highest proportion of older people (aged ≥65 years), the prevalence is increasing rapidly, particularly in high-income countries. For example, older individuals constituted 30% of Japan's population in 2021 (Figure 1), second only to the city-state of Monaco globally. Furthermore, South Korea and Taiwan are soon poised to join Japan as "super-aged" societies, defined as societies in which adults ≥65 years old account for more than 20% of the population.

Figure 1: Population aged ≥65 years (% of total population)
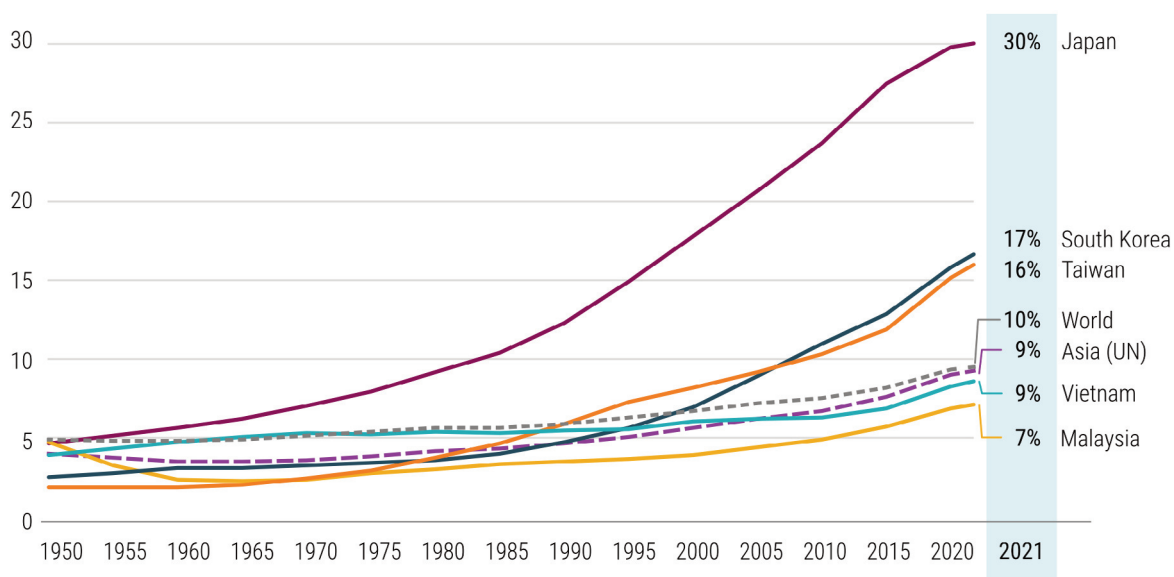
Source: "Population by age group, World", Our World in Data, accessed January 17, 2024, https://ourworldindata.org/grapher/population-by-age-group.

Although aging populations are more applicable to high-income economies, it is an issue many countries need to consider. Lower- and upper-middle income economies, such as Vietnam and Malaysia, must prepare to manage the challenges of an aging population as they transition to higher-income status. In contrast, the PICTs have a notable "youth bulge," with a median age of 16–20 years, and high fertility rates.

This transformative shift arises from a complex interplay of factors, including declining birth rates and rising life expectancies, and underscores the need for an evolved and financially sustainable healthcare system capable of addressing the challenges posed by aging societies.

Declining birth rates

Birth rates are declining significantly across the Asia Pacific, especially in high-income economies where the cost of living has increased vis-à-vis stagnating wages and social norms that favor smaller families, part of a phenomenon known as the high-income trap.[2] In South Korea, the total fertility rate was 0.81 births per woman in 2021, the lowest among countries of the Organisation for Economic Co-operation and Development.

The shrinking younger generation threatens the sustainable funding of health systems by reducing the tax and economic base while straining public expenditure on healthcare. This is evident in considering the old-age dependency ratio, the ratio of older, economically inactive people to working-aged people. In Malaysia, data suggest that a 1% increase in the country's current old-age dependency ratio of 10.7% will result in a 6.6% decrease in GDP growth. In the region, the old-age dependency ratio follows a similar trend to that of proportion of older people to population, with Japan (51.2%), Taiwan (25.0%), and South Korea (24.7%) leading as of 2022.[3] [iii] The sustainability of healthcare funding is a concern for the latter two economies, as they depend on employed beneficiaries to finance their national health insurance and other social welfare programs.

