



# HEALTH SYSTEM IN PEOPLE'S REPUBLIC OF CHINA (PRC)

## Reforms, Transformations, and Challenges



Copyright © Madhurima Nundy and Sandhya Venkateswaran

Centre for Social and Economic Progress (CSEP)  
CSEP Research Foundation  
6, Dr Jose P. Rizal Marg, Chanakyapuri,  
New Delhi - 110021, India

Recommended citation:

Nundy, M., Venkateswaran, S., (2022). *Health System in People's Republic of China (PRC): Reforms, Transformations, and Challenges* (CSEP Working Paper 35). New Delhi: Centre for Social and Economic Progress.

The Centre for Social and Economic Progress (CSEP) conducts in-depth, policy-relevant research and provides evidence-based recommendations to the challenges facing India and the world. It draws on the expertise of its researchers, extensive interactions with policymakers as well as convening power to enhance the impact of research. CSEP is based in New Delhi and registered as a company limited by shares and not for profit, under Section 8 of the Companies Act, 1956.

All content reflects the individual views of the authors. The Centre for Social and Economic Progress (CSEP) does not hold an institutional view on any subject.

CSEP working papers are circulated for discussion and comment purposes. The views expressed herein are those of the author(s). All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including copyright notice, is given to the source.



# HEALTH SYSTEM IN PEOPLE'S REPUBLIC OF CHINA (PRC)

## Reforms, Transformations, and Challenges

**Madhurima Nundy**

Fellow

Centre for Social and Economic Progress

New Delhi, India

**Sandhya Venkateswaran**

Senior Fellow

Centre for Social and Economic Progress

New Delhi, India

The authors would like to thank John (“Jack”) Langenbrunner for reviewing the paper. We are also grateful to Prof. Winnie Yip, and Prof. Shenglan Tang for their valuable insights on the complexity of the Chinese health system. We would also like to thank Dr. Rakesh Mohan who gave valuable inputs to earlier drafts of the paper.

## Table of Contents

List of abbreviations	5
Abstract	6
1. Introduction	6
2. The context: socio-economic indicators, burden of disease, and demography	8
3. Organisation and structure of health services	14
3.1. Governance: structures and reforms	15
3.1.1. Achievements and challenges	17
3.2. Provisioning	17
3.2.1. Public hospital reforms	18
3.2.2. Primary health services (preventive, promotive and curative)	20
3.2.3. Private sector: investments and partnerships	22
3.2.4. Achievements and challenges	23
3.3. Financing of health services	25
3.3.1. Achievements and challenges	29
3.4. Human resources	31
4. Discussion	33
Bibliography	41

## List of Figures

Figures 1.1 to 1.10: Select indicators and health outcomes for comparable countries (1990-2020)	9
Figure 2: GDP growth (annual %), 1975-2020	13
Figure 3: Share of total burden of disease by cause, China 2019	13
Figure 4: Burden of disease by NCDs across countries, 1990-2019	14
Figure 5: System of local government	14
Figure 6: Macro-governance structure of healthcare before and after 2018	16
Figure 7: Organisation of Health Services in the PRC, 2018	16
Figure 8: Comparison of the hospital visits (A) and inpatients (B) between types of ownership, 2005-2016	17
Figure 9: Structure of the public health system	21
Figure 11: Share of government resources across public health facilities	24
Figure 12: Immunisation (DPT), % of children 12-23 months	25
Figure 13: Total health expenditure, 2020	26
Figure 14: Household spending on health as percentage of total household expenditure (urban and rural)	29
Figure 15: Distribution of nurses per 1,000 people	32

## List of Tables

Table 1: Some comparative indicators	8
Table 2 - Total health expenditure and its components (1980-2020)	26
Table 3: Current features of the dominant insurance schemes	28
Table 4: Health status indicators of China over the years (compared to SDG target, upper-middle income countries and high-income countries)	34
Table 5: Summary of the phases of reforms	35
Table 6: Summary of important reforms post-2009	38

## List of abbreviations

CMS	Cooperative Medical Scheme
CPC	Communist Party of China
DRG	Diagnostic Related Group
GDP	Gross Domestic Product
GIS	Government Insurance Scheme
GP	General Practitioner
IMR	Infant mortality rate
LIS	Labour Insurance Scheme
MAS	Medical Assistance Scheme
MCA	Ministry of Civil Affairs
MMR	Maternal mortality ratio
MOH	Ministry of Health
MOHRSS	Ministry of Human Resources and Social Security
MOF	Ministry of Finance
MSA	Medical Savings Account
NCD	Non-communicable diseases
NDRC	National Development and Reform Commission
NHC	National Health Commission
NHFPC	National Health and Family Planning Commission
NHSA	National Health Security Agency
NRCMS	National Rural Cooperative Medical Scheme
OOP(E)	out-of-pocket (expenditure)
RBMIS	Resident Basic Medical Insurance Scheme
RMB	Renminbi (Chinese currency)
SOE	State-owned enterprise
SRP	Social Risk Pooling
TCM	Traditional Chinese medicine
UEBMIS	Urban Employee Basic Medical Insurance Scheme
URBMIS	Urban Resident Basic Medical Insurance Scheme

## Abstract

This paper studies the development of the Chinese health system over the past several decades given its political, social and economic context. The objective of conducting this review is to draw lessons for health system strengthening, access and equity for countries who are following the path to universal health care. The health services in China have gone through several phases of reforms – in financing, provisioning and governance – and the paper outlines the salient features of these reforms and their impact in terms of access, utilisation and equity through a systems framework. It then looks at the achievements and challenges that still exist and highlights the lessons that would be imperative for other lower-middle and upper-middle income countries. This paper traces the development of the Chinese health system from the Mao era (1950-1980) to the present. In the Mao years, health of the population was central to the development process and health outcomes significantly improved due to universal access to food, preventive and promotive services and basic medical care. The focus was on rural development and communes were central to the process of social and economic development. China moved from a socialist economy to a “market economy with socialist characteristics” (market socialism) in 1978. This dramatic shift led to dismantling of the collectives and subsequent breakdown of health services which were managed by the collectives. The central government subsidies to health services came down dramatically and the responsibility of generating funds for health services transferred to local governments and public health facilities. The public health facilities started behaving like commercial enterprises in order to survive. This saw an increase in out-of-pocket (OOP) expenditure that reached a peak of 61 percent in 2001. The public discontentment followed by the SARS epidemic of 2003 put the Communist Party of China (CPC) on the backfoot and they introduced a series of reforms in financing in early 2000s–this included launching insurance schemes (for rural residents, urban employees and urban residents). These reforms were still unable to improve access due to shallow coverage and benefits as well as the lack of focus on supply-side issues. The 2009 reforms thereafter, were a watershed in terms of course corrections. Since 2009, reforms have been undertaken to universalise insurance coverage with considerable increase in contribution from the government; strengthen primary care services (including preventive services) and to create a referral system; develop an essential medicine list; make public hospitals more efficient; and give more space to private sector investments in provisioning and financing. The outcomes have resulted in reduced OOP and significant improvements in some key health indicators but despite these progressive reforms and reduced OOP, the Chinese health system faces challenges of access, equity and high costs. This paper tries to unravel the complex health system that has emerged over the years and lessons that can be drawn from the Chinese experience.

## 1. Introduction

The Chinese health system has seen many shifts and changes over the past four decades. Before liberation in 1949, Chinese society was marked by extreme inequality, high levels of poverty, ill health and disease. It came to be known as the ‘sick man of Asia’ (Rogaski 2021). In 1949, the socialist revolution resulted in a government led by a single-party–the Communist Party of China (CPC). Socialist countries experienced significant transformations in growth and development but these were as varied as those of capitalist countries. China and Russia (erstwhile Soviet Union), for instance, had divergent approaches. While Russia took the path of industrialisation, China, in order to address inequalities, went on to restructure its rural base and create agriculture collectives.

The Mao years, from 1949 until the beginning of economic reforms in 1978, witnessed social restructuring with a focus on agricultural collectivisation in rural areas, which comprised 80 percent of the population. The political context of this period shaped much of the health system in China by addressing the social determinants of health–food security, employment, housing, clothing, and medical care. These five guarantees were also referred to as the ‘iron rice bowl’, which

ensured a lifetime of steady income and welfare benefits. During these years, much of the focus was on addressing rural inequalities. Preventive and promotive health services were given priority over curative services. 'Patriotic' health campaigns were introduced through mass mobilisation.<sup>1</sup> During the Mao years, the development of the health sector panned out differently for urban and rural areas. In the urban areas, a labour insurance scheme (LIS) covered workers of state-owned enterprises (SOEs) and a government insurance scheme covered health expenditure for all government employees. In the rural areas, a cooperative medical scheme (CMS) was introduced for the communes in the 1960s. The CMS was a three-tier network of health services that comprised of village health workers or barefoot workers in village clinics, township health centres and county hospitals. The barefoot 'doctors' were trained to provide basic preventive, promotive and curative services in villages and were paid through work points earned by the collectives (Nundy, 2014). Rural co-operative health insurance reached its peak in the mid-1970s when 90 percent of the rural population was covered.

By end of the 1970s, China fared well in some human development indicators such as life expectancy and infant mortality rates (IMR) as compared to other developing countries. While health had improved significantly for the population, poverty rates were high and there were inequalities across and within provinces. Services were not sufficiently evolved and human resources were limited in most provinces. These challenges persisted through the reform years and resulted in contradictions, distortions and challenges (Alvarez-Klee, 2019).

With the economic reforms in 1978, China underwent dramatic changes. Market socialism meant decollectivisation, rapid industrialisation, and reforms in SOEs. This, in turn, led to the breakdown of all welfare guarantees. The three levels of reforms, economic, fiscal, and administrative, had far-reaching implications for the health system.

Layoffs in SOEs left millions unemployed in the urban areas. Before the reforms, health coverage was linked to employment for urban residents. With SOE privatisation, insurance was no longer available to the employees (Cao et al, 2012). In 1994, fiscal reforms put pressure on local governments to generate revenue. They had to increase expenditure even as revenue devolutions from the central government decreased. Administrative reforms focused on decentralisation and more autonomy for local institutions, leaving them increasingly responsible for delivery of health services in their region.

These changes had a somewhat negative effect on the health sector. They resulted in inequalities in access to services. The local governments had significant leeway in determining the flow of funds. However, as the focus was on economic development, many of their resources were directed towards commercial development projects and public health measures or services were neglected or given little attention (Chen et al 2018). Resource allocation for health services varied across provinces and resulted in inequalities, both at the inter-provincial and the rural-urban fronts. Poorer provinces found it difficult to generate resources for health facilities. This resulted in an increase in out-of-pocket expenditures (OOPE). Public health measures focusing on preventive services such as epidemic stations, responsible for the surveillance, monitoring, and management of communicable diseases, no longer had adequate funds to function effectively.

While China's approach to market principles in the health sector was similar to that of other low- and middle-income countries in the 1980s, its reforms had several unique features. The trajectory of these reforms has passed through several phases since 1978 and we discuss these in detail below. There were four phases of reforms since the 1980s. The first phase, from the 1980s to the 1990s, witnessed

---

<sup>1</sup> One of the first campaigns advocated for destroying the four pests—mosquitoes, flies, rats and sparrows (later replaced by bedbugs)—was through mass community organisation. Later, there were campaigns organised against specific diseases like syphilis and schistosomiasis.

the process of decollectivisation that had an impact on public hospitals, which we discuss later. The period from the early 2000s to 2009 was dominated by financial reforms while public hospital reforms continued. As a consequence of this phase, the 2009 reforms were more comprehensive and critical for course correction. They were informed by debates within the CPC (Yip et al 2015). In the fourth phase, post-2012 to the present, the reforms initiated in 2009 continued but with a distinct space for the private sector, both in financing and provision.

The objective of the paper is to study, in detail, the evolution of the Chinese health system and extract lessons on strengthening systems, and improving equity and access, both financial and physical, in the health sector. We take a systems approach to analyse the development and transformation of the health framework. We look at organisation and governance structures; provisioning of health services; financing of health services; human resources in health in the current context; and the evolution of the systems over time. It is understood that these aspects of health care are not discrete and need to be addressed systemically. Through the development of these, we address the contextual factors in reforms and the critical junctures in their social, economic, and political milieu that shaped the health service system. We also discuss the achievements, challenges and outcomes of these reforms.

The paper is divided into five parts. The introduction is followed by a section to set the context. We then elaborate on the various sub-systems and the reforms in each, and highlight their achievements and challenges. This is followed by a discussion on outcomes and important lessons.

## 2. The context: socio-economic indicators, burden of disease, and demography

China began with a set of social, economic, and human development indicators similar to those in other post-colonial states in the late 1940s. Over the years, the country has progressed well on these indicators. India, for one, started with the same set of indicators as China. For instance, the infant mortality rates (IMR) was over 190 for both countries in 1950. By the 1980s, China saw a significant reduction in IMR, to 45, while India was at 115 (Table 1). These dramatic improvements in the first thirty years of CPC’s rule in China (1950-1980) is attributed to the focus on human development as central to the overall development process of the country – access to food, focus on preventive and promotive health services and access to basic medical care was universal.

**Table 1: Some comparative indicators**

Indicator Country	IMR (per 1,000 live births)					MMR (per 100,000 live births)				
	1950	1980	1990	2000	2020	1950	1980	1990	2000	2020
China	>190	45	40	32	6	1500	165	97	59	25
India	>190	115	89	67	27	1600	677	556	370	103

Source: World Bank 2020; Singh and Liu 2012; Hogan et al 2010.

Figures 1.1 to 1.10 compare select indicators within the region from 1990 to the present. Demographically, China now faces the challenge of an increasing ageing population along with a decreasing working population attributed to low fertility rates. In 1950, the population above 60 years of age constituted only four percent. This has now increased to over 16 percent. In the past few years, the CPC has withdrawn the stringent one-child policy<sup>2</sup> and allowed citizens to have two to three children. Despite these interventions, fertility rates have been stable at 1.7 since 2015.

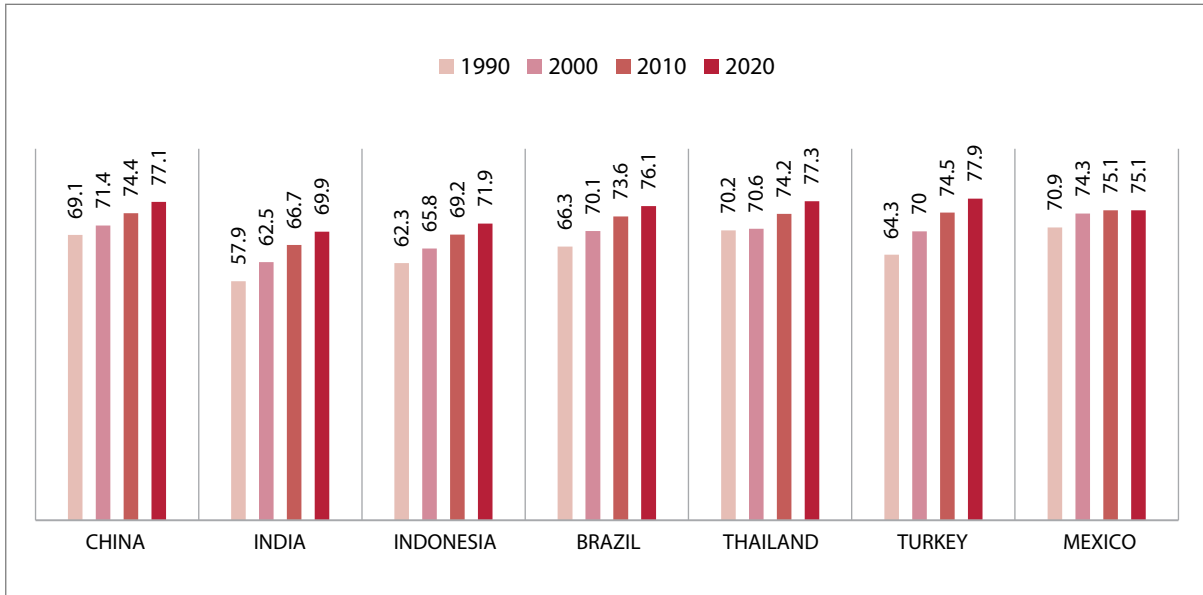
<sup>2</sup> The one-child policy was introduced in 1980 by the CPC under the premise that overpopulation would be a hurdle to economic reforms. It intended to restrict families (urban and non-ethnic) to have a single child.



According to the latest World Bank data, China's total expenditure on health as a percentage of its gross domestic product (GDP) is 5.4 percent. Of this, 56 percent is government expenditure and 36 percent is out-of-pocket (OOP) (World Bank 2021).

