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# People's Republic of China Health System Review



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## People's Republic of China Health System Review

**Written by:**

**MENG Qingyue**, China Center for Health Development Studies, Peking University

**YANG Hongwei**, China National Health Development Research Center, National Health and Family Planning Commission

**CHEN Wen**, School of Public Health, Fudan University

**SUN Qiang**, Center for Health Management and Policy, Shandong University

**LIU Xiaoyun**, China Center for Health Development Studies, Peking University

**Edited by: Anne Mills, Viroj Tangcharoensathien**

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# Preface

The Health Systems in Transition (HiT) profiles are country-based reports that provide a detailed description of a health system and of policy initiatives in progress or development. HiTs examine approaches to the organization, financing and delivery of health services and the role of the main actors in health systems; describe the institutional framework, process, content and implementation of health and health-care policies; and highlight challenges and areas that require more in-depth analysis. HiT profiles seek to provide information to support policy-makers and analysts in the development of health systems. They are building blocks that can be used:

- to learn in detail about different approaches to the organization, financing and delivery of health services and the role of the main actors in health systems;
- to describe the institutional framework, the process, content and implementation of health care reform programmes;
- to highlight challenges and areas that require more in-depth analysis;
- to provide a tool for the dissemination of information on health systems and the exchange of experiences of reform strategies between policy-makers and analysts in different countries; and
- to assist other researchers with more in-depth comparative health policy analysis.

Compiling the profiles poses a number of methodological problems. In many countries, there is relatively little information available on the health system and the impact of reforms. Due to the lack of a uniform data source, quantitative data on health services is based on a number of different sources, including the World Health Organization (WHO), national statistical offices, the Organisation for Economic Co-operation and Development (OECD) health data, the International Monetary Fund (IMF), the World Bank, and any other sources considered useful by the authors. Data collection methods and definitions sometimes vary, but typically are consistent within each separate series.

The HiT profiles can be used to inform policy-makers about experiences in other countries that may be relevant to their own national situation. These profiles can also be used to inform comparative analyses of health systems. This series is an ongoing initiative and material is updated at regular intervals. In-between the complete renewals of a HiT, the APO has put in place a mechanism to update sections of the published HiTs, which are called the “Living HiTs” series. This approach of regularly updating a country’s HiT ensures its continued relevance to the member countries of the region.

Comments and suggestions for the further development and improvement of the HiT series are most welcome and can be sent to [apobservatory@wpro.who.int](mailto:apobservatory@wpro.who.int). HiT profiles and HiT summaries for Asia Pacific countries are available on the Observatory’s website at [http://www.wpro.who.int/asia\\_pacific\\_observatory/en/](http://www.wpro.who.int/asia_pacific_observatory/en/).

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**Peer Reviewers on behalf of the Asia Pacific Observatory on Health Systems and Policies:**

Professor Tsung-Mei Cheng (Woodrow Wilson School of Public and International Affairs, Princeton University, USA);

Professor Karen Eggleston (Walter H. Shorenstien Asia Pacific Research Center, Stanford University USA); and

Gerald La Forgia (Lead Health Specialist Health, Nutrition and Population Global Practice, World Bank USA).

## List of abbreviations

ADR	adverse drug reaction
AIDS	acquired immune deficiency syndrome
AQSIQ	General Administration of Quality Supervision, Inspection and Quarantine
BCG	Bacillus Calmette-Guérin (vaccination for tuberculosis)
BOR	bed occupancy rate
CACM	China Association of Chinese Medicine
CDC	centre for disease control and prevention
CFDA	China Food and Drug Administration
CIRC	China Insurance Regulatory Commission
CMA	Chinese Medical Association
CMDA	Chinese Medical Doctor Association
CME	continuing medical education
CMI	commercial medical insurance
CMS	cooperative medical scheme
CNA	Chinese Nursing Association
CPC	Communist Party of China
CPD	continuing professional development
CPMA	Chinese Preventive Medicine Association
CPPCC	Chinese People's Political Consultative Conference
CT	computed tomography
DPT	diphtheria, polio and tetanus (vaccine)
DRG	diagnosis-related group (a payment system)
ESCPC	Education, Science, Culture and Public Health Committee
FCTC	Framework Convention on Tobacco Control (WHO)
FFS	fee for service (a payment system)
GAP	good agricultural practice
GMP	good manufacturing practice
GP	general practitioner
GSP	good supply practice

HFRS	haemorrhagic fever with renal syndrome (vaccine)
HIS	health information system
HIV	human immunodeficiency virus
HPEP	Headquarters of Public Emergency Preparedness
HRH	human resources for health
HTA	health technology assessment
ICU	intensive care unit
IPCD	Insurance Programme for Catastrophic Diseases
MCH	maternal and child health
MFA	Medical Financial Assistance
MMR	measles, mumps and rubella (vaccine)
MOA	Ministry of Agriculture
MOC	Ministry of Commerce
MOCA	Ministry of Civil Affairs
MOEP	Ministry of Environmental Protection
MOF	Ministry of Finance
MOH	Ministry of Health (now part of NHFPC)
MOHRSS	Ministry of Human Resources and Social Security
MOWR	Ministry of Water Resources
MRI	magnetic resonance imaging
NCD	noncommunicable disease
NDRC	National Development and Reform Commission
NGO	nongovernmental organization
NHA	national health accounts (health account system)
NHFPC	National Health and Family Planning Commission
NRCMS	New Rural Cooperative Medical Scheme
NPC	National People's Congress
NPHCC	National Patriotic Health Campaign Commission
OOP	out-of-pocket
OTC	over-the-counter
PC	People's Congress
PET	positron emission tomography
PFPC	Population and Family Planning Commission (now part of NHFPC)
PHC	primary health care
PLA	People's Liberation Army

PMI	private medical insurance
PPP	purchasing power parity
R&D	research and development
SAIC	State Administration for Industry and Commerce
SAR	Special Administrative Region
SARS	severe acute respiratory syndrome
SASAC	State-owned Assets Supervision and Administration Commission
SAT	State Administration of Taxation
SATCM	State Administration of Traditional Chinese Medicine
SMI	Social Medical Insurance
STMA	State Tobacco Monopoly Administration
TCM	traditional Chinese medicine
THE	total health expenditure
UEBMI	Urban Employees' Basic Medical Insurance
URBMI	Urban Residents' Basic Medical Insurance
WHO	World Health Organization



## Abstract

China has made great achievements in improving health status over the past six decades with a huge population that accounted for about 19% of total world population in 2012. The life expectancy at birth in China has increased from 35 years in 1949 to 75 years in 2012, mainly the result of government commitment to health, provision of cost effective public health programmes, coverage of health financial protection mechanisms, and a basic health care delivery network. China is facing many health challenges amid its demographic and epidemiological transition of rapid economic growth, urbanization and industrialization, population ageing, diseases and risk factors related to lifestyle and environmental pollution.

The central government plays a dominant role in both legislation and administrative decision-making, although the health system in China has experienced many rounds of administrative reform with a view to streamlining administration and instituting decentralization. Local governments at all levels form and implement local plans and decisions based on the principles and directions established by central government. Strategic health planning in China includes planning for health system development and for earmarked programmes.

Social health insurance schemes, including the rural cooperative medical scheme, urban employee-based health insurance scheme, and urban resident-based health insurance schemes, have reached universal population coverage. These are run by government subsidies and individual contributions and cover both outpatient and inpatient care. Governments provide subsidies for covering essential public health programmes. Access to health care has increased rapidly with the expanded coverage of financial protection mechanisms. Over the past decade, out-of-pocket payments as a proportion of total health expenditures have declined dramatically.

Health service institutions in China include hospitals, primary health-care institutions and specialized public health institutions. Human resources for health in China have been developing rapidly. In 2012, there were

4.94 health professionals per 1000 population. China has had a shortage of nursing staff for a long time. There are challenges in the human resource distribution between urban and rural areas. In 2012, there were 8.54 health-care professionals per 1000 population in urban areas and 3.41 in rural areas. Lack of personnel in primary health care institutions and their comparatively low education level are also major challenges.

China established a three-tier health care delivery system in both rural and urban areas in the 1950s and 1960s. The structure and function of the health care delivery system have not radically changed, even if health needs have changed overtime. Centres for disease control and prevention (CDCs) are independently operated from the hospital and clinical service sector. How the health care delivery system is to be integrated and coordinated to address the rapid rise of noncommunicable diseases and population ageing is currently one of the top priorities on the health reform agenda.

Since early 2009, China has been implementing a new round of health system reforms, aiming to achieve universal health coverage by 2020. While the reform has made good progress in expanding coverage of financial protection mechanisms across the population, providing essential public health programmes to all citizens, and strengthening the capacity and working conditions of health providers, it is also facing the challenges of cost escalation, fragmented health delivery system, and inequity in health. Consolidating the social health insurance schemes, integrating health providers, reforming the public hospital sector, adopting a strategic purchasing mechanism, and improving the quality of health care are the major current health system reforms in China.

## Executive summary

China is the most populous country in the world. The population of mainland China reached 1.35 billion in 2012, accounting for 19% of the world's people. China is rapidly ageing, with 8.7% of its population now older than 65. As a result of rapid urbanization, 51.8% of Chinese people are residing in cities. It also has a migrant "floating" population as large as 236 million in 2012. The administrative system is composed of central government (the State Council), and local governments in provinces, cities, counties and townships. China's economic system was a planned economy from 1949 to 1978, followed by market economic system reform from 1978. Since the reform and opening-up in 1978, China has seen strong economic growth, growing into the world's second-largest economy in 2010. China's gross domestic product per capita reached US\$ 6093 in 2012, though huge gaps exist among regions as well as between urban and rural areas. The health status of Chinese people has seen considerable improvement, with life expectancy at birth extending from 35 in 1949 to 75 in 2012. The demographic and epidemiological patterns have transitioned from high birth rate, high death rate, and infectious diseases to low birth rate, low death rate, and chronic diseases. In the two decades from 1990 to 2010, the major changes in cause of death were the rising mortalities and proportions of cancers, cerebrovascular diseases and heart disease, along with the dropping proportions of infectious diseases, chronic respiratory tract diseases and digestive system diseases. Chronic diseases have become the major burden of disease in China, contributing to 85% of the approximately 10.3 million deaths of all causes each year, accounting for 70% of the total burden of disease in China.

In China, by end of 2014, there have been 11 health laws and 38 administrative regulations promulgated by the State Council. The major health authorities at the state level in China are the National Health and Family Planning Commission (NHFPC) and the State Administration of Traditional Chinese Medicine overseen by the NHFPC. Based on their functions and responsibilities, other departments of the State Council, such as the National Development and Reform Commission, the Ministry of Civil Affairs, Ministry of Finance, and Ministry of Human Resources

and Social Security, also fulfil their duty in planning, funding, and insurance management in the health system. China's health system has gone through a series of evolutions since 1949. The establishment and development of this system, in particular its pattern of organization and management, have been intertwined with the reforms of China's political, economic and administrative systems.

