

Global Health and Healthcare Strategic Outlook: A Shared Vision for 2035

BRIEFING PAPER (CHINA EDITION)

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China foreword



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Globally, the COVID-19 pandemic significantly stressed existing healthcare systems and exacerbated disparities in health and healthcare access. It also expedited innovation in the development, distribution and delivery of healthcare products and services. These global developments are mirrored in China due to both COVID-19-related changes and ongoing policy and investment efforts.

The swift and firm pandemic response in China led to a delay in impact to 2022, when restrictions were starting to lift. This positioned China for a delayed impact of development trends. However, the Chinese government had already identified and progressed key areas of global priority prior to the pandemic. [Healthy China 2030](#), first published in 2016 with a follow-on implementation plan in 2019, serves as strategic direction in tackling the nation's

key healthcare system challenges. China's [14th Five-Year on National Health](#), covering the period of 2021-2025, also serves as a guiding principle for the sector in supporting continuous improvement in the near term. Initial progress against these plans positions the Chinese healthcare system well to make use of the current global momentum for further action.

This report expands on the previously published [Global Health and Healthcare Strategic Outlook](#) report to provide an in-depth analysis of progress and priorities for healthcare in China. The report examines the relevance of unifying principles posed by the World Economic Forum and L.E.K. Consulting and the distinct progress and challenges faced by the local healthcare systems in China.

Foreword



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The COVID-19 pandemic brought about health, economic, political and environmental challenges and exposed global disparities caused by income, age, race, sex and geography, but it also allowed for innovation in science and medicines development, distribution and delivery.

We have now reached a time for reflection and have the opportunity to embed any positive changes from the pandemic response as part of our global health and healthcare systems moving forward.

This joint strategic outlook by the World Economic Forum and L.E.K. Consulting aims to unite stakeholders across different sectors, industries and geographies to a shared vision for health and healthcare by 2035. Investment through this lens, can ensure equality, resilience, innovation and sustainability are embedded as key pillars of health and healthcare in the future.

Executive summary

This strategic outlook lays out a vision for health and healthcare in 2035, formed of four main strategic pillars with equity as the foundational goal.

- **Equitable access and outcomes:** Equilibrating access to determinants of health, ensuring health data is representative of the population and people with equal needs achieve equal health outcomes.
- **Healthcare system transformation:** Structuring resilient healthcare systems to provide high-quality care under both expected and unexpected circumstances.
- **Technology and innovation:** Cultivating an environment that supports funding, use and implementation of innovation in science and medicine.
- **Environmental sustainability:** Reducing the healthcare industry's environmental impact, preparing for and addressing climate change for better health and wellness.

For each strategic pillar, time horizons to demonstrate near-, medium- and long-term impact are identified.

Within China, the government has already begun making progress across these critical areas. The Healthy China 2030 strategic policy, published in 2016 with a subsequent implementation plan in 2019,¹ serves as a guiding framework for progressing health system improvements throughout this decade. The 14th Five-Year Plan on National Health also provides a blueprint for current programmes and priorities over the period to 2025, alongside industry-specific five-year plans.

However, health and healthcare stakeholders in China and globally continue encountering barriers to achieving system objectives. These include healthcare workforce shortages, supply chain issues, and climate and macroeconomic instability. None of this collaboration will yield long-term impact unless change is driven at the system level, for which there is currently limited support, incentive or monitoring.

The strategic outlook identified a range of levers available to public and private stakeholders to diminish the barriers at play across healthcare systems relevant to China and globally.

- Cross-industry collaboration
- Digitalization, artificial intelligence (AI) and big data
- Global collaboration
- Policy and advocacy
- Public-private partnerships
- Innovative funding models
- Patient empowerment
- Targeted/selective decentralization

The vision for health and healthcare in 2035 is ambitious yet achievable. Public and private stakeholders, alone and in partnership, each have their role to play in shaping health and healthcare systems in 2035 that are equitable, resilient, innovative and sustainable. China is in a strong position to facilitate this domestically and to harness existing progress to shape the future of health alongside global peers.

1

What's the status quo in health and healthcare?

The pandemic, geopolitical conflicts, the climate and the energy crisis have detrimentally impacted health and healthcare globally.

While COVID-19 triggered growth and innovation in health and healthcare, it also brought about significant health, economic, political and environmental challenges (see Figure 1).

In China, a rapid and effective approach to controlling the spread of COVID-19, including lock-down measures, dynamic tracing of close contacts and recurring PCR testing requirements for residents, created a distinct impact timeframe. With case numbers relatively stable, the healthcare system and economy experienced rapid recovery in

2020. Unfortunately, the relaxation of controls in-line with global approaches to recovery at the end of 2022 led to a spike in cases, reigniting several of the challenges triggered globally by COVID-19.

Despite this variance in COVID-19 impact, China has experienced the same trends in key growth areas, also driven by underlying policy movements that pre-dated the pandemic. This both supported China in reacting to COVID-19 and positioned the nation to continue to progress improvements in the healthcare system alongside global peers.

FIGURE 1 Recent trends in global health and healthcare – while COVID-19 triggered growth, it also brought about health, economic, political and environmental challenges



Source: L.E.K. Consulting; World Economic Forum

“ Advances in AI and augmented reality, virtual reality and improved connectivity allow the emergence of the metaverse.

During the COVID-19 pandemic, overall healthcare spend and investment surged against a backdrop of growing recognition that treating patients in lower-acuity settings, such as the home, is less costly. The rapid and stringent measures enacted to protect the population against COVID-19 diverted significant healthcare expenditure in China. The expansion of healthcare spend supported system investment but also placed pressure on the country's healthcare resources and systems, from which the system is currently recovering.