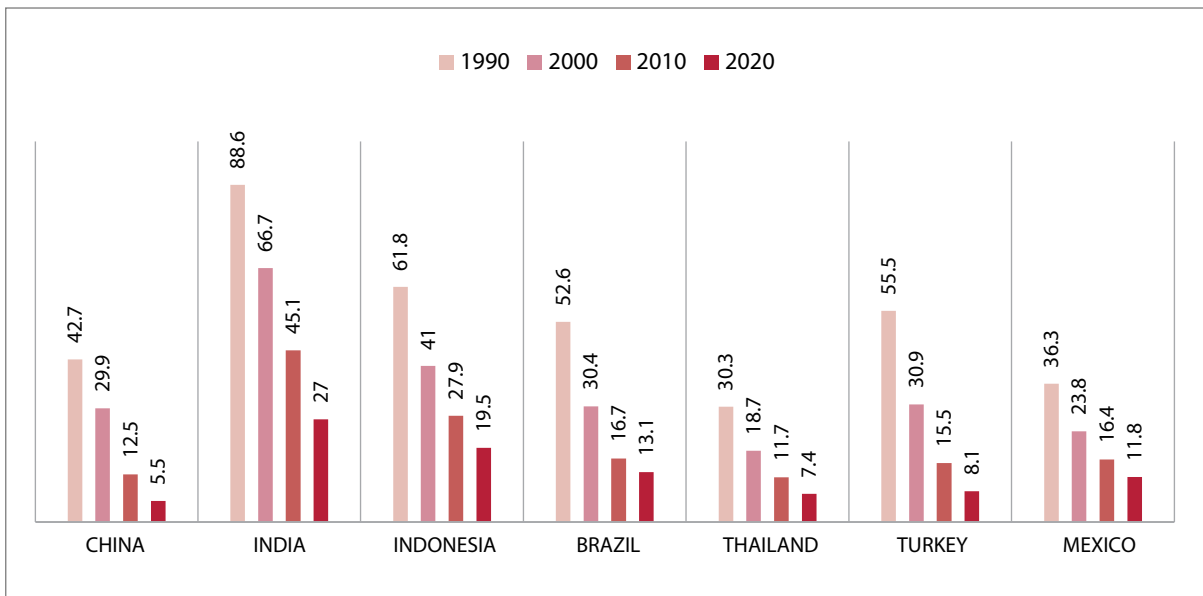
Figures 1.1 to 1.10: Select indicators and health outcomes for comparable countries (1990-2020)

Figure 1.1: Life expectancy at birth, total (years)



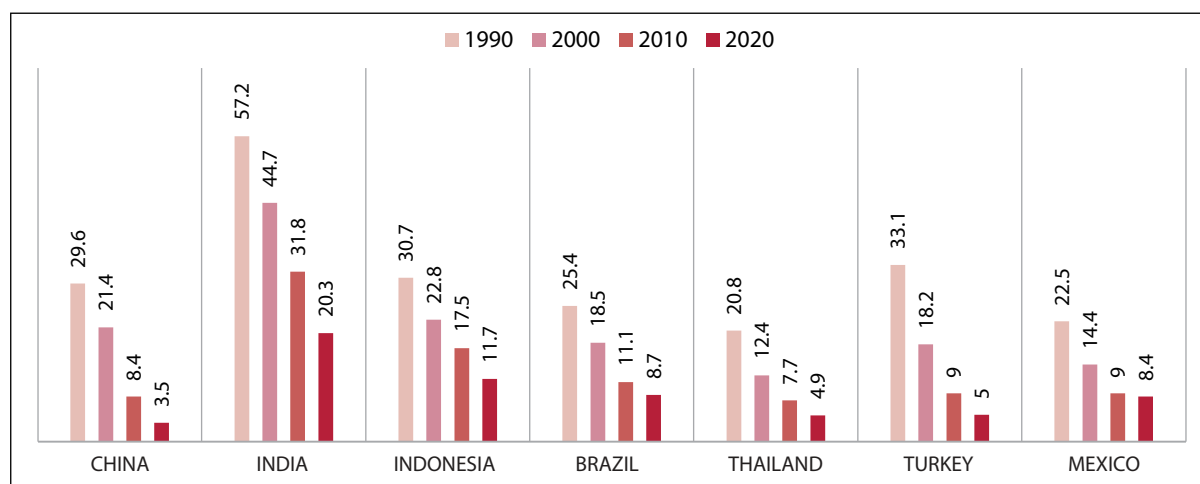
Source: World Bank 2021.

Figure 1.2: Mortality rate—infant (per 1,000 live births)



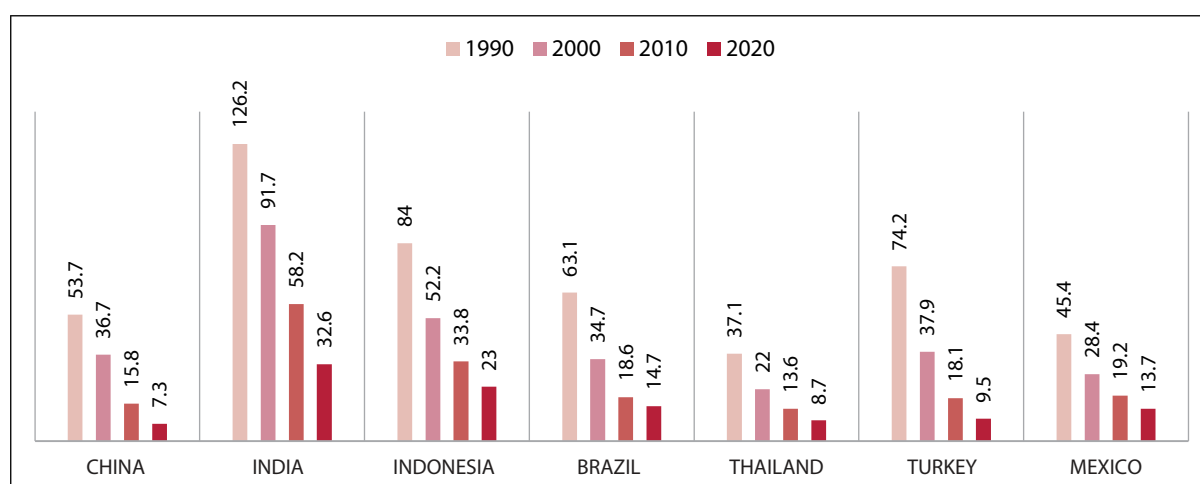
Source: World Bank 2021.

Figure 1.3: Mortality rate—neonatal (per 1,000 live births)



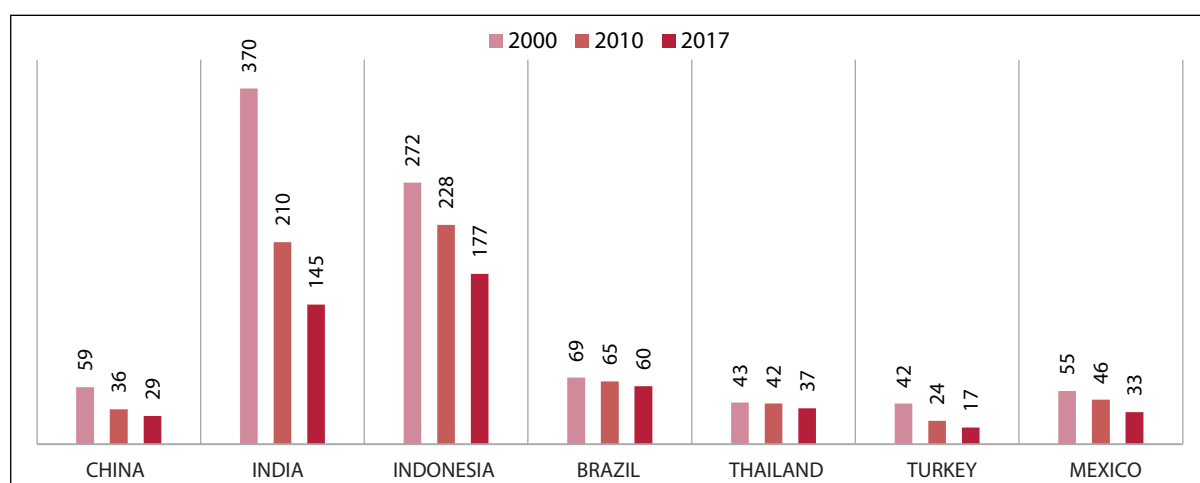
Source: World Bank 2021.

Figure 1.4: Mortality rate—under-5 (per 1,000)



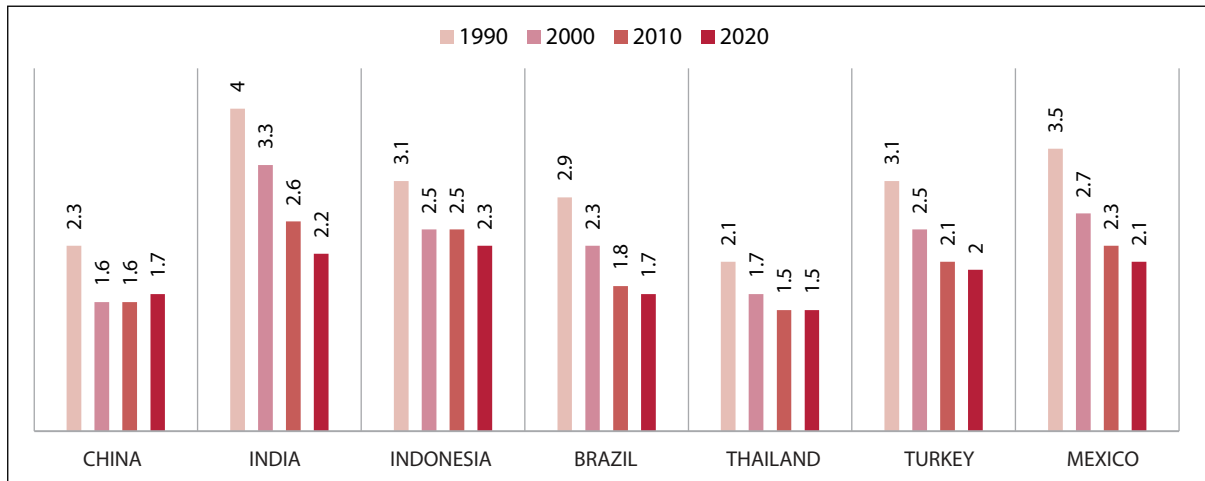
Source: World Bank 2021.

Figure 1.5: Maternal mortality ratio (per 100,000 live births)



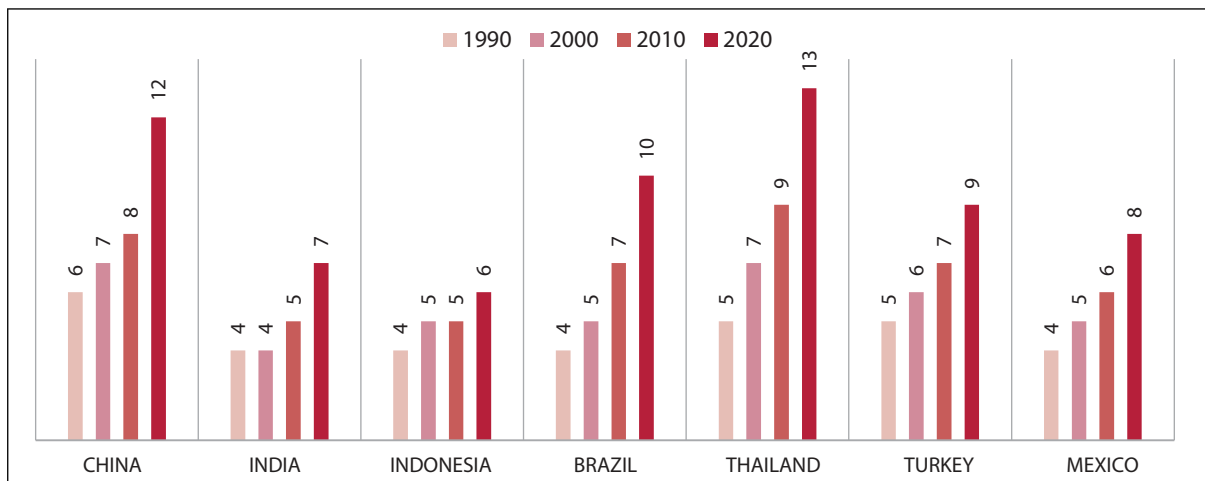
Source: World Bank 2021.

Figure 1.6: Fertility rate—total (births per woman)



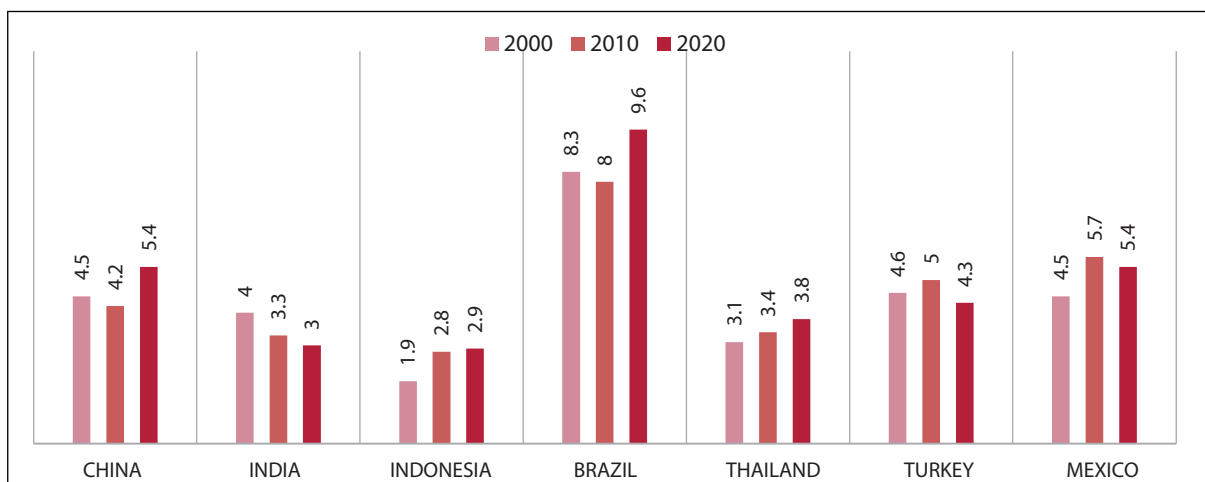
Source: World Bank 2021.

Figure 1.7: Population above 65 years (%)



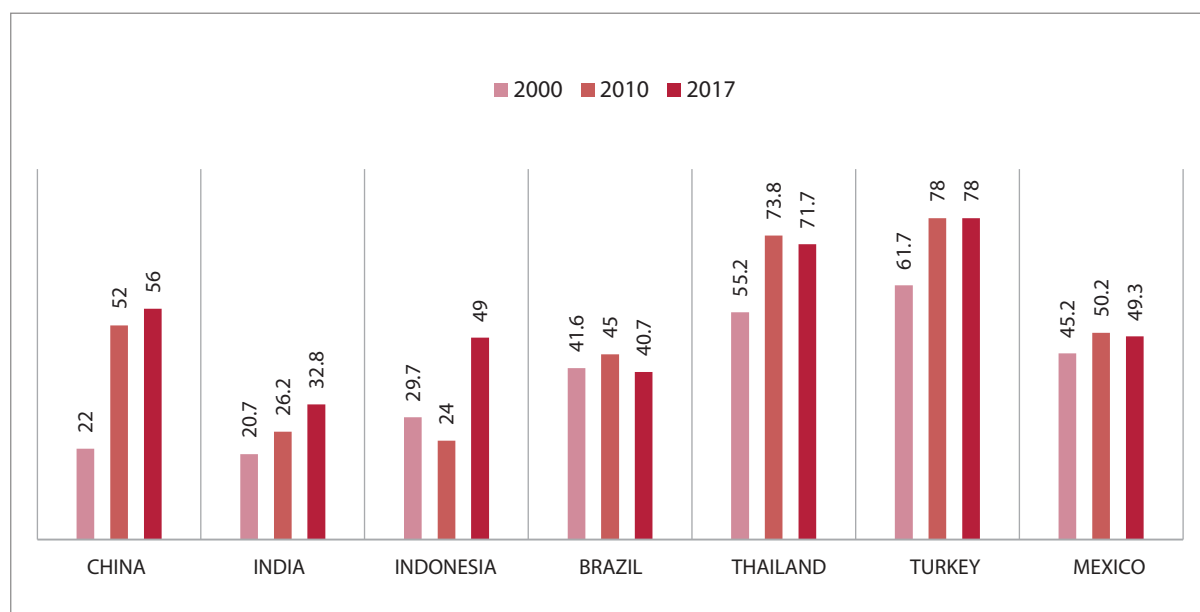
Source: World Bank 2021.

Figure 1.8: Current expenditure on health (% gdp)



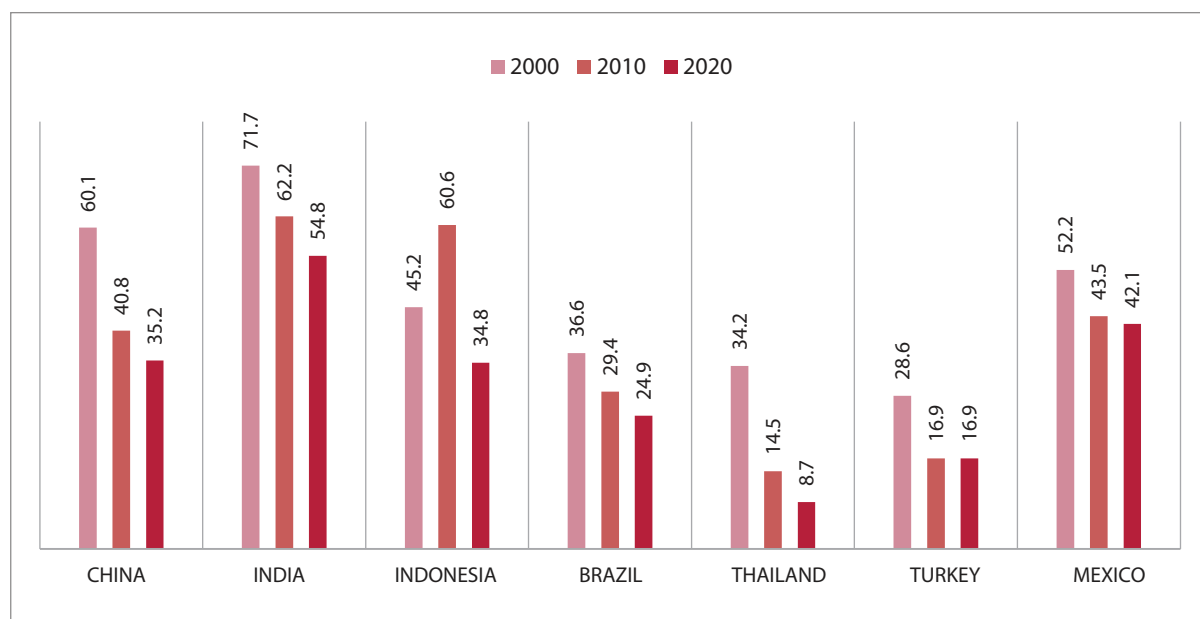
Source: World Bank 2021.:

**Figure 1.9: Domestic government health expenditure (% of current health expenditure)**



Source: World Bank 2021.

