### Understanding the Social and Economic Value of Deepening High-Quality Development in Innovative Pharmaceuticals and Contributing China's Socio-economic Connotative Development

Roche Group

#### **Executive Summary**

Since the 18th National Congress of the Communist Party of China, China's health sector has achieved significant progress, further enhancing the health rights and interests of its people. By 2023, the average life expectancy in China has increased to 78.6 years. The five-year survival rate for cancer has also continued to the rise, from 40.5% in 2015 to 43.7% in 2022. The sustained improvement in public health is underpinned by continuous investment in health sector and the deepening reforms in healthcare, pharmaceuticals, and medical insurance by the Chinese government.

Thanks to the development of the health industry and the increasing accessibility of innovative drugs, these drugs have consistently served as "high-performance health investments" in China. Innovative drugs effectively restore labor supply, facilitate patients' return to work, and significantly reduce family burdens. Highquality innovative drugs can expand the health consumption market, optimize consumption structures, and boost domestic demand. Therefore, beyond reducing the burden of disease, innovative drugs can drive economic growth from both labor supply and consumption demand perspectives.

The social impact of pharmaceuticals measures the macroeconomic benefits brought by the restoration of patients' ability to participate in paid and unpaid work after receiving treatment. Taking Roche's innovative drugs as an example: In HER2-positive breast cancer, Roche's innovative drugs have revolutionized the diagnosis and treatment paradigm for breast cancer. Compared to the previous generation of standard therapies, Roche's innovative drugs generated 9.5 billion yuan in social benefits for China from 2019 to 2023 and is expected to continue creating 23.7 billion yuan in social benefits from 2019 to 2024 to 2032. A study by Fudan University found that seven HER2-positive breast cancer targeted drugs included in the national medical insurance catalog will cover 1.57 million patients from 2023 to 2032. Compared to the previous generation of standard therapies, these targeted drugs will generate 89,000 quality-adjusted life years (QALYs) in health

benefits and 32 billion yuan in social benefits. For retinal diseases represented by age-related macular degeneration and diabetic macular edema, the use of Roche's innovative drugs is expected to create 4.6 billion yuan in social benefits for China from 2023 to 2032. One of Roche's innovative influenza drug can effectively block virus transmission, reduce influenza cases, lower medical costs caused by influenza, and minimize productivity losses.

While fully recognizing the significant progress made in China's health sector, it is also necessary to see that China still faces multidimensional disease challenges. The combined burden of disease, aging population pressures, insufficient domestic demand, and external challenges have placed higher demands on China's health investment and the opening-up of its health industry. In 2021, the number of deaths from diseases in China was 11.64 million cases, with diseases causing 402 million disability-adjusted life years (DALYs) of disease burden. The accelerated aging process in China will reduce labor supply, increase the demand for chronic disease and major disease treatment, and continue to put pressure on the medical system and medical insurance funds. Insufficient domestic demand has become a challenge for China's economy, and boosting domestic demand, especially consumer demand, also requires increased investment in health and other livelihood areas to expand the domestic health market. Externally, trade frictions and other changes have put pressure on China's economy, which also requires China to continue to open up the health market and strengthen international cooperation in the health sector, encouraging and supporting foreign investment in the pharmaceutical industry. Therefore, whether from the perspective of alleviating the loss of labor caused by diseases and aging or solving China's internal and external economic challenges, it is necessary for the Chinese government to continue to increase health investment, pay attention to the pharmaceutical industry as a representative of the health industry, and make it one of the key fulcrums for solving systemic problems, activating domestic demand potential, and breaking through external pressures.

It is worth noting that while China's pharmaceutical industry has made remarkable progress, its immense potential in promoting national health and economic growth remains to be fully tapped. In 2023, the size of China's pharmaceutical market reached 1.63 trillion yuan, ranking second globally. However, innovative drugs accounted for only 28% of the market, significantly lower than the level in developed countries (>50%). Even in some developing countries, such as Turkey, Saudi Arabia, Mexico, and South Africa, the proportion of innovative drugs in the pharmaceutical market is higher than in China. Among the 460 new drugs launched globally between 2012 and 2021, only 24% were approved in China, and merely 15% were included in the national medical insurance drug list. The proportion of national negotiation-based innovative drugs in total healthcare

insurance expenditures over the years has also remained at just 2.8%, far below international levels. Challenges persist in the "last mile" of hospital access for innovative drugs. Obstacles include conflicts between payment mechanisms and cost-control policies, hospital performance evaluation systems and drug usage policies that crowd out innovative drugs, outdated hospital management and admission processes, as well as insufficient availability of innovative drugs in primary healthcare institutions—all of which hinder patient access to these medications. Additionally, efforts in early screening and diagnosis of key diseases, as well as the prevention and control of infectious diseases such as influenza, need further strengthening. Therefore, China must continue to advance and promote improvements across multiple dimensions, including healthcare investment, insurance coverage, drug accessibility, and industrial development. Enhancing patient access to innovative drugs should be regarded as a long-term and essential task, while fully leveraging the pharmaceutical industry—particularly the innovative drug sector—as a key driver of the macroeconomy.

To support the sustained development of China's health sector, more effectively address the burden of disease, reduce the negative impact of diseases on China's economic development, and fully utilize the role of the health industry, particularly the pharmaceutical sector, in addressing China's internal and external challenges, this report proposes the following policy recommendations:

- Further increase government investment in health initiatives, raise the proportion of health expenditures in fiscal spending, and provide more resources to address the burden of disease and improve public health.
- Improve the multi-tiered protection mechanism for innovative drugs to fully leverage their role as "high-efficiency health investments".
- Continuously enhance patient access to innovative drugs from the healthcare service side, meeting public health demands with high-quality medical products.
- Enhancing the openness of the pharmaceutical industry to the global market, promoting international coordination of regulatory policies, and providing a supportive policy environment for foreign enterprises to enter the Chinese market will help leverage the full potential of the international pharmaceutical industry in advancing China's health sector.

