Invest in Healthcare A review of healthcare outcomes and expenditure in Taiwan

Final report – August 3, 2023



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Introduction

Health outcomes play a key role in driving economic growth whilst the level of healthcare spending shapes health outcomes. Historically, Taiwan has spent less on healthcare (as a percentage of gross domestic product [GDP]) than most other advanced countries.

This report examines the pattern of spending on healthcare in Taiwan and its consequences for health outcomes and patient access to new drugs, as well as for fiscal sustainability and economic prosperity.

Taiwan's performance is benchmarked internationally against a group of five countries that are members of the Organisation for Economic Co-operation and Development (OECD) — Canada, Germany, Japan, South Korea and the United Kingdom — and have similar universal healthcare systems. Also, these selected countries represent a geographical balance between different global regions, covering North America, Europe and Asia.

Japan is also the subject of a deeper-dive analysis, given its comparable healthcare and insurance system and long experience of caring for one of the world's oldest populations. This is particularly relevant for Taiwan since it is set to become a super-fast ageing society by 2025, which will have significant implications for its health system. The analysis therefore highlights some of the key lessons that Taiwan can learn from Japan's management of healthcare and long-term care, for example with regards to health insurance funding and new drug access.

Top five insights

- Increasing spending on healthcare should be considered an investment in health. Yet Taiwan's major health indicators such as life expectancy and cancer survival rates lag behind those of OECD countries with similar health insurance systems, which is largely seen as due to insufficient health investments. As the Taiwan public is generally unaware of the increasing challenges for them to receive adequate care against major diseases, it is considered necessary to raise their awareness of the need to increase health investment and support for related reforms to facilitate such investment.
- Taiwan's expenditure on health, at about 6% of GDP, is significantly lower than the OECD average. Based on experts' recommendations, it is commonly agreed that Taiwan needs to increase its level of healthcare investment, with Japan's ratio of around 11% of GDP seen as a long-term target to follow for investing in healthcare. In the near-term, a goal of 8%-9% of GDP, based on the current level of health spending by South Korea and the OECD average, would be more feasible to quickly attain.
- Increasing spending on healthcare can generate better health outcomes, improve productivity and increase economic and fiscal benefits. Also, improving access to reimbursed new drugs, and aligning with the international treatment guidelines of advanced countries, can help health systems to keep pace with international peers and enhance the competitiveness of the biomedical ecosystem.

Top five insights

- Experts' suggestions on ways to increase health investment in Taiwan include: raising the NHI premium; creating additional sources of funding for the NHI such as general tax revenues; creating separate healthcare budgets for critical areas like precision healthcare and cancer prevention, backed by authorities other than the National Health Insurance Administration (NHIA); increasing patient co-payments to encourage more efficient use of healthcare services; supplementing NHI coverage with private health insurance; and promoting medical self-care using over-the-counter (OTC) drugs etc.
- Experts' suggestions include involving higher-level government supervisory units in the initiative to increase health investments, including the establishment of a taskforce team directly reporting to the Executive Yuan; adopting a whole-of-government approach to coordinate resources; empowering the Ministry of Health and Welfare (MoHW) with more authority and resources; and setting improvements in key health indicators such as life expectancy and cancer survival rates as government policy goals.

Desktop research findings

1. National health issues scanning

- <u>Health outcomes comparison</u>: Taiwan lags behind benchmark OECD countries on several key health outcome indicators, including life expectancy, cancer mortality and cancer survival rates.
- <u>Future challenges</u>: Aside from unfavourable health outcomes, health spending in Taiwan will increase further as the population rapidly ages and birth rates fall, with significant cost implications for the healthcare system.

2. National health spending comparison

Our comparative analysis of total health spending, public sector health spending and pharmaceutical spending shows that Taiwan's health expenditure is the lowest among benchmark OECD countries.

3. Healthcare as an investment

- Increasing spending on healthcare is an investment that can generate better health outcomes as well as economic and fiscal benefits from increased productivity. This is explored from the following perspectives:
- <u>Health inputs vs. outcomes</u>: Highlights the positive correlation between spending and health outcomes.
- <u>Wider economic benefits</u>: Illustrates potential economic and fiscal outcomes in various scenarios such as simulating how 10% reduction in worker inactivity (from ill health, disability and informal caring duties) could have boosted nominal GDP, with results showing positive economic outcomes resulted from improved health.

Desktop research findings (continued)

4. Lessons from Japan's experience

Japanese health insurance system funding

- A fast-ageing population and active adoption of new medical treatments is driving health spending growth.
- Japan provides high levels of government subsidies for healthcare funding from general tax revenues.
- Japan also has a separate medical care system for senior citizens aged 75 and over, which is 50% funded through public expenditure, with different co-payment rates for elderly people based on their income levels. in order to better address the mismatch between medical care costs and benefits across age generations.

New drug reimbursement comparison

- Taiwan has experienced downward trends in reimbursement numbers and approval times for all new drugs and new reimbursed indications in recent years, with significant access delays to new oncology treatments.
- Analysing reimbursement data for Japan and Taiwan for US FDA-approved new molecular entities (NMEs) from 2017 to 2022, Japan recorded much higher approval rates (~99% vs. ~41% for Taiwan) for new drug reimbursements and far shorter reimbursement approval times (~69 days vs. ~457 days for Taiwan).

Another analysis study shows that the average waiting time in Taiwan for new drugs to receive approval for NHI reimbursement is 729 days for all diseases (based on approvals granted between 2021 and March 2023), and 783 days for oncology drugs (based on approvals granted between 2013 and March 2023).

• Japan's health authority provides government subsidies for new drugs by adding price premiums to new pharmaceutical drugs that meet certain conditions, but there is no such subsidy mechanism in Taiwan.

Experts' recommendations

- The expert consensus is that increasing budget spending on healthcare is an investment that can generate better health outcomes and economic and fiscal benefits from increased productivity. Also, by aligning with international treatment guidelines, Taiwan could boost its attractiveness as a global site for clinical trials, create opportunities for patient to use the most advanced treatments and for doctors to conduct R&D, and enhance connections with the global biomedical network.
- 2. Current level of healthcare spending is low, which negatively impacts health outcomes, new drug access and the operations of medical institutions. Proposed measures to increase healthcare investments include:
 - Increasing NHI premiums and government subsidies to the NHI from general tax revenues;
 - Creating separate healthcare budgets for critical areas like precision healthcare and cancer prevention backed by authorities other than the NHIA; increasing patient co-payments to encourage more efficient use of healthcare services; and supplementing NHI coverage with additional private health insurance;
 - Promoting medical self-care using OTC drugs; and
 - Securing new funding for new cancer drugs and new indications by creating a dedicated cancer-drug fund.
- 3. Target higher healthcare expenditure to GDP ratios based on key comparative benchmarks:
 - <u>Total health expenditure to GDP ratio</u>: Target to increase spending to reach the 8%-9% level of the OECD average and South Korea in the short term, and Japan's current level of 11% as a long-term goal.
 - National health insurance spending to GDP ratio: Target Japan's current level of 8% as a long-term goal.
 - <u>Pharmaceutical spending to GDP ratio</u>: Target Japan's current level of 2% as a long-term goal.