**Figure 1.10: Out of pocket (% of total health expenditure)**

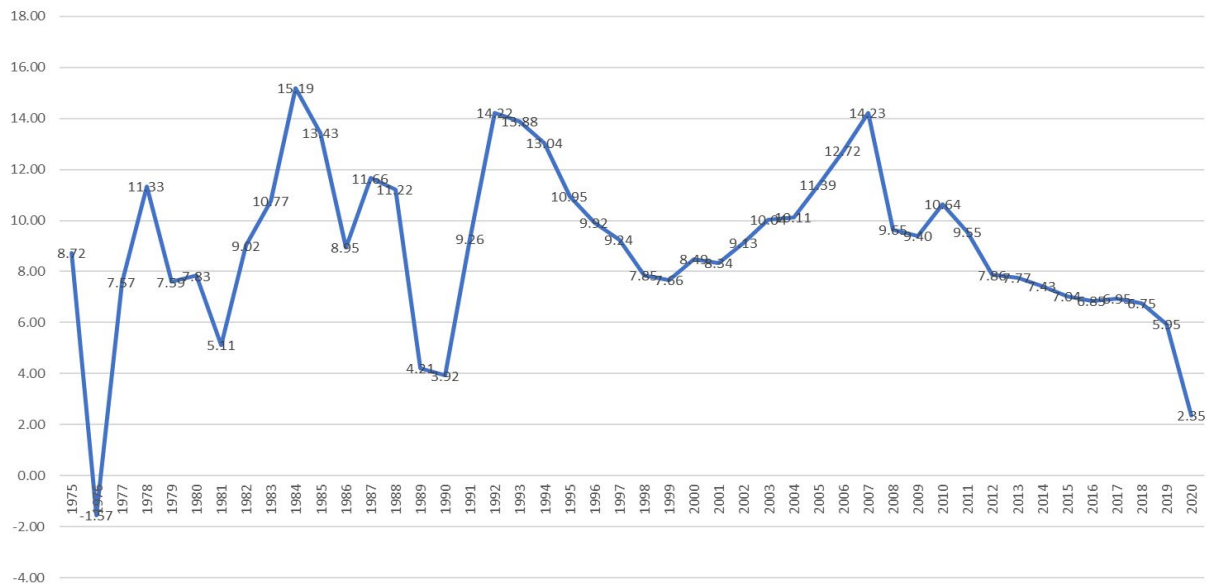


Source: World Bank 2021.

\*China is placed first and then the countries are organised in the ascending order of GDP per capita (current US\$)

Figure 2 captures the trend for GDP growth from 1975-2020. China has had phases of considerable high growth rates since the economic reforms. In the past decade, it has witnessed slower economic growth.

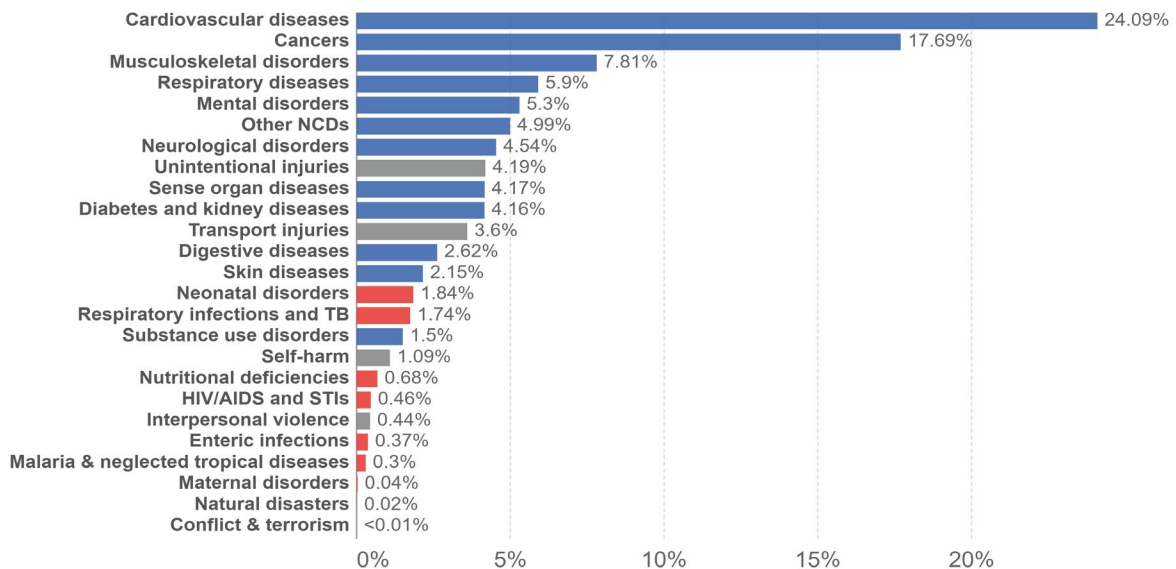
**Figure 2: GDP growth (annual %), 1975-2020**



Source: World Bank 2021

The burden of disease in China, at both the national and provincial levels, closely mirrors that of high-income countries (Zhou et al 2019, Yang et al 2013). The five leading causes, after age-standardisation, are stroke, ischemic heart disease, lung cancer, chronic obstructive pulmonary disease, and liver cancer (Zhou et al 2019). For first-tier urban cities such as Shanghai, cancer is one of the major causes of death.

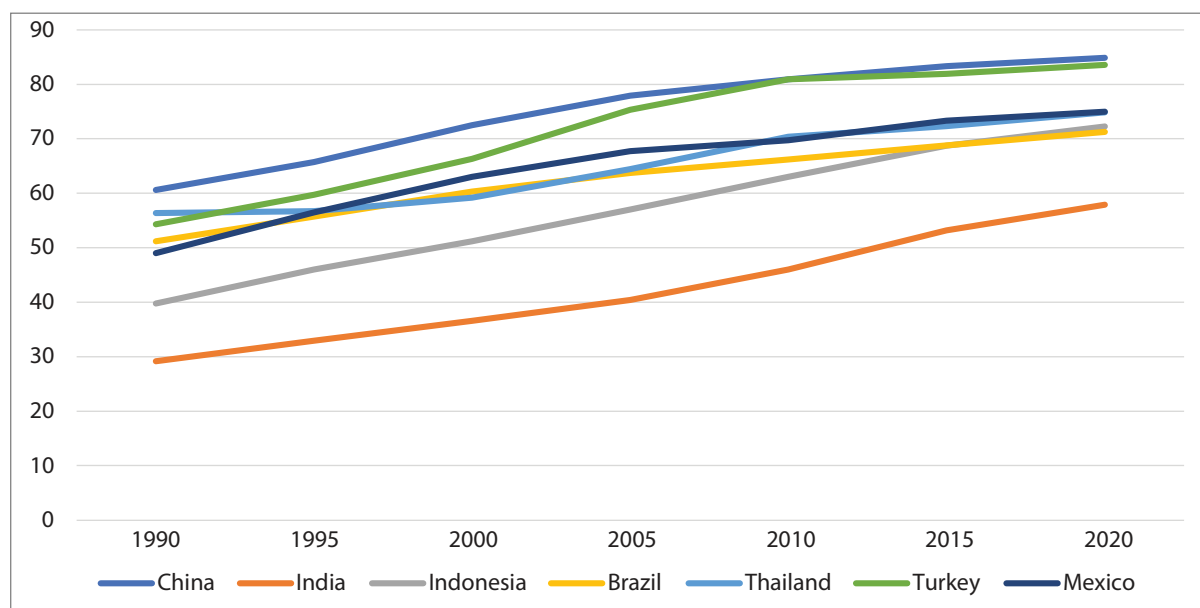
**Figure 3: Share of total burden of disease by cause, China 2019**



Source: IHME, Global Burden of Disease 2019

Between 1990 and 2018, the burden of non-communicable disease (NCD) increased from 60 to over 80 percent for China (Figure 4). Among communicable diseases, the burden of tuberculosis is high. The overall decline in communicable diseases is consistent with the economic growth. India on the other hand has also witnessed an increase in NCDs but still has a double burden of disease, the share of communicable disease is still at 30 percent unlike 6 percent for China.

**Figure 4: Burden of disease by NCDs across countries, 1990-2019**

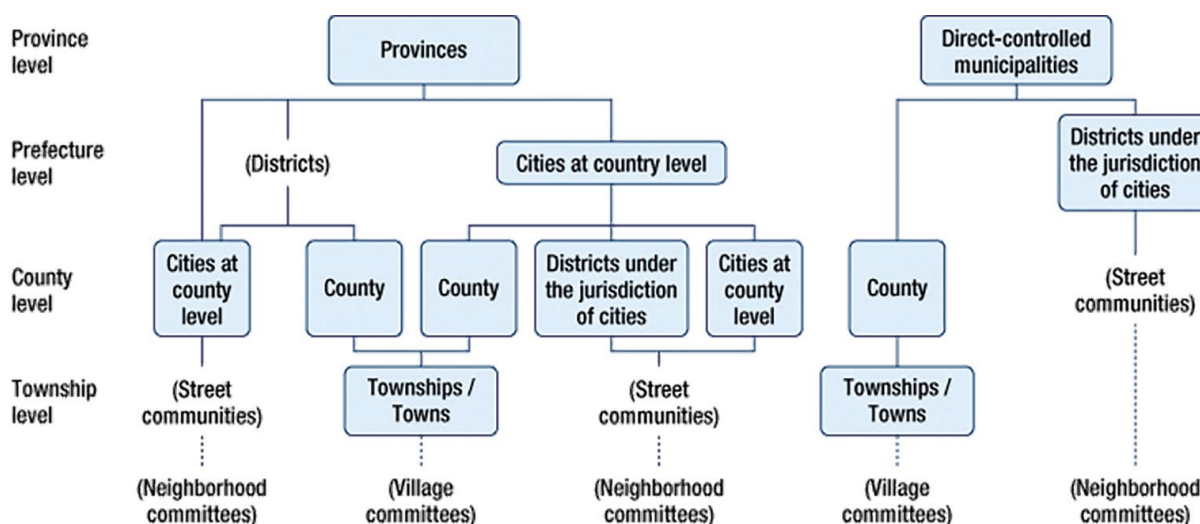


Source: IHME, *Global Burden of Disease Study 2019*

### 3. Organisation and structure of health services

People's Republic of China (PRC) is divided into 22 provinces, five autonomous regions and four municipalities that are directly under the central government.<sup>3</sup> China's eastern and central provinces are densely populated and over 95 percent of the total population resides here. They are also more developed. On the other hand, the western provinces are sparsely populated and less developed. Figure 5 depicts the system of government at the provincial, village, and township level.

**Figure 5: System of local government**



Source: [https://www.mlit.go.jp/kokudokeikaku/international/spw/general/china/index\\_e.html](https://www.mlit.go.jp/kokudokeikaku/international/spw/general/china/index_e.html)

<sup>3</sup> PRC has 22 provinces, five autonomous regions (Tibet, Xinjiang, Inner Mongolia, Guangxi, and Ningxia) and four municipalities (Beijing, Shanghai, Tianjin, Chongqing). An autonomous region is an area that has a greater degree of autonomy and has a higher proportion of minorities. The five autonomous regions have more legislative rights and can formulate their own regulations. A province or an autonomous region is further divided into prefectures, counties, and cities. Municipalities are directly under the central government and large cities are subdivided into districts.

### 3.1. Governance: structures and reforms

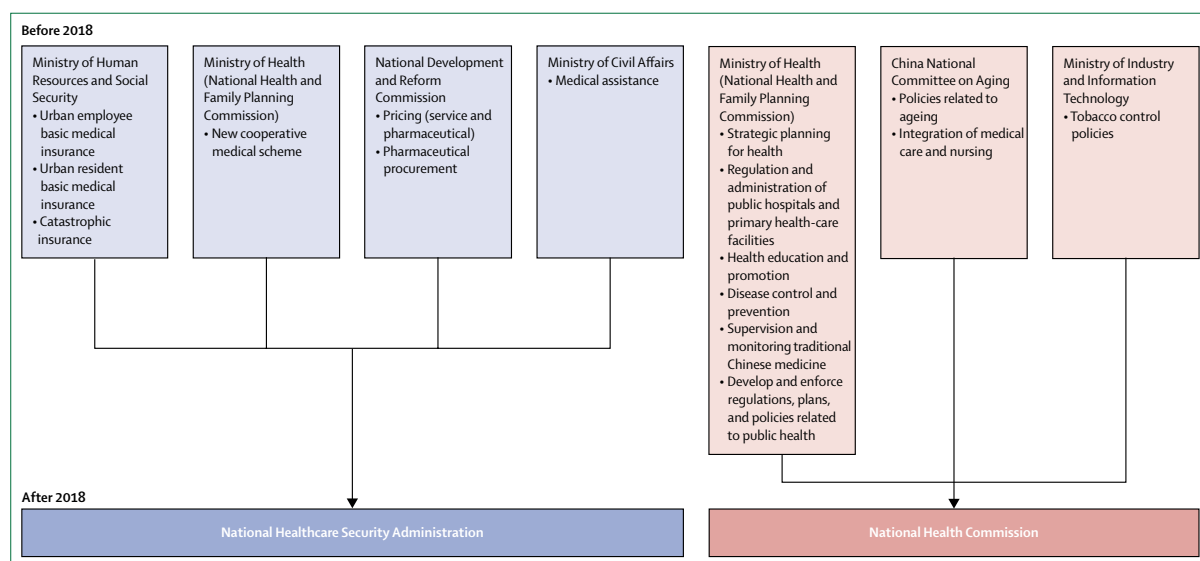
The central government is responsible for health legislation, policies, and part of the financing and administration. It is the right of every citizen to receive health services. China introduced this right in the constitution in 2019 but welfare is to be provided universally by the state given the country's socialist foundation.

Various agencies are responsible for implementing and delivering health services:

- The National Health Commission (NHC) is the central health agency. It was established in 2018 to merge some departments under several ministries (Figure 6). The Commission formulates health policies; supervises and administers public health services across provinces; coordinates health emergency response and provides medical care. It also coordinates reforms at the provincial levels. NHC leads the public health sector for planning and generating resources, regulation, building information systems, and emergency response. It holds a strong influence on health care providers in national level public institutions. It appoints the principles and assesses performance.
- The National Health Security Agency (NHSA) was established in 2018 to manage the various insurance programmes (Figure 6). Earlier, the governance of insurance schemes were fragmented and they were administered by different ministries [Ministry of Human Resources and Social Security (MOHRSS), National Health and Family Planning Commission (NHFPC), the Ministry of Civil Affairs (MCA) and, for pricing, by the National Development and Reform Commission (NDRC)]. These separate administration had caused fragmentation in the insurance schemes and created inefficiencies in governance and operations. Various functions were merged into the NHSA. It acts as a single purchaser and payer of health care services. It regulates prices of prescription drugs, medical and surgical procedures, and updates the national essential reimbursement list for drugs and service items annually.
- The Ministry of Finance (MOF) provides funding for government health subsidies and infrastructure. It is responsible for budgeting for and managing national social welfare funds. Public investments in the health sector are transferred to the Department of Finance of NHC.
- The Department of Ageing and Health, NHC, was made the secretariat for National Committee on Ageing. It is responsible for coordinating policies on ageing and health with other ministries.
- The China Centre for Disease Control and Prevention is an autonomous agency supervised by the NHC. The central body provides technical support to corresponding local agencies at the provincial level. After the onset of the COVID-19 pandemic, in May 2021, the National Bureau of Disease Prevention and Control also under the administration of the NHC, was established to address public health more comprehensively.

Local governments, responsible for financing and provisioning of services, may have their own agencies and health departments at various levels. The central government provides more funding to provinces that are less developed—mostly the western ones. Subsidies in the more developed eastern provinces come mostly from the provincial governments (Fang 2020). Since the fiscal reforms of 1994, China has implemented a tax-sharing system specifying the division of fiscal responsibilities between central and local governments. There is a high degree of fiscal decentralisation and autonomy given to provincial governments. The central and provincial governments are responsible for the broader policy and strategic design, and investment in the larger infrastructure. County-level governments have practical responsibilities for implementing health programmes or services. We elaborate on the implications of these in later sections.

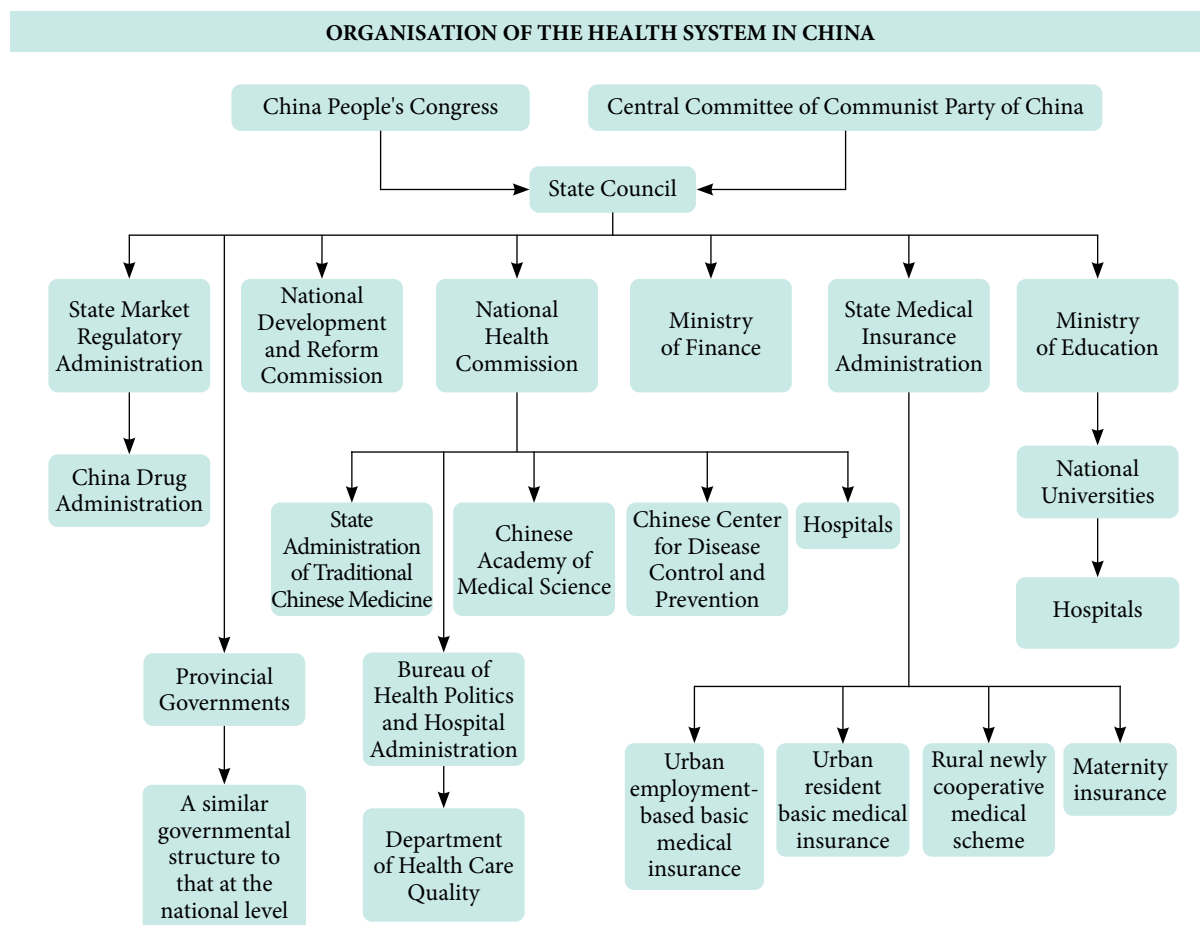
**Figure 6: Macro-governance structure of healthcare before and after 2018**



Source: Yip et al. 2019

The structure of health services that emerged in 2018 is captured in Figure 7.