#### 1. During the decisive stage of "Healthy China 2030", increasing government health investments, strengthening support for innovative drugs, and promoting the opening-up of the health industry will yield significant policy benefits.

Innovative drugs offer significant "high-efficiency health investment" value. First, they provide substantial clinical benefits, mitigating the labor losses caused by disease and aging, and generating notable socio-economic benefits. Second, they meet the public's demand for high-quality, diverse, and multi-dimensional medical and health services. The development and improved accessibility of innovative drugs will strengthen livelihood security and effectively boost domestic demand. Third, the innovative drug industry is an important channel for international trade. Promoting the industry's openness can leverage global markets to support China's health sector and consolidate the deep cooperative relationship between the Chinese market and the global economy.

To help China more effectively address the burden of disease and fully leverage the role of the health industry, particularly the pharmaceutical sector, in economic development, and to further ensure the achievement of the "Healthy China 2030" goals, this report proposes the following policy recommendations:

#### 1.1 Increase government investment in health initiatives to provide more resources for addressing the burden of disease and improving public health. Increase fiscal investment, raise the proportion of health expenditures in total fiscal spending, and prioritize health investments in economically underdeveloped regions.

In 2023, China's health expenditure accounted for 7.2%<sup>1</sup> of GDP, falling short of the global average of 9.9%<sup>2</sup>, indicating room for further increases. Expanding health investment and increasing fiscal spending on health will help reduce financial burden of medical expenses on residents, improve the health levels of people in underdeveloped regions, and provide a solid economic foundation for achieving key goals such as an average life expectancy of 79 years by 2030. If fiscal investments are tilted toward major areas such as cancer, it will further reduce the financial burden on patients and improve important evaluation indicators such as the five-year survival rate for cancer patients.

<sup>1</sup> Data Source: National Health Commission, "2023 China Health and Medical Development Statistical Bulletin." <u>http://www.nhc.gov.cn/guihuaxxs/s3585u/202408/6c037610b3a54f6c8535c515844fae96.shtml</u> 2 World Health Organization. Global spending on health: emerging from the pandemic[J]. 2024.

# 1.2 Improve the multi-tiered protection mechanism for innovative drugs to fully leverage their role as "high-efficiency health investments". In this regard, the following policy optimizations can be promoted:

- Further optimize medical insurance access rules, adhering to a value assessment framework that prioritizes clinical and innovation value.
- Expand the coverage and intensity of medical insurance for innovative drugs, continuously improving patient access to innovative drugs.
- Promote the development of commercial insurance, improve policy support, and explore flexible fiscal or financial tools to support the development of commercial insurance.
- Encourage more commercial insurance plans to include innovative drugs and urgently needed drugs, creating a commercial insurance system that complements and supports the basic medical insurance scheme.
- Strengthen the coordination mechanism between basic medical insurance and commercial insurance, promoting policies such as medical insurance data empowerment for commercial insurance companies and synchronized settlement between medical insurance funds and commercial insurance.
- Promote the implementation of commercial insurance and enhance its benefits for patients. Pilot convenient measures such as "one-stop settlement" to establish a direct payment platform integrating basic medical insurance and commercial insurance, enabling simultaneous settlement during medical visits. Encourage hospitals to develop commercial insurance payment capabilities. Optimize the commercial insurance reimbursement list and encourage a differentiated positioning between commercial insurance coverage and basic medical insurance.
- In the next 3-5 years, these measures will increase the proportion of "truly innovative" drugs in the National Reimbursement Drug List, further improve the efficiency and health outcomes of medical insurance fund usage and foster the commercial insurance market and the development of the innovative drug industry. This will further enhance patient access to innovative drugs, achieving multiple benefits in health outcomes and industrial development.

## **1.3** Continuously improve patient access to innovative drugs from the healthcare service side, meeting public health demands

## with high-quality medical products. In this regard, the following policy optimizations can be promoted:

- Leverage policy guidance to adjust disease focus in a timely manner, strengthen life-cycle disease management and drug policy coordination to address the challenges posed by population aging and disease spectrum changes, and promote healthy aging and the efficient operation of the healthcare system through policy guidance, technological innovation, and system construction.
- Improve the hospital adoption and utilization rates of innovative drugs, promote their rational use, and incorporate them into public hospital performance evaluation indicators.
- Improve the adjustment mechanism for the National Essential Medicine List, expanding its scope to include innovative drugs.
- Include innovative drugs suitable for grassroots use in the drug lists of close-knit medical consortium to meet the medication needs of patients with chronic and common diseases in grassroots medical institutions and improve grassroots patients' access to innovative drugs.

These policy optimizations will address the "last mile" challenges in the use of innovative drugs. Only by promoting the rational use of innovative drugs in clinical settings can their therapeutic advantages be fully realized. Incorporating innovative drug usage into hospital performance evaluation indicators will lead to significant improvements in clinical use in a short time. Including more innovative drugs in the essential drug list and the drug lists of close-knit medical consortium will narrow the medication gap between hospital and grassroots patients, benefit over 50% of grassroots patients, ensure medication continuity within medical alliances, and alleviate the pressure on public hospitals.

#### 1.4 Enhancing the Openness of the Pharmaceutical Industry and Strengthening International Collaboration

Increase the openness of China's pharmaceutical industry, promote international alignment of industrial policies, particularly regulatory policies, and create a supportive policy environment for foreign enterprises entering the Chinese market. This will enable the international pharmaceutical industry to play a greater role in advancing China's health sector. To achieve this, the following policy optimization measures should be implemented:

• Align drug evaluation, approval, and regulatory policies with international standards, and continue promoting and implementing

ICH (International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use) in China.