Consequently, governments have taken measures to increase birth rates. Japan has introduced policies to promote respect for different marriage and family planning practices, and South Korea offers a diverse mix of cash, in-kind, voucher, service, and education support to parents. These current measures have fallen short due to their inability to address the underlying issues that drive low birth rates. Moreover, while immigration is often proposed as an economic remedy for declining birth rates, countries in the Asia Pacific, notably Japan, have resisted it due to cultural and economic concerns.[4] Addressing declining birth rates, therefore, requires more comprehensive solutions.

Rising life expectancy

Advancements in healthcare technology and a long-time focus on social determinants of health have also increased life expectancies, contributing to the growing older population. Globally, South Korea and Japan have among the highest life expectancies, both at 84 years in 2021.[5]

While high life expectancy is commendable, there are several consequences associated with an aging population. For example, older adults are prone to chronic and noncommunicable diseases (NCDs). In Taiwan, 92% of older adults had at least one chronic disease, and more than half had at least three in 2019. The mental health and well-being of older adults are equally concerning. Their significant health needs strain health and social care systems and their financing. In South Korea, for example, healthcare costs associated with chronic diseases constituted 25.5% of the total medical expenditure in 2002, increasing to 36.3% by 2012.

Long-term care services

To improve the quality of living for older individuals, governments have invested greatly in long-term care (LTC) services. However, similar to counterparts in other regions of the world, LTC services in the Asia Pacific face difficulties in funding, workforce, quality and safety, and care coordination. These challenges and other unique features of the region's approach to LTC are in part driven by cultural norms that prioritize filial piety and collective responsibility, thus, for example, discouraging nursing care in favor of home care.[6]

[iii] The old-age dependency ratio in 2022 of other countries in this Asia-Pacific Summary Report are 13.3% in Vietnam, 10.4% in Tonga, 7.2% in the Republic of the Marshall Islands, and 6.6% of Vanuatu. See Health Nutrition and Population Statistics, World Bank Data Bank, accessed January 15, 2024, https://databank.worldbank.org/source/health-nutrition-and-population-statistics/Series/SP.POP.DPND.OL

On funding, Japan and South Korea introduced LTC insurance (LTCI) in 2000 and 2008, respectively. LTCI covers all or a portion of physical care and daily living assistance at home and in nursing care facilities for older individuals. However, its adoption has not been widespread in the Asia Pacific, with Taiwan urgently needing such a system to sustain its US$2 billion annual expenditure on LTC. Moreover, Japan has struggled to secure sufficient funds to finance its LTCI, with insurance premiums doubling between 2000 and 2020, despite contributions from individuals aged 40–60 aimed at providing care for their older parents.

Continued efforts are also required to ensure that Asia-Pacific countries, which have largely focused on acute care, have sufficient high-quality resources and infrastructure for LTC. Many countries, such as Vietnam, lack the appropriate policy framework to address LTC needs or measure the number of LTC workers required. Moreover, where infrastructure does exist, geographical disparities and regulatory constraints hinder their usage. For example, the rigid eligibility requirements for nursing care in South Korea drive older adults toward LTC hospitals that are expensive and insufficient at addressing their chronic needs. Investments in workforce and infrastructure related to primary and LTC, as well as improved care coordination, are therefore imperative.

Community care

Since 2006, Japan has promoted the community-based integrated care system to ensure comprehensive access to livelihood support services and integrated healthcare services for older people in their communities. In practice, municipal governments take various steps, such as the establishment of community-based integrated support centers and deployment of social workers, to ensure that older people can access resources within 30 minutes of their homes.[7] This system requires the active involvement of different actors of civil society including nonprofit and healthcare organizations and neighbors.[8]

The growing emphasis on community-based care is an example of a crucial development in the Asia-Pacific region's approach to caring for the aging, offering valuable insights for healthcare systems worldwide. Challenges of the system in Japan include limited cooperation between social care and healthcare providers, lack of clear division of responsibilities, and increased care burden on the family of older adults. Nevertheless, this initiative is considered successful and touted as a potential model for other nations grappling with similar concerns. For example, South Korea has been piloting a community care system since 2019 that has resulted in shorter hospital stays and lower total costs for older people. The pilot is ongoing and the South Korean government plans to expand the community care system to all 229 counties in the country by early 2026.[9]

Given the significant impact of demographic shifts on the region's economies, societies, and healthcare systems, there is a need to strengthen existing healthcare and social care infrastructure while implementing innovative solutions to support the well-being of older adults.