Experts' recommendations (continued)

4. Set tangible improvement targets for Taiwan's health indicators as policy goals, and promote crossministry cooperation through adoption of a whole-of-government approach to achieve those goals:

To ensure more impactful results, the interviewed experts suggested involving higher-level supervisory units, including the establishment of a cross-ministerial taskforce reporting to the Executive Yuan, to facilitate cooperation among ministries through a whole-of-government approach and to track relevant indicators (including health outcome indicators like average life expectancy, cancer mortality, cancer survival rates etc.)

5. Other measures to improve new drug access:

- Taiwan has recorded downward trends in both new drug and new indication reimbursement approval rates. It has much lower reimbursement approval rates and relatively limited reimbursed indications and conditions for global new NMEs than Japan.
- Setting up health insurance sandbox to fund new medical technologies
 - The interviewed experts recommended the setting up "health insurance sandbox," in which new medical technologies funding would not impact the budget allocation for medical products currently in use.
 - > Establish a cost sharing and risk diversification collaboration model among NHIA and industry players
 - Any new medical products included in the sandbox would be reviewed periodically based on real world data generated from use of the sandbox and considered for formal NHI reimbursement when meeting efficacy standards.

National health issues scanning

1.1	Health ou	tcomes	comparison	
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1.2	Future a	chall	endes

1.1 Health outcomes comparison

Life expectancy in Taiwan has increased by more than 7 years since 1990, reaching the OECD average level in pre-pandemic 2019, but the current level continues to lag behind South Korea and Japan by around 2-3 years



Sources: OECD Health Statistics (accessed February 2023); National Development Council - Population Projections for Taiwan (accessed February 2023); PwC analysis Note: Pre-pandemic data for 2019 is used to compare current life expectancy levels due to regional differences in the timing of the Covid pandemic outbreak.



Healthcare as an investment

Spending comparison

Sources: OECD Health Statistics (accessed February 2023); National Development Council - Population Projections for Taiwan (accessed February 2023); PwC analysis Note: Based on National Development Council's population projections, it is estimated Taiwan will only reach Japan's 2019 life expectancy level of 84.4 years by 2041.

Issues scanning

Japan lessons

Taiwan's amenable mortality rate has fallen over the past decade but it still remains higher than in all of the selected benchmark countries



Sources: OECD Health Statistics (accessed February 2023); Taiwan data is provided by Prof. Nicole Huang 陽明交通大學黃心苑教授 (2023); PwC analysis

Note: Amenable mortality refers to causes of deaths that could largely be avoided through timely and effective health care interventions, including secondary prevention such as screening, and treatment (i.e. after the onset of diseases, to reduce case-fatality).

Taiwan's infant mortality rate has declined over the past decade but at a slower pace than in other countries and still lags behind Japan and Korea

Infant mortality rate



Sources: OECD Health Statistics (accessed February 2023); MOHW Cause of Death Statistics (2020); PwC analysis Note: Infant mortality is the number of deaths of children aged under one year of age that occur in a given year.

1.1 Health outcomes comparison

Mortality rates for cancers and heart diseases, which are the top two causes of death in Taiwan, have both declined since 2011, but the cancer mortality rate is still higher than in the selected benchmark countries

- Taiwan's mortality rates for cancers were around 42% higher than the lowest country Korea in 2019.
- Taiwan's mortality rates for heart diseases were similar to Japan in 2011 but around 16% higher in 2019.



Source: MOHW Cause of Death Statistics (2011-2012, 2014, 2020); PwC analysis

Note: Canada is not included in the age standardization computation by Taiwan's Ministry of Health and Welfare.

Taiwan's mortality rates for cerebrovascular diseases and diabetes have fallen since 2011 but still remain higher than the benchmark countries

- Taiwan's mortality rates for cerebrovascular diseases were similar to those for Japan about a decade ago, but they were around 29% higher in 2019.
- Taiwan's mortality rates for diabetes were nearly 7.5 times those of Japan (with the lowest rate) in 2019.



Source: MOHW Cause of Death Statistics (2011-2012, 2014, 2020); PwC analysis

Note: Canada is not included in the age standardization computation by Taiwan's Ministry of Health and Welfare.

Taiwan's lung cancer survival rates lag behind those in Korea and Japan, while liver cancer survival rates are similar to those in both countries

According to MOHW Cause of Death Statistics (2021), cancers with the highest mortality rates (per 100,000 population) in Taiwan are currently cancers of trachea, bronchus and lung (42.8), cancers of liver and intrahepatic bile ducts (34.0) and cancers of colon, rectum and anus (28.4)



Source: CONCORD Programme; PwC analysis

Taiwan's rectal cancer survival rates lag behind Japan, Korea and Canada, and colon cancer survival rates also lag behind most benchmark countries



Source: CONCORD Programme; PwC analysis

1.1 Health outcomes comparison

Taiwan's level of cancer-related disability-adjusted life years (DALYs) has somewhat improved since 2000 but at a comparatively much slower pace and still remains higher than in all of the selected benchmark countries



Cancer-related disability-adjusted life years (DALYs)

Sources: Global Burden of Disease (accessed March 2023), World Health Organisation (WHO); PwC analysis

Note: DALY = YLL+ YLD. According to the WHO, one DALY represents the loss of the equivalent of one year of full health. DALYs for a disease or health condition are the sum of the years of life lost to due to premature mortality (YLL) and the years lived with a disability (YLD) due to prevalent cases of the disease or health condition in a population.

Looking at Universal Health Coverage (UHC) rankings, which measure quality of health services (promotion, prevention, treatment) coverage, Taiwan ranks lower compared to all of the benchmark OECD countries

UHC ranking

(2019)

	All countries/regions	Asia
Japan	1	1
Canada	14	
South Korea	19	3
UK	21	
Germany	24	
Taiwan	37	4

Sources: The Lancet, "Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019" (October 2022); PwC analysis

Note: (1) Promotion: e.g. Met need for family planning with modern contraception; Prevention: e.g. DTP3 (vaccine) coverage; Treatment: e.g. ART (HIV therapy) coverage; (2)Singapore ranks no.2 in Asia ranking

1.2 Future challenges

Future challenges

1.2 Future challenges

Taiwan's per capita healthcare spending increases by age cohort, notably for 35+ males and 45+ females, which has significant cost implications for the healthcare system as the pace of demographic ageing accelerates

Annual outpatient and inpatient medical benefit claims per capita



(NHI points per person, 2021)

Source: PwC analysis of data from Taiwan's Ministry of the Interior and Ministry of Health and Welfare. Note: One NHI point is approximately equivalent to 0.9 TWD. 1.2 Future challenges

Taiwan's elderly (65+) population is projected to more than double in size from 3.9m in 2021 to around 7.6m by 2050, with annual related healthcare costs for elderly population to increase to over NT\$620bn



Source: PwC analysis of data from Taiwan's National Development Council and Ministry of Health and Welfare.