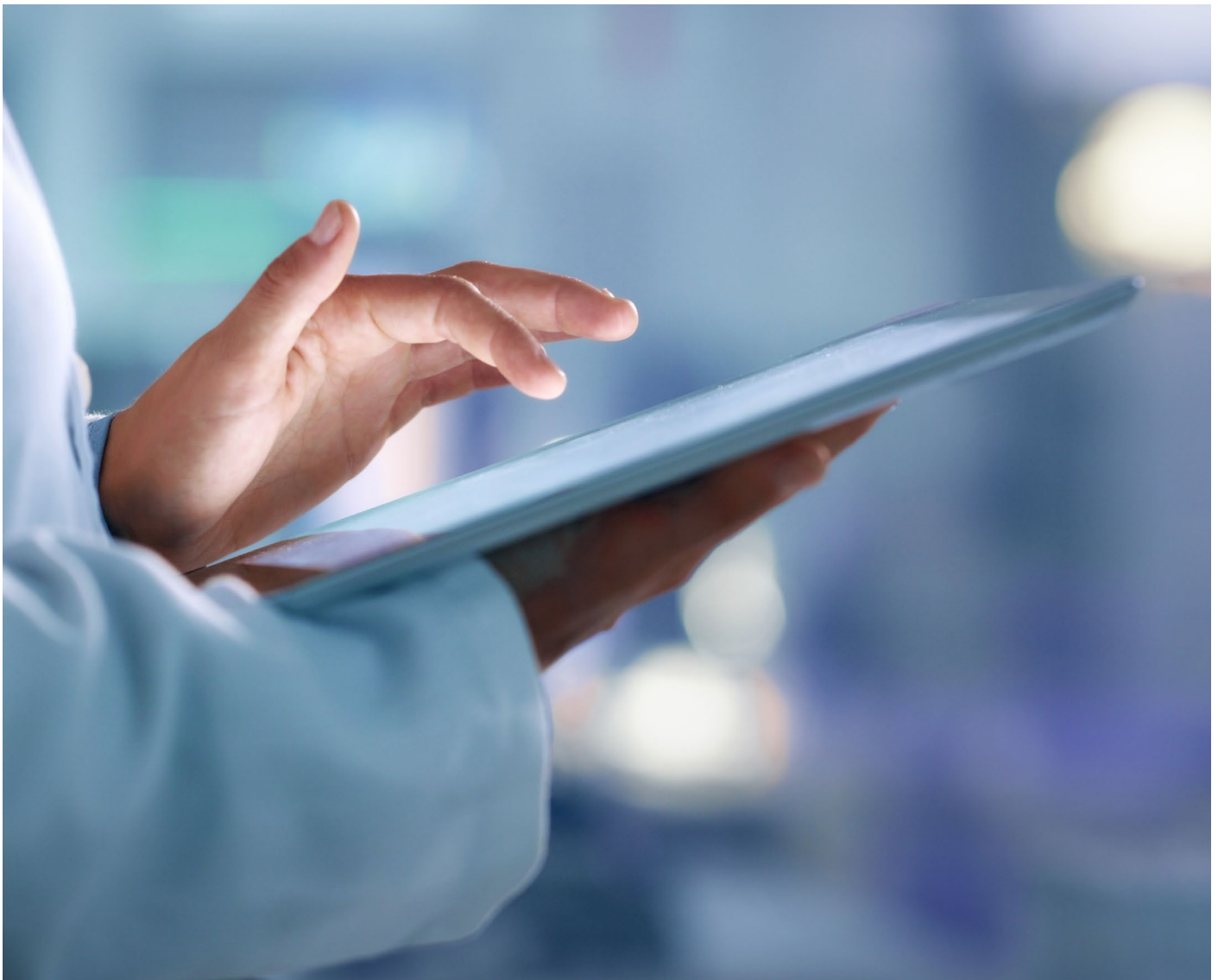
AI applications are now targeting many aspects of healthcare. Advances in AI and augmented reality, virtual reality and improved connectivity allow the emergence of the metaverse. The metaverse can be a platform for several potential applications in healthcare.

While there were developments in technology and innovation, the resilience of healthcare systems was tested during the pandemic affecting access to healthcare, with China not exempted from these challenges. Mental health issues were prevalent throughout the pandemic due to isolation, redundancies, job losses and uncertainty across the population. Pressures on healthcare systems

affected the mental health of healthcare workers around the globe, leading to significant burnout.

Macroeconomic issues, such as the energy crisis and rising inflation, continue to affect individuals' standard of living, thereby impacting their physical and mental health. An ageing population in China also poses unique challenges for the health system, with a need to prepare for higher-than-average medical expenses and increases in chronic disease prevalence among this cohort of the population. Meanwhile, the climate crisis has continued to have an increasing global impact, with China affected by increasing heatwaves and droughts in recent years, creating additional pressure on health systems.

These events highlight the global inequities in health and healthcare and the fragility of healthcare systems under the pressure of pandemics, conflicts, economic uncertainty and the climate crisis. Regional disparities in healthcare capacity and quality in China are still prevalent, despite concerted government efforts and improvements over the last five years. In order to benefit equitably from technology and innovation in the healthcare industry, these issues need to be proactively addressed.



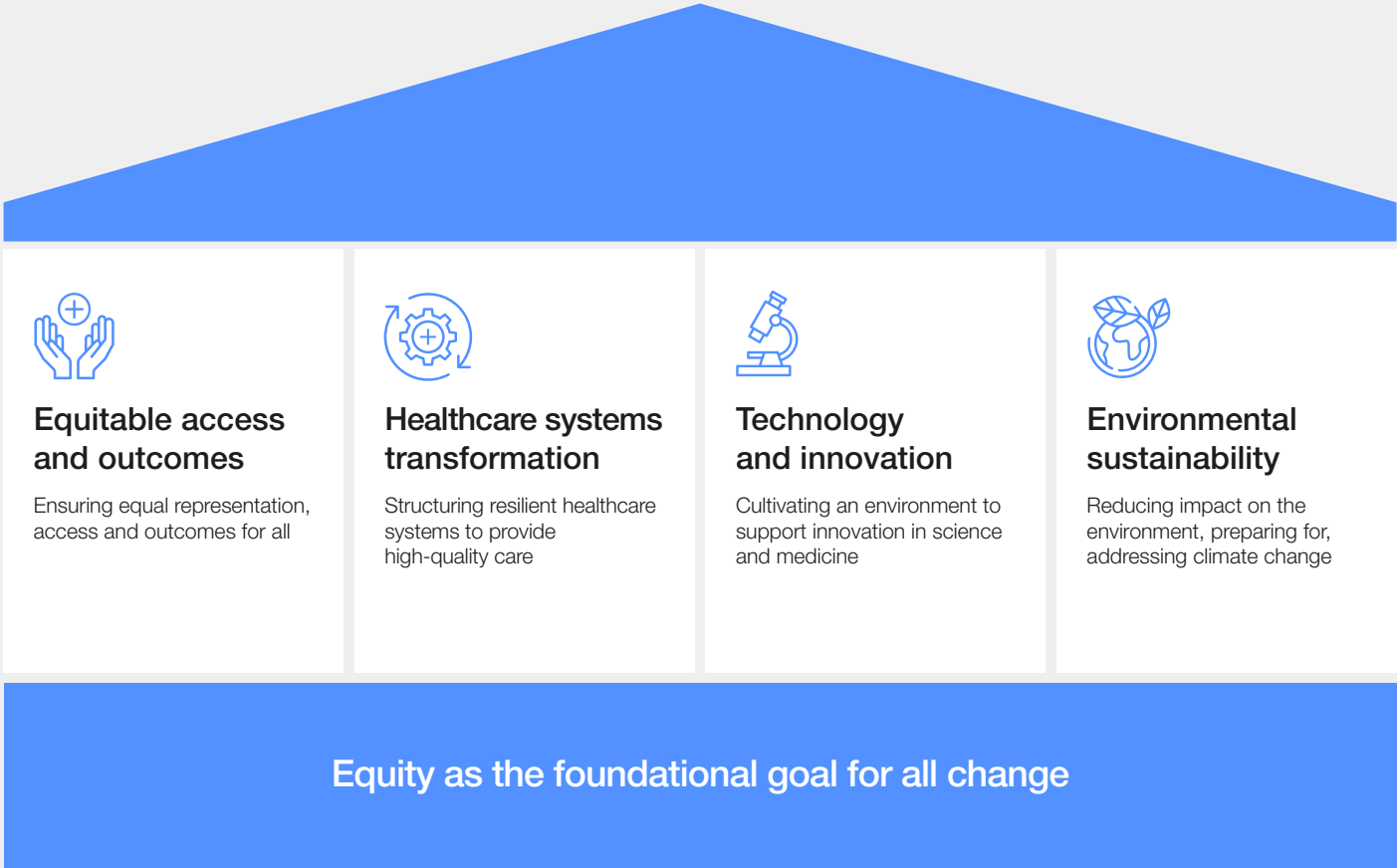
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What’s the vision for health and healthcare by 2035?