The structure of China's health administration consists of four levels: National Health and Family Planning Commission, provincial health bureaux, municipal health bureaux, and county health bureaux. In spite of several waves of reform emphasizing streamlined administration and decentralization, the central government is still the leading force in lawmaking and decision-making. Directed by the principles formulated by the central government, local governments at various levels issue and execute plans and decisions within their jurisdiction. Health planning in China is divided into two major sections – health development planning and specific health planning (i.e., human resource planning and disease control planning). China has a long history of multisectoral collaboration in promoting health, represented by the “patriotic health campaign”. Various levels of patriotic health campaign committees function as a deliberative and coordinating agency for related government sectors of the campaign. All main aspects of health service delivery are regulated in China. Governments at various levels are responsible for carrying out the regulatory functions within their jurisdiction.

During the planned economy period, China was a highly centralized country. Local governments had to obtain authorization from the central government to exercise power, following directions and supervised by the central government. Resource allocation was centralized horizontally to each level of government and public sector, and to the central government vertically. Since the beginning of reform and opening-up in 1978, especially since the tax reform in 1994, the main focus of administrative system reform in China has been the decentralization of administrative and fiscal power to governments at lower levels and entities outside governments.

China has a history of multisectoral collaboration in promoting health, the epitome of which is the “patriotic health campaign”. Patriotic health campaign committees function as deliberative and coordinating agencies of governments at various levels, formed by sectors of party, government, military and mass organizations, working through its executive office.

The committee is in charge of leading, arranging and coordinating its health campaign all over the country, while the member agencies of the committee all perform their own duties and work in cooperation. In recent years, the vision of “health in all policies” has drawn attention in China, and is now the guiding principle in the development of healthy cities.

There are four main methods of fundraising in the health financing system in China: tax-based, social health insurance, private insurance and out-of-pocket (OOP) payment. Along with reform and opening, rapid development of the market economy and progress in medical technology, the health system in China entered a stage of rapid development, while health expenditure also rose rapidly. In the 1980s and 1990s, due to the absence of universal health insurance coverage and the low coverage of basic medical insurance, health expenditure was largely in the form of OOP payments. In recent years, China has increased government investment in health and established basic medical insurance in order to reduce OOP health payments and to raise the accessibility and equity of health services. Due to these measures, the proportion of OOP payments in total health expenditure has significantly declined in the last decade. Between 1995 and 2012, China’s total health expenditure showed a 12.9-fold increase, its percentage of GDP growing from 3.5% to 5.4%. The proportion of government health investment in GDP has been rising year by year, while the proportion of OOP payments in total health expenditure, after peaking at 59.0% in 2000, has been continuously decreasing, reaching 34.4% in 2012. Taking 2012 as an example, 30.0% of the total health expenditure was covered by the government budget, 35.6% by social insurance and 34.4% by OOP payments.

China has built up a basic medical insurance system covering both urban and rural residents. Urban Employee Basic Medical Insurance (UEBMI) is mandatory for workers in urban areas, with premiums paid by both employers and employees and covers expenses incurred at outpatient clinics, for inpatient services and at designated pharmacies. Those not covered by UEBMI can join the voluntary Urban Resident Basic Medical Insurance (URBMI), jointly financed by premiums and government. Rural residents enrol voluntarily in the New Rural Cooperative Medical Scheme (NRCMS) as families, financed by premiums and the government. Government subsidies play a dominant role in the financing of URBMI and NRCMS. The three basic medical insurance systems all establish a pooling fund for inpatient expenses in compliance with regulations and some major outpatient diseases, with specific deductibles, co-payment

percentage, and reimbursement cap. Those in poverty who are unable to afford the basic medical insurance premium or the OOP payments of medical insurance are subsidized by an urban and rural medical assistance system, which provides a safety net in the multi-level health insurance systems in China, financed through various channels including government and public donations to ensure the access of poor people to basic health care.

From 2003 to 2006, a disease prevention and control system and a medical care system for public health emergencies covering both urban and rural areas were completed, funded by central and local governments. Basic public health services have been free of charge in China since 2009. Public health service financing, and personnel, development, construction, and business expenditures in specialized public health institutions are all included in government budget. Earmarked government grants are also allocated for public health works carried out by public hospitals.

China has long held to the “fee-for-service” payment model, causing wastage of medical resources and burdening the medical insurance fund. In the Planning and Implementation Plan of Deepening Health System Reform during “the Twelfth Five-year Plan” issued by the State Council in 2012, the reform of medical insurance payments is to be intensified in combination with clinical pathways of diseases, promoting payments based on diagnosis-related groups (DRGs), capitation, and global budget across the country. Currently, China is exploring various types of payment reform.

Health-care facilities in China consist mainly of hospitals, grassroots medical institutions and professional public health institutions. Over the last 60 years, the number of hospitals has been continuously rising, as have the numbers of beds and hospital staff. In 2012, there were 950 000 medical institutions, 5 720 000 hospital beds, and 6 680 000 health workers in China. The number of beds per 1000 people is 6.88 in urban areas, and 3.11 in rural areas; there are 8.54 health care practitioners per 1000 people in urban areas and 3.41 in rural areas. The health workforce in China has been relatively stable with a fairly regulated career development system. However, there is still a long way to go in balancing urban and rural personnel distribution, attracting and retaining grassroots health workers, and improving their professional capacity. China has established a continuous medical education system

consisting of medical colleges and universities, postgraduate education, and continuing education. Heavy medical equipment is concentrated in secondary and tertiary hospitals, while the equipment in primary medical institutions is upgraded year by year. Rapid progress has been achieved in hospital management information systems, clinical information systems and regional health information technology systems.

A relatively well-developed health service system has been established in China, providing services including infectious disease control, emergency care, outpatient services and inpatient services. NHFPC is in charge of health development planning and administrative management nationwide, while local health and family planning administrations are in charge of local health development and management. Centres of disease prevention and control, health supervision authorities, maternal and child health care institutions, community health service centres (stations), township health centres and village clinics provide public health services in infectious disease prevention and control, prevention and treatment of chronic and endemic diseases, health education, food safety inspection and supervision, workplace health inspection, public health emergency response, and maternal and child health care. As grassroots health facilities (or primary care institutions), community health service centres (stations), township health centres, and village clinics provide primary medical services and some basic public health services for residents within their regions. Secondary and tertiary comprehensive hospitals are mainly responsible for outpatient and inpatient services. Services for mental conditions and stomatological diseases are available in specialized hospitals. Every city and county has at least one independent traditional Chinese medicine (TCM) hospital, and most comprehensive medical institutions and grassroots health facilities have a TCM department. These TCM hospitals/departments provide TCM services such as herbal medicines, acupuncture and moxibustion. Since the outbreak of SARS (severe acute respiratory syndrome) in 2003, the Chinese Government has increased financial input for public health institutions, greatly supporting public health service in aspects of infrastructure, capacity strengthening, and public health service delivery. In the meantime, nongovernmental capital investment in medical service market is encouraged and supported.

In order to solve problems encountered in health development, China has initiated a series of health reforms, which can be divided into the preliminary exploration period from early 1980s and the continuously

deepening reform period from 2003. Despite a backward economy and scarce health resources from 1949 to 1979, China managed to build a basic health system and improve people's health drastically by strengthening grassroots health development, emphasizing disease prevention, launching large-scale mass public health campaigns, and establishing wide-coverage of low-levels of urban and rural basic medical insurance. China entered a stage of preliminary exploration of health system reform in 1980, and started to adapt the system to the socialist market economy, while further exploring the rules of health development in a stepwise manner. The main reforms at that stage were focused on health financing mechanisms for health institutions and the health insurance system, in which financing of public health providers increasingly relied on user charges and drug price mark-ups. In early 1997, the Central Committee of the Chinese Communist Party (CCP) and the State Council issued the Decision on Health Reform and Development, which required health care institutions to put social benefits in the first place, instead of pursuing economic benefits blindly; proposed to give priority to basic health services; and announced the decision to establish a rural medical security system and deepen the reform of Urban Employee Basic Medical Insurance (UEBMI). During that period, the total amount of health resources expanded dramatically, and the infrastructure, construction and technologies of medical institutions were fundamentally improved, while the motivation of health professionals was boosted. However, problems such as spiralling medical expenditure and "difficulty and expense in seeking medical care" emerged. In March 2009, the CCP Central Committee and the State Council issued *Opinions on Deepening Health System Reform*. The main goal of the document was to establish a basic health system covering both urban and rural residents by 2020, and the basic tasks were to form a developed public health service system, a medical service delivery system, a medical security system, and a relatively well regulated pharmaceutical supply system. In order to achieve these, eight measures and policies have been implemented, including human resource development, health financing reform, and reform of management systems and operating mechanisms of medical and health institutions. This new round of reform has clearly defined the basic health service system as a public good for all, and the principles of "ensuring basic services, strengthening grassroots level health care and building effective mechanisms (*bao jiben, qiang jiceng, jian jizhi*)" have also been established.



Since launching this health reform in 2009, China has made significant progress in establishment of a universal medical insurance system and an equalized basic public health service system, strengthening the capacity of grassroots health institutions, establishing an essential medicines scheme and organizing public hospital reform pilots. These steps have laid a solid foundation for further deepening the reforms and achieving the overall goal of building a fully developed basic medical and health care system covering urban and rural areas.

The coverage of basic medical insurance in China rose from 29.7% in 2003 to 87.9% in 2008 and 95.7% in 2011. Universal coverage of basic medical insurance has been achieved. In 2012, 256 million people were covered by UEBMI, at 2308 yuan per capita; 807 million yuan were covered by NRCMS, at 305 yuan per capita; and 271 million yuan were covered by URBMI, at 334 yuan per capita. The expansion of medical insurance has greatly increased the accessibility to health services, for example, the rate of early discharge due to financial burden has dropped from 63.6% in 2003 to 28.0% in 2011. Continuous government input in basic public health services also elevated the accessibility to public health services. For instance, the rate of prenatal care rose from 43.2% in 2003 to 62.8% in 2011, and the rate of hospital births increased from 73.3% in 2003 to 95.8% in 2011. Yet in spite of the overall improvement, inequity in health service coverage still exists, with gaps between urban and rural areas, between regions of different income levels, and between different groups of people in terms of the rates of medical service utilization, prenatal care, and catastrophic health expenditure.

Due to the complexity and systematic nature of health system reform and development, health system reform in China is faced with many challenges that require persistence and development. The reform needs to go further in promoting coordinated advances on the comprehensive reform of health insurance, medical service delivery, public health, drug supply, the regulatory system, integrating basic medical insurance schemes, intensifying the comprehensive reform of grassroots medical and health institutions, accelerating public hospital reform, establishing a tiered referral system, improving health workforce and medical information systems, and encouraging non-public health care with a priority on supporting non-profit health institutions.