Climate change

Climate change poses a momentous and multifaceted threat to the Asia-Pacific region, a diverse and populous area encompassing various ecosystems and socioeconomic conditions. The United Nations estimates that environmental factors take the lives of 13 million people annually worldwide,[10] nearly 60% of which occur in Southeast Asia and the Western Pacific.[11] This figure is paradoxical to the significant role that high-income economies in northeast Asia Pacific play in generating waste, carbon emissions, and pollution. Consequently, the region faces challenges such as rising sea levels, threats to food and nutritional security, climate-induced anxiety, and other immediate health risks, all of which impact population health and strain the capacity of health systems to care for their users.

Rising sea levels

Islands and coastal communities are particularly vulnerable to rising sea levels. The PICTs face an estimated rise in sea levels between 0.2 and 2m, or higher, by 2100. Given that many PICTs are already situated at low elevations – the Republic of the Marshall Islands has an average altitude of just over 2m above sea level – even a seemingly small rise could have catastrophic effects. For example, saltwater intrusion into underground freshwater stores limits the availability of drinking water and increases reliance on imported water, which may be difficult to access in geographically isolated atolls. Rising sea levels may also result in groundwater contamination from untreated wastewater or other toxins, causing illness.

The effects of rising sea levels will be unevenly distributed, but they will exacerbate the existing hazards posed by climate change, including increased storms, waves, temperatures, and precipitation. Beyond the immediate, acute impact of such climate events, health systems will have less time to recover between events, quickly becoming overwhelmed, ultimately contributing to a steady degradation of health system infrastructure in the long term.

Food and nutrition security

Changing environments will also considerably affect agriculture and food availability, particularly for island states, such as Japan, Taiwan, and the PICTs, that depend heavily on the ocean for food. Ocean warming and acidification damage fisheries and reduce the availability of fish, and heavy metals and other contaminants can accumulate in seafood, making it harmful for humans to consume. This is a major concern for both those who are employed in the fishing industry and the population of the PICTs, for whom 80% of dietary protein comes from fish and seafood.

Moreover, both rising sea levels and temperature-induced drought threaten agricultural yields. Malaysia's ability to provide sufficient and nutritious food for its population is expected to decline by 40% in the next four decades if climate change further disrupts food production and distribution. A core concern in the PICTs is that the reduction of food and agriculture will increase reliance on imported and highly processed foods, contributing to the rise in NCDs, which are already a critical issue in many Asia-Pacific countries.

Climate anxiety and mental health

There is considerable anxiety in Pacific communities about the climate crisis and the potential of displacement by rising sea levels and severe weather events. For the PICTs, where unemployment among young people can be as high as 80%, prospects can appear bleak and only likely to worsen as the effects of climate change are increasingly obvious. This is coupled with a sense of inevitability, as PICTs generate less than 0.03% of global greenhouse gas emissions but feel their effects most severely.

Immediate health risks

In addition to the long-term risks posed by climate change, like much of the world, the Asia-Pacific region is already experiencing a surge in temperature-related illnesses and diseases spread by vector-borne pathogens. For instance, Taiwan has witnessed an alarming 85.8% increase in heat injuries between 2011 and 2020. Older adults are particularly vulnerable to heat exposure, posing challenges for aging societies.[12] Additionally, previously unreported areas in the region are seeing dengue fever cases. These issues, coupled with other environmental concerns such as air pollution, increase the risks of respiratory disease and other health burdens.

Addressing climate challenges

As more communities and populations are affected by environmental changes, public education on the link between climate, environment, and health is becoming increasingly critical. Encouraging communities to voluntarily implement sustainability and adaptation measures, such as those underway in Pacific communities to adopt household gardens and rehabilitate traditional wells to mitigate food and water security, will yield far-reaching benefits.

Efforts are needed to better understand the health impacts of climate change and link policy interventions to address these impacts. Notably, the 1995 Yanuca Declaration outlining the "Healthy Islands" vision for PICTs is a pivotal step in promoting holistic well-being, including consideration of environmental forces. Such a vision has led to initiatives such as Fiji's National Climate Change and Health Strategic Action Plan (2016), supplemented by the "Strengthening Health Adaptation Project: Responding to Climate Change in Fiji," both of which aim to protect the health of Fijians from the adverse impacts of climate change. However, several developing countries in the region have yet to embark on similar endeavors and lack the critical resources and expertise to do so effectively.