- Optimize the registration pathway for overseas drugs in China, accelerating the domestic approval of foreign innovative drugs while ensuring sufficient intellectual property protection for originator drugs, thereby attracting more innovative drugs into the Chinese market.
- Continue reforming clinical trial regulations, moderately simplifying requirements for international multi-center clinical trials. Measures such as relaxing requirements for Chinese participants in such trials and increasing the acceptance of early-stage overseas clinical data will help reduce redundant trials and improve clinical trial efficiency.
- Simplify the lot release policy for biologics, relax batch-by-batch testing requirements, and extend the validity period for biologics.
- Encourage multinational pharmaceutical companies to engage in deep, multi-dimensional cooperation in China, including innovation incubation, product development, clinical advancement, and commercial expansion. Promote their participation in the construction and development of China's local pharmaceutical industry supply chain.

Further enhancing the openness of the pharmaceutical industry and optimizing the business environment for foreign enterprises will drive international cooperation in this field. Over the next **3 to 5 years**, these initiatives will stimulate multinational pharmaceutical companies to invest and localize technologies in China, accelerating the simultaneous international and domestic launch of innovative drugs and fostering greater global collaboration. With the active participation of multinational pharmaceutical companies, China's biopharmaceutical industry will develop at a faster pace and gain **international competitiveness**.

2. The health industry, represented by innovative drugs, has created significant social benefits and positively impacted the national economy.

In recent years, Chinese patients' access to high-quality drugs, especially overseas innovative drugs, has continuously improved. The gaps in effective treatments for major and rare diseases have been filled, and outdated treatment regimens have been upgraded, bringing health benefits to patients and generating broader social benefits. Firstly, the use of drugs improves patients' health, enabling them to return to work and perform better in paid employment, as well as restore their ability to undertake household responsibilities, volunteer activities, and community work. Additionally, improved health reduces the need for caregiving, freeing up time and energy for caregivers and further releasing labor supply, thereby promoting social productivity. Secondly, high-quality innovative drugs can expand the health consumption market, optimize consumption structures, and boost domestic demand. Thirdly, the pharmaceutical industry is a key source of technological innovation and a critical driver of industrial upgrading. Therefore, from a macroeconomic perspective, the use of drugs, especially high-quality innovative drugs, is not merely a health cost but a long-term "high-performance health investment" that positively contributes to restoring production supply and boosting consumption.

The social impact of drugs reflects the economic contributions resulting from their use. This indicator measures the macroeconomic benefits derived from the restoration of patients' labor participation capacity and their return to paid and unpaid work. This report will further elaborate on the positive economic and social contributions of drugs using the examples of innovative drugs for breast cancer, retinal diseases, and influenza mentioned earlier.

#### 2.1 Social Benefits of Innovative Drugs for Breast Cancer

Globally, breast cancer is the leading cause of cancer incidence among women, significantly impacting patients' life expectancy. The global incidence rate of breast cancer among women is 45.37 per 100,000 people<sup>3</sup>. In 2022, China had over 4 million breast cancer patients, with an incidence rate of 281 per 100,000 people<sup>4</sup>. The large population of breast cancer patients places a heavy burden on the healthcare system and weakens women's labor capacity, resulting in significant economic losses. Among breast cancer patients, HER2-positive breast cancer accounts for 15% to 25% of cases<sup>5</sup>. This type of breast cancer is typically more aggressive and has a worse prognosis, posing a severe threat to women's health and lives.

The clinical application of targeted drugs has revolutionized breast cancer treatment, significantly improved the prognosis of HER2-positive breast cancer patients and effectively extending their life expectancy. A study initiated by Roche showed that from 2019 to 2023, Roche's innovative drugs for HER2-positive breast cancer brought 9.5 billion yuan in social benefits to China compared to the

<sup>&</sup>lt;sup>3</sup> Data Source: Fudan University: Socioeconomic value of targeted therapies for HER2+ breast cancer in National Reimbursement Drug list of China.

<sup>&</sup>lt;sup>4</sup> Ferrari A J, Santomauro D F, Aali A, et al. Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021[J]. The Lancet, 2024, 403(10440): 2133-2161.

<sup>&</sup>lt;sup>5</sup> American Cancer Society, 'Breast Cancer HER2 Status'. <u>https://www.cancer.org/cancer/types/breast-cancer/understanding-a-breast-cancer-diagnosis/breast-cancer-her2-status.html</u>

previous standard therapy, with 7.54 billion<sup>6</sup> yuan coming from early-stage cancer patients. From 2024 to 2032, Roche's innovative drugs for HER2-positive breast cancer are expected to generate an additional 23.7 billion yuan in social benefits for China. A study by Fudan University on the social benefits of seven HER2-positive breast cancer targeted drugs included in the medical insurance drug list showed that therapies will cover 1.57 million patients from 2023 to 2032, generating 89,000 quality-adjusted life years (QALYs) of health benefits and 4.42 billion USD (approximately 32 billion yuan<sup>7</sup>) in social benefits compared to the previous generation standard therapy. The top three therapies account for 27.30%, 26.68%, and 20.6% in terms of social benefits, respectively<sup>7</sup>.

Year	Breast Cancer (100 Million RMB)	Early-Stage Breast Cancer (100 Million RMB)	Late-Stage Breast Cancer (100 Million RMB)
2019	10.0	7.6	2.4
2020	18.7	14.9	3.8
2021	23.1	18.6	4.5
2022	21.8	17.7	4.1
2023	21.6	16.7	4.8
2017–2023	95.0	75.4	19.7
2024–2032	237.1	187.8	48.8
2017–2032	332.1	263.2	68.5

Chart 1: Social Benefits of Roche's HER2-Positive Breast Cancer Drugs in China

**Data Source:** WifOR Institute. The value of investing in innovative medicines: socioecomonic burden and annual social impact of Roche treatments for HER2+ breast cancer, multiple sclerosis and retinal disease. 2024.