# 1 Introduction

## Chapter summary

China is the most populous country in the world. Its mainland population reached 1.35 billion in 2012, accounting for 19% of the world's population. China's population is now greying, with 5.1% above 65 years old in 1980 and 8.7% in 2012. Since the mid-1980s, China has witnessed rapid urbanization and massive internal migration: 51.8% of Chinese people were urban residents in 2012, up from 19.4% in 1980. The size of the migrating population reached 236 million in 2012. The population density is 140 people per square kilometre, unevenly distributed. Under the leadership of the Communist Party of China (CPC), the political system includes multi-party cooperation and political consultation, regional autonomy of ethnic minorities, and community-level self-governance. The administrative system is composed of the State Council and local governments at the level of provinces, municipalities, counties and townships. Local governments direct the work of their health departments. Local health departments are also under the leadership and technical guidance of health departments at a higher level. China's economic system went through a planned economy phase from 1949 to 1978 and was then reformed as a socialist market economic system in 1978. Since reform and opening-up in 1978, China has achieved rapid economic growth for three decades, becoming the world's second largest economy in 2010. The health status of Chinese people has seen considerable improvement since the late 1940s, with life expectancy at birth increasing from 35 years in 1949 to 75 years in 2012. China has experienced demographic and epidemiological transitions, from facing a high birth rate, high death rate, and communicable disease to having a low birth rate, low death rate, and noncommunicable chronic diseases. Rapid urbanization and industrialization, large-scale migration and population ageing, and diseases and risk factors related to lifestyle and environmental pollution have become the major health concerns.

## 1.1 Geography and sociodemography

The People's Republic of China (hereinafter referred to as China) was established on 1 October 1949. Covering approximately 9.6 million square kilometres, it is the third-largest country in the world by land area. In 2012, China had 34 provincial-level administrative regions, comprising four municipalities (Beijing, Shanghai, Tianjin, and Chongqing) directly under central government jurisdiction, 23 provinces (including Taiwan), five autonomous regions and two Special Administrative Regions (SARs, Hong Kong and Macau); 333 municipal-level regional administrative units, 2852 county-level regional administrative units, and 40 446 township-level regional administrative units (National Bureau of Statistics, 2014). The terrain of China elevates westward, with diverse landscapes. The climate across its territory is also very diverse, covering tropical, subtropical, warm temperate, temperate, cold temperate and tundra zones from south to north/north-west. With a land frontier of over 20 000 km, China borders the Democratic People's Republic of Korea to the east, the Russian Federation and Mongolia to the north, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan, India, Nepal and Bhutan to the north-west and south-west, and the Lao People's Democratic Republic, Myanmar and Viet Nam to the south.

In 2012, the mainland population (not including Hong Kong SAR and Macau SAR) was estimated at 1.35 billion, accounting for 19% of the world's population, of which 48.2% were female. The annual population growth rate is about 0.5% (World Bank, 2014), meaning that China has one of the lowest population growth rates in the world. According to World Health Organization criteria, China became an ageing society in 1999, with 8.7% of its population over 65 years old in 2012, up from 5.1% in 1980 (World Bank, 2014). The proportion of people with senior high school education or above increased from 9.4% in 1990 to 19.7% in 2010, while the proportion of illiterate persons dropped from 15.9% in 1990 to 4.1% in 2010 (Ministry of Health, 2013a).

Since the mid-1980s, China has experienced rapid urbanization. In 2011, urban residents outnumbered rural residents for the first time. In 2012, 17% (236 million) of China's population were migrants, mainly from rural to urban areas (National Population and Family Planning Commission, 2013). The population of China is distributed unevenly, with higher densities in eastern and central areas and a lower density on the western plateau.

**Table 1.1 Demographic structure and social demographics of China, 1980–2012**

Indicators	1980	1985	1990	1995	2000	2005	2012
Total population (million)	981.2	1051.0	1135.2	1204.9	1262.6	1303.7	1350.7
Female (%)	48.4	48.4	48.4	48.4	48.3	48.3	48.2
By age: 0–14 (%)	35.4	30.9	29.3	28.5	25.6	20.5	18.0
15–64(%)	59.5	63.5	64.9	65.3	67.5	71.8	73.3
Over 65 (%)	5.1	5.6	5.8	6.2	6.9	7.7	8.7
Annual population growth rate (%)	1.3	1.4	1.5	1.1	0.8	0.6	0.5
Population density (number of people/km <sup>2</sup> )	105.2	112.7	121.7	129.2	135.4	139.8	144.8
Total fertility rate (%)	2.7	2.8	2.5	1.7	1.5	1.6	1.7
Crude birth rate (per 1000)	18.21	21.04	21.06	17.12	14.03	12.4	12.1
Proportion of urban population (%)	19.4	22.9	26.4	31.0	35.9	42.5	51.8
Dependency ratio (%)	68.0	57.5	54.0	53.2	48.1	39.2	36.4

Source: World Bank, World Development Indicators, 2014

A total of 56 ethnic groups inhabit China, the largest of which is the Han, accounting for 91.5% of the total population (National Bureau of Statistics, 2014). Large ethnic minorities include Zhuang, Manchu, Hui, Miao and Uyghur. China is a multilingual country, with over 80 languages spoken and some 30 written languages. The ethnic minorities in China each have their own language, except for the Hui and Manchu who use Mandarin. Twenty-one ethnic minorities have a total of 27 written languages different from Chinese characters (Ministry of Education, 2014). The Constitution of China stipulates freedom of religious worship. Various religions flourish and coexist in China, including Buddhism, Islam, Christianity and Taoism.

## 1.2 Political context

Under the leadership of the Communist Party of China (CPC), the political system consists of multiparty cooperation and political consultation, regional autonomy of ethnic minorities, and community-level self-governance. The Chinese People’s Political Consultative Conference (CPPCC) consists of democratic parties and is an important channel for the exercise of political consultation and democratic supervision. Community-level self-governance is an institutional arrangement whereby root organizations, including villages in rural

areas and communities in urban cities, are administered by committees that are organized by communities themselves. The CPC is the designer of this political system and functions as the core leader and top decision-making power. The National People's Congress (NPC) is the highest organ of state power in China. The NPC and local people's congresses are democratically elected. The functions and powers of the NPC include amending the Constitution, supervising the enforcement of the Constitution, enacting basic laws, electing and dismissing leaders of state organs, examining and approving the plan for national economic and social development and reporting on its implementation, and examining and approving the state budget and reporting on its implementation.

"Administrative system" refers to the structure and macro-management regulations by which state political, economic, cultural, military and foreign affairs are administered by administrative organs as stipulated by the Constitution and relevant laws. The administrative system of China is composed of the State Council, local governments at the levels of provinces (including autonomous regions and municipalities directly under the central government), municipalities, counties and townships. Local governments direct the work of their departments, which, at the same time, are under the leadership and technical guidance of their respective superior departments at a higher level. With permission from the people's governments at an immediately superior level, governments at provincial, county and district levels are allowed to establish sub-provincial, sub-county and sub-district administrative offices, respectively. These branch organs are not another level of government but rather function as the representative departments of higher government administrative organs. The CPC has organizations in state administrative organs at each level. These organizations formulate roadmaps, guidelines and policies for the work of the organs.

Regional ethnic autonomy is granted in China, meaning that within China's territory ethnic minorities, under unified state leadership, practise regional autonomy in areas where they live in concentrated communities and set up autonomous agencies. These ethnic minorities administer internal affairs within their own areas. There are five autonomous regions in China: Inner Mongolia Autonomous Region, Xinjiang Uygur Autonomous Region, Ningxia Hui Autonomous Region, Guangxi Zhuang Autonomous Region and Tibet Autonomous Region.

### 1.3 Economic context

The historical development of China's economic system can be divided into two stages: the planned economy stage from 1949 to 1978 and the reformed socialist market economic system stage from 1978. Reform and opening-up was launched in China in December 1978, marked by the third plenary session of the 11th Central Committee of the CPC. In October 1984, the third plenary session of the 12th Central Committee of the CPC approved the *Decision of Reform of the Economic System*, stating that the goal of the reform was to establish a vigorous socialist economic system with Chinese characteristics. In the *Decision on Some Issues Concerning Perfection of the Socialist Market Economic System*, issued by the third plenary session of the 16th Central Committee of the CPC in 2002, a plan was made to build a fully developed socialist market economy. Strategic thinking emphasizing a scientific outlook on development and the construction of a harmonious socialist society were put forward, implying that development will not be GDP-centred and that it should be coordinated between rural and urban areas and between social and economic sectors. In November 2013, the third plenary session of the 18th Central Committee of the CPC approved the *Decision on Some Major Issues Concerning Comprehensively Deepening the Reform*, which highlighted economic system reform as the focus of deepening reform and proposed that the core issue is striking a balance between the roles of government and the market, allowing the market to play the decisive role in resource allocation and the government to function better.

Since 1978, the Chinese economy has been growing rapidly, and China's GDP growth averaged 10% per year for over three decades (Table 1.2). In 2010, the economic aggregate of China ranked second in the world. In 2012, its gross domestic product (GDP) per capita reached US\$ 6093 and GDP per capita at purchasing power parity (PPP) was US \$10 945, bringing China up to the level of middle-income countries (World Bank, 2014). During this period of economic growth in 1980–2012, agricultural-added value reduced by approximately 20%, added value in the service sector increased by about 20%, and industrial added value was essentially unchanged (World Bank, 2014). Inflation rates, except in some years, have generally been low. The rate of unemployment, according to official data and reports, has been kept under 5% (World Bank, 2014).

Despite rapid economic growth, income gaps between urban and rural areas, among regions, and between different groups of citizens are widening. The Gini coefficient was 0.32 in 1990, but 0.43 in 2005 (World

Bank, 2014). Besides urban–rural disparity, economic imbalance between regions is also a problem in China. In 2012, the GDP per capita in the less-developed western and central regions was only 54% and 50%, respectively, of that in eastern China (National Bureau of Statistics, 2014). To address the issue of income inequality, the Chinese Government actively organizes poverty reduction and relief programmes (Box 1.1).

Marketization, a large population, and relatively low labour costs have been fuelling the economic development of China. Because of the ageing of the population, China’s demographic dividend is dwindling. In addition, the economy in China has been growing at a high environmental cost, causing ecological deterioration and severe pollution.

**Table 1.2 Macroeconomic indicators of China, selected years**

Indicators	1980	1985	1990	1995	2000	2005	2012
Gross domestic product (GDP, billion US\$)	189.4	306.7	360.0	728.0	1198.5	2256.9	8229.5
GDP at PPP (current international \$, billion US\$)	-	-	1110.0	2151.4	3616.3	6470.2	14 782.7
GDP per capita (US\$)	193.0	291.8	314.4	604.2	949.2	1731.1	6092.8
GDP per capita at PPP (current international \$)	-	-	1006.6	1785.6	2864.1	4162.9	10 944.5
Annual GDP growth (%)	7.5	15.2	4.1	13.1	7.6	11.3	7.7
Public expenditure (% of GDP)	14.9	14.4	14.1	13.8	15.8	14.3	13.7
Value added in industry (% of GDP)	48.2	42.9	41.3	47.2	45.9	47.4	45.3
Value added in agriculture (% of GDP)	30.2	28.4	27.2	20.0	15.1	12.1	10.1
Value added in services (% of GDP)	21.6	28.7	31.5	32.8	39.0	40.5	44.6
Unemployment rate (%)	-	-	-	4.5	4.5	4.1	4.5
Gini coefficient	-	-	0.32	-	-	0.43	-
Engel’s coefficient* of urban households (%)	56.9	53.3	54.2	50.1	39.4	36.7	36.2
Engel’s coefficient of rural households (%)	61.8	57.8	58.8	58.6	49.1	45.5	39.3
Inflation rate (%)	-	-	3.1	16.9	0.3	1.8	2.7
Official exchange rate (yuan per US\$)	1.5	2.9	4.8	8.4	8.3	8.2	6.3

\* National Bureau of Statistics, 2014

\* Engel’s coefficient: food expenditure as a proportion of total household spending

Source: World Bank, World Development Indicators, 2014



### Box 1.1 Poverty reduction in China

China's efforts at poverty reduction have been most effective in rural areas. From 1978 to 1985, sustained growth of China's agriculture brought an annual growth rate of rural per-capita net income as high as 16.5%, a drop in the rural poor population from 250 million in 1978 to 125 million in 1985 (the poverty line in 1985 for annual rural per-capita net income was 206 yuan), and a decline of poverty incidence from 33.1% to 14.8%.