International and cross-sector collaboration remains central to addressing climate change. The widespread endorsement of the Paris Agreement (2015) to reduce global greenhouse gas emissions and the establishment of a dedicated "Loss and Damage" fund (2023) for vulnerable countries hit hard by climate disasters represent steps in the right direction. Similarly, Cleaner Pacific 2025 is a blueprint to improve waste management and pollution adopted by 14 PICTs. However, given the expansive and transnational impact of climate change on health, ongoing regional and global commitments are necessary to comprehensively address this multifaceted issue.

Digital health

The COVID-19 pandemic has revolutionized the healthcare landscape, establishing digital health technologies as a routine part of clinical care and the patient experience. Countries with highly digitalized health systems were able to effectively monitor and reduce the spread of COVID-19. This technological transformation holds immense promise for addressing the Asia-Pacific region's healthcare challenges, including expanding access to care; improving patient outcomes; and navigating the complexities of an aging population, climate change, and workforce shortages.

Telemedicine

The adoption of telemedicine is one of the great successes of the sector's response to the COVID-19 pandemic. While the technology is not new, necessity led to its widespread use. In Vietnam, 1,500 health facilities adopted telemedicine during the pandemic, spurring greater investment by the country's Ministry of Health in other digital health technologies. More than 500,000 Malaysian patients with COVID-19 were monitored through virtual assessment centers when hospitals neared capacity.

The potential of telemedicine to reach those normally missed by health services was a revelation to many during the pandemic and will continue to influence health service delivery. However, the regulation and uptake of telemedicine continue to be a concern in the Asia-Pacific region. In South Korea, telemedicine is not formally permitted by law and was only allowed on a temporary basis during the pandemic. In Japan, ineffective implementation and insurance reimbursement for telemedicine have resulted in low uptake of these services. There are now growing calls for its use in routine care, which will hinge on the development of appropriate legal frameworks (e.g., in South Korea), improved guidelines (e.g., in Malaysia), and comprehensive insurance coverage (e.g., in Vietnam). Taiwan, where telemedicine is currently only available for exceptional circumstances, such as for remote communities, has revised legislation to expand services to broader populations in the second quarter of 2024.[13]

Telemedicine also holds promise in improving the accessibility of healthcare services for rural and remote communities. However, the provision of telemedicine is still reliant on the digital literacy of the provider and end user and the necessary infrastructure. The "digital divide" creates a new distinction between those able to access digital services such as telemedicine and those who cannot. For example, while the PICTs, where healthcare workers and facilities are in short supply and communities are dispersed over large areas of complex landscape, would likely benefit from telemedicine, internet access remains insufficient to fully capitalize on this offering (Table 3).

Table 3: Individuals using the Internet (% of population)

Country or region	Share of population (year of latest available data)
East Asia & Pacific	76% (2022)
Japan	83% (2021)
Malaysia	97% (2022)
Republic of Marshall Islands	39% (2017)
South Korea	97% (2022)
Taiwan	84% (2022)
Tonga	72% (2021)
Vanuatu	66% (2022)
Vietnam	79% (2022)
World	63% (2021)

Sources:

"Individuals Using the Internet (% of Population)," World Bank Open Data, accessed January 15, 2024, https://data.worldbank.org/indicator/IT.NET.USER.ZS?locations=JP-MY-KR-TO-MH-VU-VN

Chyi-In Wu et al., Taiwan Internet Report 2022 (Taipei: Taiwan Network Information Center, 2022), https://report.twnic.tw/2022/en/assets/download/TWNIC_TaiwanInternetReport_2022_EN.pdf

Medical records and data

The use of electronic medical records (EMR) is not yet standard across the region, with widespread adoption in South Korea in stark contrast to the low uptake in neighboring Japan. To tackle this, in 2022 the Japanese government established the Medical DX Promotion Headquarters, aiming to create a nationwide platform for sharing and exchanging information on all aspects of healthcare and standardize EMR systems across the country. Similarly, Malaysia is set to achieve nationwide implementation of EMR by 2026, and Vietnam has collated 98 million health records in preparation for the country-wide rollout of EMR. In some countries that have embraced EMR, data standardization remains an issue, thereby preventing the healthcare sector from achieving full interoperability among health providers and institutions. South Korea is working around standardization by implementing a medical information exchange system that would enable healthcare institutions to share and access mutual EMRs as needed.