To achieve equity, transform healthcare systems, encourage innovation and secure global environmental sustainability, with equity as the foundation.

The strategic outlook sets out a vision for health and healthcare in 2035, based on four strategic pillars with equity as the foundational goal (see Figure 2).

FIGURE 2 The vision for health and healthcare in 2035 is formed of four main strategic pillars, with equity as the foundational goal



Source: L.E.K. Consulting; World Economic Forum

China has already made strides in several aspects of this vision, which aligns closely with the objectives of Healthy China 2030. The progress

to date establishes a strong foundation for further action and helps to focus future efforts on areas of the highest need.



Equitable access and outcomes in health and healthcare

Health is a product of social determinants, including where one lives and works, and health and healthcare inequity continue to be a pressing issue, as highlighted in the [Community Health and Economic Prosperity](#) report by the US Department

of Health and Human Services. Addressing health inequity is not just a societal goal, but there is business incentive for employers to play a more proactive role in investing in their employees' health.

● High-priority, substantial progress



Challenges in equitable access in China are predominately regional and form a key objective of Healthy China 2030 through the core principle of equity. In tackling this, significant progress

has been made over the last five years towards expanding access to care, while the future priority for China lies in improving the quality standards between regions and facilities.

BOX 1

Time horizons to demonstrate impact in the 2035 outlook:

Status in China



Near term: Continue investment in decentralization and alternative care models (e.g. home care) to help improve access to essential health and healthcare systems globally.

China's approach to decentralizing healthcare systems has focused on refining the hierarchical healthcare system. In this system, primary health focuses on initial diagnosis and routine disease management, while larger, higher-tier hospitals focus on diagnosing and treating challenging or critical conditions. However, current capacity and quality constraints on both large and small facilities, including differential distribution of facilities regionally, have limited the system's effectiveness and are areas of policy focus for the Chinese government.

Government spend has already been dedicated to removing capacity constraints in regional areas and expanding high-quality medical service capacity, with over 76 newly established national and regional medical centres under construction as of March 2023.² Several guidelines have also been implemented since 2016³ to support the use of family doctor contract services to directly serve the patients as an alternative method of care to alleviate capacity constraints. The government has identified a phased goal of growth in primary care coverage by family doctor services at 1-3% per annum from 2022, targeting 75% of the population by 2035.⁴

Progress towards improving the system's functionality has focused on implementing institutional standards and evaluation criteria for primary health facilities, including community and township health centres, to support the management of future quality improvements. To support these quality improvements, top-

ranked hospitals across China have formed medical alliances with lower-tier hospitals to share resources, improve patient information sharing and provide training. This intends to improve the quality and capacity of lower-ranked and often locally-based facilities.



Medium term: Incorporate more equal representation in clinical trials to improve the evidence base for decision-making and unlock understanding of different diseases and appropriate treatment across different regions.

While domestic diversity is of less impact for China, with over 90% of the total population within the Han ethnic group,⁵ there is an active Chinese representation in international clinical trial, with China's Center for Drug Evaluation (CDE) receiving 325 applications for international multi-centred trials (IMCT) in 2021.⁶



Longer term: Make disproportionate investment in health and healthcare services in low- and middle-income countries (LMICs) to narrow the global health disparity gap.

China identified areas of significant economic disparity as part of its 14th Five-Year Plan on National Health, implementing an improvement programme across all county-level hospitals in 832 low-income regions (defined as poverty-alleviated counties by the State Council). Additionally, remote medical services from leading hospitals have been implemented in these regions to support additional high-quality capacity.

While progress has been rapid and successful in increasing capacity for low-income regions, the 14th Five-Year Plan on National Health has identified a need for continued capability and quality improvements to narrow the gap between urban and rural facilities.



Healthcare systems transformation

While COVID-19 put significant pressure on healthcare systems and demonstrated the importance of resilience, this was not an isolated incident and will not be the only health crisis likely to be faced. Beyond pandemic situations, ageing populations and the high prevalence of chronic

conditions and non-communicable diseases (NCDs) require forward planning. In addition to increasing investment in prevention, there is also a need to focus on preserving health once individuals are diagnosed with a condition to reduce the impact on health systems.

● Moderate priority, moderate progress



Due to the preventative measures enacted, China faced a less severe impact from COVID-19 compared to global peers. Therefore, its health system has already largely returned to stability. The key learnings for China in creating resilience in

the healthcare system focus on strengthening R&D and production capability to ensure preparedness for future national emergencies and supporting decentralized health systems to support population health measures.

BOX 2

Time horizons to demonstrate impact in the 2035 outlook:

Status in China



Near term: Ensure all healthcare systems globally return to pre-pandemic stability.

COVID-19's impact on China's healthcare system was delayed compared to global peers due to the control measures implemented, with most impact seen in 2022. The need to re-stabilize health systems is, therefore, of lower priority for China.

However, the State Council has initiated legislative proposals⁷ for policies on the response to future pandemics, leveraging the learnings from COVID-19. These include the draft *Public Health Emergency Response Law* and the draft revision for *Law on Prevention and Treatment of Infectious Diseases*.



Medium term: Invest in and diversify supply chains to ensure healthcare systems are resilient and reliable for all countries globally.

The Chinese government identified a range of priority objectives focused on improving future supply chains in the 14th Five-Year Plan on National Health and 14th Five-Year Pharmaceutical Industry Development Plan,⁸ identifying it as a priority area for future action. Objectives include accelerating and optimizing the R&D value chain, production capability and improvements in the pharmaceutical reservation system. Strengthening the existing supply of drugs and vaccines has also been a priority.

Additionally, the Healthy China 2030 plan identifies a need to simplify the pharmaceutical distribution process in China. There are also objectives of forming multiple large-scale pharmaceutical enterprises to reduce the high fragmentation of the industry in China and with the capability to expand internationally.



Longer term: Refocus healthcare systems on the value of the services delivered, as opposed to the volume, incorporating better prevention and preservation of care and consistent reporting of outcome metrics.

Over the period from 2016 to 2020, the Chinese government allocated CNY 141.5 billion (approximately \$20 billion) for the implementation of over 8,000 public health and health system projects, including the construction of disease control centres.⁹ A range of policies for the prevention and control of critical diseases and disease areas are also in place, including the *Mental Health Law* (updated 2018), *Vaccine Administration Law* (2019) and draft *Law on Prevention and Treatment of Infectious Diseases* (updated 2013, draft for revision 2020).

The primary mechanism by which the Chinese health system aims to continue supporting preventative care is through decentralization of the health system. As previously outlined, this includes the expansion of supports and standards for primary care networks and alternative care pathways, such as family doctor contract services and telehealth.



Technology and innovation

Health technology and innovation have significant future growth potential in new treatments and modalities, improving patient outcomes, better and earlier diagnostics for prevention as well as earlier treatment, and technology that improves the quality and efficiency of healthcare provision. Yet healthcare spending continues to outpace GDP

growth on a global scale – a development that is not sustainable. Innovators need to focus not only on their projected revenues but the extent to which their products and services will ultimately lead to cost-savings, improved efficiencies and true value-add to existing treatment paradigms.