From 1986, China started to focus on poverty reduction in key counties where poor populations were concentrated. In these counties, development-oriented poverty reduction was carried out with state investment. Specifically, the key counties, with necessary government financial support, were helped to utilize their own natural resources for production and construction, gradually building up their abilities to accumulate and develop, and finally lifting themselves out of poverty. As of 1993, the rural poor population was further decreased to 75 million and poverty incidence to 8.2%. During the seven years from 1994 to 2000, government input into poverty reduction in China was 2.7 times its input from 1986 to 1993. With additional poverty-reduction loan funds from the World Bank and Asian Development Bank, those seven years witnessed a fast decline of poverty.

Since the mid-2000s, poverty reduction in China has progressed steadily, greatly alleviating rural poverty and essentially eliminating urban poverty. Using the criteria for rural poverty reduction in 2008 (rural annual per capita net income less than 1067 yuan), the rural poor population in 2010 was 67 million fewer than in 2000, a drop of over 70%. The rural poor population in China now numbers 130 million, according to the latest national poverty line (rural annual per-capita net income lower than 2300 yuan). Besides the size of the poor population, the ever-widening income gap and consequent social conflicts also impose obstacles and challenges to poverty reduction.

China's economic growth in the last three-plus decades has relied disproportionately on exports and infrastructure building. The government has been trying to transition to an economy with a much larger proportion of consumer spending, which has a number of socioeconomic implications. The current national economic development strategy has emphasized structural adjustment of economic growth. The slowdown of economic growth (compared with growth rates over the past three decades) brings about new requirements in building a more cost-effective health system.

Source: Press Office of the State Council, 2011

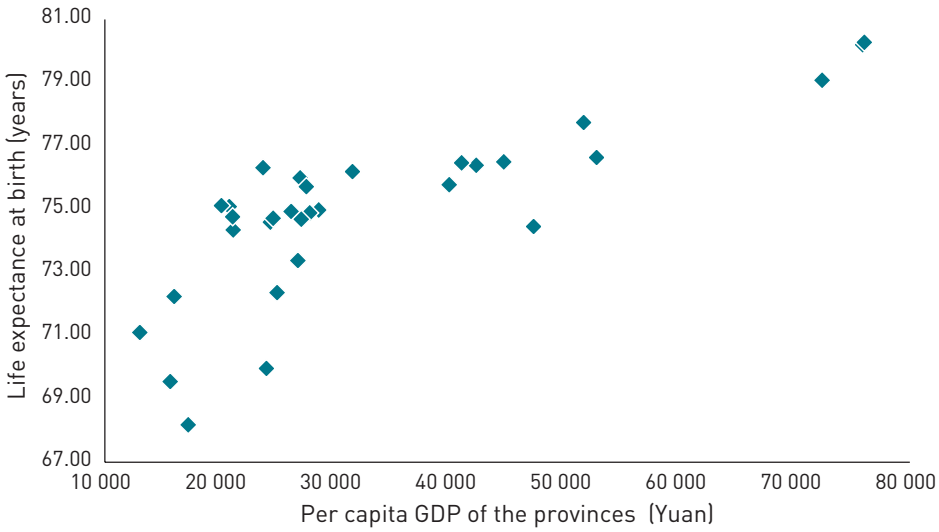
# 1.4 Health status

Like many other countries, since 1949 China has experienced the demographic and epidemiological transition from a high birth rate, high death rate, infectious diseases and malnutrition to a pattern featuring a low birth rate, low death rate and chronic diseases. Since the early 1980s in particular, under circumstances of rapid economic growth, urbanization and industrialization, mass internal migration and ageing of the population, diseases and risk factors related to lifestyle and demographic transition have become the most important health concerns.

## 1.4.1 Main health indicators

**Life expectancy at birth.** Life expectancy at birth of Chinese people has increased substantially, from 35 years in 1949 to 67 years in 1980 and 75 years in 2012 (Table 1.3). However, wide gaps still exist between urban and rural areas, and among different regions and groups of people. Figure 1.1 illustrates the various average life expectancies in provinces at different income levels. In Shanghai, one of the most economically advanced cities, the life expectancy at birth in 2010 was 80.3 years, while it was just 69.5 years in Yunnan, a province with a much lower economic development level.

**Figure 1.1 Correlation between life expectancy at birth and regional GDP per capita in 2010**



Source: Ministry of Health, 2013a

**Child mortality.** Child mortality is usually measured by two major indicators – infant mortality rates and under-5 mortality rates. As shown in Table 1.3, child mortality in China has been declining continuously. The infant mortality rate dropped from 47.2 per 1000 live births in 1980 to 12.9 in 2011, and the under-5 mortality rate from 61.3 per 1000 live births in 1980 to 14.9 in 2011 (World Bank, 2014). The urban–rural gap in child mortality is narrowing, but still far from disappearing. The infant mortality rate in rural areas was 2.9 times that in urban areas in 1995 and 2.8 times in 2010; the under-5 mortality rate in rural areas was 3.1 times that in urban areas in 1995 and 2.8 times in 2010 (Ministry of Health, 2013a). Large variations in infant mortality exist between regions. In 2010, infant mortality rates were 5.05 and 7.69 per thousand live births in the economically developed provinces of Shanghai and Shandong, respectively. In the same time, they were 16.06 and 27.0 per 1000 live births in Qinghai and Guizhou, less developed provinces (Han and Xu, 2014).

**Maternal mortality ratio.** The maternal mortality ratio in China declined from 120 per 100 000 live births in 1990 to 26.1 in 2011 (World Bank, 2014). The urban–rural gap is narrowing quickly. The maternal mortality ratio in rural areas was 2.5 times that in urban areas in 1995 and 2.2 times in 2005. In 2012, the maternal mortality ratio was higher in rural areas (16.4 per 100 000 live births) than in urban cities (10.9 per 100 000 live births), and was higher in poor provinces than in wealthy provinces (National Health and Family Planning Commission, 2014). While maternal mortality ratios were 2.0 per 100 000 live births and 10.1 per 100 000 live

**Table 1.3 Major health indicators, selected years**

Indicators	1980	1985	1990	1995	2000	2005	2012
Life expectancy at birth (years)	67.0	68.3	69.5	70.3	72.1	74.1	75.2
Male	65.5	66.8	67.9	68.7	70.7	72.8	73.9
Female	68.6	69.9	71.1	72.0	73.6	75.3	76.5
Infant mortality rate (per 1000)	48.0	42.1	42.2	37.7	30.2	20.3	11.7
Under-5 mortality rate (per 1000)	62.4	53.8	53.9	47.5	36.9	23.9	13.6
Maternal mortality ratio (per 100 000 live births)	-	-	-	-	53	47.7	24.5
Malnutrition rate under-5 children (%)	12.6	10.7	7.4	4.5	-	-	-

Source: World Bank, World Development Indicators, 2014

births in Shanghai and Shandong, they were 36.2 per 100 000 live births and 26.1 per 100 000 live births in Qinghai and Guizhou, respectively, in 2012 (National Health and Family Planning Commission, 2014).

**Causes of death.** Since the 1990s, the most significant changes in causes of death in China have been the continuous increase in malignant tumours, cerebrovascular diseases and heart disease, compared with communicable diseases, chronic respiratory diseases and digestive diseases (Table 1.4). From 1990 to 2010, chronic respiratory tract diseases dropped from top to fourth on the list of causes of death, with a decline in proportion of deaths resulting from this disease from 24.9% to 13.5%; malignant tumours became the leading cause of death, with their proportion increasing from 19% to 26.5%; cerebrovascular diseases remained the second leading cause of death, rising from 19% to 23.4%; communicable diseases were in seventh place in 1990 and 1995, but ninth in 2005 and 2010, with dramatically decreased proportions; endocrine nutritional and metabolic diseases were not previously among the top 10 causes of death, but rose to seventh place in 2005 and 2010.

**Table 1.4 Top ten causes of death in China in selected years**

Rank	1990		1995		2000		2005		2010	
	Cause of death	%	Cause of death	%	Cause of death	%	Cause of death	%	Cause of death	%
1	Chronic respiratory tract diseases	24.9	Chronic respiratory tract diseases	25.3	Malignant tumours	22.3	Malignant tumours	26.3	Malignant tumours	26.5
2	Cerebrovascular diseases	19.0	Malignant tumours	20.0	Cerebrovascular diseases	21.4	Cerebrovascular diseases	21.7	Cerebrovascular diseases	23.4
3	Malignant tumours	19.0	Cerebrovascular diseases	19.7	Chronic respiratory tract diseases	21.4	Chronic respiratory tract diseases	19.5	Heart disease	20.8
4	Heart disease	13.4	Heart disease	12.1	Heart disease	15.3	Heart disease	15.1	Chronic respiratory tract diseases	13.5
5	Injuries and poisoning	8.8	Injuries and poisoning	10.9	Injuries and poisoning	9.7	Injuries and poisoning	8.8	Injuries and poisoning	7.9
6	Digestive diseases	5.2	Digestive diseases	4.7	Digestive diseases	3.9	Digestive diseases	3.4	Digestive diseases	2.7

Table 1.4 Top ten causes of death in China in selected years (Cont.)

Rank	1990		1995		2000		2005		2010	
	Cause of death	%	Cause of death	%	Cause of death	%	Cause of death	%	Cause of death	%
7	Communi- cable diseases	4.6	Communi- cable diseases	2.7	Communi- cable diseases	1.9	Endocrine nutri- tional and metabolic diseases	1.8	Endocrine nutri- tional and metabolic diseases	2.5
8	Neonatal diseases	2.5	Neonatal diseases	1.7	Geni- tourinary diseases	1.6	Geni- tourinary diseases	1.5	Geni- tourinary diseases	1.2
9	Geni- tourinary diseases	1.7	Geni- tourinary diseases	1.5	Endocrine nutri- tional and metabolic diseases	1.4	Communi- cable diseases	1.2	Communi- cable diseases	1.1
10	Mental disorders	1.0	Endocrine diseases	1.4	Neonatal diseases	1.0	Mental disorders	0.7	Mental disorders	0.5

Source: National Health and Family Planning Commission, 2014

Table 1.5 presents the top ten causes of death in rural and urban areas. There existed vast differences between rural and urban populations in 1990, but they converged, after two decades of transition, in 2010.