EMR use is rooted in the belief that data-driven decision-making can improve health outcomes. However, data availability and application vary greatly across the region. As with other areas of the world, developing countries in the region struggle to obtain and maintain health data sets – PHSSR research on the Pacific Island health systems was notably hindered by the lack of available data. Even where data are available, they do not always guide decision-making. One example is Japan, where low data literacy and concerns about security and privacy have created a poor data culture. While Malaysia has an open data program, the usage and timeliness of aggregated data remain unsatisfactory. In such environments, there is a growing need to standardize data collection, build infrastructure, and reinforce a positive data usage and sharing culture.

Other digital health technology

Data and digital infrastructure have numerous other uses in the healthcare sector. Taiwan implemented several measures following the SARS outbreak in 2002–04, including a digital National Health Insurance card, an advanced infectious disease reporting system, and the "My Health Bank" application for storing personal health information. Vietnam has launched the Public Health Portal, providing transparent access to information, such as drug prices, medical equipment costs, and examination and treatment details. Similar initiatives can be observed throughout the region, and the common impediments to these new applications include ensuring interoperability, safeguarding security and privacy, sustaining a skilled workforce to maintain these systems, and addressing financing concerns. Moreover, in Taiwan, where the use of digital health technology during the COVID-19 pandemic raised concerns over privacy and the use of active surveillance of citizens, there is a need for an adaptable legal framework for digital health and disease surveillance during public health crises that balances between public safety and individual rights.[14]

Going forward, digital health technologies will continue to play a leading role in healthcare delivery. The advent of artificial intelligence, virtual reality, and big data can enable more accurate diagnostics and personalized treatment plans. Although high-income economies in the Asia Pacific have the infrastructure and capabilities to build and leverage these advanced use cases, the lack of regulatory support (e.g., South Korea in telemedicine) and data and technological orientation (e.g., Japan in data), compared with global peers, will hinder greater adoption. Embracing these efforts while addressing existing deficiencies will be a core focus in years to come.

Healthcare workforce

The Asia-Pacific region is home to more than 60% of the world's population but has only about 40% of the global healthcare workforce according to 2020 WHO National Health Workforce Accounts data.[15] This imbalance highlights the severity of the healthcare workforce shortage in the region, where the numbers of medical doctors, nurses, and midwives per 1,000 population trail those in the European Union and North America (Table 4).

Lower-middle-income countries such as Vietnam and PICTs lack the requisite number of healthcare workers (HCWs) to meet the basic healthcare needs of their populations. Meanwhile, wealthier countries, such as Japan and South Korea, enjoy a more robust workforce but still face challenges in providing comprehensive care, especially in the face of an aging population and increasing healthcare demands.

Table 4: Physicians per 1,000 people and nurses and midwives per 1,000 people

Country or region	Physicians per 1,000 people (year of latest available data)	Nurses and midwives per 1,000 people (year of latest available data)
East Asia & Pacific	2.0 (2019)	4.1 (2019)
European Union	4.3 (2019)	9.7 (2019)
Japan	2.6 (2020)	12.5 (2020)
South Korea	2.5 (2020)	8.5 (2020)
Malaysia	2.3 (2020)	3.4 (2019)
Marshall Islands	0.5 (2012)	4.2 (2018)
North America	3.4 (2019)	12.2 (2019)
Taiwan	2.3 (2022)	8.0 (2022)
Tonga	1.0 (2021)	4.2 (2021)
Vanuatu	0.2 (2019)	1.4 (2019)
Vietnam	2.8 (2016)	1.5 (2016)
World	1.7 (2019)	3.8 (2019)

Sources:

"Physicians (per 1,000 people)," World Bank Open Data, accessed January 15, 2024, https://data.worldbank.org/indicator/SH.MED.PHYS.ZS

"Nurses and midwives (per 1,000 people)," World Bank Open Data, accessed January 15, 2024, https://data.worldbank.org/indicator/SH.MED.NUMW.P3.

"112年全民健康保險醫療給付費用總額協商參考指標要覽 [Summary of reference indicators for negotiation of total medical benefits of National Health Insurance in Minguo Year 112 (2023)]," Ministry of Health and Welfare National Health Insurance Association, Republic of China (Taiwan), October 2023, https://dep.mohw.gov.tw/NHIC/lp-1665-116.html

Like many countries outside the region, the HCW shortage in the Asia Pacific is influenced by a combination of factors linked to the working environment and workforce training and distribution. Governments have made diligent efforts to mitigate the impact of workforce shortages on patient care, considering migration and foreign labor and mobilizing resources more effectively.