**Figure 7: Organisation of Health Services in the PRC, 2018**



Source: Fang 2020



### 3.1.1. Achievements and challenges

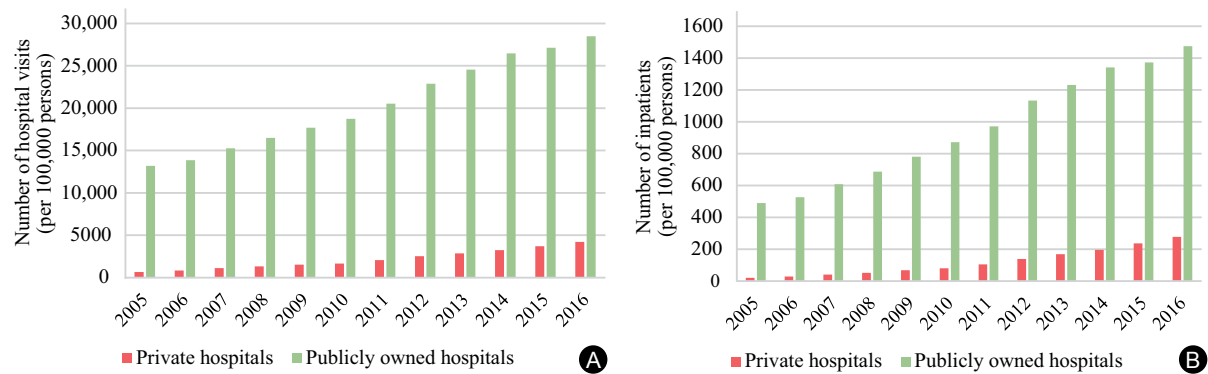
The merging of institutions has had a positive effect on efficiency and has eased administrative functions.<sup>4</sup> But some challenges of accountability and overlapping roles remain. For instance, the government created the semi-independent agency, the National Bureau of Disease Prevention and Control, in the midst of the pandemic. But the Centre for Disease Control (CDC) already operates at the national level and provincial levels. In this case, who is accountable to whom has been a sensitive question. The merging at the central administrative level has not resolved fragmented governance at lower levels of governance.

Another significant observation is that NHSA and NHC are both powerful and at loggerheads with each other. NHSA is seen as a purchaser while NHC oversees delivery. Since NHSA negotiates prices, it has financial control over insurance schemes and yields a lot of power.<sup>5</sup>

### 3.2. Provisioning

China has a mix of public and private health facilities. Private facilities can be found mainly in tier-1 and tier-2 cities. Government health services are available across levels and are dominant in health care. Village clinics, health sub-centres, and community health centres work at the primary level while there are secondary and tertiary hospitals at the township, county, prefecture, and provincial levels. The country currently has more than 13,000 government-owned hospitals, providing more than 80 percent of all out-patient and in-patient services. As mentioned by Yip et al (2019), by 2017, private hospitals accounted for 60.4 percent of the total number of hospitals but accounted for only 24.3 percent of the total beds available in China. Figure 8 shows that visits and in-patients at hospitals are considerably higher in the public sector but the private share is increasing gradually (Deng et al 2018).

**Figure 8: Comparison of the hospital visits (A) and inpatients (B) between types of ownership, 2005–2016**



Source: Deng et al 2018

Hospitals have seen high growth while there has been a decrease in facilities at the primary level (Chen and Xiong 2017). In the reform period since the 1980s, the primary-level health facilities received negligible funding from the central and provincial governments. After the collectives dissolved, they were left to their own devices and many shut down. It was only after 2009 that the focus shifted to strengthening primary level health services and there were course corrections. But the focus on reforms for public hospitals has been significant through the years, as we discuss in the

<sup>4</sup> Discussion with a global health policy expert.

<sup>5</sup> Discussion with a public health expert.

next section. There has been substantial growth of hospitals at the secondary and tertiary level. We delineate the phases of reforms in provisioning in the section below to explain this further. We also look at the growth of the private sector in health services in the past decade.

### ***3.2.1. Public hospital reforms***

With the economic reforms in the 1980s, rural collectives were dismantled. This also resulted in the dismantling of the CMS and its three-tier referral, with the cadre of barefoot doctors. These doctors started practicing privately. Health facilities and hospitals became autonomous units, delinked from each other. Facilities had to become self-reliant as government funding reduced considerably. Government subsidies decreased and represented only 10 percent of the total revenue of all public health facilities in the early 1990s (Yip and Hsiao 2009). Individual facilities were responsible for raising resources to survive and this led to a 15 percent mark-up on the cost of drugs and diagnostics. Hospitals, began to overprescribe drugs and diagnostic tests for patients to generate surplus. The onus to pay was then on the patients except in case of top Party members and civil servants, for whom services were free. The percentage of total drug sales through health institutions rose from 37 percent in 1978 to 55 percent in 1988 (Burns and Huang 2017). Drugs and intravenous therapy became the central component of earnings, accounting for 40-45 percent of hospital revenues (Burns and Huang 2017). The supply-side reforms had an adverse impact on access and utilisation of health services. Increasing costs of health care rendered it out of reach for the rural population. Out-of-pocket expenditure (OOPE) increased from 20.4 percent in 1978 to 60 percent in 2002. Table 2 in the next sub-section on financing lays out details of health expenditure over the years.

Primary health services were inadequate and people from rural areas had to travel to towns, cities, and other provinces to access them. With rising costs and high OOPE many avoided hospital services. In response to increasing disparities in access, the government launched a series of insurance schemes as demand-side financial reforms.

The Urban Basic Employee Medical Insurance Scheme (UBEMIS) was launched in 1998. In the pre-reforms period, labour insurance was subsidised heavily by the government. In the 1990s, as government subsidies for SOEs decreased drastically, workers were laid off, many were bereft of insurance. The new scheme that was administered in 1998 collected premiums from the employer and employee and it was mandatory for all enterprises to join the scheme. Two other insurance schemes were introduced in 2003 and 2007 respectively—the National Rural Cooperative Medical Scheme (NRCMS) and Urban Resident Basic Medical Insurance Scheme (URBMIS). These three schemes are discussed in detail under health financing, which became the dominant feature of the second (2002-2009) phase of reforms.

In the first phase, hospitals were given only financial autonomy. In the second, (2002-09) several local governments also experimented with autonomy. This, along with the World Bank's policy paper for public hospitals, spurred autonomisation of governance in public hospitals. Several pilots were initiated across cities letting public hospitals function independently and even compete with each other. Although the process in China was not prescribed by the World Bank, the country adopted Harding and Preker's (2000, 2003) recommendations on organisational functions linked to autonomisation of public hospitals to some extent: first, autonomy was given to hospital managers; second, a market environment was created by the provider-payment mechanism and institutions compete; third, the hospital was responsible for keeping surpluses and dealing with losses; fourth, accountability mechanisms were introduced; and finally, social functions of the hospitals were retained and these include fully-funded services for greater accessibility and equity (Harding and Preker 2000; Chen 2017).

These changes led to a plurality of management models—different incentive and governance structures, separation between governance, management, and supervision. The objective was

to improve efficiency by reducing bureaucratic hurdles and keeping decision-making at the institutional level. This was the first step towards generating revenues and making the hospitals self-sustaining. For example, in Shanghai, pilot projects, with new structures of administration and management, were initiated in most of the tertiary hospitals. An autonomous management institute oversaw almost 75 percent of the tertiary public hospitals in the city. It mainly supervised resource allocation through annual budgets. It assisted in procurement of drugs and equipment. The managers monitored the personnel and their compensations separately. Similar models were seen in other cities (Qian 2011; Baru and Nundy 2020).

The autonomisation of public hospitals, on the supply-side, continued to raise costs as hospitals operated in silos. This was exacerbated by hospitals overprescribing drugs and diagnostics to generate revenue. Provider payments were made from the surplus generated. The incentive structures made the profit-seeking behaviour of providers rampant. Irrational and corrupt practices persisted. The rising costs of medicines became the single largest contributor to high medical costs. The focus had shifted to curative services and, that too, mainly at the secondary and tertiary level. Primary care and preventive services were neglected and continued to cause disparities and inequity across provinces. There were gaps in human resources in rural areas and at the primary level. Epidemic prevention stations had a paucity of resources, both human and financial, and were rendered non-functional. With the system broken at the primary level, health services became top heavy. People travelled to seek care at secondary and tertiary hospitals. In poor regions, there were severe shortages of government funding as well as poor capacities for revenue generation and retention of staff (Baru and Nundy 2020).

This was well documented by Liu (2004) who observed:

*“Without appropriate mechanisms to transfer and equalize payments, decentralisation naturally leads to increasing variations in investment by provinces, cities, towns and other entities in public health capacities, as well as to variations in the performance of health systems across China. So, while some regions may be able to detect and control major epidemics in their area (e.g., Guangzhou and Beijing, which are among the best developed regions in China), others may simply be unprepared for major public health challenges. Particularly disquieting is the lack of an adequately functioning public health system in China's vast rural areas. Even though each county has an Epidemic Prevention Station (EPS), public health work at the township and village level has been weak due to under-funding and a lack of supervision and coordination among rural health-care providers”* (Liu 2004, p. 534).

These consequences led to large-scale public discontentment. A citizen survey showed that people rated health care as one of the worst areas of social policy. This culminated in the 2009 reforms, which took corrective measures for the fault lines and distortions in health services. China also wanted to transition from a production economy to a consumer economy. The government wanted people to spend less on health care so they could spend more on consumer items. There was rapid urbanisation. In the 1940s, China had about 69 cities and by 2007, this number had gone up to 670. There was also a lot of internal migration during the period of economic reforms. In 1978, 18 percent of the country's population was in urban areas and now, over 60 percent is. These changes also led to health concerns, with high pollution levels leading to respiratory disorders and other NCDs and an emergence of new infectious diseases. The ideological debates within the CPC that led to the 2009 course correction ranged from a pro-market approach to a pro-government one. The Development Research Centre (DRC), an independent think tank of the State Council, evaluated the performance of the system since the 1980s and concluded that the reforms until then had been a failure. The DRC stated that there were problems in access and inequity between rural and urban areas. They believed the blame also rested on irrational pricing and incentives in the health system. This report formed the basis for the 2009 reforms (Yip et al 2015).

The 2009 course correction focused on five areas:

- Universalising coverage of health insurance
- Strengthening primary level care
- Introducing public health packages for everyone
- Continuing public hospital sector reforms
- Creating a policy on essential medicines

The government had clarity on financing health care and was focused on rebuilding the primary care. However, it was ambiguous on the role of public hospital reforms and implicitly left space for the private sector to expand. In the initial years of these reforms, the government increased its expenditure. It increased health insurance coverage and universalised it through the three insurance schemes, built infrastructure for primary level service, and mitigated the irrational use of drugs (which constituted over 40 percent of the total health expenditure). Government subsidies for hospitals were increased and a list of essential medicines was proposed. The attempt was to bring back the 'social function' of the public hospital.

For irrational prescription behaviour, a zero mark-up policy for drugs was introduced. Incentives from the sale of essential medicines were withdrawn. Apart from this, the content of public hospital reforms was not clearly spelt-out but the process of autonomisation was furthered. Clear separation was introduced in governance structures – between the ownership, management and supervisory roles. In the first two phases, there was financial autonomy as well as some separation of management and supervision. In this phase, hospitals were further made into independent entities with several layers of separation—administration from management; prescriptions from dispensing drugs. Hospital managers were given more powers and responsibilities to manage human resources while the financial operations for funds and investments was kept separate. Even though the government retained ownership of the hospitals, an independent third party (autonomous government agency) operated them. Measures were introduced for cost-efficient systems and accountability.

Several hospitals across provinces piloted the separation of drug prescription from drug dispensing. The 15 percent mark-up on essential medicines was removed for. To compensate for the lost revenue, fees for other services such as physician and nursing services, and diagnostics were raised. In other words, costs were transferred from medicines to other services. Some provinces also included prices for specialist services. In 2012, an annual global budget, based on past revenues and expenditure, was launched (Xu et al 2019). Hospitals received fixed reimbursement for treating patients with certain diseases with standard clinical pathways. Further, local governments had to raise their subsidies to hospitals. Due to the fragmented governance systems with multiple overlapping authorities, it was difficult to administer systems efficiently. The local governments were allowed to experiment with different payment methods—diagnosis-related group (DRG), capitations and case-based. The results for these were mixed and there were inter-provincial differences in the outcomes.

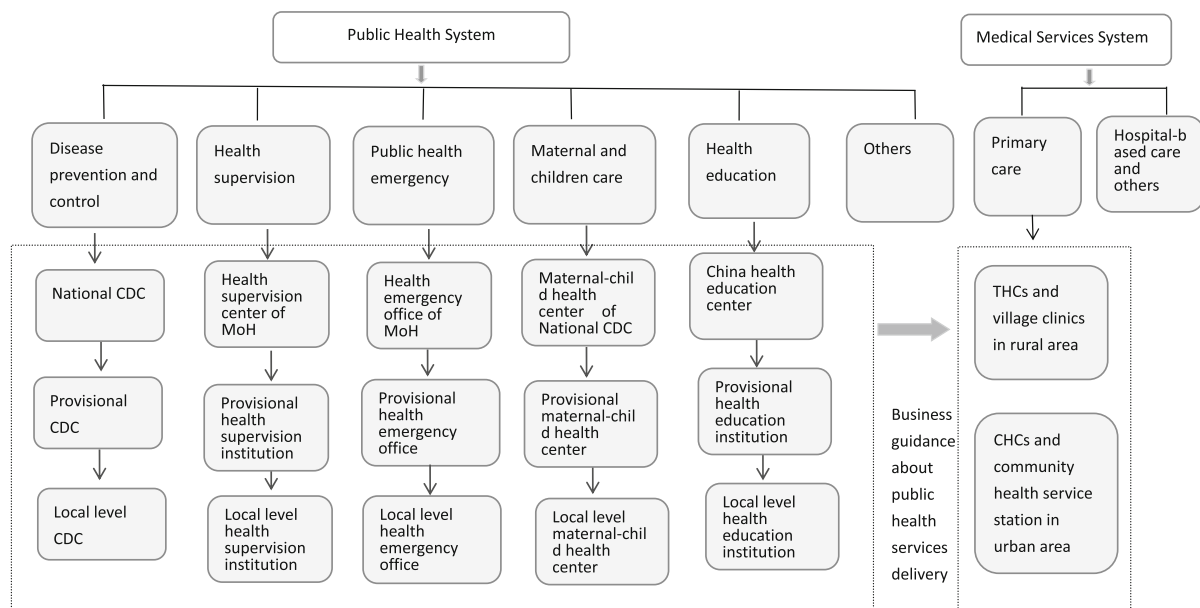
### ***3.2.2. Primary health services (preventive, promotive and curative)***

We have observed earlier that in the Mao years, focus was on preventive and promotive health which had positive health outcomes. At the primary level, these services included institutions and health centres as well as those administering them. With reforms between 1978 and 2003, the government rolled back its investment on health, and preventive and public health services took a backseat. Facilities decreased due to underfunding and epidemic prevention stations shut down. The SARS epidemic in 2003 showed the government's unpreparedness and the inadequacies in surveillance that could prevent outbreaks. Post-SARS, China reinforced its disease prevention and control systems, which included the disease surveillance. The structure of the public health system is depicted in Figure 9.

Redistributing and rationalising the flow of patients by strengthening primary services was an important aspect of the 2009 reforms. Hospitals were encouraged to forge alliances with primary level health institutions and create a tiered delivery structure, similar to the one that had broken down in the 1980s. With pilots of loose networks and alliances, hospitals provide support and training to lower-level facilities for referrals. Conglomerates of hospitals and health facilities also share responsibilities, resources, and management across levels. These alliances are financed either through health insurance schemes, that pay a global budget, or through capitation.

In 2016, the family doctor programme was piloted in Shanghai and then expanded to other major cities. It involved a team of personnel engaged for preventive services, basic health services, and referral. Residents were given the option to register with a family doctor, who could serve as gatekeepers. Each family doctor was reimbursed through capitation payment like the National Health Service model of the UK. The model has not been universally effective because it requires a substantial increase in human resources or their redistribution across poorer provinces. Medical graduates are often reluctant to work at the primary level due to low salaries and because they aspire for specialisation and larger hospitals. This is the supply side issue. On the demand side, patients are often refused medicines at the primary level because of the policy on reducing drug consumption. These patients then go directly to hospitals. The family doctor model works in some developed cities, with adequate human resources, but has not yet taken off in most places.

**Figure 9: Structure of the public health system**



CDC Centre for disease control and prevention, MoH Ministry of Health, THCs Township health service centers, CHCs Community health service centers  
\*others include Mental health institutions, Blood collecting and supplying agencies, etc

Source: Wang et al 2019

The 2009 reforms also focused on strengthening preventive public health measures (Figure 10). The increasing burden of NCDs, disabilities, and age-related chronic conditions highlighted the need for screening at the primary level. There are still gaps in the early detection of NCDs. Although resources for primary health care have increased, the share of outpatient visits are still skewed towards public tertiary hospitals (Yip et al 2019). The measures intended to rectify the distortions and bring back a system that was more responsive to the needs of the people.