#### 2.2 Social Benefits of Innovative Drugs for Retinal Diseases

Retinal diseases affect patients' vision and, in severe cases, can lead to vision loss,

<sup>&</sup>lt;sup>6</sup> WifOR Institute. The value of investing in innovative medicines: socioecomonic burden and annual social impact of Roche treatments for HER2+ breast cancer, multiple sclerosis and retinal disease. 2024.

<sup>&</sup>lt;sup>7</sup> Data Source: Fudan University: Socioeconomic value of targeted therapies for HER2+ breast cancer in National Reimbursement Drug list of China.

significantly impacting patients' self-care abilities and mental health and placing a heavy caregiving burden on families. Age-related macular degeneration (AMD) and diabetic macular edema (DME) are representative types of retinal diseases. AMD is a chronic and irreversible retinal disease that primarily affects patients over 50 years old, causing vision loss, visual distortion, and, in severe cases, blindness. Globally, there are approximately 263 million AMD patients<sup>8</sup>, with an incidence rate of 185 per 100,000 people in China and 2.63 million patients in 20228. DME, caused by prolonged high blood sugar damaging retinal blood vessels and leading to fluid leakage and retinal damage, is one of the most common and severe complications of diabetes and a leading cause of blindness among working-age populations. According to data released by the National Health Commission, the prevalence of diabetic retinopathy among diabetic patients in China is 24.7% to 37.5%, with approximately 27 million patients<sup>9</sup>. Retinal diseases such as AMD and DME severely affect patients' vision, weaken their labor capacity, and result in significant caregiving costs. Innovative treatments can effectively slow the progression of vision loss, avoiding substantial productivity losses.

To reduce the social losses caused by retinal diseases, in addition to actively preventing and controlling chronic diseases such as diabetes, the use and promotion of innovative drugs are crucial. The use of innovative drugs for retinal diseases in developed countries has effectively slowed the progression of vision loss, reduced labor losses caused by the disease, and generated significant economic benefits. A survey organized by Roche<sup>10</sup> showed that Roche's innovative drugs for AMD and DME, approved in 2022, generated 173 million USD in social benefits in ten countries (the United States, China, Canada, France, Germany, Italy, Japan, Spain, the United Kingdom, and Brazil) from 2022 to 2023. It is estimated that from 2024 to 2032, as the use of these drugs further expands, they could generate up to 9 billion USD in social benefits in these ten countries. In China, with the approval and promotion of these drugs, Roche's innovative drugs for retinal diseases are expected to reduce the disease burden by over 12,000 QALYs and generate 4.6 billion yuan in social benefits from 2024 to 2032.

#### 2.3 Social Benefits of Innovative Drugs for Influenza Prevention and Control

<sup>&</sup>lt;sup>8</sup> Ferrari A J, Santomauro D F, Aali A, et al. Global incidence, prevalence, years lived with disability (YLDs), disability-adjusted life-years (DALYs), and healthy life expectancy (HALE) for 371 diseases and injuries in 204 countries and territories and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021[J]. The Lancet, 2024, 403(10440): 2133-2161.

<sup>&</sup>lt;sup>9</sup> WifOR Institute. The value of investing in innovative medicines: socioecomonic burden and annual social impact of Roche treatments for HER2+ breast cancer, multiple sclerosis and retinal disease. 2024.

<sup>&</sup>lt;sup>10</sup> WifOR Institute. The value of investing in innovative medicines: socioecomonic burden and annual social impact of Roche treatments for HER2+ breast cancer, multiple sclerosis and retinal disease. 2024.

The impact of infectious diseases such as influenza on labor supply and the macro economy should not be underestimated. From 2011 to 2019, China had approximately 84 million to 140 million influenza cases annually, with 96,000 to 240,000 excess deaths directly or indirectly attributable to influenza. On average, influenza causes 3 million excess outpatient visits and 2.34 million severe acute respiratory infection hospitalizations annually in China<sup>11</sup>. One of Roche's innovative drugs can effectively block virus transmission, reduce the number of influenza cases, and lower the socio-economic impact of influenza. The Roche's drug has a protection rate of 18.9% to 46.2% in people aged five and above. Studies show that if 50% of influenza patients receiving antiviral treatment also receive the Roche's drug, it could prevent 16.34 million influenza cases<sup>12</sup> <sup>13</sup>. particularly among children. Based on this data, it is estimated that the Roche's drug could potentially save 4.14 billion yuan in influenza treatment costs, reduce 720,000 outpatient visits, save 640 million yuan in outpatient treatment costs, reduce 560,000 hospitalizations, and save a total of 8.18 billion yuan in hospitalization costs<sup>14</sup>.

The social benefit data of innovative drugs for HER2-positive breast cancer, AMD, DME, and influenza fully demonstrate that the use of innovative drugs brings dual benefits in health and economics, and the higher the accessibility of these drugs, the more pronounced the social benefits. In fact, pharmaceutical companies such as Roche have continuously launched innovative drugs with groundbreaking oncology, neurology, immunology, clinical value in ophthalmology, cardiovascular metabolism, infectious diseases, and rare diseases, providing powerful tools to address more disease challenges. Innovative drugs have the potential to fundamentally change disease diagnosis and treatment models, improve individual health outcomes, reduce productivity losses, support economic growth, and alleviate the burden on the healthcare system. Additionally, early disease screening, systematic medical testing, precision treatment, and digital solutions will provide multi-dimensional health support to Chinese patients, enabling innovative drugs to reach more patients in a more timely, accurate, efficient, and convenient manner. Therefore, from a macroeconomic perspective,

<sup>&</sup>lt;sup>11</sup> Chen C, Peng N, Xia R Y. Economic burden of seasonal influenza in mainland China from 2011 to 2019[C]//2021–10–20)[2022–06–09]. https://isirv.

<sup>&</sup>lt;sup>12</sup> Jiang Y, Lin Y F, Shi S, et al. Effects of baloxavir and oseltamivir antiviral therapy on the transmission of seasonal influenza in China: a mathematical modeling analysis[J]. Journal of Medical Virology, 2022, 94(11): 5425-5433.