Working environment

Challenging working conditions in the healthcare sector, such as long working hours, high-risk environments, and elevated stress levels, especially during the COVID-19 pandemic, have taken a substantial toll on the mental well-being of HCWs. Consequently, the healthcare sector continues to experience high turnover rates, particularly among nursing professionals. Taiwan, for instance, has seen a 12% turnover rate among nurses in recent years, and Malaysia anticipates the nurse supply-demand gap to widen, even as the gap for physicians and pharmacists is expected to shrink. The underutilization and underappreciation of nurses by both healthcare leadership and the public contribute to this persistent issue.

To address these problems, many Asia-Pacific governments have initiated programs to support HCWs during the COVID-19 pandemic, such as providing subsidies (e.g., Taiwan), establishing consultation centers for mental health counseling and labor-related professional consultations (e.g., South Korea), and offering opportunities for much-needed rest at local hotels (e.g., Vietnam). Labor regulations in some Asia-Pacific countries have also been revised to restrict working hours, but the lack of rigorous enforcement has undermined their effectiveness. Continued efforts to enhance the well-being, working conditions, and benefits of HCWs should remain a critical priority to address the workforce gaps.

Workforce training and distribution

Inadequate training opportunities and poor workforce planning, resulting from insufficient investment and regulatory constraints, further complicate the challenges in the healthcare workforce. For instance, South Korea's decision to freeze annual medical school enrollment quotas in 2006 has contributed to a shortage of new entrants in the healthcare industry, resulting in an aging physician population. In Malaysia, a shortage of available medical internships and specialist training opportunities forces medical graduates to endure lengthy waiting periods before completing their training. Additionally, Vanuatu closed its sole nursing school in 2023 due to financial constraints and a shortage of qualified teaching staff.

This workforce shortage compounds an existing uneven distribution of HCWs across specialties and regions. The historical development of the region's healthcare systems and public perceptions have resulted in many Asia-Pacific countries lacking sufficient primary care emphasis and supporting infrastructure. In South Korea, 80% of physicians are specialists (2020); primary care does not serve a gatekeeping function. Improving training in primary care and reallocating HCWs across generalists and specialists will become vital to meet the needs of an aging population and the rise of chronic diseases. The congregation of HCWs in urban areas also raises health equity concerns. Policies aimed at rectifying this issue include regulating the number of physicians by specialty and region (e.g., Japan) and implementing clinical rotations across geographical areas (e.g., Vietnam), the latter of which has been effective in addressing the problem of unequal distribution of HCWs.

Healthcare worker migration and retention

Challenging working conditions and reduced opportunities in their home countries may compel HCWs to migrate and work abroad, a phenomenon known as the "brain drain." This is a critical issue among developing nations in the Asia Pacific as HCWs trained in Southeast Asia and PICTs are

among the most likely to migrate to resource-rich countries within or outside the region.[16] Data from a 2006 census indicated that the number of Pacific-born HCWs working in Australia and New Zealand approximately matched and sometimes outnumbered those in their home countries.[17] Recent observations by Tongan officials also suggest that more than half of HCWs trained in the country have pursued careers abroad. This means precious government investments in medical training are not effectively used to the benefit of the country's citizens. The outmigration of HCWs, combined with the remote and dispersed nature of PICTs, results in some remote communities going for months without the presence of trained HCWs.

The brain drain also affects high-income countries, where HCWs, instead of seeking opportunities overseas, leave the industry altogether, taking their valuable experience and training with them. Moreover, the shortage of HCWs in these high-income countries has led to the consideration of foreign labor as a solution. Indeed, the PHSSR Japan and Taiwan country-level reports both recommend considering the hiring of foreign HCWs. However, as previously mentioned, the sensitivity of immigration policy in region limits the ability to take full advantage of the benefits of foreign labor. Leveraging foreign labor resources also demands a delicate balance to alleviate shortages in certain countries without inadvertently creating deficits elsewhere, as is occurring in the PICTs. Efforts to improve all the previously mentioned working conditions, training, and opportunities within developing countries of the Asia Pacific, while also collaborating within the region on workforce planning, will be necessary to mitigate any imbalances and shortages.

Resource mobilization

During the COVID-19 pandemic, the issue of workforce shortages became pronounced, as many countries struggled to meet increasing demands. HCWs worldwide demonstrated extraordinary commitment and flexibility during this time. The Asia Pacific also saw the mobilization of diverse parts of society to support public health efforts. This was the case in South Korea, where different branches of the government, the military, police, and local hospitals utilized their expertise to manage the Community Residential Treatment Center program, helping conserve medical resources for those with severe symptoms while containing the viral spread. Malaysia, notably, saw the effective coordination of the public and private sectors, with an estimated 15,000 patients decanted from overwhelmed public hospitals to private hospitals. These instances highlight the importance of collaborative efforts in responding to unprecedented challenges.