● High priority, early progress



China maintains a critical position in the global R&D ecosystem, with facilitating innovation as a critical objective of guiding policy documents. A focus on increasing R&D spend and implementing data capture systems within the healthcare sector

has enabled China to see early progress across these key priorities. The policy surrounding this continues to evolve and remains a priority in-line with global peers.

BOX 3

Time horizons to demonstrate impact in the 2035 outlook:

Status in China



Near term: Incentivize investment to drive innovation in medicine development and commercialization, supply chain optimization and healthcare delivery.

China retains a critical position in R&D, with over 1,000 new pharmaceutical products applying for clinical trials and 47 domestically manufactured innovative drugs approved from 2016-2020. During this period, China ranked second in the number of new drugs in the development pipeline globally. Within service delivery, over 1,700 internet hospitals are active in China and over 220 health digitization guidelines and standards have been issued during the 2016-2020 period.¹⁰

Key policy documents identify a continued need to support R&D spend across pharmaceuticals, medtech and service delivery. The 14th Five-Year Pharmaceutical Industry Development Plan identifies an objective of R&D spending growth of 10% or more for the pharmaceutical industry by 2025. Further, Healthy China 2030 aims to comprehensively establish a remote healthcare application ecosystem, covering all township-level healthcare institutions, by 2030.



Medium term: Harmonize data use and its applications across the healthcare industry and across geographies.

China has enacted a series of digitization policies within the healthcare ecosystem since 2015,

aiming to improve data capture, management and use. Several advancements have already been made in the last decade driven by these policies, including:

- Establishing regional public health information platforms, connecting over 7,000 public hospitals. At the end of 2021, this included 85% of cities and 69% of counties in China.¹¹
- Developing connected data systems for use during COVID-19 to monitor vaccination and polymerase chain reaction (PCR) status.

This continues to be a priority in China, with the next policy actions including continuous development and standardization of the national digital health infrastructure, expanding digital health access to specialized care and public health uses, and further defining data cleaning, governance and security measures.



Longer term: Work with policymakers to create a regulatory environment that cultivates and drives innovation across all geographies and all parts of the healthcare system.

Chinese policy is highly supportive of continuous innovation within the healthcare sector, with policy evolution expected to continue in line with Healthy China 2030 and a series of five-year plans in health and healthcare.



Environmental sustainability

The healthcare industry has a large climate footprint, accounting for an estimated 4.4% of global net carbon dioxide emissions.¹² Along with the impact of the healthcare industry on the environment, there's the impact of the climate

crisis on health and healthcare. Extreme weather events (e.g. floods, heatwaves, wildfires and storms) are increasing in frequency and severity. This exacerbates inequities as it affects social determinants of health such as housing and food.

● High priority, early progress



A range of policy measures, such as the 14th Five-Year Environmental Health Plan¹³ and 14th Five-Year Pharmaceutical Industry Development Plan, are in place in China to support environmental sustainability measures, forming a key priority in

Healthy China 2030. However, the implementation of this work remains in the early stages, with the first activities focused on establishing teams and research and monitoring systems to expand capability in priority areas.

BOX 4

Time horizons to demonstrate impact in the 2035 outlook:

Status in China



Near term: Work to embed environmental, social and governance pillars into the health and healthcare industry by defining and tracking a set of metrics centrally.

Environmental monitoring within the health and healthcare industry is under development in China, with a range of standards released to guide implementation over the last five years. Progress to date has largely focused on building the right capability to support these standards, including:¹⁴

- Establishment of monitoring locations across China for air pollution, drinking water quality, and metal and metalloid exposure, and the actioning of several large-scale surveys to establish a baseline status.
- Establishment of a National Environmental Health Laboratory, with two additional under construction to support assessing and building knowledge on environmental health.
- Establishment of a dedicated department within the China CDC for extreme weather events, including issuing guidelines for disaster rescue.

The short-term focus for China is to make use of this capacity to build continuous environmental monitoring systems and strengthen capability in environmental management across the health and healthcare system.



Medium term: Make disproportionate investments in LMICs to reduce the impact of climate change on health – for example, reduce the number of people pushed into poverty each year due to climate shocks and stresses.

The 13th Five-Year Plan for Poverty Alleviation¹⁵ had set an objective of eliminating poverty in China, with initiatives from 2016 to 2019 reducing the poverty incidence rate from 4.5% to 0.6%.¹⁶

The objective for China over the current period of 2021-2025 is to ensure appropriate supports are in place to prevent a return to poverty. In support of this, the 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2035¹⁷ specified support for programmes, including establishing sustainable industry activity and special funding in regions of historically low income.



Longer term: Reduce the climate footprint of health and healthcare as an industry, focusing mainly on addressing key segments responsible for the majority of emissions (e.g. supply chains, pharmaceuticals development and wastage) while maintaining patient-centricity and equity.

While still in the early stages of planning, several key objectives have been outlined by the Chinese government around improving the climate footprint of the health and healthcare industry as a mechanism to achieving the goal of peaking CO₂ emissions before 2030 and reaching carbon neutrality before 2060 across all industries.¹⁸ These primarily focus setting carbon emission restrictions and targets for pharmaceutical companies, providing support for innovation within these companies on decreasing emissions and reducing wastage, and implementing demonstration projects for green production technologies, especially around active pharmaceutical ingredient manufacturing. In the *Global Corporate Sustainability Survey* by L.E.K. Consulting,¹⁹ 57% of the respondents in China believed sustainability was a major growth opportunity, and 43% of the respondents in China cited greenhouse gas emissions as their main sustainability priority.

3






What are the key issues and barriers?

To achieve the vision, several issues and barriers need to be addressed, many of which require public-private collaboration.

There are several issues and barriers to face in achieving this vision globally, some of which will become increasingly challenging to address over time. The barriers and issues identified are

largely mirrored in China, though they have varied importance²⁰ due to existing industry progress and unique local dynamics (see Table 1).

TABLE 1 There are several issues and barriers where public and private stakeholders play a role, and each given barrier impacts the ability to achieve goals in multiple pillars

| |  Equitable access and outcome |  Healthcare systems transformation |  Technology and innovation |  Environmental sustainability |  China importance | |
|-------------------------------------|--|---|---|--|--|---|
| Significant public and private role | Challenges with funding and reimbursement | ● | ● | ● | ● | ● |
| | Baseline health and wellness and global discrepancies | ● | ● | | ● | ● |
| | Healthcare literacy and trust in industry | ● | ● | ● | | ● |
| | Skilled labour shortage and hospital capacity constraints | ● | ● | | | ● |
| | Deteriorating mental health and well-being | ● | ● | | | ● |
| | Data interoperability and confidentiality | ● | ● | ● | | ● |
| | Connectivity to internet and lack of digital infrastructure | ● | | ● | | ● |
| | Maintenance and scalability of required pandemic capacity | | ● | | | ● |
| Significant private role | Ensuring patient centricity and high quality care in decarbonization | | | | ● | ● |
| | Supply chain issues | ● | ● | ● | ● | ● |
| | Restrictions/lack of incentives for innovation | ● | | ● | | ● |
| Significant public role | Limited diversity in health data and gaps in data/evidence generation | ● | | ● | ● | ● |
| | Pace of regulatory change | ● | ● | ● | ● | ● |
| | Limited standardization in measuring outcomes over time | ● | ● | ● | | ● |
| | Disproportionate impact of climate issues on health of LMICs | | ● | | ● | ● |

Source: L.E.K. Consulting; World Economic Forum

Level of importance to China: ● High ● Mid ● Low

“ The COVID-19 pandemic has exacerbated public scepticism about technology and innovation in healthcare.