<sup>&</sup>lt;sup>13</sup> Jiang Y, et al. Evaluating the Public Health and Health Economic Impacts of Two Roche's Innovative drug for Influenza Pandemic Control in China: A Cost-Effectiveness Analysis Using a Linked Dynamic Transmission-Economic Evaluation Model. Pharmacoeconomics. 2024 Oct;42(10):1111-1125.

<sup>&</sup>lt;sup>14</sup> Estimation method: Assuming that individuals who did not contract influenza due to medication would have otherwise contracted influenza and received treatment, the potential number of outpatient, emergency, and hospitalization visits, along with the corresponding treatment costs, are estimated.

it is necessary for China to continue improving the accessibility of high-quality drugs, strengthen "high-performance health investments" in innovative drugs, and further unleash the therapeutic potential and socio-economic contributions of innovative drugs.

#### 3. The burden of disease, aging pressures, insufficient domestic demand, and external pressures place higher demands on China's health investments and the opening-up of the health industry.

Diseases impair patients' health, shorten life expectancy, and affect their capacity for paid and unpaid work. Paid work refers to jobs that directly provide wages or economic compensation, while unpaid work includes household chores, community service, volunteer activities, and other unpaid labor. Diseases reduce labor supply through two channels: shortening life expectancy and impairing work capacity. Different types of diseases have varying impacts on labor supply. Major diseases significantly shorten life expectancy; chronic diseases gradually impair work capacity while shortening life expectancy; and infectious diseases such as influenza temporarily affect work capacity on a large scale, resulting in macrolevel labor supply losses.

Disability-adjusted life years (DALYs) is a commonly used indicator to measure the burden of disease, reflecting the loss of healthy life years due to premature death or disability caused by disease. However, this indicator does not directly reflect the impact of diseases on patients' work capacity, the weakening of social productivity, or the resulting macroeconomic losses. Therefore, the socioeconomic burden indicator has been proposed to measure the comprehensive impact of diseases on labor supply. This indicator monetizes the loss of paid and unpaid labor due to diseases, providing a more intuitive representation of the economic losses caused by diseases.

Although China's health sector has achieved significant progress, and the construction of the healthcare system and improved drug accessibility have greatly extended the life expectancy of the Chinese population, the increasing burden of disease places higher demands on China's health investments.

In 2021, China recorded 11.64 million deaths from diseases, including 10.6 million deaths from non-communicable diseases and 1.04 million deaths from communicable diseases. In 2021, various diseases caused a burden of 402 million DALYs, including 349 million DALYs from non-communicable diseases and 53

million DALYs from communicable diseases<sup>15</sup>.

China faces a particularly prominent burden of cancer. In 2021, cancer ranked second among all diseases in terms of burden, causing 71.2 million DALYs and 2.8 million deaths15. Among these, HER2-positive breast cancer caused 3.59 million DALYs and 945.5 billion yuan in socio-economic burden from 2017 to 2023<sup>16</sup>. From 2024 to 2032, HER2-positive breast cancer is expected to cause an additional 4.95 million DALYs and 1.7 trillion yuan in socio-economic burden in China.

The burden of other chronic diseases is also significant. For example, retinal diseases affect patients' vision and, in severe cases, can lead to vision loss, often causing irreversible damage to patients' work capacity, severely impacting their self-care abilities and mental health, and placing a heavy caregiving burden on families. From 2017 to 2023, two types of retinal diseases caused a disease burden of 3.53 million DALYs and 613.2 billion yuan in socio-economic losses in China16. From 2024 to 2032, these two diseases are expected to cause a disease burden of 6.14 million DALYs and 1.4 trillion yuan in socio-economic losses16. The negative impact of these two retinal diseases on labor supply and the economy cannot be underestimated.

The impact of infectious diseases such as influenza on labor supply and the macro economy should not be underestimated. Studies show that from 2011 to 2019, the annual economic burden of seasonal influenza in China (including direct medical costs, direct non-medical costs, and indirect costs) was approximately 33 billion to 106 billion yuan, equivalent to 0.03% to 0.1% of China's GDP in 201916. This estimate does not include the disease burden of mild cases that did not seek medical attention, the productivity losses of caregivers due to hospitalizations or complications in high-risk groups, and thus the overall disease burden of influenza is still significantly underestimated. Predictive results show that in a mild scenario, an H1N1 influenza outbreak would permeate domestic demand, reducing GDP by 0.9% in that year; in a severe scenario, if influenza spreads widely in China and globally, it could reduce China's GDP by 5.1% in that year<sup>17</sup>.

<sup>&</sup>lt;sup>15</sup> Liu H, Yin P, Qi J, et al. Burden of non-communicable diseases in China and its provinces, 1990–2021: Results from the Global Burden of Disease Study 2021[J]. Chinese Medical Journal, 2024, 137(19): 2325-2333.

<sup>&</sup>lt;sup>16</sup> WifOR Institute. The value of investing in innovative medicines: socioecomonic burden and annual social impact of Roche treatments for HER2+ breast cancer, multiple sclerosis and retinal disease. 2024.

<sup>&</sup>lt;sup>17</sup> Liu Taoxiong, Wu Xiaoming. "Analysis and Prediction of the Impact of the A/H1N1 Influenza Pandemic on China's Economy" [R]. Beijing: Center for Strategic and Policy Studies, Tsinghua University, 2009.