Beyond the COVID-19 pandemic, Asia-Pacific countries are placing increased emphasis on expanding healthcare roles beyond the conventional domains of physicians, nurses, and midwives. Implementing task shifting to better leverage HCWs such as Malaysia's assistant medical officers have helped to reduce the workload on physicians and nurses. However, in Malaysia, the absence of clear task delineation and staffing regulations has led to inefficiencies and reduced productivity with task shifting. Additionally, the lack of formal recognition, incentivization, and regulation of task shifting is also a challenge. Addressing these issues is required to realize the full potential of all HCWs.

As the Asia-Pacific region navigates rapid demographic, environmental, and technological shifts, the demand for accessible, high-quality healthcare is projected to surge. A sustainable healthcare workforce will be the cornerstone of meeting this demand, necessitating a collaborative effort by governments and institutions to improve working conditions, enhance training and distribution, and leverage existing human resources.

Conclusion

The healthcare issues affecting Asia-Pacific countries are shared and interconnected. In response, governments in the region are carving out unique strategies to fortify their healthcare systems. Japan and South Korea grapple with the complexities of super-aged societies, innovating with LTCI and community care models. While navigating the distinct geographical and economic hurdles, PICTs are proactively adapting their health systems and communities to climate change. Although climate change is predominantly a consequence of actions by developed economies, their resources and expertise, such as that of Taiwan in digital health, can be effectively shared to address environmental concerns and link Pacific Islands populations to quality healthcare. The strategic efforts of Vietnam, with its clinical rotation program, and Malaysia, through the adoption of task shifting, illustrate their endeavors to address HCW shortages without relying on foreign labor sources that might exacerbate shortages elsewhere.

Moving forward, governments must identify and prioritize areas that can strengthen their healthcare systems. A research blueprint could encompass initiatives like cost-benefit analysis of community involvement in LTC, national frameworks for data sharing and standardization, and evaluation of alternative healthcare roles in primary and community settings. This evidence-based approach will guide policy decisions, optimize resource allocation, and fortify healthcare systems to meet the evolving needs of diverse populations. Regarding climate change, beyond research, the additional effort involves implementing necessary changes and collective action. Developed nations with significant contributions to climate change must actively implement sustainable practices and collaborate with vulnerable nations.

Organizations such as the PHSSR and the Asia-Pacific research hub can play a role in facilitating this progress. By expanding the analysis of health systems to additional countries and territories, and generating topic-specific regional reports, such as those addressing climate impacts and the challenges posed by an aging population, in-depth analysis of the challenges and recommendations for overcoming them can be shared with policy makers. This can support a comprehensive and forward-looking approach based on three underlying principles necessary to strengthen health systems. First, as health systems are multifaceted enterprises, a cross-sectoral approach is crucial for aligning policies, mobilizing resources, and ensuring accountability. Governments should work collaboratively internally, across ministries and departments, and externally, with healthcare providers, civil society organizations, and other stakeholders, to develop and implement comprehensive health plans. Second, health starts in the community, so public and community engagement is indispensable for building resilience and empowering individuals and communities to take ownership of their health. This points to a final consideration. By acknowledging the common challenges and successes, we can learn from one another and create stronger health systems, capable of withstanding the future shocks confronting our global community.

References

This report draws from the following PHSSR country reports:

Japan: Shuhei Nomura, Matt McEnany, Joji Sugawara, Ryoji Noritake, and Hiroaki Miyata, *Sustainability and Resilience in Japan's Health System* (London: PHSSR, 2022), www3.weforum.org/docs/WEF_PHSSR_Japan_final_2022.pdf.

Malaysia: Swee Kheng Khor, Esther Pei Wei Chua, and Caroline Fried, *Sustainability and Resilience in the Malaysian Health System* (Taipei: PHSSR, 2024).

Pacific Islands: Collin Tukuitonga, Roannie Ng Shiu, Siale Akauola, Emi Chutaro, and Caroline Fried, *Sustainability and Resilience in Pacific Island Health Systems* (Taipei: PHSSR, 2024).

South Korea: Minah Kang, Yong-Jun Choi, Yanghee Kim, Sooyeon You, Yeonsoo Kim, and Caroline Fried, *Sustainability and Resilience in the South Korean Health System* (Taipei: PHSSR, 2024).