Note: Projected future healthcare costs for Taiwan's elderly cohort (aged 65 and over) in 2030 and 2050 are estimated by multiplying the projected number of elderly people for those years by the average medical benefit claims for elderly persons in 2021 (for the age groups of 65-69, 70-74, 75-79, 80-84, 85+; by male and female).

1.2 Future challenges

Taiwan's working population is projected to shrink by around 3.8m people between 2021 and 2050, which will cause annual NHI premium contributions to decrease by around an estimated NT\$200bn per year



Source: PwC analysis of data from Taiwan' National Development Council and Ministry of Health and Welfare.

Note: Taiwan's working population aged 15-64 in 2030 and 2050 is estimated based on the assumption about two-thirds of the 15-64 age population is employed as in 2021. To simplify the calculation, it is assumed that the working population aged 15-64 is the only group contributing to national health insurance premiums.

National health spending comparison

2 National health spending comparison

Total health spending (i.e. current health expenditure, or CHE) in Taiwan as a % of GDP remains stagnant at 6.1% and lags behind all of five benchmark countries and the OECD average by around 2-7 percentage points



Total health spending as % of GDP (2019-2021 or latest available)

Sources: OECD Health Statistics (accessed February 2023); MOHW NHE Statistics (2021) ; PwC analysis

Note (1): Current health spending (CHE) data for Taiwan, defined as national health expenditure (NHE) minus capital formation, is used for comparability with OECD data. Note (2): Pre-pandemic data for 2019 is used to compare health spending due to regional differences in the timing of the Covid pandemic outbreak.

2 National health spending comparison

Public sector current health expenditure in Taiwan, which is accounted for by the NHI system (~90%) and other government funding (~10%), is lower than the OECD average as well as all of the benchmark countries

Japan's public sector health spending as percentage of GDP is around 2.4x of that in Taiwan; Korea's spending as percentage of GDP is around 1.3x of that in Taiwan



Public sector health spending as % of GDP

(2019-2021 or latest available)

Sources: OECD Health Statistics (accessed February 2023); MOHW NHE Statistics (2021) ; PwC analysis

Note (1): Among the benchmark countries, Korea has the lowest ratio of public sector spending to total health spending at ~65% and Germany the highest at ~86%. Note (2): Pre-pandemic data for 2019 is used to compare health spending due to regional differences in the timing of the Covid pandemic outbreak.

2 National health spending comparison

Taiwan's public sector spending on health was consistently below 4% of GDP pre-Covid, and the lowest among benchmark countries since 2014

The gap in health spending to GDP between Taiwan and the OECD average was around 1.6x- 1.9x and had also widened after 2019



Public sector health spending as % of GDP (2000-2021 or latest available)

Taiwan's public sector health spending to GDP ratio rose less than 1% in 2000-2019, which is the lowest compared to all the benchmark countries

GDP growth vs. Public sector health spending growth (CAGR, 2000-2019)



Sources: OECD Health Statistics (accessed February 2023); MOHW NHE Statistics (2021), IMF WEO Database (October 2022); PwC analysis

Taiwan's level of compulsory contributory health insurance payment as a percentage of GDP was around 3.5%, lower than in benchmark countries

Compulsory contributory health insurance schemes payment as % of GDP

(2019-2021 or latest available)



Source: MOHW NHE Statistics (2021) ; PwC analysis

Note (1): Canada and the UK are not included in the above comparison as funding for national health insurance schemes mainly comes from tax revenues.

Note (2): Korea has a higher percentage of co-payments which has resulted in a comparatively lower level of compulsory contributory health insurance payments.

Taiwan's pharmaceutical spending was about 1.2% of GDP in recent years, below the OECD average and lower than almost all benchmark countries



Pharmaceutical spending as % of GDP (2019-2021 or latest available)

2019 2020 2021

Source: MOHW NHE Statistics (2021) ; PwC analysis

Why health spending is an investment

3.1	Health input vs. outcomes

3.2 Economic benefits

36 42 3 Why health spending is an investment

Increasing spending on healthcare is an investment that can generate better health outcomes and substantial economic and fiscal benefits

When evaluating the fiscal impact of spending on healthcare, the indirect and intangible benefits—from lower social care costs from better health outcomes, higher tax revenues from higher productivity, and increased investment in the biomedical industry—should also be taken into consideration in addition to the direct costs of such spending.



Health input vs. outcomes
3.1 Health input vs. outcomes

Comparing current life expectancy levels and public sector health spending, Japan is the strongest performer on both metrics among the benchmark countries, while Taiwan is at the lower end of life expectancy and spending

Life expectancy vs. Public sector health spending as % of GDP





Sources: OECD Health Statistics (accessed February 2023); National Development Council - Population Projections for Taiwan (accessed February 2023, MOHW NHE Statistics (2021); PwC analysis

3.1 Health input vs. outcomes

Comparing current life expectancy levels and compulsory contributory health insurance scheme payments, Japan is the strongest performer on both metrics among the benchmark countries, while Taiwan is the lowest



Sources: OECD Health Statistics (accessed February 2023); National Development Council - Population Projections for Taiwan (accessed February 2023, MOHW NHE Statistics (2021); PwC analysis

3.1 Health input vs. outcomes

Comparing current levels of life expectancy and total pharmaceutical expenditure, Japan is the strongest performer on both metrics among the benchmark countries, while Taiwan is among the lower performers







Sources: OECD Health Statistics (accessed February 2023); National Development Council - Population Projections for Taiwan (accessed February 2023, MOHW NHE Statistics (2021); PwC analysis

3.1 Health input vs. outcomes

Comparing life expectancy levels and reimbursement approval rates for US FDA-approved new drugs, Japan is the strongest performer on both metrics among the benchmark countries, while Taiwan is the lowest

Life expectancy (2019) vs. US FDA-approved new drug reimbursements (as of March 2023)





Sources: US FDA (US), Health Canada (Canada), PMDA (Japan), MFDS (Korea), TFDA (Taiwan), MHRA (UK) ; PwC analysis

* Latest data available.

** Based on new drugs reimbursed through national health insurance systems with reference to the 293 NMEs approved by the US FDA in 2017-2022.