Challenges with funding due to continued increases in healthcare spending above gross domestic product (GDP) growth (which is unsustainable and puts return on investment for innovative medicines at risk) place significant pressure on healthcare systems. An ageing population and comprehensive COVID-19 control measures have exacerbated funding pressure in China. Meanwhile, **baseline health and wellness** have deteriorated in China and globally due to ageing populations and unhealthy habits, increasing NCDs. Regional discrepancies in baseline health and wellness also continue to pose a specific challenge for China, with less capacity and lower quality of care in rural communities.

Globally, the COVID-19 pandemic has exacerbated public scepticism about technology and innovation in healthcare. Following the large volumes of misinformation about the pandemic and vaccinations, there is a need to improve **healthcare literacy** and rebuild and reinforce trust in the healthcare industry. However, due to effectively implemented control measures in China and the use of social media for disseminating public health education, knowledge of and confidence in the healthcare system remain strong among Chinese citizens.

There's also a need for a large and well-trained workforce to undertake the expected and unexpected challenges that will be faced. Despite ongoing government action to increase hospital capacity in China, skilled labour **shortage and hospital capacity constraints** are continual issues in healthcare provision. The pandemic exacerbated the challenges faced by healthcare workers globally, with moderated impact in China due to the success of control measures, including burnout, illness and **mental health and well-being** issues (e.g. workplace violence and harassment).

Given the expected heavy reliance on digital and cloud-based solutions in the future due to workforce availability, **data interoperability and confidentiality** issues are important barriers within China and globally to fully using digital solutions and gaining sufficient trust for widespread use for both back-end and customer-facing technology. There's also a need to ensure that solutions are compatible with communities **without internet access** and countries with **limited digital infrastructure**.

During the COVID-19 pandemic, there was a significant increase in scale and repurposing of capacity in drug manufacturing and diagnostics. This was highly effective in China due to the ongoing strengthening of the health system. However, issues remain around **maintaining this capacity in non-pandemic situations, showing agility in repurposing resources**, and scaling this capacity on short notice should other pandemic situations arise.

Supply chain issues were prevalent during the pandemic and impacted a range of industries,

however, in the healthcare industry, the lack of availability of medicines or equipment means that the lives of healthcare workers and patients are at risk. This was a particular challenge for rural regions of China, with significant variance in availability compared to city centres. While the aim is to ensure that the right capacity and sufficient supply chain infrastructure are in place, the impact of this and the broader healthcare system on the environment needs to be taken into account. One of the main issues with decarbonizing healthcare systems is ensuring that changes are made in a **patient-centric** way and that **quality of care** is maintained in this transition.

Global access and reliable supply chains also have been hampered by strict national export bans and a lack of patient regionally diversified sourcing and production due to restrictions and a **lack of incentives** for tech transfers. Beyond tech transfers, companies are not incentivized to adopt broader innovation around product development, process design, service or business models, further limiting opportunities to improve overall population health. Further, new volume-based procurement policies in China and their associated aggressive price discount expectations may pose an additional hesitation to innovation for some organizations.

Discrepancies in health equity are entrenched in healthcare data, given the **limited diversity** in clinical trial demographics. There are significant **gaps in data and evidence generation** despite the increase in data, which restricts the ability to identify priority areas for funding, deliver outcomes-based care and raise awareness of issues, such as inequities in the impact of climate change on health, that need to be addressed. On an international scale, maintaining a Chinese presence within the global R&D landscape is an ongoing mechanism to ensure representation in international product development.

Unfortunately, the pace of innovation is currently faster than the **pace of regulatory change**. In China, ongoing reformation of the healthcare system presents an opportunity to accelerate change, though momentum will need to be maintained to support the industry over the next decade. Additionally, regulatory change needs to be linked to outcomes, as what is efficient is not always the most effective. The **lack of standardized outcomes measurements** by disease is a barrier to offering outcomes-based care and making informed reimbursement and investment decisions and remains a key challenge and priority of Chinese policy action.

Finally, climate issues disproportionately affect **LMICs**, which contribute less to emissions but are particularly vulnerable to climate change and have less resilient healthcare infrastructures.²¹ Policy changes to encourage lowering emissions are at odds with encouraging urbanization and economic growth in LMICs, which can exacerbate climate impact on healthcare.

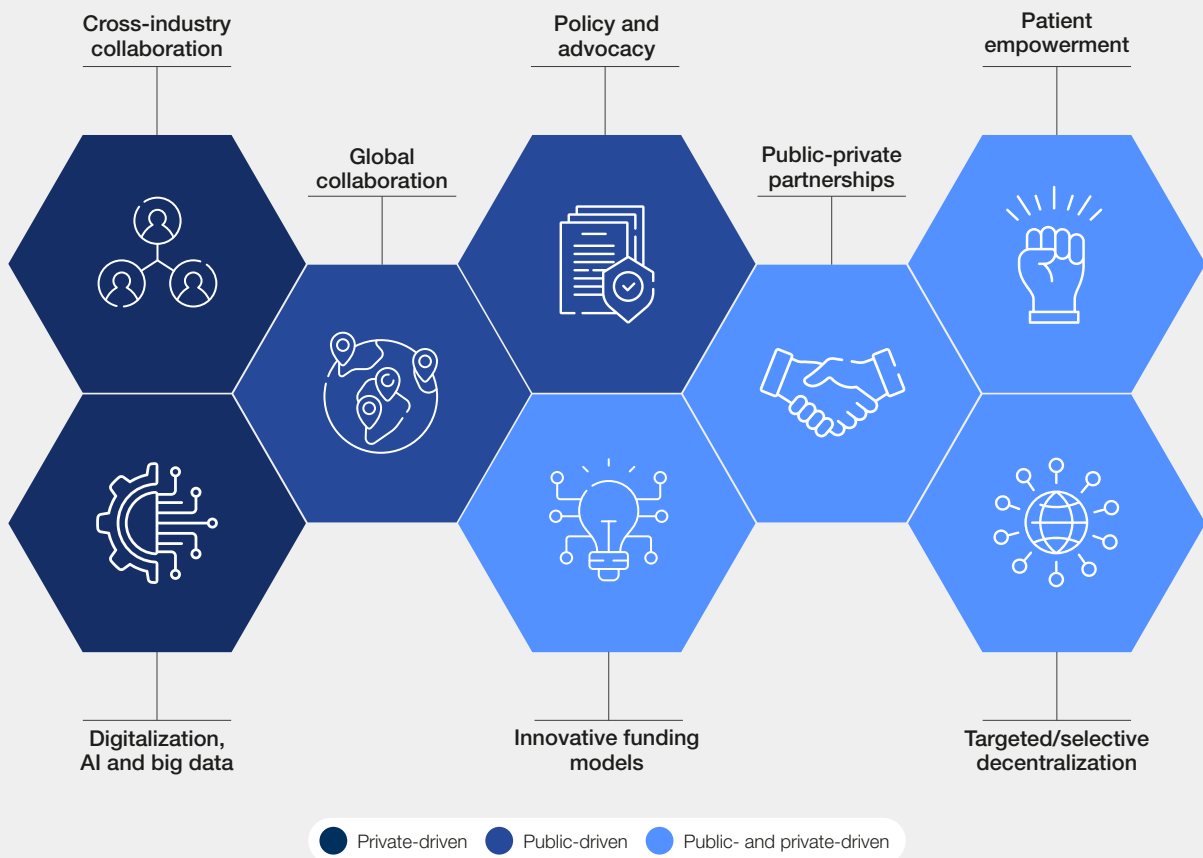
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What are the solutions to address these issues?