Table 1.5 Top ten causes of death in China by rural and urban population in 1990 and 2010

1990						2010					
Rural			Urban			Rural			Urban		
Rank	Cause of death	%	Rank	Cause of death	%	Rank	Cause of health	%	Rank	Cause of health	%
1	Chronic respira- tory tract diseases	24.8	1	Malignant tumours	21.9	1	Cerebro- vascular diseases	23.4	1	Malignant tumours	26.3
2	Malignant tumours	17.5	2	Cerebro- vascular diseases	20.8	2	Malignant tumours	23.1	2	Heart disease	20.9
3	Cerebro- vascular diseases	16.2	3	Heart disease	15.8	3	Heart disease	17.9	3	Cerebro- vascular diseases	20.2
4	Heart disease	10.8	4	Chronic respira- tory tract diseases	15.8	4	Chronic respira- tory tract diseases	14.2	4	Chronic respira- tory tract diseases	11.0

**Table 1.5 Top ten causes of death in China by rural and urban population in 1990 and 2010 (Cont.)**

1990						2010					
Rural			Urban			Rural			Urban		
Rank	Cause of death	%	Rank	Cause of death	%	Rank	Cause of health	%	Rank	Cause of health	%
5	Injuries and poisoning	10.7	5	Injuries and poisoning	6.9	5	Injuries and poisoning	8.5	5	Injuries and poisoning	6.2
6	Digestive diseases	5.0	6	Digestive diseases	4.0	6	Digestive diseases	2.4	6	Endocrine, nutritional and metabolic diseases	2.9
7	Communicable diseases	3.6	7	Endocrine nutritional and metabolic diseases	1.7	7	Other diseases	2.0	7	Digestive diseases	2.7
8	Neonatal diseases	2.5	8	Genitourinary diseases	1.6	8	Endocrine nutritional and metabolic diseases	1.7	8	Other diseases	1.6
9	Tuberculosis	1.8	9	Neonatal diseases	1.5	9	Genitourinary diseases	1.0	9	Genitourinary diseases	1.2
10	Genitourinary diseases	1.5	10	Other diseases	1.3	10	No diagnosis	0.7	10	Mental disorders	0.9

Source: weighed by the proportions of and cause-specific mortalities in urban and rural populations based on information in China Health Statistical Yearbooks.

### 1.4.2 Noncommunicable diseases

Noncommunicable diseases (NCDs) have become the major disease burden in China. Of the approximately 10.3 million deaths each year, 85% are caused by chronic diseases, accounting for 70% of the total burden of disease in China (Ministry of Health, National Development and Reform Commission and Ministry of Finance, 2012). The majority of the NCD burden comes from cerebrovascular disease, diabetes, chronic obstructive pulmonary disease and lung cancer. It is predicted that the number of NCD cases among Chinese people over 40 years old will double or even triple by 2030, most of it by 2020 (World Bank, 2011).

There were over 260 million NCD patients in China, and the annual number of deaths caused by NCDs was as many as 7.12 million in 2012 (Ministry of Health, National Development and Reform Commission and Ministry of Finance, 2012). Moreover, the prevalence of chronic diseases has been spiralling. For example, from 2002 to 2010, the prevalence of hypertension in the population over 18 years old increased from 18.8% to 22.8% (Revision Committee for Chinese Guidelines for the Prevention and Treatment of Hypertension, 2011) and the prevalence of diabetes rose from 2.6% to 9.7% (Chinese Diabetes Society of the Chinese Medical Association, 2011).

Since the mid-1990s, the incidence of cancers has grown at an annual rate of 4% in China (China Center for Disease Control and Prevention, 2012a). Lung, gastric, liver, oesophageal and colorectal cancers have the highest incidences.

Over 50% of the increased NCD burden is preventable by modifying behavioural risks (World Bank, 2011). Smoking, alcoholism, unhealthy diet and lack of physical exercise are the major factors leading to chronic disease in China (Table 1.6). There was a slight decline in the smoking rate between 2004 and 2010, but it remains at a high level. The daily per-capita salt intake and cooking oil intake are much higher than that recommended by WHO. Overweight and obesity among the Chinese, including children, has been a growing health problem. Outdoor and indoor air pollution have also become important risk factors for chronic diseases. Sources of indoor pollution include chemicals (formaldehyde and benzene) in household decorating materials and indoor coal burning.

**Table 1.6 Major risk factors for noncommunicable diseases**

Risk factors	2004	2007	2010
Current cigarette smoking among males aged 18–69 (%) (WHO standard)	58.7	58.2	54.0
Harmful drinking among adults aged 18–69 (%)	3.1	3.6	9.3
Exercise rate among adults aged ≥18 (%)	-	-	11.9
Overweight rate among adults aged 18–69 (%) (WHO standard)	23.1	27.3	28.6
Daily per capita salt intake (g)	-	-	10.6
Daily per capita cooking oil intake (g)	-	-	49.1

Source: China Center for Disease Control and Prevention, 2012b

### **1.4.3 Communicable diseases and public health emergencies**

Communicable diseases, including cholera, leprosy, tuberculosis, schistosomiasis and malaria, used to be the most prevalent diseases in China. By establishing a disease control and prevention system, promoting vaccination and organizing a population-based health campaign, China has successfully reduced the incidence of communicable diseases and effectively controlled major communicable diseases. In 2012, the reported incidence rate and mortality rate of both category A diseases, including plague and cholera, and category B diseases, including viral hepatitis and tuberculosis, remained at 238.8 per 100 000 population and 1.24 per 100 000 population, respectively (National Health and Family Planning Commission, 2014). Major communicable diseases include viral hepatitis, tuberculosis, sexually transmitted diseases and HIV/AIDS. In 2012, the incidence rate of viral hepatitis was 102.5 per 100 000 population, tuberculosis 70.6, sexually transmitted diseases 30.4, and HIV/AIDS 7.4 (National Health and Family Planning Commission, 2014).

However, emerging communicable diseases still pose potential threats, including severe acute respiratory syndrome (SARS, also known as infectious atypical pneumonia in China), highly pathogenic avian influenza, hand-foot-and-mouth disease, imported polio, and human infection with avian influenza A (H7N9) virus. In addition to these emerging acute infectious diseases, chronic infections such as viral hepatitis, tuberculosis and AIDS are heavy burdens. From January to June 2012, there were 657 public health emergencies reported in China, including bird flu and food poisoning, involving 23 843 cases and 111 deaths (China Center for Disease Control and Prevention, 2013). Events related to environmental factors, occupational poisoning, and public health emergencies in schools are occasionally encountered. There have been fewer food poisoning event reports year-on-year, with 379 reports in 2003 and 174 reports in 2012. However, the number of poisonings remained at 7000–8000 a year from 2010 to 2012 (China Center for Disease Control and Prevention, 2013).

### **1.4.4 Maternal and child health**

China has achieved the MDG target of reducing infant mortality and will achieve the MDG goal of reducing maternal mortality in 2015. Coverage of maternal and child health programs has been significantly expanded. Coverage of prenatal services and postnatal services reached 95%



and 92.6% respectively in 2012 (National Health and Family Planning Commission, 2014). The government organizes and financially supports annual physical examinations targeting childbearing-age women, screening for major diseases including maternity-related cancers and other issues. In 2000, 52.7 million women, accounting for 38.6% of the target population, received this service; in 2012, 104 million women, accounting for 64.2% of the target population, were served (National Health and Family Planning Commission, 2014). Table 1.3 above lists the major indicators of maternal and child health (MCH), including child mortality and maternal mortality, reflecting both improvement and regional variations in MCH across China.

Similar trends are observed in other related indicators; for example, the severe malnutrition rate in children under five has been reduced from 3.1% in 2000 to 1.4% in 2012 (National Health and Family Planning Commission, 2014). At the same time, there are still significant differences in the nutritional status of children in urban and rural areas and between regions, particularly in poverty-stricken rural areas. In 2012, in developed areas, for example, in Shanghai and Shandong, the severe malnutrition rates were 0.06% and 0.67%, respectively; and in underdeveloped areas, for example Qinghai and Guihou, the severe malnutrition rates were 2.336% and 1.27%, respectively (National Health and Family Planning Commission, 2014). The prevalence of underweight and stunting in rural children is 3–4 times that in their urban peers, while the prevalence in poverty-stricken rural areas is about twice the average level in rural areas (Ministry of Health, 2013a).

## 2 Organization and governance

### Chapter summary

Under Chinese health legislation, the Chinese health system can be understood as three independent, yet interdependent systems: a health financing system, a health-service delivery system and a health supervision system. Different actors play their part in each subsystem. Health laws in China can be divided into legislation for health institutions, health practice, public health and health services. There are 11 health laws issued by the National People's Congress (NPC) and 38 health regulations issued by the State Council.

The highest health administrative body is the National Health and Family Planning Commission (NHFPC, formerly Ministry of Health until 2013), below which is the State Administration of Traditional Chinese Medicine (SATCM). Other departments of the State Council also assume relevant responsibilities (see 2.3.3 for detailed information), such as the National Development and Reform Commission (NDRC), Ministry of Civil Affairs (MOCA), Ministry of Finance (MOF), and the Ministry of Human Resources and Social Security (MOHRSS). The health system has gradually evolved into its current form since the founding of the People's Republic of China in 1949, and its growth, particularly with regard to organizational and governance reform, has been closely linked to political, economic and administrative reform on a broader scale.

The health administration is a four-tier hierarchy, with the NHFPC at the top, followed by provincial health bureau, prefecture/municipal health bureau and county health bureau as main health authorities at each level. The central government plays a dominant role in both legislation and administrative decision-making, although the health system in China has experienced many rounds of administrative reform with a view to streamlining administration and instituting decentralization. Local governments at all levels form and implement local plans and decisions based on the principles and directions established by central government. Strategic health planning in China includes planning for health system development and planning for earmarked programmes. It has a historical

tradition of promoting health through multi-sector cooperation, and the typical example is the Patriotic Health Campaign. The campaign aims to improve people's health through sanitation and hygiene, as well as by attacking disease. It is headed by the National Patriotic Health Campaign Commission (NPHCC), a cross-sector deliberation and coordination agency that can be found at each level of government. China has regulatory structures for all parts of the health system, and local governments are responsible for health regulation in their jurisdiction.

Organization and governance is the basis for a well-functioning health system. Health system organization refers to a cluster of various functions, which coordinate together to protect and improve people's health. Governance, in a broader view, refers to the management of the social system, and health governance is the regulation and management activity adopted by a society to organize itself in health promotion and protection of its population.

## **2.1 Overview of the health system**

Under the health legislative system, the Chinese health system is composed of a health financing system, a health service delivery system and a health supervision system. Although relatively independent, the subsystems are interrelated. Different actors play their parts within these subsystems. Since 2009, the financing of health care in China has developed around social insurance. By 2013, the three insurance schemes covered more than 95% of the total population, although benefits vary by insurance scheme due to differing funding levels. The delivery of health-care services has hitherto relied on a system of predominantly public hospitals and other public health-care facilities including traditional medicine hospitals. Meanwhile, the growing role of the private sector as supplementary of the public financing and delivery system has been emphasized in health care financing and delivery. Private health insurance expenditure reached 3.55% of total expenditure on health in 2013, while private health institutions accounted for 45.09% of health institutions.