Comparing current levels of cancer-related DALYs and public sector health spending, Japan is the strongest performer on both metrics among benchmark countries, while Taiwan is the lowest by a distance



Cancer-related DALYs (age-standardized, 2019)

Sources: OECD Health Statistics (accessed February 2023); MOHW NHE statistics (2021); Global Burden of Disease (accessed March 2023); PwC analysis

Economic benefits

3.2 Economic benefits

Around 2.2% on average of Taiwan's working age population (c.376k people) were inactive in the 2018-2022 period due to ill health, disability or informal caring responsibilities for elder or disabled family members

Inactivity due to ill health, disability or informal caring responsibilities



(% of population aged 15-64 years)

Source: National Statistics Manpower Utilization Survey 2022; PwC analysis

3.2 Economic benefits

A 10% reduction in the level of worker inactivity (due to ill health, disability or informal caring duties) could have potentially boosted nominal GDP by an estimated annual average of around NT\$68bn

Estimated annual increase in nominal GDP if inactivity due to illness, disability and informal caring responsibilities fell by 10%



Methodology: The economic benefit is estimated by multiplying 10% of the working-age population who are classified as inactive due to illness, disability or informal caring responsibilities by the annual GDP per employed person. It is assumed the GDP per employed person remains constant, i.e. increases in the labor supply do not reduce wages.

Source: National Statistics Manpower Utilization Survey 2022; PwC analysis

3.2 Economic benefits

A 10% reduction in the level of worker inactivity (due to ill health, disability and informal caring duties) could have potentially boosted income tax revenue by an estimated annual average of NT\$3.9bn

Estimated annual increase income tax revenue if inactivity due to illness, disability and informal caring responsibilities fell by 10%



Methodology: The additional income revenue is estimated by multiplying 10% of the working-age population who are classified as inactive due to illness, disability or informal caring responsibilities by the average annual income tax payment per employed person. It is assumed the income tax revenue remains constant for each additional worker.

Source: National Statistics Manpower Utilization Survey 2022; PwC analysis

3.2 Economic benefits

Improved health outcomes, calculated by applying per capita medical spending for adjusted age groups (younger by 5 years), could potentially reduce such expenditure by an estimate of over NT\$100bn annually

Projected annual medical expenditure

(Billion NHI points for males 35+ and females 45+, 2021-2050)

- Status quo: estimated by multiplying projected population by corresponding 2021 spending per capita of each age group (male age group 35+ and female age group 45+)
- Improved scenario: replaces corresponding spending per capita of each group with spending per capita of the age group younger by 5 years for 35+ male and 45+ female groups



Source: PwC analysis of data from Taiwan's National Development Council and Ministry of Health and Welfare; PwC analysis

Note: (1) The male age 35+ groups and female age 45+ groups are used in the simulation due to their respectively relatively large increases in medical expenses; (2) 1 medical point = TWD0.9.

Lessons from Japan: how Japan manages its health investment

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4.2 New drug reimbursement

51 60

Overview of Japan's health system

Japan has a well-developed universal healthcare system that provides abundant and high-quality medical resources and easy patient access to care. Japan is a world-leader in terms of health indicators, healthcare provision and access to new drugs, but faces challenges due to a fast-ageing society. Given the similarity of its health insurance system, there are frequent exchanges between Japan and Taiwan in the public and private sectors on healthcare. Japan is therefore considered to be a suitable comparative reference for the topic of health investment in Taiwan.

Public health insurance

- Japan has a universal health insurance system, with all residents covered by either Employees' Health Insurance (EHI) or National Health Insurance (NHI). Around 70% of healthcare expenses are covered by either EHI or NHI.
- Japan also has a mandatory long-term care insurance (LTCI) program, which is funded by a mixture of compulsory premiums for those aged over 40 years, general tax revenues and patient co-payments.

Health spending and funding

- Japan's total healthcare spending was 11.2% of GDP in 2021, making it one of the highest spenders on health worldwide. Around 83% of the total is publicly financed, largely through the statutory health insurance system.
- An ageing demographic profile continues to increase pressure on healthcare costs, so Japan's government is therefore prioritising reforms to contain growing expenditure and promote healthcare and medical innovations.

Health outcomes

- Japan's health indicators compare favourably with those of other developed countries, with the longest average life expectancy (at 84.7 years in 2021) in the OECD and among the lowest infant mortality rates in the world.
- However, Japan's rapidly ageing population presents major challenges for policymakers. One-third of Japan's population will be over 65 by 2030, and this age group accounts for more than 50% of Japan's health costs.

4 Lessons from Japan: how Japan manages its health investment

A fast-ageing population and high adoption of new medical treatments is driving medical expenditure growth in Japan. The ratio of elderly (75+) medical costs to total medical costs is rising and reached 38% in 2021



Medical expenditure for elderly 75+ National medical expenditure (excl. elderly ages 75+)

Source: Presentation by Takeda Toshihiko of Boston Consulting Group at the "Invest in Healthcare" forum in Taipei on 24 February 2023; PwC analysis Note: The age-dependency ratio is defined as the ratio of older dependents (i.e. people older than 64) to the working-age population aged 15-64, according to the WHO. 4 Lessons from Japan: how Japan manages its health investment

Japan has the highest old-age dependency ratio among benchmark countries, with every two working-age people having to support one senior citizen. Considering its overall demographic structure, Japan's total spending on healthcare is regarded as relatively efficient

- Total health spending as % of GDP (2019)
- Old age dependency ratio (% of elderly aged 65+ over working-age population) (2019)



Sources: Taiwan's Ministry of Health and Welfare and OECD data for 2019; PwC analysis

Note: The WHO defines the age-dependency ratio as the number of older dependents (i.e. aged 65 and over) divided by the working-age population aged 15-64.

Health insurance system funding

4.1 Health insurance system funding

Japan provides more direct government subsidies for healthcare than Taiwan, by as much as 10 percentage points of total healthcare funding, to maintain its universal health coverage and high quality of health services

Funding sources for medical expenditure in Japan and Taiwan

(Japan: 2020⁽¹⁾, Taiwan 2021)

% of total funding	Japan (National medical expenditure) 38.4%	Taiwan (National Health Insurance)	Taiwan (National health expenditure) ⁽²⁾ 29.9%	
Government subsidies		29.0%		
Households ⁽³⁾	39.7% (includes insurance premiums and co-pays)	33.4% (insurance premiums)	46.2% (insurance premiums 29.3% and out-of-pocket 16.9%)	
Employers	21.3%	36.9%	23.0%	

Sources: Taiwan's MOHW <National Health Expenditure, 2020>; Japan's MHLW <令和 2 (2020)年度 国民医療費の概況>; PwC analysis

Notes:

1) Latest available data for Japan.

2) Taiwan's national health expenditure (NHE) consists of general administration, public health, capital formation and personal healthcare expenditure. The latter category includes spending on inpatient and outpatient services, medicines and medical devices, and it accounted for 86% of total NHE in 2020.

3) Household funding of healthcare in Japan includes insurance premiums paid by insured persons a well as patient co-payments, while household funding of healthcare in Taiwan includes insurance premiums paid, patient co-payments and out-of-pocket payments.