	HER2-Positive Breast Cancer		Age-related Macular Degeneration	
年份 Year	DALYs (10 thousand RMB)	Socio-Economic Burden (100 million RMB)	DALYs (10 thousand RMB)	Socio-Economic Burden (100 million RMB)
2017	47.0	1006.8	46.2	637.6
2018	48.7	1170.8	46.3	726.6
2019	50.5	1245.6	47	761.7
2020	52.1	1323.5	49.5	832.7
2021	53.0	1608.3	54.8	1082.7
2022	53.7	1578.3	51.8	1011.7
2023	53.6	1526.5	58.4	1085.8
2024	53.9	1576.9	60.3	1148.1
2025	54.3	1658.1	62.2	1235.6
2026	54.6	1742.6	64.2	1332.1
2027	54.8	1815.3	66.1	1431.9
2028	55.1	1893.5	68.2	1540.1
2029	55.3	1973.1	70.2	1658.8
2030	55.6	2060.5	72.3	1785.3
2031	55.8	2149.4	74.4	1933.3
2032	55.9	2242.9	76.5	2102.1
2017-2023	359	9451.3	354	6132.1
2024–2032	495	17113.8	614	14178.5
2017–2032	854	26545.1	968	20314.7

#### Chart 2: Disease Burden and Socio-Economic Burden of HER2-Positive Breast Cancer and Representative Retinal Diseases in China

**Data Source:** WifOR Institute. The value of investing in innovative medicines: socioecomonic burden and annual social impact of Roche treatments for HER2+ breast cancer, multiple sclerosis and retinal disease. 2024.

It is worth noting that while facing the burden of disease, China is also confronting long-term structural challenges. Demographic changes and insufficient domestic demand not only directly impact China's economic development but also interact with the burden of disease to further affect labor supply and impose significant indirect negative effects on the national economy.

Demographic changes will affect labor supply and increase China's burden of disease. The continuous decline in birth rates and the increasing life expectancy are accelerating China's aging process. The proportion of the population aged 65 and above has risen from 7.1% in 2001 to 15.4% in 2023<sup>18</sup>. The WHO predicts that by 2040, China's population aged 60 and above will reach 402 million<sup>19</sup>. By 2051, China's elderly population is expected to peak at 437 million, approximately twice the number of children, with the elderly accounting for about 31% of the total population, of which 25% to 30% will be aged 80 and above<sup>20 21</sup>. The aging process will reduce labor supply, lower labor participation rates, and impact the sustainability of economic activities. Since China's working-age population peaked in 2010, labor participation rates and the number of manufacturing workers have continued to decline. Excluding factors such as automation substitution and industrial relocation, demographic changes are a key driver of changes in labor participation rates. Aging will significantly increase the demand for healthcare, especially for chronic and major disease treatments, continuously pressuring the healthcare system and medical insurance funds.

China's aging process will increase the incidence of chronic and age-related diseases and profoundly change the disease spectrum. The health issues of the elderly population are becoming increasingly prominent, with chronic diseases characterized by "long cycles, high frequency, and multiple coexisting conditions". This not only severely impacts patients' health and quality of life but also poses significant challenges to the existing healthcare resource allocation and service provision. Data shows that approximately 190 million elderly people in China suffer from chronic diseases. Among them, 75% of people aged 60 and above have at least one chronic disease, and 43% have multiple coexisting conditions<sup>22</sup>. To address the dual challenges of population aging and disease spectrum changes, China needs to continuously improve the implementation path of the Healthy China strategy, strengthen the coordination of life-cycle disease management and drug policies, enhance chronic disease prevention and control, and ensure the

<sup>&</sup>lt;sup>18</sup> Data source: National Bureau of Statistics

<sup>&</sup>lt;sup>19</sup> Source: https://www.who.int/china/zh/health-topics/health-financing/ageing

<sup>&</sup>lt;sup>20</sup> Data source: http://www.natcm.gov.cn/renjiaosi/gongzuodongtai/2018-03-24/1768.html

<sup>&</sup>lt;sup>21</sup> Data source: The State Council Information Office (SCIO)

<sup>&</sup>lt;sup>22</sup> Data source: National Health Commission.

http://www.nhc.gov.cn/xcs/s7847/201911/b01a5ca22bef4570ab44605c12940f97.shtml

health and well-being of the elderly population.

Insufficient domestic demand is closely related to health and other livelihood guarantees. Domestic consumption has moderately recovered after the pandemic but has not yet met expectations, needing further improvement. Consumer expectations are generally low, and the consumer confidence index has remained at a low level since a significant decline in the first half of 2022. The Central Economic Work Conference held at the end of 2024 has identified boosting consumption and expanding domestic demand as major tasks for 2025. Increasing health investments is a prerequisite for boosting domestic demand. First, health demand itself is an important component of domestic demand. As the economy develops and national strength improves, the public's demand for high-quality, diverse, and multi-dimensional medical and health services will gradually increase. Second, adequate livelihood guarantees are the foundation for the continuous expansion of domestic demand, especially consumer demand. If the coverage of livelihood guarantee systems such as medical services is insufficient or the payment capacity is limited, it will suppress consumer demand. A well-developed healthcare security system can significantly reduce the financial uncertainty caused by illness for individuals and families, lower out-of-pocket expenses for patients, and effectively prevent poverty caused by medical expenses or the recurrence of poverty due to illness. In recent years, China's basic medical insurance participation rate has stabilized at around 95%, achieving broad coverage of medical insurance. However, in terms of coverage levels, urban employee medical insurance offers better coverage than urban and rural resident medical insurance, and there are significant differences in coverage levels across regions. Furthermore, while basic medical insurance aims to provide essential coverage, meeting patients' diverse and high-quality healthcare needs- particularly for cutting=edge innovative drugs and medical services- requires strengthening the development of a multi-tiered healthcare security system, including commercial insurance. Therefore, in the context of insufficient domestic demand, increasing health investments and medical insurance coverage levels will become an important focus for expanding domestic demand.