### **2.1.1 Health legislation**

The legislative system in China is a unified system integrating a number of laws and regulations with the Chinese Constitution as guidance – laws issued by the National People's Congress (NPC), with administrative regulations and local laws and regulations forming important

contributions. The system is composed of legal departments including Constitution Related Law, Civil and Commercial Law, Administrative Law, Economic Law, Social Law, Criminal Law, Procedural Law and Non-Procedural Law. In accordance with the Constitution and the Law on Legislation, China formed a three-tier legislative system, comprising (a) the NPC, the State Council and its affiliated departments; (b) the provincial People's Congress (PC) and government; and (c) the PC and government in the capital city and major cities approved by the State Council. The provincial People's Congress and government have the power to formulate provincial laws and regulations under the condition that these laws and regulations do not violate the Constitution, other laws and administrative regulations, and that they acknowledge the Standing Committee of the NPC. Provincial governments have the power to formulate regulations. For the PC and governments of provincial capitals and the major cities approved by the State Council, the city PC has the power to formulate local regulations, and the city government has the power to formulate rules, while no local rules or regulations shall contradict other regulations, laws and the Constitution.

The Constitution defines Chinese citizens' health rights as follows: "Citizens of the People's Republic of China have the right to material assistance from the state and society when they are old, ill or disabled. The state develops social insurance, social assistance and health services that are required for citizens to enjoy this right". By these targets, health laws and regulations can be grouped into legislation for health institutions, medical practices, public health and health services. These mainly provide standards and guidelines for a specific part of the health system. There is no umbrella health law linking the Constitution to specific health laws and regulations, although such an umbrella law is currently being developed.

Most health legislation in China are either administrative laws and regulations. Besides the laws issued by the Standing Committee of the NPC (see Table 2.1), there are 38 administrative regulations enacted by the State Council, including the Ordinance on Health Facility Management, Ordinance on Handling of Medical Malpractice, Ordinance on Traditional Chinese Medicines, Ordinance on Handling of Public Health Emergencies, Nurse Regulation, as well as a number of local laws and regulations, and regulations and regulatory documents issued by ministries or local governments.

**Table 2.1 Main health laws in China**

Year	Law
1984	Drug Administration Law (revised in 2001)
1989	Law on Prevention and Treatment of Communicable Diseases (revised in 2013)
1993	Law on the Red Cross Society
1994	Law on Maternal and Infant Health Care
1997	Blood Donation Law
1998	Law on Practicing Doctors
2001	Law on Prevention of Occupational Diseases (revised in 2011)
2001	Population and Family Planning Law
2007	Border Health and Quarantine Law
2009	Food Safety Law
2012	Mental Health Law

Source: Compiled by the authors based on NHFPC website

**2.1.2 Health governing system**

In health governance (see Figure 2.1), interdependent actors assume and fulfil different roles and responsibilities.

**Health governance bodies**

The National People’s Congress is the highest decision-making body in the country, with a standing committee under it. The NPC Standing Committee’s main functions are to amend the Constitution, supervise the enforcement of the Constitution, enact and amend basic criminal and civil laws, and supervise the work of the State Council and other departments. Established in 1983, the Education, Science, Culture and Public Health Committee (ESCPC) of the NPC mainly takes charge of reviewing proposals, laws and inquiries that the NPC presidium or NPC submit. The ESCPC proposes relevant bills within the authority of the NPC to the NPC presidium or the Standing Committee, and engages in developing legislation concerning science, education, culture, public health, sports, and population, and inspects and supervises the enforcement of laws related to science, education, culture and public health, under the leadership of the Standing Committee.

The National Health and Family Planning Commission and its affiliated agency, the State Administration of Traditional Chinese Medicine (SATCM), constitute the main health administrative bodies in China.

Other departments of the State Council also assume relevant responsibilities in planning, financing, and health insurance management. Such departments include the NDRC, the Ministry of Civil Affairs, MOF and MOHRSS.

Departments directly under the State Council – e.g. the China Food and Drug Administration (CFDA) and the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) – are also engaged in health governance.

The organizational structure of local health administrations is similar to that at the central level and their governing functions mirror those at the central level. They need to abide by laws or administrative rules and regulations, and shall follow guidance and direction of their counterpart agencies at higher level.

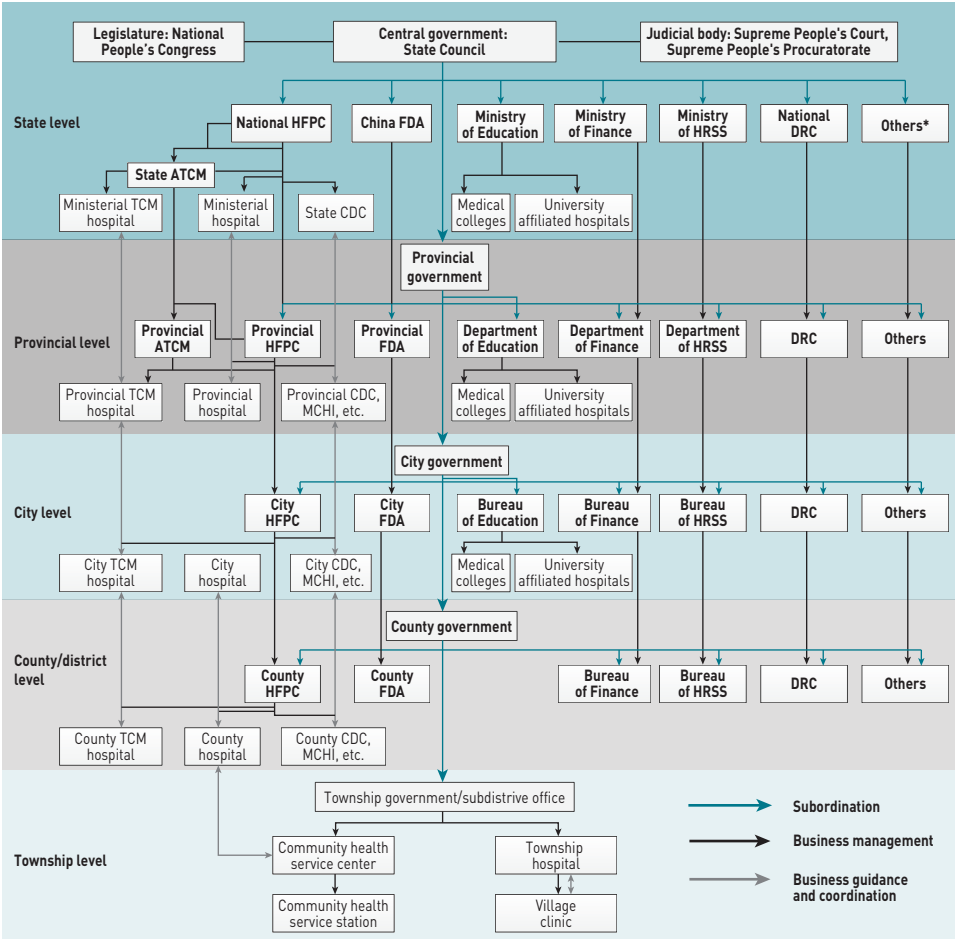
### **Nongovernmental organizations (NGOs)**

In China, NGOs, including charities, funds and all types of professional groups, are also active in all parts of the health system. Some professional associations also play a certain role in health governance, including the Chinese Medical Association (CMA), the China Association of Chinese Medicine (CACM), the Chinese Preventive Medicine Association (CPMA), the Chinese Medical Doctor Association (CMDA) and the Chinese Nursing Association (CNA). These professional associations' responsibilities include organizing in-service training or continuing medical education, reflecting the opinions, suggestions and requests of health staff to government and related departments, and organizing experts to assist the government in the demonstration of relevant regulations or policies.

### **2.1.3 Health service delivery system**

The health service delivery system consists of the public health system and the medical service delivery system. The public health delivery system is composed of disease prevention and control institutions, maternal and child health (MCH) institutions, health education institutions, health information institutions and health supervision and management institutions, among others. The medical service delivery system includes hospitals at provincial, city and county levels, as well as grassroots health institutions. Health institutions are classified as either public or non-public according to registration type and management type. (See Chapter 5 for more details.)

Figure 2.1 Organization of Chinese health system



\* Others include Ministry of Civil Affairs, Insurance Regulatory Commission, etc.  
HFPC: Health and Family Planning Commission;  
FDA: Food and Drug Administration;  
HRSS: Human Resource and Social Security;  
DRC: Development and Reform Commission;  
ATCM: Administration of Traditional Chinese Medicine;  
CDC: Center of Disease Control;  
MCHI: Maternal and Children Health Institution.

Source: developed by the authors

2.1.4 Health financing system

Health financing in China comes from both government and private sector sources. Government input includes direct fiscal contributions to health and social medical security funds. The former includes both central and local government funding to public health-care providers for their operation and development, as well as to public health programmes, such as a subsidy to basic public health service equalization. The latter includes the three medical insurances – the Urban Employee Basic

Medical Insurance (UEBMI), Urban Residence Basic Medical Insurance (URBMI) and the NRCMS – as well as supplementary medical insurances, like catastrophic medical insurance. Insurance programmes together constitute the medical security net covering the largest population in the world. Private financing sources mainly include commercial insurance, out-of-pocket payments, workplace health financing schemes and non-profit-making organizations' financing schemes.

## **2.2 Historical background**

Since the founding of the People's Republic in 1949, formation and development of the health system, especially the organization and governance structure, have been closely related to political, economic and administrative reforms. The health system has also been adapted to various stages of socioeconomic development and reform. After 1949, the health system was mainly financed with public funding under a planned economy. That situation lasted for 30 years. Since the adoption of the Open Door Policy, an approach influenced by the implementation of the market economy has been introduced into health system financing. During this period, health resources and service provision capacity were strengthened rapidly. Meanwhile, the Government reduced financing input to health development. OOP payments accounted for nearly 60% of total health expenditure in 2000, up from about 20.4% in 1978. In the third stage, the Chinese Government increased public financing of the health sector. By 2012, the share of OOP payments in the national health accounts had fallen to 34.3% (China National Health Development Research Center, 2014).

### ***2.2.1 Stage I: From the founding of new China to the reform and opening (1949–1978)***

At the beginning of the People's Republic, with slow economic development, the Government viewed equity as a core social value, put it at the centre of the socialist political, economic and distribution system, and formed a highly centralized planned economy with administration as a main means of governance featured by top-down central government led administration. The state managed social and economic affairs by using administrative tools, and adopted egalitarianism in income distribution and welfare provision. The same top-down administrative system was developed in the health sector. Planned and organized by the central government, the health service delivery system was established and developed quickly. A complete health system came into being, with



different functional parts such as primary care, preventive care, hospital care, rehabilitation, and training and research. The three-tier rural health service delivery system and rural cooperative medical scheme were highly praised by the World Health Organization (WHO). The institutional framework of the Chinese health service delivery system was essentially formed in this period. Constrained by the level of social and economic development, the health financing system was characterized by wide coverage but low risk-pooling capacity – that is, the premium and reimbursement rate were very low and the risk-pooling unit was usually city or county. Generally, health professionals' competence was poor, and so was the quality of care. Publicly-financed health insurance schemes covered most urban residents, but the reimbursement level was low, especially in the rural cooperative medical scheme. There were severe shortages of doctors and drugs. The number of health professionals was inadequate, and the capacity of rapidly trained primary health staff (such as the so-called barefoot doctors) was lacking. Health staff had low morale due to the absence of a direct link between income and service provision, which resulted in poor efficiency. These issues existed in the health system for quite some time before the reform and opening.