4.1 Health insurance system funding

Japan's government provides subsidies from general tax revenue to its health insurance system to enhance social security, whereas government funding for the NHI in Taiwan is largely limited to insurance premiums

Examples of recent expansion of financial support for national health insurance reforms in Japan

2015	
Additional subsidies for low-income earners: Expanded financial support to local governments based on number of low-income people insured	JPY 170bn
2018	
Strengthening fiscal adjustment functions: Additional funding support provided for the care of mental illness patients	JPY 80bn
Insurer efforts support system: Support for initiatives aimed at optimizing medical costs	JPY 84bn
Fiscal risk diversification and mitigation measures	JPY 6bn

Source: Japan's MHLW <国民健康保険制度の取組強化の方向性, 2022>; PwC analysis

4.1 Health insurance system funding

Japan's government increased its consumption tax rate from 5% to 8% in 2014, and then to 10% in 2019, in order to expand funding for social security, which mainly covers pensions, childcare and healthcare services

• The consumption tax is considered an appealing source of funding for social security because its revenues are generally more stable than income tax flows and also distribute the tax burden equally across age generations.

Enhancement of social security based on consumption tax increase

	Enhanced childcare support		Ensured families on childcare waitlist received services and other measures	
ealthcare	Enhanced medical and long-term care services	Medical and long-term care provider system reform	 Increased medical fees (paid to providers) using consumption tax revenue Set up fund for healthcare delivery system reform 	89.7
			Built community-based system to support care for diseases such as dementia	4.3
		Medical insurance reform	Expanded measures to reduce insurance premiums for low-income earners	61.2
			Reviewed high-cost medical care benefits system	4.2
		Addresses intractable and paediatric chronic diseases	Established system to provide stable care for intractable diseases and specific chronic childhood disease patients	29.8
	Improved pension system		Expanded scope of widowed family pension	1

(illustrative example showing funding allocation in 2014)

Sources: Japan's Ministry of Finance <Learn about "Consumption Tax, 2022>; Japan's MHLW <平成26年度の社会保障の充実・安定化について>; PwC analysis

(JPY billion)

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4.1 Health insurance system funding

To address the sustainability issues facing Japan's healthcare system, additional funding sources proposed for healthcare spending in Japan include new taxes on health-risk products, co-payments based on asset size, and reviewing the cost-effectiveness of current reimbursements

1

A new tax on goods and services with high impact on health risks could be under consideration, with allocation of increased revenue for use in preventing and improving treatment for related diseases. For example, the WHO recommends taxing sugar-sweetened beverages to increase government revenue while preventing diseases related to higher sugar intake.

2

In 2021, health co-insurance rates for people 75 years of age and older was raised from 10% to 20%, depending on annual income. However, the current system does not account for people who have little income but many assets. Since it is feasible for insurers to identify financial assets such as savings accounts through the My Number system, **the affordability principles can be further defined to consider total assets** in the future.



Services with low cost-effectiveness could be considered for exclusion from insurance coverage or increasing OOP to ensure fairness, such as vitamins with ingredients that are available at pharmacies without insurance. Simultaneously, a switch from prescription to over the counter (OTC) medication could be also promoted, while considering medical safety.

Sources: Partnership for Health System Sustainability and Resilience <Sustainability and Resilience in Japan's Health System, 2022>

4.1 Health insurance system funding

In addition to multiple funding sources, Japan has also established a separate medical care system for elderly aged 75+ to better address the mismatch between medical care costs and benefits across generations



Source: Japan's MHLW < 医療保険制度の体系>; PwC analysis

* 2022 budget divided by the number of insured persons.

4.1 Health insurance system funding

Under the separate medical care system for the elderly aged 75 and over, 50% of the funding for their medical care costs comes from public sector health spending, compared with 38% for overall medical care expenditure



Source: Japan's MHLW <我が国の医療保険について>; PwC analysis

4.1 Health insurance system funding

Japan's government has raised co-payment rates for the elderly several times, based on their income levels, in order to further relieve funding pressures from mounting healthcare costs due to an ageing population

• Co-payment rates for elderly aged ≥ 75 were raised to 20% in October 2022 for those senior citizens with a pension and other income over a certain level (JPY2mn for 1-person household and JPY3.2mn for others).



Japan: Co-payment rates for medical expenditure, 2023

Taiwan: Co-payment rates for outpatient pharmaceutical drugs

(based on new rates starting from July 2023)

Notes: Patients with major illness or injury are exempt from co-payments.

4.1 Health insurance system funding

In view of Taiwan's rapidly ageing demographics, the issue of increasing medical insurance funding while addressing mismatches between medical care costs and benefits across generations will become a key policy focus

Lessons from Japan's health insurance reforms

Multiple funding sources for health insurance system

Japan's increased its consumption tax rate from 5% to 10% to expand funding for pensions, childcare and healthcare services. Consumption tax is considered an appealing source of funding because its revenues are more stable and distribute burden equally across generations.



Address the mismatch between medical care costs and benefits across generations through policy reform

Japan has also **established a separate medical care system for elderly aged 75+**, under which higher percentage of medical care funding comes from public sector, to better address the mismatch between medical care costs and benefits across generations Raise co-payment rates for the elderly to further relieve funding pressures due to an ageing population

Japan's government has raised co-payment rates for the elderly(75+) several times based on their income levels in order to further relieve funding pressures from mounting healthcare costs due to an ageing population

A downward trend is seen in the number of approvals for new drugs reimbursement for all diseases by Taiwan's NHI program since 2017

New drugs reimbursement*

New reimbursed indications**



Numbers of reimbursement submitted

Numbers of reimbursement (effective as of 2023 Mar.)

$66\% \to 55\%$

Drop in the cumulative percentage of reimbursement for new drugs (all diseases) during 2017-2022 period (compared to 2016-2021)



61%

No change in the cumulative percentage of reimbursement for new reimbursed indications (all diseases) during 2017-2022 period (compared to 2016-2021)

Source: PwC analysis of Gau-Tzu Chen's survey on NHI reimbursement of new drugs and new indications (March 2023).

* Reimbursement of new drugs does not include drugs manufactured or imported as "special cases," such as in emergency public health circumstances, for severe illnesses where there are no appropriate domestic drugs or alternative domestic treatments, or prevention of rare diseases.

** Reimbursement for new indications includes new dosage form, strength, route of administration and intended use.

New drugs reimbursement - oncology*

New reimbursed indications – oncology**

4.2 New drug reimbursement

Approval rates for the number of both oncology-related new drugs and new indications reimbursed by Taiwan's NHI has declined since 2017





Numbers of reimbursement (effective as of 2023 Mar.)

$65\% \rightarrow 58\%$

Drop in the cumulative percentage of reimbursement for new drugs (oncology) during 2017-2022 period (compared to 2016-2021)



$55\% \to 49\%$

Drop in the cumulative percentage of reimbursement for new reimbursed indications (oncology) during 2017-2022 period (compared to 2016-2021)

Source: PwC analysis of Gau-Tzu Chen's survey on NHI reimbursement of new drugs and new indications (March 2023).