**Figure 10: Basic preventive public health services provided before and after Equalisation of Basic Public Health Services (EBPHS) in 2009**

	Basic public health services		Public health programmes	
	Before 2009	Added after 2009	Before 2009	Added after 2009
Available services	<ul style="list-style-type: none"> <li>• Child health surveillance (0-36 months)</li> <li>• Maternal health</li> <li>• Vaccination</li> <li>• Reporting and handling of infectious diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing health records for all citizens</li> <li>• Health education</li> <li>• Care for older people</li> <li>• Hypertension and type 2 diabetes</li> <li>• Severe mental illness</li> <li>• Coordination of health and hygiene monitoring (eg, food safety; from 2011)</li> <li>• Traditional Chinese medicine (2015)</li> <li>• Tuberculosis (2015)</li> <li>• Free contraceptives (2017)</li> <li>• Health literacy and smoking cessation (2017)</li> </ul>	<ul style="list-style-type: none"> <li>Prevention and control of tuberculosis and AIDS</li> <li>National immunisation programme</li> <li>Rural facility delivery</li> <li>Cataract surgery for poor patients</li> <li>Reconstructing water supply and lavatories</li> <li>Eliminating endemic fluorosis</li> </ul>	<ul style="list-style-type: none"> <li>Hepatitis B vaccine for children under 15 years old</li> <li>Folic acid supplements before and during early pregnancy</li> <li>Breast and cervical cancer screening for rural women</li> </ul>
Financing	Unstable, limited programme based budget from different levels of governments and dependent on local government's finance	Funds collected from the central and local governments; higher national payments to less developed regions	Funds are mainly collected from central and provincial government; less developed regions receive higher national payments	

Source: Yuan et al 2019

### 3.2.3. Private sector: investments and partnerships

Private practitioners have a large presence, mostly in rural areas. After the economic reforms of 1978, the scope of private practice increased steadily because the CMS was dismantled and barefoot doctors were no longer part of the system. According to Liu et al (2006), there were only about 80,000 private practitioners in China in 1984. This number increased to 200,000 by 2002. Many of the former barefoot doctors started practicing privately while others left the profession (Liu et al 2006). There are also innumerable providers of traditional Chinese medicine.

There is a paucity of information on the size and characteristics of the private sector at the primary level. Little attention or effort is afforded to regulate these providers by the local, provincial, and central government. These providers generally fill gaps in availability and people pay out-of-pocket to access them.

The entry of private capital in China's medical care can be traced to the economic reforms of the 1980s. Private hospitals came up in the East and Southeast parts of China. However, due to CPCs strict policies, there was limited scope for foreign investment in the initial phases. Since 2012, the CPC has changed its policy and has started allowing wholly foreign-owned hospitals. It has relaxed the previous rules that capped foreign ownership of hospitals at 70 percent. The government intends to increase the market share of the private sector to 20 percent and this policy is in pilot mode. It has also piloted partnerships with public hospitals at the tertiary level by infusing private capital. The rationale behind these decisions was twofold. A growing middle class in cities increased the pressure for more private facilities, which were perceived to be less crowded, of better quality, and better managed. The CPC also decided to allow private for-profit investment because of the limited government resources that needed to be supplemented with private capital. After the change in policy, pilots have been under way for the establishment of Medical Industrial Parks, as a part of the larger strategy of Free Trade Zones. These include foreign and domestic investing firms, medical technology, pharmaceutical companies, insurance companies, real estate firms, and hospital chains.

Much of recent policy for the private sector has focussed on the growth of secondary and tertiary medical care. Their attention centres mostly on specialty, not on general, services. They target those able to pay or covered by private insurance. Public health facilities and hospitals, as discussed, are still the dominant providers. However, outpatient services in the private sector grew from 8 percent in 2009 to 14.2 percent in 2017. In the same period its share for in-patient services increased from 8 percent to 17.6 percent (Yip et al 2019).

The shift in policy towards the private sector was aided by incentives. Investors were offered a number of public subsidies. They received tax reductions, including exemptions for business tax and income tax for the first few years. The government purchased preventive services from them. It encouraged specialist development plans and conferred recognition to centres of excellence in private hospitals. Many domestic and foreign private insurance companies emerged in this period. Private sector insurance was purchased primarily by upper-middle classes or by private firm employers for employees to cover co-payments and other deductibles.

Since 2013, there has been an increase in the entry of big capital. This has given rise to several partnerships between the public sector and private insurance, pharmaceutical companies, medical technology or real estate companies (both domestic and foreign for-profit investors).

Three of the key policy decisions that encouraged these partnerships were:

- Joint ventures between public hospitals and private investors (pharmaceutical, medical devices, private equity, and real estate companies) became key since 2014. Domestic and foreign investors were allowed to acquire and manage public hospitals. According to an estimate, in 2016, almost 4,000 public hospitals were to be a part of acquisition projects for the next five years. For instance, Shanghai was one of the first cities to begin piloting partnerships and a few old tertiary hospitals began implementing these partnerships. The government encouraged these partnerships for greater investment in hospital infrastructure (*The Economist* 2016; Baru and Nundy, 2020). In case of what is known as 'entrusted management', there is a split in ownership and management rights of hospitals that allows the management company to earn a fee and share of the profit. This alleviates financial pressure on the local government. Most partnering companies—medical devices or pharmaceutical—have their supply chain business and provide technology/equipment through these. This ensures profit and consolidates the company's hold over the hospital (Baru and Nundy 2016).
- The other common partnership model involved a franchise. Public hospitals in China are attractive acquisition targets for their high-quality professionals and good public standing. In the franchise model, tertiary hospitals lend their name to franchisees. Private equity firms make investments in the public hospitals to create franchisee hospitals. It capitalises on the reputation of the public hospitals to build its brand and provides professional training and management support while ensuring quality (Baru and Nundy 2020).
- In addition to joint ventures, the government decided to allow doctors to practice at multiple sites from 2017. Senior doctors in the public sector were well paid and the small and medium private hospitals found it difficult to match salaries in the public sector. So there was no incentive for skilled physicians to quit their secure jobs and move to the private sector. With the lifting of the barrier on multi-site practices, doctors have the notional freedom to work in both sectors (*The Economist* 2016).<sup>6</sup>
- The other key decision was to allow reimbursement of social health insurance in private hospitals (*The Economist* 2016).

### **3.2.4. Achievements and challenges**

This section looks at the outcomes of reforms in provisioning over the phases. Yip et al (2019) list some achievements. They use China Family Panel Studies data to show that hospital utilisation rates (outpatient and inpatient)<sup>7</sup> increased from 7.4 percent to 13.5 percent. Between 2010-2016, the

---

<sup>6</sup> Interview with a senior researcher of global health systems.

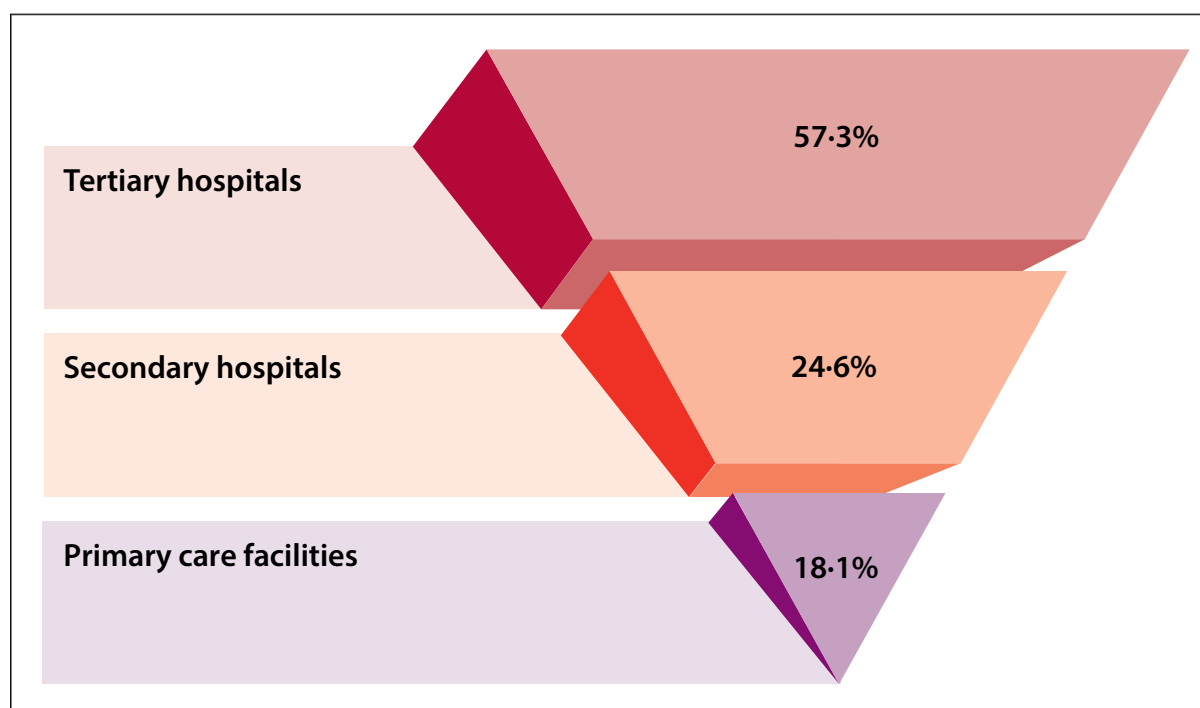
<sup>7</sup> Number of hospitalisations (in-patient) and number of patient visits (out-patient) per year.

probability of a person's having seen a doctor in the past 15 days increased from 16.2 percent to 22.7 percent. This was for all income quartiles and across rural and urban areas. The catastrophic health expenditure (CHE)<sup>8</sup> also decreased between 2010-2018 in both urban and rural areas even though CHE is still high in rural areas (Liu 2021).

Despite these, challenges in public hospital reforms continue. Most of the pilots have not been successful (Xu et al 2019). This has been attributed largely to the fact that hospitals have to generate their own resources despite the increase in government budget. The remuneration packages of junior level doctors and nurses are still dependent on revenue generated by the hospital. Therefore, changing the behaviour of providers has been difficult. Irrational and corrupt practices leading to supply-induced demand still exist. To compensate for the loss of income from the drug-mark up, hospitals shifted the costs to other services, and this led to overdiagnosis. There is also substantial variation in the quality, accountability mechanisms, and efficiency of the hospitals.

Budget allocation should ideally be tied to the needs of the population and the facilities but is linked to fiscal capacity at the local level. Changes in revenue generation have not brought down costs sufficiently and patients still pay high co-payments, especially for hospitalisation (Xu et al 2019). While overall visits to primary care facilities increased by 50 percent from 2008 to 2017, visits to hospitals also increased by over 93 percent in the period. At more than 57 percent, the resources are utilised more at the tertiary level hospitals, as shown in Figure 11 (Yip et al 2019). There are still concerns about fragmented information systems, lack of rigorous evaluation and accountability, and rational redistribution of patients across levels. Gaps remain in the quality of primary care services—including sub-optimal training of personnel, a fee-for-service payment system, fragmentation between public health services and clinical services, and inadequate continuity in care (Li et al 2020).

**Figure 11: Share of government resources across public health facilities**



Source: Yip et al 2019

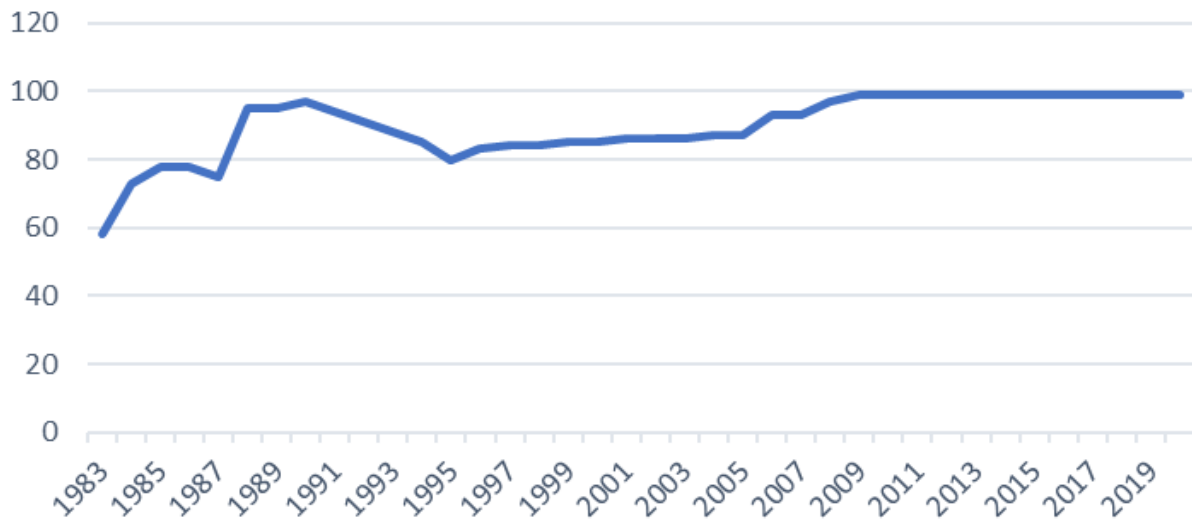
<sup>8</sup> World Health Organization proposes that health expenditure should be called catastrophic whenever it is greater than or equal to 40 percent of the capacity to pay. Some studies, have defined CHE if the total health expenditure is more than 10 percent of annual income.



The infusion of private capital in public hospitals is a more recent phenomenon and how this plays out is yet to be seen. But this has its own sets of challenges involving the creation of supply-induced demand so the private sector makes profits.

For preventive services, we observe a sharp dip in immunisation rates (DPT) in the 1990s but recovered after that. By 2010, the immunisation rates had reached up to 99 percent (Figure 12).

**Figure 12: Immunisation (DPT), % of children 12-23 months**



Source: World Bank 2020

### 3.3. Financing of health services

In China, the total health expenditure is categorised into three funding sources: government budgets (health service investments, preventive services, and social health insurance subsidies); social health expenditures (individual and employer contributions to insurance, private health insurance contributions, and social donations); and out-of-pocket spending. According to the latest government data, government expenditure is at 28 percent, social health expenditure (insurance) at 44 percent and OOPE at 28 percent (NSBC 2020). However, World Bank's latest figure puts the OOPE at 34, not 28, percent (Figure 13). OOPE has decreased considerably since 2001, when it had reached a peak of 60 percent.

Financing by the government is a mix of input budgeting and a significant portion covered by insurance. Public health facilities receive an input budget from the local and central government depending on where they are located and the level of their services. This could vary from 10 to 30 percent of the overall budget. The rest is reimbursement from insurance and co-payments made by patients.

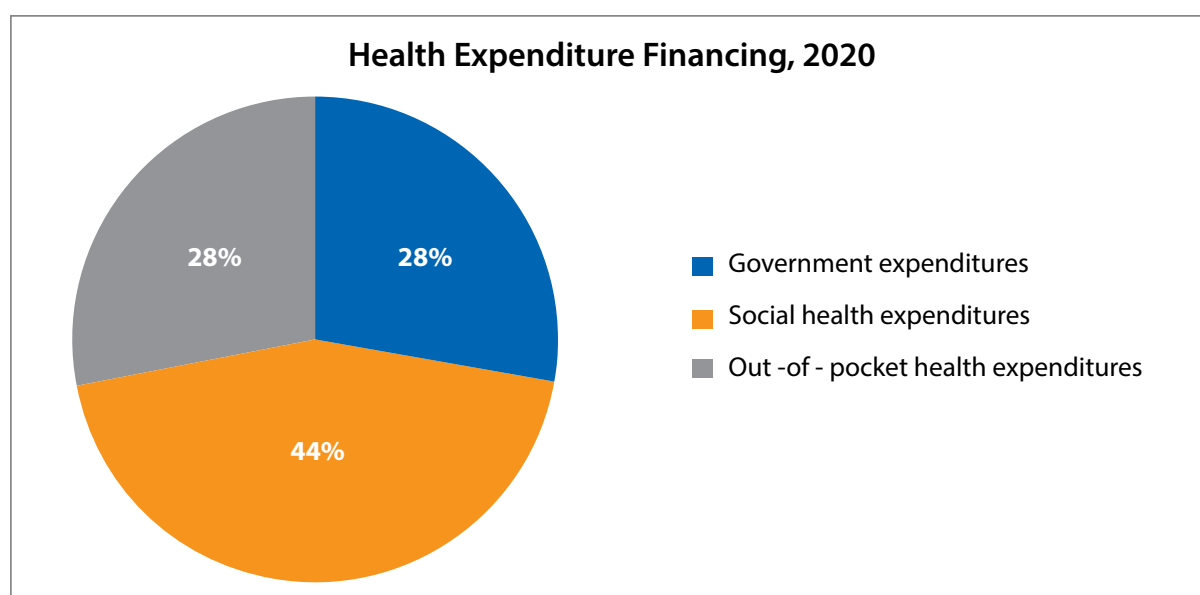
Health insurance schemes, as mentioned earlier, emerged in the late 1990s. Three circumstances shaped the reforms in financing in 2002. Rising medical costs and high OOP expense led to public discontentment in the late 1990s. The political leadership of Hu Jintao and Wen Jiabao from 2003 emphasised the need for human development along with economic reforms and addressing concerns of rising social and economic inequalities. Lastly, the mismanagement of the SARS outbreak in 2002-2003 made the government rethink the health sector.