In an increasingly complex external environment, it is imperative to promote the continuous opening-up of China's health market and international cooperation. Geopolitical factors have surpassed capital as the dominant force reshaping global economic resource allocation and trade patterns. China continues to face multiple external pressures, including escalating trade frictions, partial disruptions in high-tech industrial chains, intensified technological blockades, and hindered international cooperation. Under external pressures, the Chinese government has promoted domestic and international dual circulation, strengthened domestic technological innovation capabilities, and continuously supported the

development of high-tech industries, seizing the historical opportunity for internal economic and industrial structural adjustment and optimization. At the same time, it is important to recognize that the global health industry, represented by the pharmaceutical sector, remains deeply concerned about the clinical needs of Chinese patients and highly values the Chinese market. In this context, continuing to promote the opening-up of China's health market and international cooperation, and strengthening support and encouragement for foreign investment in the pharmaceutical sector, will promote economic development and alleviate the burden of disease. First, opening up the health market can fully introduce internationally leading drugs, devices, equipment, and even advanced treatment concepts and medical solutions to meet domestic health needs. Second, opening up the health market can consolidate the deep cooperative relationship between the Chinese market and the global economy, strengthening domestic and international dual circulation. Third, the innovation incubation, transformation, and investment activities of foreign enterprises in China will contribute to technological innovation and industrial development in China's pharmaceutical sector.

Amid a complex external environment, encouraging the development of strategic emerging industries and strengthening the domestic industrial chain have become one of the core national strategies. The 14th Five-Year Plan explicitly states: concentrating advantageous resources to tackle challenges in frontier fields such as genetics and biotechnology, clinical medicine, and health to strengthen the country's strategic scientific and technological capabilities; promoting the innovative development of industries such as pharmaceuticals and medical devices to drive the optimization and upgrading of manufacturing; accelerating the development of biopharmaceuticals to expand and strengthen strategic emerging industries; promoting the improvement and expansion of healthcare consumption to comprehensively boost domestic consumption; fully advancing the construction of Healthy China to provide people with comprehensive, fulllifecycle health services. This means that the pharmaceutical industry will continue to play an irreplaceable role in four major areas: technological innovation, industrial upgrading, domestic demand expansion, and public health security. Strengthening support for the healthcare industry, expanding medical insurance coverage and reimbursement for innovative drugs, and continuously improving the accessibility of innovative drugs will also greatly promote advancements in biotechnology and the development of the biopharmaceutical industry in China. This is both an inevitable choice in responding to international competitive pressures and a core pathway to achieving the strategic goals of Healthy China.

In summary, under the triple pressures of disease burden, population aging, and

insufficient domestic demand, China needs to further increase health investments, continuously improve the healthcare system and medical insurance system, and continuously enhance drug accessibility. In an increasingly complex international environment, China needs to promote the opening-up of the health market. China should leverage the health industry, particularly the pharmaceutical sector, to reduce labor losses caused by diseases, meet the public's demand for high-quality and diverse health services and livelihood guarantees, expand the consumption potential of the health market, and make the health industry a key lever to address systemic challenges, activate domestic demand potential, and navigate external pressures.

4. China needs to improve the accessibility of innovative drugs from the dimensions of industrial development, innovative payment, disease management, and drug provision to fully leverage the positive role of innovative drugs in promoting China's economy and society.

The healthy development of the health industry, represented by the pharmaceutical sector, and the continuous investment in health initiatives by the state are key focuses for China to address disease, demographic, and domestic demand challenges. It is worth noting that while China's innovative drug industry has made remarkable progress, its potential in promoting national health and economic growth remains underutilized.

Compared to the overall size of China's pharmaceutical market, the innovative drug industry still has significant room for development. In 2023, China's pharmaceutical market size was 1.63 trillion yuan, ranking second globally, with innovative drugs accounting for about 28% of the market<sup>23</sup>. In developed markets, this proportion is generally above 50%23. The United States, the world's largest pharmaceutical market, has an innovative drug share of 83%23. Even in some developing countries, such as Turkey, Saudi Arabia, Mexico, and South Africa, the proportion of innovative drugs in the pharmaceutical market is higher than in China. This indicates that the clinical use of innovative drugs in China is far below international levels, and Chinese patients' access to innovative drugs needs further improvement. As the world's second-largest pharmaceutical market, China's innovative drug market size is relatively limited, and there is still a gap compared to the macro strategy of "innovation-driven development". As a strategic sector driving the high-quality development of the pharmaceutical industry, China's innovative drug industry still has considerable growth potential.

<sup>&</sup>lt;sup>23</sup> Data Source: IQVIA MIDAS Database



Chart 3: Sales Proportion of Innovative Drugs and Generic Drugs in Major Markets in 2023

#### Data Source: IQVIA MIDAS Database

Compared to international levels, China's medical insurance fund's support for innovative drugs still needs further improvement. In recent years, with the continuous improvement of drug pricing and access mechanisms, new drugs have accelerated their reach to clinical settings, and patient drug accessibility has significantly improved. The time gap between drug approval abroad and in China has shortened from 5-7 years before 2017 to 2.8 years in 2023<sup>24</sup>, significantly improving Chinese patients' access to overseas innovative drugs. With the normalization of the national medical insurance negotiation system, the average time from drug launch to inclusion in medical insurance has shortened from 4.6

<sup>&</sup>lt;sup>24</sup> Data source: IQVIA MIDAS Database

years in 2017 to 0.9 years in 2023<sup>25</sup>. However, there is still room for improvement in enhancing patient access to innovative drugs. According to a study analyzing the accessibility and public reimbursement of new drugs in 72 different markets of the 460 new drugs launched globally from 2012 to 2021, only 24% were approved in China, compared to 85% in the United States and an average of 38% in OECD countries<sup>26</sup>. Additionally, only 15% of global new drugs are reimbursed under China's national medical insurance drug list, compared to 85% in the United States and an average of 28% in G20 countries26. After multiple rounds of medical insurance fund expenditure is only 2.8%<sup>27</sup>, indicating that the medical insurance fund expenditure is only 2.8%<sup>27</sup>, indicating that the medical insurance fund's support for innovative drugs still needs improvement.