* Reimbursement of new drugs does not include drugs manufactured or imported as "special cases," such as in emergency public health circumstances, for severe illnesses where there are no appropriate domestic drugs or alternative domestic treatments, or prevention of rare diseases.

** Reimbursement for new indications includes new dosage form, strength, route of administration and intended use.

30

Approval waiting times for reimbursement of new drugs in Taiwan have increased significantly in recent years, so slowing access to these drugs



Waiting time for reimbursement - New drugs*

Source: PwC analysis of Gau-Tzu Chen's survey on NHI reimbursement of new drugs and new indications (March 2023)

- * Reimbursement of new drugs does not include drugs manufactured or imported as "special cases," such as in emergency public health circumstances, for severe illnesses where there are no appropriate domestic drugs or alternative domestic treatments, or prevention of rare diseases.
- ** Reimbursement for new indications includes new dosage form, strength, route of administration and intended use.

Approval waiting times for the reimbursement of new oncology drugs in Taiwan are significantly longer compared to non-oncology drugs



Waiting time for reimbursement – New reimbursed indications** (2013 – Mar. 2023)



Source: PwC analysis of Gau-Tzu Chen's survey on NHI reimbursement of new drugs and new indications (March 2023)

- * Reimbursement of new drugs does not include drugs manufactured or imported as "special cases," such as in emergency public health circumstances, for severe illnesses where there are no appropriate domestic drugs or alternative domestic treatments, or prevention of rare diseases.
- ** Reimbursement for new indications includes new dosage form, strength, route of administration and intended use.

Comparing Japan and Taiwan data for US FDA-approved NMEs, Japan has a much higher number of approved new drug reimbursements than Taiwan



New drug reimbursement

(NMEs approved by the US FDA, 2017-2022, as of March 2023)

For US FDA-approved NMEs, Japan takes a considerably shorter time than Taiwan to approve the reimbursement of new drugs

US FDA-approved NMEs reimbursement approval time

JP: New drug reimbursement waiting time (days, 115 drugs)

TW: New drug reimbursement waiting time (days, 41 drugs)



While both Japan and Taiwan approve the same number of oncology NMEs, Japan reimburses much more of these new drugs than Taiwan



4.2 New drug reimbursement

For US FDA-approved oncology NMEs, Japan takes much less time than Taiwan to approve the reimbursement of these new drugs

US FDA-approved oncology NMEs reimbursement approval time



4.2 New drug reimbursement

Japan's health authority provides subsidies for new drugs by adding price premiums to new pharmaceuticals that meet certain conditions



Source: Japan's MHLW; PwC analysis

Note: The special budget is funded by premiums added to the price of listed new drugs that meet certain conditions (such as innovative technology, novel mechanisms, orphan drugs or for public health purpose). The premium remains valid until the drug's patent expires or a generic version is launched. The budget and drug list are revised biannually.

4.2 New drug reimbursement

Japan covers 95% of new drug approvals, and requires related price listing procedures to be completed within 60 days or 90 days at the most, which help ensure rapid patient access to cutting-edge drugs



Source: Japan's MHLW <Current update on NHI policy and future directions>; PwC analysis

Note: 304 NMEs were included on the NHI price list during the study period, and the NHI coverage rate (excepting preventive vaccines) was 97.4%.

In Taiwan, the PBRS makes the final decision on reimbursement of new drugs, based on EAM recommendations. It takes more than one times of EAM/PBRS discussion for all drugs and up to 3 times for oncology drugs



Source: PwC analysis of Gau-Tzu Chen's survey on NHI reimbursement of new drugs and new indications (March 2023).

Note (1): The Expert Advisory Meeting (EAM) provides recommendations to the PBRS.

Note (2): The Pharmaceutical Benefit and Reimbursement Scheme (PBRS) Joint Committee is the final arbiter for new drugs reimbursement.

Expert Recommendations
Interviews were conducted with healthcare experts to verify and obtain further insights into the issues identified as well as recommendations

Healthcare expert interviews

Based on our desktop research findings, we interviewed 13 experts^{*} (with backgrounds in health economics, patient rights advocacy, national health insurance, new drug policies, and medical practice and research fields) to verify our desktop findings and obtain further insights into the critical issues as well as their recommendations.



* Please refer to p95 for the full list of experts interviewed for this paper.

Our interview questionnaire addressed the following:

- Key areas to increase healthcare investment (budget);
- Positive impact on health outcomes, labour productivity, national competitiveness and biomedical industry development from increased healthcare investment;
- Ideal investment (budget) level in terms of percentage of GDP. Since Taiwan currently lags behind benchmark countries, what is considered to be an ideal target?
- Effective ways for the government to address issues related to Taiwan's lagging health indicators .
- Views on new drug access, and government budgeting for new drugs and medical technologies in Taiwan.

Major healthcare challenges and issues in Taiwan

Key health indicators lag behind internationally, while an ageing population is a growing concern

- Lagging health indicators: Taiwan lags behind benchmark OECD countries like Japan and Korea on major health indicators, including life expectancy, cancer mortality and cancer survival rates.
- **Increasing financial burden:** Taiwan's rapidly ageing demographics will significantly increase the financial and resource burden on the country's health system.

Level of current health expenditure also lags behind benchmark OECD countries

- Lagging healthcare expenditure: Taiwan's ratio of current national healthcare expenditure, public sector healthcare expenditure and pharmaceutical drug expenditure to GDP lags behind benchmark countries.
- Lower pharmaceutical spending than benchmark countries: Taiwan's expenditure on pharmaceuticals as a percentage of GDP is below the OECD average and lower than benchmark countries. Growth in the annual budget for new medical technologies has stagnated since 2019 and declined in 2022 and 2023.

Limited access to new drugs

- Limited reimbursement of new drugs: Taiwan has downward trends in reimbursement approval rates for new drugs and new indications. For global new NMEs, Japan has much higher percentages of approved new drug reimbursements than Taiwan (99% vs. 41%).
- Significant longer waiting time for new drugs in Taiwan: 729 and 783 days for all diseases and oncology, respectively, with use for limited indications. By contrast, Japan completes price listing for on-label use reimbursements within 60 up to 90 days at most.
- Limited reimbursed indications: Limited TFDA approved indications and conditions are covered by the NHI for reimbursement mainly due to cost concerns. A study by Formosa Cancer Foundation found that just 30.4% of patients prescribed new listed cancer drugs were eligible for NHI reimbursements as coverage is limited to patients in critical conditions or late stage patients, resulting in fewer opportunities for early treatments.

Healthcare expenditure (budget) is an health investment

Almost all of the expert interviewees agreed that healthcare budget spending should be regarded as an investment that generates positive outcomes for increasing national competitiveness in the long run.