**Table 2 - Total health expenditure and its components (1980-2020)**

Year	Government Health Expenditure (%)	Social Health Expenditure (%)	Out-of-pocket Health Expenditure (%)	Health Expenditure as Percentage of GDP (%)
1980	36.2	42.6	21.2	3.1
1990	25.0	39.2	35.7	3.9
2000	15.4	25.5	58.9	4.6
2001	15.9	24.1	59.9	4.5
2002	15.7	26.6	57.7	4.8
2003	16.9	27.2	55.9	4.8
2004	17.0	29.3	53.6	4.7
2005	17.9	29.9	52.2	4.6
2006	18.1	32.6	49.3	4.5
2007	22.3	33.6	44.1	4.3
2008	24.7	34.8	40.4	4.6
2009	27.4	35.1	37.4	5.1
2010	28.7	36.0	35.3	4.9
2011	30.7	34.6	34.8	5.0
2012	30.0	35.7	34.3	5.2
2013	30.1	35.9	33.9	5.4
2014	29.9	38.0	31.9	5.5
2017	28.9	42.3	28.7	6.3
2018	28.0	44.0	28.0	6.7

Source: NSBC, *The Chinese Statistical Yearbooks (various years)*

**Figure 13: Total health expenditure, 2020**



Source: NSBC 2020

While reforms in the public hospitals continued at the secondary and tertiary level, reforms in provisioning could not happen without financial reforms being implemented. As mentioned, insurance schemes were introduced as the dominant form of financing to address high OOP. The schemes were introduced in a matter of few years. The Urban Employee Basic Medical Insurance Scheme (UEBMIS) was introduced in 1998 to cover all SOEs and private enterprise employees. The New Rural Cooperative Medical Scheme (NRCMS) was introduced in 2003 for all rural residents and the Urban Resident Basic Medical Insurance Scheme (URBMIS) in 2007 for all urban non-employed and self-employed residents. NRCMS and URBMIS were initially voluntary schemes and focused on curative services.

UEBMIS was established by merging the existing Government Insurance Scheme (GIS) and Labour Insurance Scheme (LIS). Contributions for it included pooling for medical care in a Medical Savings Account (MSA) and, separately, for catastrophic expenditure. The pooling was done through payroll taxes, with contributions from employees at 2 percent of payroll, and employers at 6 percent of payroll initially. The premium amount went into two accounts—nearly half went to the MSA and the rest to social risk-pooling (SRP). SRP was utilised for catastrophic health expenditure/in-patient services and MSA funds for out-patient services. If these funds were exhausted, the individual would have to pay out-of-pocket (Hao 2017).

The NRCMS scheme for rural areas pooled risks at the county level. It was also contributory, with a premium by the individual and subsidies from the government. Similarly, the URBMIS covered unemployed and self-employed people in urban areas, with major subsidies from the government. Apart from these three insurance schemes, Medical Assistance Scheme (MAS) was targeted towards the poor as part of the poverty alleviation programme, under the Ministry of Civil Affairs. MAS was for those who could not pay the premiums even for the public insurance schemes. All schemes were managed between three ministries, hence, creating discrete and fragmented systems. The coverage, benefits, and remuneration rates differed and were better in UEBMIS (Baru and Nundy 2020). In case of rural and urban residents, the government paid 80-90 percent of the premium while residents paid between 10-20 percent, depending on where they resided. The government gave larger subsidies to residents in less developed provinces (Table 3). It ensured that rural and urban residents paid their share of the premium. Although the URBMIS and NRCMS are voluntary schemes, the uptake of these schemes is almost universal. Local governments have been able to mobilise residents to pay the premiums over the years. Village and township officials have enrolment targets to fulfil and collect premiums by going door to door.

The insurance schemes were introduced and administered rapidly across provinces and the consequences of the 2003 reforms were manifold. Insurance lacked breadth (coverage of population), depth (benefits and services), and height (extent of financial protection). The coverage of services was inadequate and reimbursement rates were low. There was no significant reduction in overall OOP. The UEBMI was more privileged and inflated the costs of insurance. There was also a lot of variation within each insurance scheme across provinces. The NRCMS and URBMIS initially had poor coverage as they were voluntary. The growing number of internal migrants in cities made it more challenging. *Hukou*, the household registration system, did not allow migrants to access welfare benefits that included medical benefits outside their home provinces. To access benefits, a migrant would have to return to her home province. The reimbursement was highest in the home province and lowered as the person moved away. The co-payment also increased for those moving away. They increased even more if the individual moved upward from county hospitals to tertiary hospitals. As a result, rural to urban migrants paid OOP most of the times.

Despite insurance coverage, the costs of services kept increasing due to the internal markets and the commercial behaviour of public hospitals. It was difficult to contain them in a market economy, with multiple interests at play. The pharmaceutical sector and the medical devices industry had a

significant presence in the health care market. Corrupt practices spurred by perverse incentives were rampant in public hospitals across provinces, as discussed in the section on public hospitals. This had an impact on the insurance mechanism. The rate of premiums increased, and the government had to increase subsidies to keep up with the rising costs. Reimbursement rates varied across insurance schemes. A comparison of reimbursement rates through social health insurance schemes in 2009 showed that the UEBMI had an overall rate of 59.7 percent (50.5–68.8 percent), higher than the URBMI at 36.7 percent (24.1–49.2 percent) and NRCMS at 30.3 percent (26.3–34.3 percent) (Dong et al, 2021).

After 2009, insurance schemes were expanded in terms of breadth, depth, and height.

**Table 3: Current features of the dominant insurance schemes**

Features of each scheme	UEBMIS	URBMIS	NRCMS	MAS*
Year of establishment	1998	2007	2003	2003
Target population	Urban employees	Urban unemployed, older people, students, children	Rural residents	Individuals who are poor and unable to pay premiums under the other insurance schemes
Risk-pooling unit	Municipal level	Municipal level	County level	Municipal or county level
Number of people insured by 2015 in millions (% of total population)	289 (21.07%)	377 (27.5%)	670 (48.86%)	77 (5.5%)
Benefit package	Outpatient and inpatient care	Outpatient and inpatient care	Outpatient and inpatient care	Cover for catastrophic care, with some coverage of emergency costs and other expenses
Financing	Employer (6-8% of salary) Individual (2-3% of salary) Premium amount:** Average of 4190 RMB/person (as of 2018)	Government subsidy (about 80%) Individual (about 10-20%, varies across provinces as share of government subsidies is more in less developed provinces) Premium amount**: 780 RMB/person (as of 2018)	Government subsidy (about 80%) Individual (about 10-20%, varies across provinces as share of government subsidies is more in less developed provinces). Premium amount**: 660 RMB/person (as of 2018)	100% subsidised by government

Source: Dong et al 2021; \*Fang 2020, \*\*Yip et al 2019

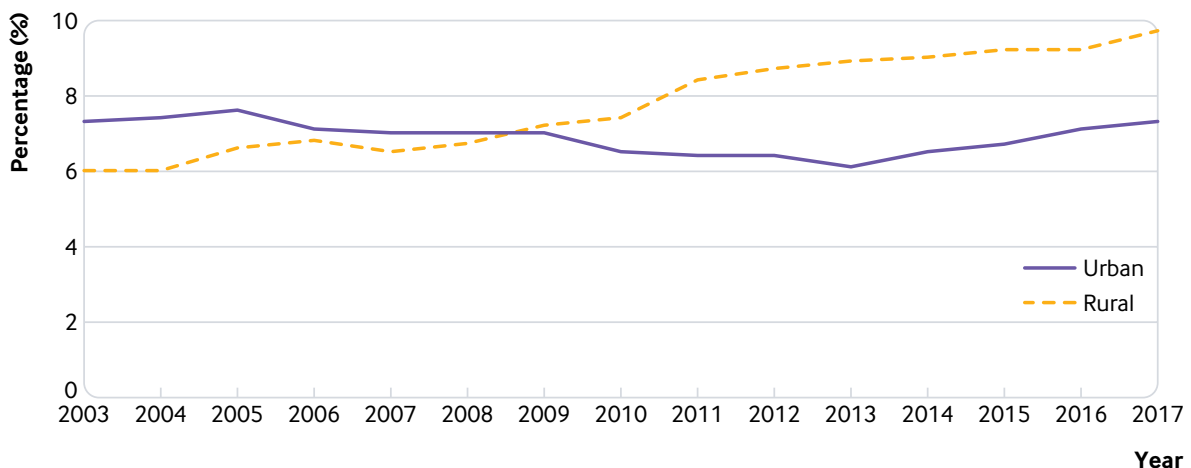
In recent years, there have been pilots introducing alternative provider payment mechanisms instead of a fee-for service<sup>9</sup>--capitation, case-based payment (piloted by the NRCMS) and diagnosis related groups (DRG) (piloted by UEBMI).<sup>10</sup> China is moving towards universalising DRG as the main form of provider payment for hospitalisation. How this pans out is yet to be seen.

### 3.3.1. Achievements and challenges

China followed the other East Asian countries in expanding social insurance to achieve universal health coverage. The government subsidised it with taxation sourced at multiple levels. Access and financial risk protection has improved considerably through the social insurance schemes and provides coverage to 98.4 percent of the population. Government expenditure as a percentage of GDP has increased over the past decade from 4.9 percent in 2000 to 6.7 percent in 2019. There has been a move to increase input budgets (by centre and provincial governments) for the primary level of services. There is a decrease in OOPE as a proportion of total health expenditures from 60 percent in 2001 to 28 percent in 2018. Fang et al (2019) state that while the OOP may have decreased in proportion to the overall expenditure, in absolute terms people still have to pay considerable amounts as co-payment. China followed the path of insurance to first cover the entire population and then brought in reforms to increase the coverage of services and financial protection.

According to Fang et al (2019), “Catastrophic health expenses disproportionately affect deprived populations....Household spending on health as a percentage of total household consumption expenditures also increased in both urban and rural areas, as shown in (Figure 14), but the increase in household expenditures on health seems to have been greater in rural than in urban areas (rural areas tend to be relatively underdeveloped).”

**Figure 14: Household spending on health as percentage of total household expenditure (urban and rural)**



Source: Fang et al 2019

The depth, breadth and height of coverage has increased since the reforms of 2009. One study suggests that benefits of URBMIS and NRCMS have increased since 2011, especially after the inclusion of outpatient services for rural and urban non-employed residents. Gaps in distribution of reimbursement rates have narrowed over but this needs further improvement (Dong et al 2021).

<sup>9</sup> Fee-for-service reimburses providers for every unit of service provided and is paid retrospectively.

<sup>10</sup> Apart from fee-for-service, there are several other provider-payment mechanisms promoted for cost containment. In case-based payment, hospitals are paid for every inpatient based on a pre-defined rate for a particular group of cases. DRG is a form of case-based payment. Global budget payment is defined by a total sum paid annually to an institution for the services they provide. This is based on previous annual expenditures made by the institutions.

### **Breadth: coverage of population**

By the last quarter of 2020, 95 percent of China's population was covered by one health insurance scheme (Yi 2021). Most people were under either the rural or urban resident schemes. Private insurance is purchased by higher income groups to supplement the public insurance. Between 2010 and 2015, private insurance premiums increased by 28.9 percent annually. By 2015, they accounted for 5.0 percent of the total health expenditure (Fang 2020).

### **Depth: coverage of services/benefit package**

The three schemes include inpatient and outpatient services from the primary to the tertiary levels. Earlier, NRCMS and URBMI covered only inpatient service but in 2010, they started reimbursements for outpatient services too. These typically include care (hospital and primary level), medicines from the essential list, emergency, traditional Chinese treatment, physiotherapy, and mental health (Fang 2020). Every citizen is entitled to a public health package that includes preventive services such as immunisation and early detection of disease. There are no co-payments for these benefits. Maternity care is also covered separately and is soon to be merged with the basic plan.

### **Height: extent of financial protection, cost sharing and out-of-pocket expenditure**

In 2018, medicines accounted for an average of 42 percent of outpatient and 28 percent of inpatient costs. Services are subject to different co-payments and reimbursement levels and are dependent on several factors, some of which include type of insurance, type and level of facility, and region (province) (Fang, 2020).

According to Fang (2020):

- “Co-payments for outpatient physician visits are often small (RMB 5-10) – this also depends on the seniority of doctors visited. For senior doctors/professors co-payments are higher.
- Prescription drug co-payments vary; they were about 50-80 percent of the cost of the drug in Beijing in 2018, depending on the hospital type.
- Co-payments for inpatient admissions are much higher than for outpatient services.”

People can use services outside their network, in their home provinces, but these include higher co-payments.

MAS targets low-income households. In addition to public health insurance, it provides financial assistance to these households. Individuals unable to pay premiums are covered under the scheme, funded by local governments in both urban and rural areas. In 2018, about 5.5 percent of the population received such assistance (Fang 2020).

Since 2018, URBMIS and NRCMS are being integrated into the Resident Basic Medical Insurance Scheme (RBMIS) across provinces. This includes unifying administration, premiums, benefit packages and reimbursement rates. The move is intended to rationalise the existing insurance schemes, contain costs, and make the pool wider for better coverage. This was the easier option as both schemes have similar features in terms of financing levels, coverage, and reimbursement rates. Between UEBMIS and RBMIS, however, there is a wide gap in funds. There is also a wide gap in the reimbursement levels across provinces. The OOPE for RBMIS is much higher than it is for UEBMIS.

Overall, the integration of the rural and urban resident schemes is understood to have had a positive impact. It has helped increase the pool of resources and aided equitable distribution across the population of both schemes. But integrating the newly merged resident schemes with that of the urban employees is considered unviable due to political reasons. Given the wide financial gap between the two schemes, it will not be acceptable for those insured under the employee scheme as they would have to share resources with other schemes.<sup>11</sup>

---

<sup>11</sup> Interview with a global health scholar

Yip et al (2019) observe, “Despite these improvements, substantial differences between the highest and lowest income groups’ reimbursement rates and measures of catastrophic health expenditure remain. These differences might be attributable to large differences in insurance benefits; in 2018, the Urban Employee Basic Medical Insurance premium was approximately 4190 (RMB) per person, compared with 780 (RMB) per person for the Urban Resident Basic Medical Insurance and 660 (RMB) per person for the New Cooperative Medical Scheme.”

A study by Wang et al (2020) showed that overall catastrophic expenditure increased under the integrated scheme but the intensity of impoverishment among the poor improved. Since integration is still under process, there are studies yet to be conducted on the impact of integration on equity and financial protection across provinces.

There is variation in health expenditure across provinces. The three rich municipalities of Beijing, Shanghai, and Tianjin, and the two richest eastern provinces, Jiangsu and Zhejiang, have a high percentage of social health insurance expenditure and low OOP when compared to other provinces (NBSC 2018).

Zhou et al (2022) discuss how existing financing relies on regressive forms of funding. The fixed contributions to the RBMIS do not take the income of the household into consideration. Private insurance can be accessed only by the upper-middle and high-income groups. Zhou et al (2022) conclude that achieving equity in health financing would mean reducing regressive financing, especially that which works against rural residents. RBMIS contributions need to be means-adjusted, and government needs to increase tax-based financing to reduce dependency on OOP and private insurance.

### **3.4. Human resources**

At the primary level, in rural clinics and health centres, public sector staff include village doctors and community health workers. Village doctors are not licensed General Practitioners (GPs) and can work only in village clinics. In 2018, there were 907,098 village doctors and health workers. There is a shortage of village doctors and it has been difficult to retain them due to low pay. The township hospitals extend technical support to these clinics and centres. Doctors and nurses are available at the secondary and tertiary level. GPs or family doctors operate in towns and cities. As mentioned, China is piloting the family doctor model and encouraging more GPs for gatekeeping. In 2018, China had 308,740 licensed and assistant GPs and they represented 8.6 percent of all licensed physicians and assistant physicians (Fang, 2020). This number of family physicians still very low as China wishes to cover 85 percent of the population under the family doctor model.

In the villages, health personnel are reimbursed for the basic services they provide. Incomes vary substantially by region. GPs at hospitals receive a base salary, which is supplemented with incentives based on the hospital’s revenue, generated through registration fees and other services. This leads to supply-induced demand. Almost three-quarters of the physicians’ incomes is raised through revenue generated by the hospitals (Fang, 2020).

The distribution and spread of health workforce suffer from regional inequalities. Figure 15 depicts the distribution of nurses across PRC. Their density is much higher in some of the eastern and central provinces and not adequate in some of the southern and western provinces (Lu et al, 2021). There is unequal distribution across provinces. A city like Shanghai will have 62 doctors per 1,000 people while a remote county could have only one or two (Baru and Nundy, 2020).

**Figure 15: Distribution of nurses per 1,000 people**



Source: Lu et al 2021

In the past decade, there has been an increase in the health workforce (licensed doctors and registered nurses). From 3.5/1000 population in 2003 the number has gone up to 6.5/1000 in 2017. The number of beds has increased from 2.3/1000 to 5.7/1000 in the same period (Fang et al, 2019). According to Ma (2019), the total number of health professionals, doctors, and registered nurses increased by 31 percent, 28 percent, and 65 percent respectively between 2010 and 2017. The number of medical doctors per 10,000 people increased from 14 in 2009 to 22 in 2019. The number of nursing and midwifery personnel increased from 14 to 31 per 10,000 people (WHO, 2022). This is much lower than the density of health workforce in countries such as Japan and South Korea but much higher than India. All medical colleges and health training schools are public institutions. To encourage more people to join the workforce, the government heavily subsidises the tuition. To increase workforce in rural areas, a policy was introduced in 2010 increasing enrolment of students from rural areas. They are given free medical education as an incentive and entrance qualifications are also lowered for them. The students are trained in a five-year and three-year program in clinical medicine and traditional medicines. In turn, the students have to serve in remote rural areas for six years after they graduate (Hou et al, 2019). Although this policy was implemented in 2010, its impact has fallen short of projections. There has been some relief in filling the gaps but Hou et al



(2019) observe that there are few takers for the course as motivation to serve the rural population remains low. A shortfall of health workers at the primary level persists. Retention is also an issue as compared to their urban counterparts, physicians in rural areas have no clear career path.

A recent study at the primary level found the quality of care was poor. There is a gap in medical education and in-service training opportunities leading to sub-standard clinical performance among practitioners (Ma 2019). Incompetence and lack of motivation were also among the reasons for poor care (Ma, 2019).

Accountability has been a matter of concern in the sector. There is no system of monitoring the performance of health workers or medical professionals. Only some hospitals have introduced their own mechanisms of performance-based incentives. Due to the perverse incentives and corrupt practices, there are cases of violence against health personnel and this has been a major issue in the past decade (Nundy, 2015).

## 4. Discussion

In the past few decades, China has made considerable progress on health outcomes, through multiple reforms, but its challenges in the area persist. A large country with vast regional variations, China has undergone a continuous process of reforms to address its inherent complexities. The health system debates need to also respond to the challenges and demands of an ageing population and an onslaught of NCDs.