Taiwan: Feng-Jen Jean Tsai, Bradley Chen, Hsiu-Wen Ula Yang, and Siwei Huang, *Sustainability and Resilience in the Taiwanese Health System* (Taipei: PHSSR, 2024).

Vietnam: Tran Thi Mai Oanh, Nguyen Khanh Nguyen, and Khuong Anh Tuan, *Sustainability and Resilience in the Vietnamese Health System* (London: PHSSR, 2021), www3.weforum.org/docs/ WEF_PHSSR_Building_Sustainable_and_Resilient_Health_Systems_2023. pdf.

References

1   "Adapting to Aging Asia and the Pacific," Asian Development Bank, accessed January 17, 2024, www.adb.org/what-we-do/topics/social-development/aging-asia.

2   Syaru Shirley Lin, "How Taiwan's High-Income Trap Shapes Its Options in the U.S.-China Competition," in *U.S.-China Competition for Global Influence*, ed. Ashley J. Tellis, Alison Szalwinski, and Michael Wills (Seattle: The National Bureau of Asian Research, 2020).

3   "111年縣市排序 [Ranking of Counties and Cities in Minguo Year 111 (2022)]", Ministry of Interior, Republic of China (Taiwan), accessed January 22, 2024, www.moi.gov.tw/cl.aspx?n=4543.

4   Jun Saito, "Historical Background of the Japanese Restrictive Immigration Policy," Japan Center for Economic Research, July 15, 2022, www.jcer.or.jp/english/historical-background-of-the-japanese-restrictive-immigration-policy.

5   "Life Expectancy at Birth, Total (Years)," World Bank Open Data, accessed January 15, 2024, https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=KR-1W-JP&most_recent_value_desc=true.

6   Hsiang-Ming Justine Kung and Chin-Chun Yi, "The Impact of Modernization on Elder-Care: The Case of Taiwan," essay, in *Families as Educators for Global Citizenship*, ed. Judith A Myers-Walls and Péter Somlai, 1st ed. (Aldershot: Ashgate, 2001), 69–80.

7   *Community-based Integrated Care in Japan: Suggestions for developing countries from cases in Japan* (Japan International Cooperation Agency, 2022), https://openjicareport.jica.go.jp/pdf/1000048192.pdf.

8   Japan International Cooperation Agency, *Community-based Integrated Care*.

9   Jae Woo Choi and Ae Jung Yoo, "The Effect of Integrated Care after Discharge from Hospitals on Outcomes among Korean Older Adults," *International Journal of Health Policy and Management* 13, no. 7997 (January 2024).

10   "Climate Action Fast Facts on Climate and Health," World Health Organization (WHO), accessed January 15, 2024, https://cdn.who.int/media/docs/default-source/climate-change/fast-facts-on-climate-and-health.pdf.

11   Annette Prüss-Üstün et al., *Preventing Disease through Healthy Environments: A Global Assessment of the Burden of Disease from Environmental Risks* (Geneva: World Health Organization, 2016), https://iris.who.int/bitstream/handle/10665/204585/9789241565196_eng.pdf?sequence=1.

12   Robert D. Meade et al., "Physiological Factors Characterizing Heat-Vulnerable Older Adults: A Narrative Review," *Environment International* 144, no. 105909 (November 2020).

13   Hui-chin Lin, Chun-lin Hsieh, and Jake Chung, "Telemedicine Rule Changes Expected in April," *Taipei Times*, November 8, 2023, www.taipeitimes.com/News/front/archives/2023/11/08/2003808848.

14   Feng-Jen Jean Tsai, "Using Technology for Public Health Purposes: Experience and Lessons from Taiwan," essay, in *Democracy in Asia*, ed. Ryan Hass and Patricia M. Kim (Washington, D.C.: Brookings Institutions, 2022), 134–138.

15   Mathieu Boniol et al., "The Global Health Workforce Stock and Distribution in 2020 and 2030: A Threat to Equity and 'Universal' Health Coverage?" *BMJ Global Health* 7, no. 6 (June 2022).

16   Gamal I. Serour, "Healthcare Workers and the Brain Drain," *International Journal of Gynecology & Obstetrics* 106, no. 2 (August 2009): 175–78.

17   Joel Negin, "Australia and New Zealand's Contribution to Pacific Island Health Worker Brain Drain," *Australian and New Zealand Journal of Public Health* 32, no. 6 (December 2008): 507–11.