The different positive aspects of investment include:

- Improving treatment quality and rights, building a sustainable medical care system, and narrowing the gap between Taiwan's major health indicators (health outcome) and those of benchmark countries.
- Reducing long-term care burden by including non-financial costs, such as unhealthy remaining years of life and productivity losses, when evaluating reimbursement of new treatments and medical technologies.
- Enhancing the development and competitiveness of the biomedical industry: More closely aligning with the drug standards of advanced countries could attract more multinational pharma companies to conduct clinical trials in Taiwan as well as increase opportunities for patient participation and drug research. Stronger market access would also enhance the competitiveness of the biomedical ecosystem.
- Healthcare investment improves national health, productivity and, as a result, increases tax revenues and GDP growth. In addition, healthcare spending also contributes directly to GDP and economic growth.

2

) Increase investment in health from multiple aspects

There was a general consensus among the expert interviewees on the need to increase healthcare spending (budget), but they had different opinions on which aspects of healthcare investment to increase, how to improve efficiency, and the need to fundamentally change the public's usage of health insurance:

- The fundamental problem is insufficient annual increases in the NHI's global budget. Simply increasing the level of the set budget is the most straightforward way to enhance healthcare investment. This is also in line with the principle of social insurance. Some possible adjustments were suggested:
 - Amend the 6% NHI premium rate ceiling;
 - **Increase the government's share of NHI premiums** (For average workers, the employee premium accounts for 30% of the general premium, with 60% borne by employers and 10% by the government);
 - Draw on additional government funding, such as from VAT, to help expand funding for the NHI system.
- > Other suggestions to grow the healthcare spending budget:
 - Propose **separate budgets** for healthcare expenditure on specific uses, such as precision healthcare and cancer prevention, which should be backed by in-charge authorities other than the NHIA;
 - Provide supplemental coverage for unpaid indications through private health insurance;
 - Establish a dedicated cancer-drug fund with funding from both the public and private sectors;
 - Budget reallocated from price adjustments could be used to fund new drugs.

2

Increase investment in health from multiple aspects (continued)

- > Efficiency should also be emphasised under limited budgets:
 - **Promote OTC drugs for self-care of minor illnesses**, allowing for budgets to focus on major illnesses, urgent injuries and rare diseases as well as efficient allocation of healthcare resources.
 - Increase the level of co-payments to help improve efficiency and change patient behaviours such as excessive hospital visits, drug wastage and doctor shopping.

2

) Increase investment in health from multiple aspects (continued)

- The public in Taiwan is generally satisfied with NHI's coverage but has limited understanding of the far-reaching impact of insufficient health budgets. Under the current situation, it is often difficult for the government of the day to promote effective health system reforms due to election considerations.
 - Reform of the NHI system is inevitable to cope with the challenges posed by a rapidly ageing population, and so it will be necessary to **educate the public about the need for change**;
 - During the Covid pandemic in Taiwan, the public became aware of the lack of healthcare resources and how labour shortages, especially in hospitals, caused a decline in NHI efficacy. This story offers an **opportunity to promote the necessity of NHI reforms to the public.**

3 Taiwan should refer to the healthcare expenditure levels of Japan, South Korea and the OECD average as indicative levels for increasing healthcare investment

- Japan's total healthcare expenditure currently accounts for around 11% of GDP, which Taiwan should consider as a long-term benchmark goal. In the short term, however, it was suggested that Taiwan target to catch up with the current OECD average and/or South Korea's spending level of 8%-9%.
- Regarding national health insurance expenditure and pharmaceutical spending, Taiwan should consider to benchmark Japan's current spending levels of ~8% and ~2% as long-term targets.
- When setting budget/spending targets, the expert interviewees suggested to also take into account differences among the health insurance systems of the benchmark countries, as well as differences in their levels of economic development, and comparison of actual medical treatments covered and costeffectiveness. Issues of medical resource allocation and fairness should also be considered.

Set improvements in health indicators as policy goals, and promote cross-ministry cooperation through a whole-of-government approach to help achieve these goals

- The expert interviewees suggested to involve higher-level supervisory units, including the establishment of a cross-ministerial taskforce directly reporting to Executive Yuan, to facilitate cooperation among ministries and commissions through a whole-of-government approach, and to set improvement targets for health indicators (such as life expectancy, cancer mortality and cancer survival rates) as policy goals.
- > Authorise the Ministry of Health and Welfare to coordinate and make use of health industries resources.
- Continue to collect opinions from the private sector, such as patient groups and practitioners, in support of the government's decision-making process.

5

) Other measures to improve new drug access

- > Establish a health insurance sandbox as a reimbursement scheme for new medical technologies:
 - Its funding would not affect budget allocation for medical products currently in use.
 - Cost-sharing and risk-sharing agreements should be established between the NHI and industry.
 - New medical products listed in the sandbox should be periodically reviewed based on **real world data** generated from using the sandbox. A bridging system should be established if the products are ready to be reimbursed by the NHI.

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Health system profiles of benchmark countries

Canada health system



Canada has universal healthcare, with its provinces and territories (PT) administering health coverage systems for their residents, while the federal government sets national healthcare standards and provides long-term funding.

Public health insurance

- Canada provides universal health coverage for basic medical care through a health system called Medicare. It is funded and administered by the country's 13 provinces and territories, with each having its own insurance plan.
- These PT plans cover hospital and physician services but exclude prescription medicines. Supplementary or non-Medicare-covered services, are largely privately financed through OOP payments and private insurance.

Health spending and funding

- Canada spends more than the OECD average on healthcare, at 11.7% of GDP in 2021. Government spending accounts for approximately 70% of total healthcare expenditure and the private sector represents the balance.
- Almost all revenues for public sector health spending come from the general tax revenues of federal, provincial and territorial governments. Over 20% of PT health financing is from the federal Canada Health Transfer program.

Health outcomes

- The health of Canada's population is generally good, reflecting broad public healthcare coverage and high income levels. Average life expectancy in Canada is high (82.7 years in 2021) but is beginning to plateau.
- Socioeconomic inequalities between indigenous and non-indigenous Canadians are significant, and the large and persistent gaps in health outcomes between the two groups are a major challenge for the health system.

Sources: EIU, Canada Healthcare Report (2023); WHO, Canada Health System Review (2020) ; PwC analysis

Canada health system



Health spending trend and policy turning points

• Reforms in recent years have focused on consolidating governance structures and improving primary care, and there has also been some momentum towards introducing a national programme of prescription drug coverage.



Sources: OECD; WHO; Canadian Institute for Health Information; PwC analysis

Germany health system



Germany has a universal multi-payer healthcare system, including both public and private health insurance, which offers a broad benefits basket, well beyond essential services, with comparably low cost-sharing requirements.

Public health insurance

- Health insurance is mandatory for all Germany residents. Cover is provided by statutory health insurance (SHI), which operates through competing, non-profit health insurers (sickness funds), and private health insurance.
- Around 90% of the population is insured by public sickness funds and the rest privately. Unlike those in many other countries, public and private health insurers, as well as long-term care insurers, use the same providers.