China has shown remarkable improvement in basic health indicators when compared to upper-middle income and high-income countries. Health outcomes are determined by multiple factors—this includes access to water, sanitation facilities, food, housing, employment and health services. China has consistently addressed these factors through reforms in these sectors. The outcomes have to be seen as a combination of these interventions. We present progress made in some of the indicators of health and nutrition over the years (Table 4). China and India started with the same set of development indicators in the 1950s as mentioned before but India has fallen considerably behind.

Since the Mao years (1949-78) China's health systems can be viewed through four phases of reforms, underlining the political commitment to health across different political leaderships. Over the years, the country has increased public expenditure in health by increasing investments and subsidies. This was done for political, macroeconomic, as well as equity concerns. The Chinese experience provides several lessons for the building of health systems. Before we discuss the lessons, we summarise the phases of reforms (Table 5).

During the initial years under Mao, prevention and promotive health was given primacy over curative services. The social determinants of health such as access to water, food, and sanitation were addressed as priorities for preventing disease and illness. The Cultural Revolution in the 1960s led to the establishment of the health cadre of barefoot doctors and the referral system for curative services (CMS). There was a distinct rural focus (given that 80 percent of the population was based in rural areas). The first generation of medical doctors trained in modern medicine were sent to rural areas. This ensured focus on equity and redistribution on the one hand, and on strengthening primary care, on the other. The focus on social determinants of health, greater focus on preventive and promotive services and guaranteeing basic needs of the population led to significant improvement in human development indicators despite low economic development. This shows the importance of preventive measures, improved water supply, sanitation, immunisation as determinants of health outcomes.

**Table 4: Health status indicators of China over the years (compared to SDG target, upper-middle income countries and high-income countries)**

Indicators	1950/ 1960	1980	1990	1995	2000	2005	2010	2015	2017- 2020	SDG Target	Upper- middle income countries (2020)	High- income countries (2020)	India (2020)
Mortality rate, neonatal (per 1,000 live births)	NA	NA	30	27	21	14	8	5	4	<12	6	3	20
Mortality rate, infant (per 1,000 live births)	190	47	43	38	30	19	13	8	6	-	9	4	27
Mortality rate, under-5 (per 1,000)	NA	63	54	48	37	24	16	11	7	<25	11	5	33
Prevalence of Stunting (% of children under five)	NA	NA	32	31	18	12	9	8 (2013)	5 (2017)	<40 % of 2012 level <sup>s</sup>	NA	NA	35
Maternal mortality ratio (modelled estimate, per 100,000 live births)	1500	NA	97	NA	59	44	36	30	29 (2017)	<70	41 (2017)	11 (2017)	145
Mortality due to communicable diseases and maternal, prenatal and nutrition conditions (% of total death)	NA	NA	NA	NA	9	NA	5	4	4	-	7	7	24 (2019)
Mortality from Non Communicable Disease (% of total death)	NA	NA	NA	NA	81	NA	86	88	90	..	88	85	66 (2019)
Life expectancy at birth, total (years)	44 (1960)	67	69	70	71	73	74	76	77	..	76	80	70
Fertility rate, total (births per woman)	5.8	2.5	2.3	1.7	1.6	1.6	1.6	1.6	1.7	..	1.8	1.6	2.2
Low-birthweight babies (% of births)	NA	NA	NA	NA	6	NA	5	NA	5	<30% of 2012 level <sup>s</sup>	7 (2015)	8 (2015)	NA
Incidence of Tuberculosis (per 100,000 people)	NA	NA	NA	NA	107	91	76	65	59	..	67	9	188

Source: World Bank 2020.

**Table 5: Summary of the phases of reforms**

Phases of reforms	Health Sub-systems			
	Provisioning	Financing	Governance	Human resources
<b>Mao years post-revolution (1949-78)</b>	Public health delivery system. Focus initially on preventive and promotive services and, in the later years, on building of CMS (a three- tier system with referrals) for curative services. Urban workers and employees covered through insurance schemes	Financing mostly through collectives and a budget from central government	Collectives responsible for management of services at the rural level through a highly centralised system	Lack of human resources at all levels but a redistribution of health personnel from urban to rural areas during Cultural Revolution
<b>Economic reforms (1980s and '90s)</b>	Breakdown of the delivery and referral system (CMS) but provisioning still mainly by public health facilities	Government subsidies down from 80 percent to 10 percent of overall budget of the health facilities. Financial autonomy given to all public health facilities to generate own resources. Led to high OOP and created a commercial public health system	Fragmented. Health did not receive priority during these years as focus was on economic growth	Lack of human resources and limited health personnel at rural level continued. Barefoot doctors became private practitioners
<b>Health reforms of 2003 (2003-2009)</b>	Public delivery still dominant. A top-heavy system, with patients utilising services at the tertiary level due to weak primary level.  Furthering autonomisation of public hospitals by separating governance from operations	Three insurance schemes introduced to cover the population and improve access. Hospitals were still generating their own resources and irrational practices due to perverse incentives like drug mark-ups	Fragmented governance systems with multiple actors. Each insurance scheme was being managed by different ministries and department.	Adequate human resources still a challenge at the primary level and in rural and less developed regions

<p><b>Health reforms of 2009 (2009 – 2012)</b></p>	<p>Rebuilding primary level care. Reforms in public hospitals separating management, supervision, and operations - different management models were piloted. Growth of private sector is gradual. Zero-mark up policy on drugs.</p> <p>Government provides more comprehensive preventive services</p>	<p>Central and local government subsidies for insurance schemes, especially for rural and some urban residents, increase. Near universal access to insurance (95 percent of population covered).</p> <p>Hospitals still generate own resources.</p> <p>Input budget for primary level services increased</p>	<p>Fragmented governance continues. Challenges in monitoring, evaluation, and accountability of public facilities</p>	<p>More human resources at the primary level. Move to create a cadre of family physicians</p>
<p><b>2012 to present</b></p>	<p>Private sector growth part of the policy.</p> <p>Public sector still dominant provider of inpatient and outpatient services</p>	<p>Insurance is the dominant form of financing.</p> <p>Government input budgets are available but limited and hospitals still generate own resources.</p> <p>Private financing in public hospitals leads to growth of external markets in public institutions</p>	<p>- Merging of all departments dealing with health insurance at the administrative level under NHSA.</p> <p>Merging of different relevant departments in Ministry of Health under NHC</p>	<p>Introduction of policy to provide basic medical education to students from rural areas to fill gaps in rural health workforce. Strengthening of primary health cadre is still a challenge. Attempts to also redistribute health personnel through multisite practice but no impact</p>

The next two decades of reforms (the 1980s and '90s), carried out in the context of priorities shifting from an agricultural to industrial economy, led to the breakdown of the primary care and referral system. The barefoot doctors, previously sustained by the rural collectives, disbanded due to decollectivisation. The prioritisation of economic development had a strong impact on the health sector both in terms of equity, and out-of-pocket expenditure. Decentralisation and withdrawal of financial support from the centre created internal markets in the health sector. Public health facilities were decentralised and autonomised to generate their own resources, leading to perverse incentives and irrational practices such as overprescribing and overdiagnosis. This created inequities in access to services as provinces had to struggle to sustain public health facilities. Primary care services were rendered weak and the burden of dispensing services fell on the tertiary level hospitals. There was no alternative thought toward rebuild them. Out-of-pocket expenditure was at its peak by the end of the two decades. This caused much public discontentment and led the CPC to bring in reforms. Thus, while decentralisation would have its merits in a country with wide regional variations, this phase of China's health systems showed that, without strong support from the centre, it can not only render systems weak but can also contribute to increasing inequity. Therefore, it would be a better strategy to provide provinces with adequate and flexible financial support while holding them responsible for delivery of services. The Mao years kept the focus on rural areas but after the 1980s, the country urbanised rapidly and development and access to services was skewed towards the urban population.

The next phase (2002-2009) sought to address high OOP expenses with the introduction of demand-side financing. While the goals of the reforms were well directed, the limited depth and scale of the insurance schemes, combined with the ongoing fiscal autonomisation of hospitals in the context of low subsidies, resulted in continued high costs for citizens. The lack of alignment in reforms for provisioning and financing created distortions in the system. It also showed that the autonomy of public hospitals, delinked from other health institutions, did not align with the UHC goals, and resulted in fragmented systems.

Table 6 summarises the challenges that persist due to the reforms introduced in 2009 and beyond, and the lessons that can be drawn from them.

The most recent phase (2009-present) witnessed a more comprehensive approach to reforms. It saw a course correction and addressed the distortions created by previous phases. There was an attempt to strengthen primary care and redistribute the patient load. The perverse incentives were taken out by capping expenditure on drugs. Insurance schemes were universalised. The mixed result of these reforms, raise questions on the feasibility of reversing processes of internal markets in public hospitals once they have been created. Despite increasing government subsidies for insurance schemes, which was a positive move, the need for health facilities to continue generating their own funds with limited government funds was detrimental. The burden of incentives moved from drugs (where pricing was regulated to some extent) to diagnostics and other services. It was also difficult to monitor and audit over-prescription of drugs, which did not completely stop. Reforms on supply-side or provisioning also had to work towards strengthening primary care services. Focusing only on reforming public hospitals at the cost of primary level facilities have consequences for costs, access, and equity. Greater focus on public hospital reforms since the 1990s created a path dependency.

The focus of the public hospital reforms was on making them more efficient rather than on their social functions. This has direct consequences on equity, access, and costs of health services. While a certain degree of administrative and fiscal autonomy is important for efficiency, completely delinking institutions and making them responsible for their own revenue, without adequate government subsidies, can create distortions. In China's case, it has weakened primary-level facilities. Public hospitals have greater wherewithal to sustain themselves by overcharging patients than them. It has also created a top-heavy system. In the absence of strong regulation, supply-induced demand for diagnostics and drugs cannot be prevented. Weak accountability allows public

hospitals to keep costs high. A large portion of remuneration for hospital personnel is still dependent on volume-based bonuses. There is inherent pressure on medical staff to generate more resources due to negative incentives. This contradicts the principles of a public system, which should provide equitable services free of cost. Public hospitals are not proactive in building linkages with primary level facilities as they prefer the load of patients coming to them. They are also able to onload high-margin patients and offload low-margin ones. Hence, the cost-efficiency of insurance schemes is dependant directly and over-reliant on the behaviour of public hospitals.

**Table 6: Summary of important reforms post-2009**

	Priority reform areas	Features of reforms	Output	Challenges
1.	<b>Health insurance for universal coverage</b>	<ul style="list-style-type: none"> <li>- Expanding coverage for the entire population by providing subsidies</li> <li>- Providing medical assistance to the eligible poor</li> <li>- Merging of insurance schemes for creating larger pool</li> </ul>	<ul style="list-style-type: none"> <li>- Coverage provided to over 95 percent of the population by 2017</li> <li>- Government subsidised about 80 percent of the premiums for rural and urban residents (informal sector and unemployed)</li> <li>- Merging of rural and urban resident insurance scheme</li> </ul>	<ul style="list-style-type: none"> <li>- Costs are still high, due to inefficient payment systems, and linked directly to reforms where hospitals are still dependent on internal revenues</li> <li>- Catastrophic health expenditure has not shown any significant reduction and could do better.</li> <li>- Benefits vary across insurance schemes</li> </ul>
2.	<b>Primary-level health care</b>	<ul style="list-style-type: none"> <li>- Increasing investment on primary-level services.</li> <li>- Introduce family doctor model and mobilise human resources</li> <li>- Capitation payment for General Practitioners</li> </ul>	<ul style="list-style-type: none"> <li>- Government investments for primary-level facilities increased</li> <li>- Incentives given to students from rural areas to mobilise human resources at the primary level</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of effective incentives to mobilise human resources. No clear career path.</li> <li>- Difficulty in creating the three-tiered system because of dependency on public hospitals</li> </ul>
3.	<b>Public hospitals</b>	<ul style="list-style-type: none"> <li>- Reduce drug mark-ups to zero</li> <li>- Pilot different payment systems</li> <li>- Introduce clinical pathways</li> <li>- Create consortium of institutions from primary to tertiary levels for a tiered and coordinated system</li> </ul>	<ul style="list-style-type: none"> <li>- Income due to drug mark-ups reduced to some extent</li> <li>- Tiered health system in pilot mode with consortium of institutions</li> <li>- Clinical pathways for several diseases developed</li> </ul>	<ul style="list-style-type: none"> <li>- Part of the financial reforms involved increased subsidies from local governments. However, this has not worked out as local governments may not have the tax base to increase outlays for health facilities. Hospitals have shifted cost recovery away from drugs to other services. Hence, costs are still rising.</li> <li>- Instead of medicines, other services and technology are overused</li> <li>- Jury is still out on whether consortiums improve care and coordination and reduce unnecessary care</li> </ul>

4.	<b>Essential medicines</b>	<ul style="list-style-type: none"> <li>- Creating an essential list of medicines to reduce mark-ups on drugs</li> <li>- Improving procurement of drugs</li> </ul>	- Linked to reforms in public hospitals	<ul style="list-style-type: none"> <li>- Procurement issues still persist</li> <li>- Use of essential medicines is still not fully effective in public hospitals due to weak accountability</li> </ul>
5.	<b>Public health package</b>	<ul style="list-style-type: none"> <li>- Basic public health package for all covering programmes for prevention of diseases and promotion of health</li> </ul>	- Government committed RMB55 per capita for the package in 2017–increased from RMB 15 in 2009	- Quality of services low in some poorer areas
6.	<b>Governance structures</b>	<ul style="list-style-type: none"> <li>- Merging of institutions for better administrative efficiency</li> <li>- Merging of insurance management under one body</li> </ul>	- Creation of NHC and NHSA	- Administrative integration has occurred at the central level but governance is still fragmented at the middle and lower levels (province and county)

Despite these challenges, hospitals have created autonomous and somewhat efficient systems in terms of operations if not for costs. Rebuilding primary-level services and introducing gatekeeping has been a challenge due to lack of human resources. Existing health personnel are not willing to move to rural and less developed areas despite changes in policy targeting rural students to fill these gaps. Some key procedures of these educational initiatives, including enrolment, quality of education, incentives linked to employment, and career development, need to be addressed.

China has witnessed an epidemiological and demographic shift in the past decade and faces the burden of NCDs and an ageing population. In this context, primary-level screening of NCDs has not developed commensurately. There is less spending on preventive services for NCDs and more on clinical and curative services at the tertiary level, which increases costs of care. China is experimenting with long-term care (home-based, community-based, as well as institutional care) financed by insurance for the older population.

While there is more public expenditure on increasing coverage, the government has had a limited budget. This has led to increased space for private sector investments after 2012 – both in provisioning and financing. Private sector growth includes not merely private hospitals but also private investments in public hospitals. While some private hospitals have been brought under the purview of social insurance schemes, most are accessed only by people who have private insurance or can afford to pay for these services. Although the private sector has been given more space in the past decade, there has been simultaneous focus on regulating it and on strengthening various sub-systems of the public sector. This is an important learning. A strong public sector can co-exist with a regulated private sector. It will be able to negotiate better as well as have better monitoring and accountability mechanisms. While private providers at the secondary and tertiary level are regulated a large number of informal private providers dispensing traditional and modern medicine at the primary level are not as well regulated, as in other countries. However, their services are more standardised, especially at the village level.

Reforms in governance have been critical considering the centre-province dynamics, process of decentralisation, and the existence of multiple authorities. Fragmented authorities and overlap of some services have led to territorial disputes. Integration of some of the departments under the MoH has created some administrative efficiency at the central level but these are not reflected in the middle and lower levels of governance. One of the positives of governance reforms has been the merging of two insurance schemes and improving the portability of insurance, considering the *hukou* system creates barriers. While these reforms are still under way, it has improved access and helped in making services equitable to some extent. However, between the insurance scheme for formal employees and the one for people in the informal sector, there is a big financial gap. The first is privileged with greater depth of services and better financial protection than the second, which is for rural residents and unemployed and self-employed urban residents. Variation in financial protection and linked benefit coverage across insurance schemes creates inequities.

China's journey also shows that understanding local contexts and variations are critical for effective services. An important aspect of programmes in China was their implementation through pilots. This helps in making them context-specific for better results, with variations across provinces. After lessons from the pilots become apparent, these programmes can then be scaled up. Pilots are integral to all policies. Some important pilots have focused on: strengthening primary level services; partnerships with private sector (with providers at all levels); provider-payment mechanisms; creating an essential drugs list; health technology assessment; governance structures for implementation, monitoring and making the system accountable. While piloting in China is followed universally across provinces, there is lack of rigour in designing and evaluating pilots, which are critical to scaling them up. Piloting could be an effective strategy for delivery of health services but they must follow rigor of design and also be followed by evaluations.

As health services (preventive, promotive and curative) have been a part of the welfare guarantees since the Mao era, there is public discontentment over costs. Health care has been the priority for the CPC over the past two decades. Reforms during this period have been significant and aimed at bringing substantial improvements in access, utilisation, financial protection and human resources, creating efficient hospital systems, and rebuilding primary-level health services. But there are still concerns over fragmented information systems, rigorous evaluations and accountability mechanisms, quality of primary level services, and equity. There is also fragmentation of public health services from clinical services, leading to barriers in continuity of care.

China's experience has underlined the importance of an ongoing assessment of health systems, and the viewing of reforms as a continuing and evolving process. This strengthens the positive outcomes and addresses the negatives of each set of reforms.