### ***2.2.2 Stage II: The initial stage of reform and opening (1979–2002)***

The third Plenary Session of the 11th Central Committee of the Communist Party of China (CPC) held in 1978 ushered a transition from the planned economy to a socialist market economy. The country shifted its focus to economic growth. During this period, the political, administrative, economic and fiscal systems all underwent huge changes, which had a profound impact on the health system and its governance.

- Political reforms. The comprehensively amended Constitution of 1982 established the platform for the national political system and economic development. In 1987, the 13th National Congress of the CPC gave building a socialist democracy as both a goal and the basic aim of political reforms. From 1979 to 2002, the main tasks of political system reform included the separation of political and administrative functions, decentralization and streamlining administration structure.
- Administrative reforms. Administrative reforms coincided with the transition from the planned economy to a market economy. Social and economic development, streamlining administration and decentralization became top issues on the policy agenda. Local government assumed more health duties, while more autonomy was given to health providers. Most health-care institutions became

independent business entities, which were operated and financed by their own means.

- Economic reforms. From 1979 to 2002, the key message of economic system reform was to let the market play a bigger role in resource allocation. Health service provision gradually became more and more market-driven, while prices of health services were still set by the government.
- Fiscal system reform. Initiated in 1994, the fiscal system reform adopted tax-sharing mechanisms to strengthen the central government's tax collection capacity. However, this led to a reduction of local government revenue and increase of expenditure. Centralizing fiscal power conflicted with administrative decentralization, which had negative impact on public health financing capacity.

After the reform and opening, the Government was determined to tackle inefficiencies in health service delivery in the planned economy period to better meet health demands. Based on experiences of economic system reform, the health sector also began to introduce market forces, including changing income allocation mechanisms of health institutions, and adjusting price policies and the medical fee schedule. At the same time, private health clinics and other health-care facilities were established to deliver care, while some public health-care facilities were privatized. From 1979 to 2002, the health system was rapidly strengthened in terms of health resources such as numbers of health institutions, beds, equipment and human resources with the input of Government and the income earned from service charges. With an increased number of health-care institutions, health staff and beds, health service delivery capacity was enhanced. However, due to incomplete health system reforms, health facilities were increasingly profit-driven. As a result, medical expenditure rose rapidly along with rising incomes, and neither doctors nor patients were satisfied with the system. In 2001, OOP payments reached a historical high, at 60% of total expenditure on health (THE), while government inputs accounted for only 16% (China National Health Development Research Center, 2014). With inadequate public health inputs, poor rural health infrastructure and weak risk-pooling capacity of medical security schemes, the health system was challenged by public health emergencies, particularly the severe acute respiratory syndrome (SARS) epidemic in 2003. Since the outbreak of SARS, the central government has put health system reform and strengthening at the top of its agenda.

### ***2.2.3 Stage III: The period of deepening of reform and opening (2003 to today)***

By 2003, the reform of political, economic and fiscal systems had entered a crucial stage. Although the economy kept growing rapidly, there were growing social development issues such as the gap between the rich and poor, an urban and rural two-sphere system, and low coverage of social security. The third plenary session of 16th Central Committee of CPC in 2003 put forward a “View of Scientific Development”, emphasizing a people-oriented and better-balanced development of economy and society. In 2007, the 17th National Congress of the CPC issued a statement to “further liberate thoughts, deepen reform and opening-up, achieve scientific development, and create social harmony”, to build a well-off society. It mentioned health reform and development as one of its important tasks.

After SARS, the Chinese Government began to reflect on the issues in the health system, and made great efforts to resolve the problems caused by previous policies that “emphasized medical treatment and neglected prevention” and that “focused on urban health development and overlooked rural health”. It also developed public health service delivery, and vigorously strengthened the rural health delivery system and community health in urban areas. The NRCMS was launched and saw rapid development from 2003. However, the roles of market and government were not clearly differentiated, and hospitals still needed to be self-reliant through market competition. Inaccessibility and unaffordability of health services still existed. Diversified health demands had not been fully met.

To address these issues, a new round of health system reform was initiated in 2009, to set the course to achieve universal health coverage by the end of 2020. The health system reform has further clarified the Government’s role and responsibilities in the health-care sector, and stated clearly that the growth rate of government spending on health should be higher than the growth rate of the government spending. For instance, per-capita funds for essential public health services increased from 15 yuan in 2009 to 30 yuan in 2013. An essential drug scheme was established to ensure accessibility to all. Public hospital reform was launched by pilot in some cities, followed by county hospital reform. Meanwhile, financial protection of the basic health insurance schemes increased with pooling capacity, which saw public funding increased threefold to reach 320 yuan per capita in 2014. The share of

public funds as a percentage of the total expenditure on health reached 30%. Moreover, China has encouraged the development of the private health sector by issuing policy documents to allow private health-care facilities to enter more areas of service provision and improve the policy environment where these facilities operate. Between 2009 and 2012, the number of private hospitals increased from 6240 to 9786, and the overall number of non-public hospitals increased from 10 640 to 13 533. Compared with the growth of the private health sector during the second stage (1979–2002), the post-2003 period has encouraged capital to enter the health market, and has given support for the non-profit focus of public health facilities and for preventive care with the aim of serving the diverse needs of the people and improving the policy environment.

The State Council initiated a public institutions reform in 2012, which was the sixth such reform since the late 1970s. As a result of the reform, the former Ministry of Health merged with the National Population and Family Planning Commission and became the National Health and Family Planning Commission, with health and population development as its main orientation. The China Food and Drug Administration was also established to strengthen supervision of food, drug and medical apparatus and instruments.

## **2.3 Organization**

### **2.3.1 Health administration**

The Chinese health administration has a four-tier hierarchy, with the NHFPC and health authorities at provincial, city and county levels as main actors.<sup>1</sup> There is no independent health administration at the township (town) level.

As a member of the State Council, the NHFPC is the main organ of health administration, with 21 internal departments: General Office; Personnel; Planning and Information; Finance, Law and Legislation; Health Care Reform; Health Emergency Preparedness; Disease Prevention and Control (Office of the National Patriotic Health Campaign Committee); Medical Administration; Primary Health; Maternal and Child Health; Food Safety Standards; Risk Surveillance and Assessment; Inspection and Supervision; Drug Policy and Essential Medicine; Community Family

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1 Local health authorities and population and family planning commissions are merging, although some remain separate.

Planning; Family Development; Services and Management for Migrant Population; Communication; Health Science, Technology and Education; International Cooperation; and Retired Officials.

Local health authorities at provincial, city and county levels are in charge of health administration in their respective jurisdictions, with guidance and orders from their upper-level health authority. The internal structure of local health administration follows that of the NHFPC, most having divisions of medical administration, primary health, maternal and child health, health supervision, disease control, and planning and finance.

### **2.3.2 Health service delivery system**

The health service delivery system in China relies mainly on hospitals overseen by the health department, although there are also non-public hospitals and hospitals owned by other departments such as civil affairs and education. Hospitals of the health department are national hospitals, provincial hospitals, city hospitals and district or county hospitals, while community (township) medical institutions are generally under the direction of the county health administration. At each administrative level, there is a medical service delivery system (including traditional Chinese medicine) and a public health delivery system.

#### **Medical service delivery system**

Geographically, the medical service delivery system in China is divided into rural and urban parts. Public hospitals are dominant, while non-public hospitals also play an important role in health services delivery. The rural health system is set up with county-level hospitals as the backbone, with township and county-level clinics as the grassroots level. County-level hospitals are responsible for acute care, basic health services and providing technical support for township- and county-level clinics. Meanwhile, township-level clinics are responsible for diagnosis and curative care for common diseases and prevalent ailments, as well as providing technical and managerial instructions for county-level clinics. County-level clinics are responsible for diagnosis and treatment of common diseases. Both township-level hospitals and county-level clinics carry out basic public health service delivery for rural populations.

The urban medical service delivery system is set up with community-level service as the grassroots level, with collaboration between community health institutions and city hospitals. The community health institutions are responsible for providing basic public health services for

urban populations, and curative and rehabilitative services for common ailments. Through coordination mechanisms, city hospitals support sustainable development of community-level health institutions by providing technical support and staff training. At higher levels, large general hospitals at city, provincial and national levels provide acute and emergency care and focus on severe and complicated diseases; they also promote medical education and scientific research. However, the current health resource allocation is mostly concentrated in hospitals. In 2012, the number of beds in health-care facilities was nearly 5.73 million, with 4.16 million in hospitals (72.6%) (National Health and Family Planning Commission, 2014). In 2013, the number of outpatient visits to public hospitals was 1.7 times those to primary health-care (PHC) facilities, while actual bed occupancy of the former was four times that of the latter (National Health and Family Planning Commission, 2014). In future, China will pay more attention to enhancing primary health capacity and strengthening the health service system.

China's medical service delivery system also covers traditional medicine service systems, such as traditional Chinese medicine (TCM), Tibetan medicine and Mongolian medicine. The TCM system is made up of public and private TCM hospitals and TCM departments in general hospitals at national, provincial, city and county levels.

### **Public health service delivery system**

The public health service delivery system consists of disease prevention and control institutions, MCH institutions, health supervision institutions, and mental health professional institutions, which operate at four levels – national, provincial, city and county. There are no such institutions at the township or village levels, but some of their functions are covered by medical institutions such as township hospitals and village clinics.

- Disease control and prevention institutions are responsible for managing public health technologies and services related to occupational health, radiation health, environmental health and school health. There are centres of disease prevention and control at various levels, and other disease-specific prevention and control institutions, such as for oral disease and mental illness.
- Maternal and child health institutions mainly provide health care for women and children.
- Health supervision institutions are responsible for supervision of food sanitation, illegal medical practice and infectious diseases.

- Professional mental health institutions are responsible for prevention, treatment, management, technology support and guidance for mental disorders.

### **2.3.3 Main actors in health administration**

#### **Health Reform Steering Group of the State Council**

The main duties of the Health Reform Steering Group are to review major guidelines, policies and measures; coordinate health system reform efforts; conduct overall planning; and coordinate the major problems on reform. The members include high-level administrative officials from the State Council, NDRC, NHFPC, MOF, MOHRSS, the Propaganda Department of Central Committee, the State Commission Office of Public Sector Reform, the Ministry of Education, MOCA, the State-owned Assets Supervision and Administration Commission (SASAC), the Legislative Affairs Office, the State Council Research Office, the China Insurance Regulatory Commission, the China Food and Drug Administration and the SATCM. The Group has an administrative office, and is responsible for coordinating the progress of priority reform programmes, and harmonizing and supervising the implementation of reform tasks. The advantage of this role adjustment is that the NHFPC is so familiar with health issues that it is easy for it to make specific health policies. However, there can be issues with multiagency coordination and policy implementation.

#### **National Patriotic Health Campaign Commission (NPHCC)**

Under the direction of the Central Committee of the CPC and the State Council, the NPHCC consists of member institutions such as the NHFPC, General Logistics Department of the People's Liberation Army (PLA), NDRC, MOF, MOCA, and the Ministry of Water Resources (MOWR), the Ministry of Education, the NHFPC, the Ministry of Environmental Protection (MOEP), the General Administration of Sports, the State Administration of Public Security and the People's Armed Police. All the actors are coordinated by the NPHCC to work on public health, environment sanitation, disease control and treatment, disease-relevant biological control and health education. The NPHCC Office is located inside the NHFPC.