Public and private stakeholders can use a range of levers to resolve issues in health and healthcare globally.

Addressing these barriers provides opportunities to create value for businesses, governments and society. Several levers exist to resolve these issues driven by public, private or both stakeholders (see Figure 3).

FIGURE 3 Levers that private and public stakeholders are employing to address issues and barriers in health and healthcare



Source: L.E.K. Consulting; World Economic Forum

Cross-industry collaborations can occur between healthcare providers and a range of other industries, such as consumer/retail or digital solutions companies, to address a number of barriers. In such cross-industry collaborations, the key to success is mission alignment across the two organizations joining forces.

Patient empowerment is a key lever to encourage patients to have ownership of their health and

wellness. The key to success in supporting behaviour change is incentives.

Policy and advocacy are important levers to drive systemic change across a broader population. The key to success in these types of solutions is the security and privacy of data, as well as data interoperability at the centre of the design and build of the model. In addition, adoption is another major element.

Digitalization, AI and big data to better connect healthcare stakeholders and provide access to a wider set of healthcare information to improve decision-making is an important underlying theme. The emphasis should be on building the right data infrastructure for the future while understanding how best to apply the minimum data set now to inform decision-making and improve outcomes for patients.

Decentralization is a lever to alleviate pressure on hospital capacity. However, it needs to be done in a selective and targeted way. Although many examples of decentralization use digital solutions, the key to success with this type of platform is not relying entirely on the digital solution but having a human component to encourage use and empower members to manage their health conditions.

Global collaboration, particularly between stakeholders generating disproportionate impact (e.g. high-income countries, blue chip or multinational corporations), is important to be effective and sustainable in the solutions delivered. Public and planetary health are deeply interconnected. Beyond climate, many other health and healthcare problems require global collaboration. More coordinated investment in global health and neglected disease areas, such as malaria and schistosomiasis, is also needed

internationally to reduce the negative health, social and economic impact on the most vulnerable populations.

Innovative funding models, where the innovation is derived either from the source of funding or the degree of innovation (e.g. completely new or building on existing models), will be needed to meet the growing demand for services and the increasing funding gap. Funding solutions need to be context-dependent to maximize impact and sustainability, as well as be implemented into systems that are reoriented to focus on the outcomes achieved versus the volume of services delivered.

Public-private partnerships (PPP), where partners share risks, resources, accountability and decision-making authority, are a key lever that uses the collaboration of different stakeholder groups.²² Success is driven by the ability to work closely with partners to understand their specific needs and work flexibly across projects to address identified gaps.

A range of case studies in China and globally demonstrate how these solutions can address important barriers in health and healthcare today (see China case studies in Table 2 and global case studies in Table 3 of the appendix).



TABLE 2 | China case studies illustrate opportunities to use levers to a range of barriers

| Case studies | Cross-industry collaboration | Public-private partnership | Patient empowerment | Targeted/selective decentralization | Digitalization, AI and big data | Global collaboration | Innovative funding models | Policy and advocacy |
|---|------------------------------|----------------------------|---------------------|-------------------------------------|---------------------------------|----------------------|---------------------------|---------------------|
| Jinyun Medical Insurance Bureau and WaterDrop: “Jin Qing Bang” to provide equitable healthcare access to poverty | ● | ○ | | | ○ | | ○ | |
| Fuzhou government: “Credit-based” family doctor service for patient empowerment | | | ● | ○ | ○ | | | ○ |
| Pfizer: AD T2T strategic project | ○ | ○ | | ○ | | ○ | | ● |
| Zhejiang Cancer Prevention and Control Office: intelligent colorectal cancer screening | | ○ | | ○ | ● | | | ○ |
| West China Women and Children’s Health Alliance: decentralization and technology | | ○ | | ● | ○ | ○ | ○ | |
| Zhongshan Hospital Xiamen Branch: cross region collaboration for decentralization | | | | ○ | ○ | ● | | ○ |
| Meditrust: innovative funding for CAR-T | ○ | | | | | | ● | |
| National Clinical Research Center and Beijing Bethune Charitable Foundation: partnership to improve retinal disease infrastructure | ○ | ● | | ○ | | ○ | | ○ |

Source: L.E.K. Consulting; World Economic Forum

● Main focus ○ Other relevant levers

Although the challenges faced vary by country or region, the most common barriers in China and globally included baseline health and wellness, global discrepancies, skilled labour shortage and hospital capacity constraints. The most used levers globally include digitalization, AI and big

data, patient empowerment and cross-industry collaboration. Within China, decentralization, digitalization, policy and advocacy, and public-private partnership programmes are leveraged more frequently.

CASE STUDY 1

Cross-industry collaborations: Medical insurance poverty alleviation project “Jin Qing Bang”²³

In 2021, the “Jin Qing Bang” was launched in Jinyun, Zhejiang, by the Jinyun County Medical Insurance Bureau in collaboration with Waterdrop, a fundraising platform. The programme intended to create a multi-layered medical insurance poverty alleviation system to reduce the high incidence of poverty caused by illness in Jinyun County.

The project established a “1+2+4” system to support Jinyun County in raising funds to provide targeted support for those impoverished by illness or with significant unpaid medical expenses. The system included a database and identification system for those in need, a fundraising platform

and a poverty alleviation research platform, among other components.

As of December 2021, the “Jin Qing Bang” project has allocated over CNY 5 million and relieved more than 200 disadvantaged patients with critical diseases. The number of patients with relative difficulty paying for medical expenses has decreased by 77% year-on-year. It has also actively identified and managed over 15,000 individuals and has provided non-governmental relief to 71 individuals with a total amount of CNY 1.78 million.

CASE STUDY 2

Patient empowerment: “Credit-based” family doctor service²⁴

In 2021, Fuzhou City upgraded its family doctor contracting service and launched China’s first “credit-based” family doctor service. The project rewards residents with “credits” upon accomplishing tasks, such as updating their electronic health records or reading health

education materials. These credits can be redeemed for value-added health services, including liver and kidney function tests and electrocardiograms. As of September 2022, around 234,000 residents signed up for Fuzhou’s “credit-based” family doctor service.

CASE STUDY 3

Policy and advocacy: China atopic dermatitis treatment to target strategic project

In China, a major challenge in diagnosing and treating atopic dermatitis (AD) is the difficulty in providing standardized and homogeneous care to patients. In an effort to improve consistency of care, the China Atopic Dermatitis Standardization Action – Diagnosis and Treatment Capability Improvement Project was launched with the endorsement of the National Health Commission (NHC) and sponsored by Pfizer.

The project was initiated by forming an expert committee of leading key opinion leaders in the industry to advise on standards and capability

improvement requirements. Several diagnostic and treatment guidelines have already been published through this programme, with the next step of establishing role model hospitals, from which learnings can be spread across the country via the medical alliance model.