## Chart 4: Proportion of Global New Drugs Approved and Publicly Reimbursed in G20 Countries from 2012 to 2021

Data Source: PhRMA Global New Drug Accessibility Report and IQVIA CHPA Database

<sup>&</sup>lt;sup>25</sup> Data source: Pharmacube Database

<sup>&</sup>lt;sup>26</sup> PhRMA. Global Access to New Medicines Report.2023.

https://cdn.aglty.io/phrma/global/resources/import/pdfs/2023-04-

<sup>20%20</sup>PhRMA%20Global%20Access%20to%20New%20Medicines%20Report%20FINAL-1.pdf

<sup>&</sup>lt;sup>27</sup> Data source: IQVIA CHPA Database

The "last mile" of innovative drug implementation still faces bottlenecks, and grassroots patients' access to innovative drugs needs further improvement. Due to the need for further standardization and popularization of diagnosis and treatment in China, as well as obstacles in the drug admission process, the reach of innovative drugs, especially those included in national negotiations, to patients remains limited. The key bottlenecks in the "last mile" of innovative drug adoption can be categorized into the following aspects:

- Conflict between cost-control policies and innovative drug utilization: Under the DRG/DIP payment reform, high-cost innovative drugs are treated primarily as cost items, while reimbursement standards lag behind clinical needs. This results in hospitals limiting the prescription and use of innovative drugs due to cost pressures.
- Hospital evaluation mechanisms and drug usage policies restrict clinical application: Policies such as drug expenditure ratio limits, essential drug supply requirements, and mandatory procurement of volume-based negotiated drugs squeeze the space for clinical use of innovative drugs.
- Delayed hospital management and drug admission processes: Hospital pharmacy committees typically meet only once or twice a year, while the national drug reimbursement agreement lasts only two years. This misalignment in timelines leads to some drugs missing their window of entry into hospitals due to procedural delays.
- Mismatch between the number of patients served by grassroots medical institutions and the availability of innovative drugs. Since 2004, grassroots medical institutions have consistently handled over 50% of medical visits, but due to limitations in the essential drug list, the availability of innovative drugs, especially for chronic diseases, in grassroots medical institutions still cannot meet patient needs. In the close-knit medical consortium, patients can achieve internal referrals, improving the efficiency of medical resource services, but the lack of drug availability at the grassroots level severely affects the continuity of patient medication.

Notably, maintenance treatment for chronic diseases typically does not require complex medical equipment and is more suitable for grassroots medical institutions. With the continuous emergence of new technologies and treatment methods, patient demands are also shifting from "living longer" to "living better." This also requires grassroots medical institutions to innovate in the standardized treatment and management of chronic diseases to improve patient cure rates and healthcare system efficiency. For example, high-quality innovative formulations such as subcutaneous formulations for breast cancer treatment have reduced treatment time from several hours to 5-8 minutes, creating significant convenience for both medical staff and patients. While accelerating the construction of the tiered diagnosis and treatment system and close-knit medical consortium, the government must also prioritize the availability of innovative drugs and the implementation of innovative treatment methods in grassroots medical institutions to improve the standardization of chronic disease treatment and provide patients with more convenient, continuous, and homogeneous services within medical alliances.

China needs to further promote early screening and diagnosis of key diseases and strengthen the prevention and control of infectious diseases such as influenza to reduce the impact of diseases on productivity. Further strengthening early screening and diagnosis of key diseases, effectively controlling disease progression, and reducing complications can significantly lower treatment costs and mitigate the impact of diseases on labor productivity. For example, with the acceleration of the aging process and the increase in the number of patients with chronic diseases such as diabetes, retinal diseases have become the most urgent and prevalent irreversible blinding eye diseases, with diabetic retinopathy being the leading cause of blindness among working-age populations. By emphasizing the impact of diabetes and its complications, increasing investment in this field, strengthening grassroots screening capacity, improving screening and referral mechanisms, and advancing the diagnosis and treatment process, the blindness rate can be effectively reduced, and social resources and caregiving costs can be saved. Emphasizing influenza prevention and control, promoting the availability and use of innovative influenza drugs, and improving the accessibility of antiinfluenza drugs will significantly reduce the health threats and socio-economic impact of influenza. Currently, 16 provinces and cities have included Roche's innovative influenza drug in their influenza prevention and control supply and reserve lists. It is recommended that other provinces refer to this model, prioritize the inclusion of drugs listed in the National Health Commission's influenza diagnosis and treatment guidelines, such as Roche's innovative influenza drug, in provincial lists based on local influenza epidemic characteristics, strengthen the supply chain guarantee and emergency reserves for innovative influenza drugs, encourage the use of innovative drugs, and build a firewall for vulnerable and high-risk populations.

In summary, the pharmaceutical industry is a key focus for the implementation of the Healthy China strategy and China's socio-economic development. Continuously boosting the pharmaceutical industry, emphasizing the "highefficiency health investment" value of innovative drugs, and responding to society's demand for high-quality medical services are essential paths for China's healthcare system to achieve high-quality development centered on people's health. They are also inevitable choices for addressing the burden of disease and aging challenges and important tools for navigating China's internal and external economic challenges. The next five years will be the decisive stage of the "Healthy China 2030" grand plan, requiring expanded investment in health initiatives, leveraging policy synergies, deepening multi-tiered protection mechanisms, and promoting health development through innovative drugs.

The further realization of the health promotion and economic driving potential of the innovative drug industry depends on the further optimization of the policy environment. Therefore, the government needs to further expand investment in health initiatives, strengthen support for the innovative drug industry, improve multi-tiered protection mechanisms to enhance innovative drug payment, refine the coordinated governance of disease management and drug policies, promote the use of innovative drugs in medical service institutions, especially grassroots healthcare institutions, and enhance the openness of the pharmaceutical industry. The coordinated implementation of multiple policies will effectively improve patient access to innovative drugs, further promote the development of China's pharmaceutical industry, and fully leverage the important role of the pharmaceutical industry in the macroeconomy.