Health spending and funding

- Germany spends a greater proportion of its GDP on health (12.8% in 2021) than any other country in Europe. Public expenditure on healthcare (including compulsory SHI contributions) accounts for over 80% of the total.
- Healthcare is mainly financed by statutory employee and employer contributions (via wage deductions), with the rest from state transfers and subsidies. The federal Health Fund oversees funding allocations to sickness funds.

Health outcomes

- The health status of Germans has improved over the last two decades, with average life expectancy increasing by almost three years since 2000 to reach 80.9 years in 2021.
- Compared to other European countries, however, Germany's health outcomes are moderate and inequities exist along socioeconomic and regional lines. Thus, its mixed results are achieved at a relatively high economic cost.

Sources: EIU, Germany Healthcare Report (2022); OECD, Germany Health Profile (2021); WHO, Germany Health System Review (2020); PwC analysis

Germany health system



Health spending trend and policy turning points

• A growing pensionable population, together with large immigrant inflows in recent years, has been a major driver of increasing healthcare expenditure in Germany, which is higher than in most other EU and OECD countries.



Sources: OECD; WHO; National Library of Medicine; PwC analysis

Japan health system



Japan has a well-developed universal healthcare system that provides abundant and high-quality medical resources and easy patient access to care. It also provides universal health coverage for the long-term care of older persons.

Public health insurance

- Japan has a universal health insurance system, with all residents covered by either Employees' Health Insurance (EHI) or National Health Insurance (NHI). Up to 70% of healthcare expenses are covered by either EHI or NHI.
- Japan also has a long-term care insurance (LTCI) scheme, funded by a mixture of compulsory premiums for those aged over 40, taxation and co-payments. It covers 90% of medical expenses incurred for elderly care (age 75+).

Health spending and funding

- Japan's total healthcare spending was 11.2% of GDP in 2021, making it one of the highest spenders on healthcare worldwide. Around 83% of the total is publicly financed, largely through the statutory health insurance system.
- An ageing demographic profile continues to increase pressure on healthcare costs, so Japan's government is therefore prioritising reforms to contain growing expenditure and promote healthcare and medical innovations.

Health outcomes

- Japan's health indicators compare favourably with those of other developed countries, with the longest average life expectancy (at 84.7 years in 2021) in the OECD and among the lowest infant mortality rates in the world.
- However, Japan's rapidly ageing population presents major challenges for policymakers. One-third of Japan's population will be over 65 by 2030, and this age group accounts for more than 50% of Japan's health costs.

Sources: EIU, Japan Healthcare Report (2023); WHO, Japan Health System Review (2018) ; PwC analysis

Japan health system



Health spending trend and policy turning points

• Population ageing is advanced in Japan, which has required significant reforms in the healthcare and long-term care systems over the past two decades, with the the ultimate goal of building a sustainable healthcare system.



Sources: OECD; WHO; National Library of Medicine.

South Korea health system



South Korea has a universal single-payer healthcare system, which has underpinned a rapid rise in life expectancy and wider access to quality care, though patients face relatively high cost-sharing by OECD standards.

Public health insurance

- Korea's National Health Insurance (NHI) covers all of the population and provides universal access to a wide range of healthcare services, mostly through private providers. Long-term care coverage is built into the NHI.
- The NHI is funded through premium contributions, government subsidies from general tax revenues and tobacco surcharges, and patient co-payments. Private health insurance is mainly designed to supplement NHI coverage.

Health spending and funding

- Total healthcare spending in Korea represented 8.8% of GDP in 2021, among the highest levels in Asia, having increased steadily over the past decade, from just 6.0% in 2011, due to the country's shift to an ageing society.
- Around 65% of total healthcare expenditure is publicly funded (including the NHI scheme) in 2021, while voluntary or household OOP spending accounted for 35%, which is among the highest levels in OECD countries.

Health outcomes

- The health status of Korea's population has improved noticeably over the years, with average life expectancy increasing from 80.6 years in 2011 to 83.5 years in 2021.
- Like most other developed countries, Korea faces the challenge of an ageing population and a rising burden of chronic diseases. Its proportion of people aged 65 and older will rise to 20.3% by 2025, from 16.5% in 2021.

Sources: EIU, Korea Healthcare Report (2023); WHO, Korea Health System Review (2015).

South Korea health system



Health spending trend and policy turning points

• The central government plays a dominant role in South Korea's healthcare sector as a policymaker, a regulator, a provider and a strategic partner to the private sector in research and development, and market development.



Sources: OECD; WHO; National Library of Medicine; PwC analysis

United Kingdom health system



The four nations of the UK (England, Wales, Scotland and Northern Ireland) each have distinct but similar health systems. Regional variations in governance and organisation contribute to a mixed picture on care and outcomes.

Public health insurance

- The National Health Service (NHS) is the umbrella term for the publicly-funded healthcare systems of the UK, which provide universal access to a full range of healthcare services that are nearly all free at the point of use.
- The NHS is funded by general taxation (80%) and compulsory NI contributions. It has operated under financial strain for several years now due to rising demand and budget cuts. Public satisfaction with the NHS is very low.

Health spending and funding

- Healthcare expenditure in the UK represented about 11.9% of GDP in 2021, of which 83% was publicly funded, and the remainder coming from private medical insurance and OOP payments.
- The UK's spending is comparable to the EU average but lower than in similarly wealthy countries. Since 2008, budgets have not kept pace with growing demand for services, leading to long waiting times and NHS deficits.

Health outcomes

- The UK lags behind many other comparable high-income countries in key measures including life expectancy (80.7 years in 2021), infant mortality and cancer mortality, with wide health disparities by socioeconomic status.
- The gap in life expectancy between the most affluent people and the most deprived people is around 8.4 years.

Sources: EIU, UK Healthcare Report (2023); OECD, UK Health Profile (2019); WHO, UK Health System Review (2022) ; PwC analysis

United Kingdom health system



Health spending trend and policy turning points

• Chronic underfunding and worker shortages are key challenges for the NHS, with significant investment required to rectify poor health outcomes, address growing waiting lists and develop a more sustainable healthcare system.



Sources: OECD, WHO; National Library of Medicine; The Health Foundation; PwC analysis.

Acknowledgement

2 Acknowledgement

Acknowledgement

We would like to thank all of the experts who participated in this "Invest in Healthcare" project and provided valuable feedback and suggestions. Chang Gung University, Dept of Health Care Management Formosa Cancer Foundation HOPE Foundation for Cancer Care Institute for Biotechnology and Medicine Industry Koo Foundation Sun Yat-Sen Cancer Center National Taiwan University Cancer Center Taiwan Alliance of Patients' Organizations Taiwan Bio Industry Organization Taiwan College of Healthcare Executives Taiwan Research-based Biopharmaceutical Manufacturers Association Taiwan Society of Health Economics **Taiwan Young Patient Association** The Pharmaceutical Society of Taiwan

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