The project aims to increase the standardization rate of moderate to severe AD treatment in China by 30%, achieve a standardized treat-to-target (T2T) system treatment rate of 60%, and a standardized treatment pathway inclusion rate for moderate to severe AD patients of 60% by 2030.

CASE STUDY 4

Digitalization, AI and big data: Zhejiang province intelligent disease screening for colorectal cancer

Colorectal cancer was identified as a key health risk in the Zhejiang province, with significant increases in associated medical expenditure. In response, the Zhejiang provincial government launched a screening campaign for high-risk individuals in 2020.

Based on the AI Cancer Prevention Map project by DeepWise Medical, the Zhejiang Cancer Prevention and Control Office developed provincial cancer screening information platform. This platform integrates advanced technologies, such

as AI and big data, to provide digital support around intelligent screening process management and quality control to support the “screening-diagnosis-treatment” pathway.

As of September 2022, the project has completed risk assessments and faecal occult blood tests for nearly 4.6 million people, colonoscopy examinations for nearly 300,000 cases, and screened out over 3,000 cases of colorectal cancer.

CASE STUDY 5

Decentralization: West China Women and Children’s Health Alliance

In 2017, West China Hospital led the establishment of the West China Women and Children’s Health Alliance in Sichuan, using hierarchical medical treatment to address the mismatch of pediatric medical resources and inadequate capacity of primary medical institutions in the province.

The alliance provided online and offline training on basic skills, clinical thinking, typical cases etc., to over 400 primary care doctors in Chengdu. It also used the West China Telehealth Center platform to conduct remote medical consultations with 302 member units in the West China

Medical Consortium, facilitated by a 5G medical network provided by China Mobile and Huawei. Additionally, the alliance embedded commercial health insurance and established a mutual insurance fund to provide financial support for training, assessment and other activities while ensuring protection for sick children.

This project significantly improved the region’s diagnosis and treatment capabilities of primary medical institutions. As of the end of 2020, nearly 200,000 children are able to receive leading standardized pediatric healthcare at community health service centres.

CASE STUDY 6

Regional collaboration: Zhongshan Xiamen Hospital²⁵

The medical resources and level of medical technology in Fujian Province are low relative to the rest of the East China region. This has led an increasing number of patients to seek medical treatment across regions. In an effort to alleviate cross-regional medical treatment, Shanghai Zhongshan Hospital (a top L3A public hospital in Shanghai) cooperated with the Xiamen government to establish the first national regional medical centre. Over 100 senior experts were

stationed to provide knowledge and experience to local medical staff. Chief physicians were put on a regular rotation, and a digital diagnosis and treatment platform was constructed as part of the programme. This project has successfully filled key gaps in medical technology locally, with hundreds of innovative projects running, while facilitating improvement among surrounding hospitals through knowledge sharing.

CASE STUDY 7

Innovative funding models: MediTrust CAR-T innovative payment

Due to the focus of national medical insurance on basic coverage in China, high-cost innovative therapies are often excluded from the scope of insurers. This creates a significant financial burden for patients with difficult-to-treat diseases. In 2021 MediTrust, a leading healthcare benefits manager in China, began collaborating with chimeric antigen receptor (CAR)-T manufacturers, such

as JW Therapeutics, to offer innovative payment options to support access to CAR-T. These include efficacy-based reimbursement, whereby full reimbursement is provided for patients who show progression within three months, patient assistance programme, financial instalments programmes and other patient benefit services.

CASE STUDY 8

Public-private partnerships: Guangming Center Capability Construction and Enhancement Project

In China, less than 5,000 retinal specialists are active, and only 10% of retinal disease patients receive standard treatment. To address this issue, the Beijing Bethune Charitable Foundation and the National Clinical Research Center for Ocular Diseases launched the Guangming Center Capability Construction and Enhancement Project to promote the standardization and homogenization of retinal disease diagnosis and treatment in China.

The project helped to establish diagnosis and treatment standards of practice, covering the first appointment through to treatment and monitoring. An innovative retinal training platform was also constructed to help train more retinal professionals, directed by a board of top retinal key opinion leaders. As of October 2022, 1,544 hospitals and 13,679 physicians are enrolled in the programme.

Conclusion

It's increasingly important to work together and define clearly what the vision for health and healthcare looks like in 2035. Each strategic pillar is important, but collectively striving for them all will help ensure that sustainability, equality, resilience and innovation are embedded into future health and healthcare systems.

In 2023, **private stakeholders** should:

1. Implement the WHO guidelines on mental health at work²⁶ and other evidence-based research to preserve, monitor and remediate employee welfare, as well as define and track metrics over time to demonstrate impact and advance understanding of key determinants of well-being in health and healthcare workplaces.
2. Incentivize private industry investment to drive innovation in medicine development and commercialization, supply chain optimization and healthcare delivery. Also, work with policy-makers to outline ways to cultivate regulatory environments that support rather than restrict the adoption of technology and innovation.
3. Mandate that environmental, social and governance pillars are embedded equally into the health and healthcare industry by defining and tracking a clear set of metrics centrally to encourage widespread adoption and standardize expectations across the industry in collaboration with public bodies.

Public stakeholders should:

1. Internationally cooperate (e.g. via the World Trade Organization and other trade and investment fora) to create an environment that facilitates and promotes distributed supply chains via a global network with a focus on building capacities and investing in underrepresented geographies with vulnerable populations.
2. Redesign systems to focus on the value of outcomes achieved over the volume of services delivered and embed the financing of value through linking resource allocation, resource use and outcomes achieved across communities. Implement policies that ensure the changes are at the system level but allow for local autonomy and flexibility in funding models.
3. Mitigate national divergences in data regulations by convening an international body that sets out rules and guidelines to harmonize data use and its applications within health and healthcare while keeping policy-makers updated on data-related trends.

The Chinese government and health system have already made strides across a number of priority actions and have a clear avenue through shared and local policy visions to maintain existing momentum in the coming years.

Appendix

A1 Global case studies

TABLE 3 Global case studies illustrate opportunities to use levers to a range of barriers across geographies

| Case studies | Cross-industry collaboration | Public-private partnership | Patient empowerment | Targeted/selective decentralization | Digitalization, AI and big data | Global collaboration | Innovative funding models | Policy and advocacy |
|--|------------------------------|----------------------------|---------------------|-------------------------------------|---------------------------------|----------------------|---------------------------|---------------------|
| Home Instead and Honor Technology: Decentralization and technology | ● | | ○ | ○ | ○ | | | |
| Discovery: Vitality programme for patient empowerment | ○ | | ● | | ○ | | | |
| National Health Authority: Building a digital health landscape | ○ | | ○ | | ● | | | ● |
| Bayer: Digitalization to provide equity and sustainability | | ○ | ○ | | ● | | | ○ |
| reach52 and Medtronic: Digitalization and equity | | | ○ | ● | ○ | | | |
| AstraZeneca: Implementing net zero | ○ | ● | ○ | | | ● | | ○ |
| NHS Wales: Innovative funding models and value-based care | | | | | | | ● | ○ |
| Global Antibiotic Research and Development Partnership (GARDP): Partnerships to manage AMR | | ● | | | | ○ | ○ | ○ |

Source: L.E.K. Consulting; World Economic Forum

● Main focus ○ Other relevant levers

CASE STUDY 9

Cross-industry partnership: Home Instead and Honor Technology

A technology platform, Honor Technology, and an at-home health service company, Home Instead, have combined their capabilities to offer Home Instead's high-touch care model supported by Honor's technological and digital solutions. This collaboration allows Honor to scale its technology geographically and better empower Home Instead's workforce. As a result, agencies using

the Honor care platform have a workforce turnover rate that is half the industry average, and 94% of them feel they have the tools and resources they need to be empowered in their jobs. In addition, 94% of the older adults they care for have a positive experience with their professional caregivers.