## Bibliography

- Acharya, A., R. V. Baru and G. B. Nambissan. 2001. 'The State and Human Development: Health and Education', in G.P. Deshpande and A. Acharya (eds), *Fifty Years of India-China: Crossing a Bridge of Dreams*, pp. 203-67, Tulika, New Delhi.
- Alvarez-Klee, Roser. 2019. 'China: The development of the health system during the Maoist period (1949–76)', *Business History*, 61(3), 518-537, <https://doi.org/10.1080/00076791.2018.1480611>.
- Baru, R.V. and M. Nundy. 2020. *Commercialisation of Medical Care in China: Changing Landscapes*, Routledge, London & New York.
- Brixi, H., Y. Mu, B. Targa and D. Hipgrave. 2011. *Equity and Public Governance in Health System Reform: Challenges and Opportunities for China*, The World Bank: East Asia and Pacific Region.
- Burns, L.R., and Y. Huang. 2017. 'History of China's Healthcare System', in L.R. Burns and G. G. Liu (eds), *China's Healthcare System and Reform*, Cambridge University Press, Cambridge.
- Cao, Q., L. Shi, L., H. Wang, and K. Dong. 2012. 'Report from China: Health Insurance in China—Evolution, Current Status, and Challenges'. *International Journal of Health Services*, 42(2), 177–195. doi:10.2190/hs.42.2.b.
- Carrin, G., A. Ron, Y. Hui et al. 1999. 'The reform of the rural cooperative medical system in the People's Republic of China: interim experience in 14 pilot counties', *Social Science and Medicine*, 48(7), 961-72.
- Chen, Y. and K. Xiong. 2017. 'Public Hospital Reform in China: Review and Outlook', in M. Nundy (ed.) 'Health Service Systems in Transition: India and China', in M. Nundy (edited), *Health Service Systems in Transition: Challenges in India and China*, ICS Monograph, Institute of Chinese Studies, Delhi.
- Chen, Helen and Yanyan Lin. 2012. 'The Rise of Private Health Insurance', *China Economic Review*, March, <http://www.chinaeconomicreview.com/node/56670>.
- Chen, T., Y. Wang, X. Luo, Y. Rao, L. Hua. 2018. 'Inter-provincial inequality of public health services in China: the perspective of local officials' behavior', *International Journal for Equity in Health*, 17(108), <https://equityhealth.biomedcentral.com/articles/10.1186/s12939-018-0827-8>.
- Collins, G.B. and A.S. Erickson. 2015. 'China's Public Hospital Governance Reforms are Setting the Stage for Corporatization', *China SignPost*, 26 January, <http://www.chinasignpost.com/2015/01/26/chinas-public-hospital-governance-reforms-are-setting-the-stage-for-corporatization/>.
- Daly, Garrison, Joan Kaufman, Shuang Lin, Liangmin Gao, Melissa Reyes, Sarah Matemu and Wafaa El-Sadr. 2020. 'Challenges and Opportunities in China's Health Aid to Africa: Findings from Qualitative Interviews in Tanzania and Malawi', *Globalization and Health*, Vol. 16, No. 71, <https://doi.org/10.1186/s12992-020-00577-0>.
- Deng, C., Li, X., and Pan, J. 2018. 'Private hospital expansion in China: a global perspective'. *Global health journal (Amsterdam, Netherlands)*, Vol. 2, No. 2, pp. 33–46. [https://doi.org/10.1016/S2414-6447\(19\)30138-1](https://doi.org/10.1016/S2414-6447(19)30138-1).
- Deloitte. 2015. *China's healthcare provider market: Riding the waves of reform*, <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-china-healthcare-provider-market-en-150512.pdf>.
- Dong, W., A. B. Zwi, R. Bai, C. Shen and J. Gao. 2021. 'Benefits Associated with China's Social Health Insurance Schemes: Trend Analysis and Associated Factors Since Health Reform', *International Journal of Environmental Research and Public Health*, 18, 5672, p. 1-14, <https://doi.org/10.3390/ijerph18115672>.
- Dreze, J. and A. Sen. 1996. *Indian Development: Selected Regional Perspectives*, Oxford University Press: Delhi.
- Fang, H., K. Eggleston, K. Hanson, M. Wu. 2019. 'Enhancing financial protection under China's social health insurance to achieve universal health coverage', *BMJ*, 365, <https://doi.org/10.1136/bmj.l2378>
- Fang, H. 2020. China Country Profile, International Health Care System Profiles, The Commonwealth Fund, <https://www.commonwealthfund.org/international-health-policy-center/countries/china#:~:text=Twenty%2Deight%20percent%20was%20financed,paid%20out%2Dof%2Dpocket.>

- Feng, Xing L., M. Martinez-Alvarez, J. Zhong, J. Xu, B. Yuan, Q. Meng, and D. Balabanova. 2017. 'Extending access to essential services against constraints: the three-tier health service delivery system in rural China (1949–1980)', *International Journal for Equity in Health*, Vol. 16, No. 49, doi 10.1186/s12939-017-0541-y.
- Fu, H., L. Li, M. Li, C. Yang and W. Hsiao. 2017. An evaluation of systemic reforms of public hospitals: the Sanming model in China, *Health Policy and Planning*, 32, 2017, 1135–1145, doi: 10.1093/heapol/czx058.
- Gu, X. and C. Wang. 2017. 'The Path to Integrate Chinese Urban and Rural Health Insurance Schemes', in M. Nundy (ed.). *Health Service Systems in Transition: Challenges in India and China*, ICS Monograph No. 3, July, Delhi: Institute of Chinese Studies.
- Hao, Y. 2017. China's medical savings accounts: an analysis of the price elasticity of demand for health care, *European Journal of Health Economics*, 18(6):773-785, doi: 10.1007/s10198-016-0827-9.
- Harding A. and A. S. Preker. 2000. 'Understanding Organizational Reforms: The Corporatization of Public Hospitals', *Health Nutrition and Population Discussion Paper*, Washington DC: The World Bank.
- Hipgrave, D. 2011. 'Communicable disease control in China: From Mao to now', *Journal of Global Health*, Vol. 1, No. 2, pp. 224-238.
- Hogan, M.C., K. J. Foreman, M. Naghavi, S.Y. Ahn, M. Wang, S.M. Makela, A.D. Lopez, R. Lozano, C.J.L. Murray. 2010. 'Maternal mortality for 181 countries, 1980–2008: a systematic analysis of progress towards Millennium Development Goal 5', *Lancet*, 375(9726), 1609–23. doi:10.1016/s0140-6736(10)60518-1.
- Hou, J., Y. Liang, L. Tong, J. C. Kolars, M. Wang. 2019. 'Targeted Enrollment of Medical Students for Rural China: Prospects and Challenges', *Advances in Medical Education and Practice*, No. 10, p. 1021–1030
- Hu. S. 2017. 'Overview of Health Care Reforms in China: Experiences and Lessons', in M. Nundy (ed.). *Health Service Systems in Transition: Challenges in India and China*, ICS Monograph No. 3, July, 39-48, Delhi: Institute of Chinese Studies.
- Hu S., S. Tang, Y. Liu, Y. Zhao, M. Escobar, D. de Ferranti. 2008. 'Reform of how health care is paid for in China: Challenges and opportunities', *The Lancet*, Vol. 372, 1846-53.
- Korolev, A.. 2012. 'China's Healthcare: Developing a Universal Coverage Plan', *Far Eastern Affairs*, No. 1, pp. 45 – 76, Minneapolis, USA.
- Langwick, S.. 2010. 'From Non-Aligned Medicines to Market-Based Herbs: China's Relationship to the Shifting Politics of Traditional Medicine in Tanzania', *Medical Anthropology: Cross-Cultural Studies in Health and Illness*, Vo. 29, No. 1, pp. 15-43, <https://doi.org/10.1080/01459740903517378>.
- La Forgia, G. and W. Yip. 2017. 'China's Hospital Sector', in L.R. Burns and G.G. Liu (ed.), *China's Healthcare System and Reform*, Cambridge: Cambridge University Press.
- Li, X., H. M. Krumholz, W. Yip, K. K. Cheng, J. De Maeseneer, Q. Meng, E. Mossialos, C. Li. 2020. 'Quality of primary health care in China: challenges and recommendations', *Lancet*, Vol. 395, p. 1802–12
- Wang, L., Z. Wang, Q. Ma, G. Fang and J. Yang. 2019. 'The development and reform of public health in China from 1949 to 2019', *Globalization and Health*, Vol. 15, No. 45, <https://doi.org/10.1186/s12992-019-0486-6>.
- Lin, S., L. Gao, M. Reyes, F. Cheng, J. Kaufman and W. M. El-Sadr. 2016. 'China's health assistance to Africa: opportunism or altruism?', *Globalization and Health*, Vol. 12, No. 83, pp. 1-5, doi: 10.1186/s12992-016-0217-1.
- Liu, C., Z-m Liu, S. Nicholas, J. Wang. 2021. 'Trends and determinants of catastrophic health expenditure in China 2010–2018: a national panel data analysis.' *BMC Health Services Research*, Vol. 21, No. 526, <https://doi.org/10.1186/s12913-021-06533-x>.
- Liu, X.. 2019. Containing medical expenditure: lessons from reform of Beijing public hospitals, *The BMJ*, 365:l2369, doi: 10.1136/bmj.l2369
- Liu, X. and J. Wang. 1991. 'An Introduction to China's Health Care System', *Journal of Public Health Policy*, Vol. 12, No. 1, pp. 104-116.

- Liu, Y., W. C. Hsiao and K. Eggleston. 1999. 'Equity in Health and Health Care: The Chinese Experience', *Social Science and Medicine*, 49, 1349-56.
- Liu, Y., P. Berman, W. Yip, H. Liang, Q. Meng, J. Qu, Z. Li. 2006. Health care in China: The role of non-government providers, *Health Policy*, Vol. 77, p. 212-220.
- Liu, Y. 2004. 'China's Public Health-care System: Facing the Challenges', *Bulletin of the World Health Organization*, Vol. 82, No. 7, 532-38.
- Lu H., L. Hou, W. Zhou, L. Shen, S. Jin, M. Wang, S. Shang, X. Cong, X. Jin, D. Dou. 2021. 'Trends, composition and distribution of nurse workforce in China: a secondary analysis of national data from 2003 to 2018', *BMJ Open*, 11:e047348. doi:10.1136/bmjopen-2020-047348.
- Ma, X., H. Wang, L. Yang, L. Shi and X. Liu. 2019. Realigning the incentive system for China's primary healthcare providers, *BMJ*, 365: l2406, 10.1136/bmj.l2406
- Ma, J., M. Lu, and H. Quan. 2008. 'From a National, Centrally Planned Health System to a System Based on the Market: Lessons for China', *Health Affairs*, Vol. 27, No.4, 937-48, doi: 10.1377/hlthaff.27.4.937.
- Mao, Z., W. Fu, X. Gu and Y. Wan. 2011. 'China: Developing a Basic Rural Medical Security System', *Sharing Innovative Experiences: Successful Social Protection Floor Experiences*, UNDP, Global South-South Development Academy and ILO, 179-207.
- Meng, Q., H. Yang, W. Chen, Q. Sun, X. Liu. 2015. 'People's Republic of China Health Systems Review', *Health Systems in Transition*, Vol. 5, No. 7, Asia Pacific Observatory on Health Systems and Policies, Geneva: WHO.
- National Bureau of Statistics of China (NBSC). 2018, 2019, 2020. *China Statistical Yearbook*, <http://www.stats.gov.cn/tjsj/ndsj/2018/indexeh.htm>.
- National Health Development Research Center. 2018. *China National Health Accounts Report 2017*, Beijing: Ministry of Health.
- Nundy, M. and R. Baru. 2013. 'Recent Trends in Health Sector Reforms and Commercialisation of Public Hospitals in China', *ICS Working Paper*, December, Delhi: Institute of Chinese Studies.
- Nundy, M. and R.V. Baru. 2015. 'Lifting Drug Price Controls in China', *Economic and Political Weekly*, Vol.50, No. 22., Web Exclusive, 30 May.
- Nundy, M. 2015. 'Violence Against Health Personnel in China and India: Symptom of a Deeper Crisis', *ICS Analysis*, No. 37, December, Delhi: Institute of Chinese Studies.
- Nundy, M. 2017. 'Health Service Systems in Transition: India and China', in M. Nundy (edited), *Health Service Systems in Transition: Challenges in India and China*, ICS Monograph, Institute of Chinese Studies, Delhi.
- Nundy, M. 2018. 'Wellbeing and Deepening of Healthcare Reforms' in M. Mohanty (ed.), *China at a Turning Point: Perspectives after the 19th Party Congress*, A Project of the Institute of Chinese Studies, Delhi: Pentagon Press, 215-24.
- PAHO (Pan American Health Organization). 1988. *The Challenge of Epidemiology: Issues and Selected Readings*, Scientific Publication No. 505, PAHO, World Health Organization, Washington D.C.
- Peng X. 2000. 'Introduction' in Peng Xizhe and Guo Zhigang (ed.), *The Changing Population of China*, London: Blackwell Publishers, 1-10.
- Qian, J. 2011. 'The Role of Private Sector in Chinese Health Reform: A Political Economy Perspective', *Asian Society for Institutional Analysis*, Working Paper Series.
- Qian, J. 2015. 'Reallocating Authority in the Chinese Health System: An Institutional Perspective', *Journal of Asian Public Policy*, Vol. 8, No. 1, 19-35, <http://dx.doi.org/10.1080/17516234.2014.1003454>.
- Rogaski, R. 2021. The Manchurian Plague and COVID-19: China, the United States, and the "Sick Man," Then and Now, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7893341/>
- Sidel, R. and V. W. Sidel. 1982. *The Health of China*, London: Zed Press.
- Sidel, V. W. and R. Sidel. 1974. *Serve the People: Observations on Medicine in the People's Republic of China*, University of California: Beacon Press.

- Singh. G. and J. Liu. 2012. 'Health Improvements Have Been More Rapid and Widespread in China than in India: A Comparative Analysis of Health and Socioeconomic Trends from 1960 to 2011', *International Journal of Maternal and Child Health and AIDS*, Vol. 1, No. 1, 31–48, <https://doi.org/10.21106%2Fijma.11>.
- Tang, S., G. Bloom, X. Feng, H. Lucas, G. Xing-Yuan, M. Segall, G. Singleton and P. Payne. 1994. *Financing Health Services in China: Adapting to Economic Reform*, IDS Sussex Research Report 26.
- Tang, S., J. Tao and H. Bekedam. 2011. 'Controlling cost-escalation of healthcare: making universal health care coverage sustainable in China', *BioMed Public Health*, 12 (Supplement 1), <http://www.biomedcentral.com/1471-2458/12/S1/S8> (accessed on 14 April 2013).
- Tang, S., Q. Meng, L. Chen, H. Bekedam, T. Evans and M. Whitehead. 2008. 'Tackling the challenges to health equity in China', *The Lancet*, Vol. 372, October 25, 1493-1501.
- Wagstaff, A., M. Lindelow, S. Wang, and S. Zhang. 2009. *Reforming China's Rural Health System*, Washington: The World Bank.
- Wang, J., H. Zhu, H. Liu, K. Wu, X. Zhang, M. Zhao, H. Yin, X. Qi, Y. Hao, Y. Li, L. Liang, M. Jiao, J. Xu, B. Liu, Q. Wu and L. Shan. 2020. 'Can the reform of integrating health insurance reduce inequity in catastrophic health expenditure? Evidence from China', *International Journal for Equity in Health*, Vol. 19, No. 49, p.1-15, <https://doi.org/10.1186/s12939-020-1145-5>.
- Wang, L. Z. Wang, Q. Ma, G. Fang and J. Yang. 2019. 'The development and reforms of public health from 1949 to 2019', *Globalization and Health*, 15(45), <https://doi.org/10.1186/s12992-019-0486-6>.
- Wang, Y. 2012. 'Reform and development of the social security system', in Wang Mengkui (ed.), *Thirty years of reform*, Routledge and China Development Research Foundation, 513-34.
- WHO. 2022. Global Health Workforce statistics database, <https://www.who.int/data/gho/data/themes/topics/health-workforce>
- Wong, V. C.W. and S. W.S. Chiu, (1997) "Health care reforms in the People's Republic of China: Strategies and social implications", *International Journal of Public Sector Management*, Vol. 10 Issue: 1/2, pp. 76-92, <https://doi.org/10.1108/09513559710156724>.
- World Bank. 2020. World Bank Open Data, <https://data.worldbank.org/>.
- Xu, J., W. Jian, K. Zhu, S. Kwon and H. Fang. 2019. Reforming public hospital financing in China: progress and challenges, *BMJ* 2019; 365 doi: <https://doi.org/10.1136/bmj.l4015>
- Yang, G., Y. Wang, Y. Zeng, G. F. Gao, X. Liang, M. Zhou, X. Wan, S. Yu, Y. Jiang, M. Naghavi, T. Vos, H. Wang, A. D. Lopez, and C. J. Murray. 'Rapid Health Transition in China, 1990-2010: Findings from the Global Burden of Disease Study 2010.' *The Lancet*, 381, No. 9882 (2013), p. 1987-2015.
- Yi, B. 2021. 'Healthcare security system in China: an overview', *HepatoBiliary Surgery Nutrition*, Vol. 10, No. 1, p. 93-95. doi: 10.21037/hbsn-2021-3.
- Yip, W. and W. C. Hsiao. 2015. What Drove the Cycles of Chinese Health System Reforms?, *Health Systems & Reform*, Vol. 1, Issue 1, pp. 52–61, DOI: 10.4161/23288604.2014.995005.
- Yip, W., H. Fu, A. T. Chen, T. Zhai, W. Jian, R. Xu et al. 2019. '10 years of health-care reform in China: progress and gaps in Universal Health Coverage', *Lancet*, 394(10204): 1192-1204, [https://doi.org/10.1016/S0140-6736\(19\)32136-1](https://doi.org/10.1016/S0140-6736(19)32136-1).
- Yip, W. and W. Hsiao. Harnessing the privatisation of China's fragmented health-care delivery[J]. *Lancet*, 2014, 384 (9945):805-818
- Zhang Z. 2012. 'Healthcare Reform' in Wang Mengkui (ed.), *Thirty years of reform*, Routledge and China Development Research Foundation, 558 – 602.
- Zhao, L. and L.T. Seng. 2010. 'Introduction' in Litao Zhao and Lim Tin Seng (ed.) *China's new Social Policy: Initiatives for a Harmonious Society*, Series on Contemporary China – Vol. 20, Singapore: World Scientific.
- Zhou, G., S. Jan, M. Chen, Z. Wang, L. Si. 2022. 'Equity in healthcare financing following the introduction of the unified residents' health insurance scheme in China', *Health Policy and Planning*, Volume 37, Issue 2, p. 209–217, <https://doi.org/10.1093/heapol/czab124>.
- Yuan, B., B. Balabanova, J. Gao, S. Tang and Y. Guo. 2019. Strengthening Public Health Services to achieve Universal Health Coverage in China, *BMJ*, 365:l2358. doi:10.1136/bmj.l2358

Independence | Integrity | Impact

**Centre for Social and Economic Progress**

6, Dr Jose P. Rizal Marg, Chanakyapuri, New Delhi - 110021, India



@CSEP\_Org



@csepresearch



[www.csep.org](http://www.csep.org)