CASE STUDY 10

Patient empowerment: Discovery's Vitality programme

South Africa-based health insurance company, Discovery Vitality, developed a behavioural change platform that incentivizes customers to adopt a range of health behaviours, including increased physical activity, healthy eating and regular screening. Data gathered over decades show that

increasing engagement with the platform reduces mortality risk and life expectancy. For those with the highest engagement, life expectancy reaches 83-89 years compared to South Africa's average life expectancy of 64 years.

CASE STUDY 11

Policy and advocacy: National Health Authority India – Ayushman Bharat Digital Mission

The Ayushman Bharat Digital Mission (ABDM) is an initiative launched by the Ministry of Family and Health Welfare, Government of India, under the aegis of the National Health Authority, to build, launch and scale foundational infrastructure and enable the world's largest digital health landscape. It aims to develop the backbone necessary to support India's integrated digital health infrastructure and bridge the gap among healthcare stakeholders through digital highways. This includes generating a unique patient identifier, health professionals and

facility registry, a mobile app for personal health records, a health information exchange consent manager for patient control over data collection, claims processing and a unified digital health interface for appointment booking, teleconsultation, service discovery and other services. As of the end of September 2022, nearly 250 million Ayushman Bharat Health Account (ABHA) unique identifiers have been created, and 160,000 health facilities and 91,000 healthcare professionals have been registered with the platform.

CASE STUDY 12

Digitalization, AI and big data: Bayer low-dose aspirin sachets in Guatemala

The Ayushman Bharat Digital Mission (ABDM) is an initiative launched by the Ministry of Family and Health Welfare, Government of India, under the aegis of the National Health Authority, to build, launch and scale foundational infrastructure and enable the world's largest digital health landscape. It aims to develop the backbone necessary to support India's integrated digital health infrastructure and bridge the gap among healthcare stakeholders through digital highways. This includes generating a unique patient identifier, health professionals and facility registry, a mobile app for personal health records, a health information exchange consent manager for patient control over data collection, claims processing and a unified digital health interface for appointment booking, teleconsultation, service discovery and other services. As of the end of September

2022, nearly 250 million ABHA unique identifiers have been created, and 160,000 health facilities and 91,000 healthcare professionals have been registered with the platform.

In Bayer Consumer Health's work in Guatemala, digitalization via QR codes on individual product sachets aims to improve affordable access to over-the-counter (OTC) medicine by reducing packaging costs, improving healthcare literacy and empowering patients while reducing their carbon footprint. The role of OTC products in middle-income countries of Latin America (like Guatemala) helps individuals save, on average, four productive days, worth \$123 revenue per person per year – a significant income for low-income consumers who can earn between \$2 and \$15 per day.

CASE STUDY 13

Targeted decentralization: reach52 and Medtronic offline-first application for non-communicable disease healthcare delivery

Singapore-based health social enterprise reach52 aims to tackle remote access issues in areas with limited data coverage through an offline first health technology platform that enables a full range of health services. This solution supports implementing community-based and tech-powered healthcare delivery models for non-communicable diseases (NCDs), including a 3-in-1 offering of coaching, testing and medications at a subsidized cost. The platform works on basic mobile phones with significant offline functionality. Data is synced at specific locations or when a mobile signal becomes

available. reach52 collaborated with municipal health providers in Pototan, Philippines and MedTech social enterprise, Medtronic LABS, to upskill existing community health workers to promote sustainability and scalability. They also incorporated local residents as peers in programme facilitation to build participants' trust and sense of belonging. As a result, 76% of members had their systolic and diastolic blood pressure under control by the end of month six, compared with 64% (systolic) and 73% (diastolic) in month one.

CASE STUDY 14

Global collaboration: AstraZeneca as champion of the Sustainable Markets Initiative (SMI) Health Systems Task Force

The healthcare sector contributes over 4% of global greenhouse gas emissions. Launched at COP26, the Sustainable Markets Initiative (SMI) Health Systems Task Force is a global private-public partnership effort to accelerate the delivery of net zero, patient-centric health systems through scalable action, recognizing the deep interconnection of public and planetary health. Members include chief executive officers or equivalents from global life sciences firms (e.g. AstraZeneca), healthcare systems (e.g. NHS England), institutions (e.g. WHO) and academia

(e.g. the Karolinska Institute). The task force is committing to global action as a collective focusing on decarbonization across three core areas: supply chains, patient care pathways and digital health solutions. The task force initiatives include aligning a set of common supplier standards to incentivize decarbonization efforts, jointly pursuing renewable power purchase agreements and identifying green transport corridors in supply chains, tracking and publishing emissions across patient care pathways, and deploying digital health solutions to decarbonize clinical trials.

CASE STUDY 15

Innovative funding models: NHS Wales: allocation, distribution and use of resources for value-based healthcare

NHS Wales is deploying mixed funding models to bring about behavioural change in their healthcare landscape and is reviewing the allocation of resources at a macro, meso and micro level as part of their initiative to promote value-based healthcare for the population. NHS Wales has established a commitment to a financial strategy that will embed the financing of value through linking resource allocation, resource use and outcomes achieved across communities. Multiple approaches to financing for value are being

harnessed, including national formulae, value-based procurement, value-based contracting, data use and remote care. The work in NHS Wales led to the allocation of £20 million towards wider implementation of value-based healthcare and triggered the development of standardized patient-reported outcome (PRO) measures, which aligned data standards, processes and information exchanges to allow for the aggregation of national data to report system-level progress.

CASE STUDY 16

Public-private partnership: GARDP: accelerating development and access to antibiotic treatments for drug-resistant infections in LMICs

The Global Antibiotic Research and Development Partnership (GARDP) is a not-for-profit organization, founded in 2016 by WHO and the Drugs for Neglected Diseases initiative (DNDi), focused on providing countermeasures to manage the emergence of anti-microbial resistance (AMR). AMR is a public health priority, with 1.3 million deaths directly attributed to antibiotic resistance in 2019 alone. In order to reduce this growing AMR-attributed mortality, barriers need to be addressed, such as a dry antibiotic pipeline due to the lack of market incentives for R&D, inequalities in new antibiotic access, especially in low- and middle-income countries (LMICs) despite disproportionate burden and recurrent shortages of off-patent antibiotics due to a fragile supply chain. To address these barriers, GARDP

is developing a public health portfolio to manage the emergence of AMR, taking into account local public health and clinical needs on a not-for-profit basis. GARDP is collaborating with over 70 partners in more than 16 countries to support late-stage clinical development and antibiotic access. For example, GARDP signed a first-of-its-kind licence and technology transfer and collaboration agreement with a pharmaceutical company and the Clinton Health Access Initiative to expand access to a novel antibiotic in 135 LMICs. The success of GARDP is driven by their ability to work closely with partners to understand their specific needs and flexibly across projects to address the gaps identified (e.g. innovative financing models, market shaping and procurement activities, awareness raising).

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