#### **National Health and Family Planning Commission**

In March 2013, the NHFPC was established as a result of the merger between the former Ministry of Health and the Population and Family

Planning Commission as required by the State Council's plan of reforming administrative organs and transforming their functions. The NHFPC's core function is to plan and allocate health and family-planning resources in a uniform way; make laws, regulations and policies for health, family planning and TCM; develop drug policies including the Essential Medicines Policy; develop a health and family planning personnel development plan; administer and supervise public health and clinical services; administer and deliver family planning services; and manage the NRCMS for rural residents.

### **State Administration of Traditional Chinese Medicine**

The SATCM, responsible for the development of traditional Chinese medicine, is a national organ under the direct leadership of the NHFPC. Its core functions include developing strategies, plans, policies and standards concerning TCM and ethnic medicine development, participating in planning and implementation of major national TCM programmes, supervising curative, preventive and rehabilitative TCM and TCM medications, developing the TCM personnel, research and technology development plan, guiding research and development (R&D) capacity-building efforts, managing key national TCM R&D programmes, and helping to translate, adopt and promote TCM research findings.

### **China Food and Drug Administration**

The central government has centralized food safety regulation and established the CFDA, integrating the food processing regulatory function that used to belong to the China Food and Drug Administration, the Office of Food Safety Committee of the State Council and General Administration of Quality Supervision, Inspection and Quarantine, with regulation of food distribution that was the responsibility of the State Administration for Industry and Commerce. The CFDA administers and technically supervises R&D, production, distribution and utilization of drugs. It also oversees, inspects and audits safety assurance systems for food, supplements and cosmetics. The CFDA also works with the NHFPC on setting up an adverse reaction/events reporting system and handling protocols for major drugs and medical devices.

### **National Development and Reform Commission**

The NDRC is a member institution of the State Council, responsible for key infrastructure development programmes and overall planning of productivity, including development of private health-care institutions.



It also coordinates health system development and reform initiatives, and is charged with drug pricing regulation and supervision.

### **Ministry of Finance**

The MOF is a key institution of the State Council, and a main source for public health funding. It allocates the regular health budget and subsidies, provides funding support for implementing health policies, oversees financial issues of the public health sector, and helps to formulate key national strategies and policies. Health subsidies offered by the MOF include health insurance subsidies, public health subsidies and those for public health-care facilities. In 2013, public inputs accounted for 8% of public hospitals' revenue on average, about 40% of that of public primary health centres, and 63% of that of disease control facilities.

### **Ministry of Human Resources and Social Security**

The MOHRSS, as a member institution of the State Council, is responsible for making policies and standards concerning the UEBMI for urban employees and URBMI for urban residents. It also builds up financial protection schemes and medical aid for catastrophic illnesses, and strengthens linkages between different health insurance schemes to increase risk-pooling capacity.

### **Other departments and institutions**

- The **Ministry of Civil Affairs** is a member institution of the State Council, responsible for making planning, policy and standards of the Medical Financial Aid (MFA) programme.
- The **Ministry of Education**, a member institution of the State Council, is in charge of organizing medical education and continuous medical education, developing the medical education plan, delivering formal training of medical professionals, and working with other ministries on the strategic plan of health personnel development.
- The **General Administration of Quality Supervision, Inspection and Quarantine**, an affiliated institution of the State Council, works with the NHFPC in developing mechanisms for infectious disease control and public health emergency preparedness, including reporting and exchange of information, and coordination mechanisms.
- The **State Administration for Industry and Commerce (SAIC)** is affiliated with the State Council. It is responsible for the issuance of business licences and the registration of the for-profit and non-profit health insurance agencies as well as the private hospitals.

- The **State Administration of Taxation (SAT)** is affiliated with the State Council. It is responsible for taxing the for-profit hospitals.

## **Local governments**

There are five principal tiers of public administration in China – central, provincial, prefectural or municipal, district or county, and township levels. Besides central government, the rest can all be grouped as “local government”. Health service delivery is mainly organized by local governments in China. The local governments play an important role in the establishment, operation and monitoring of health service delivery. Major public health programmes targeting issues such as hepatitis B vaccination, improving drinking water and lavatories, and the basic health financial protection programmes in undeveloped areas are mainly financed by the central government. The local governments, on the other hand, provide the funds for personnel, infrastructure, equipment, and other development projects for public health facilities, public township health centres, and community health service facilities.

## **Private sector**

Private health providers mainly comprise private clinics, with some hospitals, PHC centres and township health centres. But private hospitals are usually small with fewer people and beds. In 2011, private health-care facilities accounted for 48% of all health facilities in the country, employing only 17.5% of health personnel and owning 9.7% of all beds (Ministry of Health, 2012). The Government is actively promoting the development of the private health sector by encouraging more social investment in building health-care facilities, so that more players can be introduced into the health market.

Commercial health insurance emerged in the 1980s. With increasing demand for health insurance, various kinds of health insurance plans by different insurance companies have appeared. In August 2006, the China Insurance Regulatory Commission (CIRC) issued the Health Insurance Regulation to set up a uniform regulatory standard for operation of property insurance, life insurance and health insurance companies.

In 2013, the State Council issued the Opinions on Promoting the Development of the Health Service Industry. It has proposed encouraging the enterprises, charities, foundations and commercial insurance companies to invest in the health service industry by sponsoring, restructuring, hosting or purchasing health-care facilities. It strongly

supported private partners to sponsor non-profit health-care facilities that provide basic health services, and encouraged commercial insurance companies to provide diversified, multilevel and standardized plans and services. In the future, the private sector will play a larger role in the health system.

### **Other organizations**

Professional associations play a role in professional management, such as the Chinese Medical Association, the National Association of Chinese Traditional Medicine, the Chinese Preventive Medication Association, the Chinese Nursing Association and the Chinese Medical Doctor Association.

### **2.3.4 Characteristics of health policy-making, implementation and assessment**

In the process of constructing a socialist market economic system and deepening economic system reforms, the Chinese political system has undergone profound changes. The policy process has gradually shifted from authority decision or elite decision to institutional regulation or formal rules. At the end of 2012, the Chinese Government started deepening reform, promoting consultative democracy, improving people's political participation – promoting scientific and democratic decision-making.

The *Decision on deepening the health system reform* issued by the Central Committee of the CPC and State Council in April 2009 is a good example of a scientific and democratic policy-making process. To be specific, in each step of developing the Decision, including agenda-setting, problem-defining, preparation and selection of a policy plan, evidence shows that a scientific and democratic policy process was followed.

- 17 August 2006 – the ministerial coordinating working group for deepening health system reform was established;
- 26 September 2006 – an official website was launched, entitled “I want to contribute my thoughts to the health reform”, and a hotline was set up at the same time. In this way, the Government could collect the maximum number of opinions, ideas and recommendations for health reform;
- 23 March 2007 – the working group invited the World Bank, WHO, McKinsey & Company (China), the Development Research Centre of the State Council, Beijing University, Fudan University, Beijing Normal

University and other institutes to prepare and provide their proposals on Chinese health reform. This was the first time that the Chinese Government had invited foreign agencies' proposals for major policy-making;

- 30 November 2007 – coordinating meeting held for the ministers from NDRC, the MOF and the Ministry of Health to discuss some disputed issues, such as financial input mechanisms for grassroots level health-care facilities, operational mechanisms in public hospitals, and the percentage of health expenditure in government expenditure. Agreement was reached after the discussion;
- 14 and 15 January 2008 – a vice-premier in charge of the health sector held two meetings to ask for comments and recommendations on health reform from the members of the People's Congress;
- 11 and 15 April 2008 – the premier held two meetings to ask for the comments and recommendations on the drafted Decisions from medical doctors, experts, leaders from drug manufacturers and circulating enterprises, teachers, urban citizens, farmers and farmer-workers.
- 10 September 2008 – the drafted Decision was confirmed by the State Council, which decided to open it to the public for comments.
- From October 2008 to March 2009 – some 35 260 comments and recommendations were received. Some were incorporated into the final version of the Decision.

The major steps described above demonstrate the scientific and democratic way the Government developed the Decision.

There are, however, big gaps to bridge in other procedures, such as policy implementation, policy assessment, policy adjustment and policy termination.

## **2.4 Decentralization and centralization**

### ***2.4.1 Transformation of decentralization and centralization***

Decentralization includes functional and geographic decentralization. The former refers to the authority for performing particular functions being transferred to a specialized local office. The latter refers to broad responsibilities for public functions being transferred to local organizations that have well-defined geographical boundaries. Here we

mainly discuss functional decentralization, because it is frequently used in Chinese health administrative system reform.

Functional decentralization has the following four forms (from low to high degree of decentralization): (1) Deconcentration – handing over of some administrative authority to local offices of central government ministries; (2) Devolution – creation or strengthening of subnational government that is substantially independent of the national level with respect to a defined set of functions; (3) Delegation – transferring managerial responsibility for defined functions to organizations that are outside the central government structure and only indirectly controlled by central government; and (4) Privatization – transfer of government functions to volunteer organizations or private for-profit or non-profit enterprises, with various degrees of government regulation.

Although the Chinese health system has undergone several rounds of administrative system reform focused on decentralization, the central government still plays a dominant role in both legislation and decision-making. Following the principles formulated and direction determined by the central government, local governments at different levels develop their plans and policies in the light of local realities.

During the planned economy period, power was highly concentrated in the hands of central government. The authority of local governments had to be authorized by the central government, and the local governments had to follow orders from and be supervised by the central government. For resource allocation, the power rested with the government and public sector. Within the government, power was maintained by the central government. Consequently, governments, especially the central government, were the only body that had power to control nationwide resource allocation. In this context, health governance was under highly centralized administration.

Since the reform and opening, the economic system transitioned from planned socialism to market capitalism. In step with the reform and economic transition, the administrative system reform in China has been mainly characterized by the empowerment of local governments and agencies outside the public administration. Giving power to local governments aimed to motivate both central and local governments, and giving power to agencies outside the public sector was to enable full expression of both the market and the government role. The following examples help to illustrate the reform in terms of decentralization.

## **Administration system arrangement in the health sector**

The administrative system in China is composed of five levels of government: central, provincial, city, county and township levels. Health and family planning administration is one of the government departments at each level. The departments are led by the government at the corresponding level and perform the defined functions in their jurisdictions. The government allocates personnel and financial resources to its health and family planning department. The Health and Family Planning Commission at the central level provides technical guidance to all the health and family planning administrations at lower levels. This arrangement can be taken as devolution.

## **Administrative system reform of China Food and Drug Administration**

In 1998, when the State Council launched a new round of administrative system reform, the decision was made to re-establish the National Drug Administration, directly controlled by the State Council. To achieve their independence, administrations at city and county levels were “vertically controlled” by the provincial administration. In the Chinese context, “vertical control” refers to the arrangement in which central or provincial authorities hold the personnel and financial resources of lower-level authorities in order to avoid interventions from lower governments when the lower authorities perform their functions. The concept of vertical control is quite similar to the concept of deconcentration. Deconcentration can be seen as a type of centralization.

In 2008, another round of administrative reform began. To give local governments more authority over food and drug matters, the State Council decided to stop implementing vertical control. The administrations at city and county levels were to be led by the governments at the corresponding level. The local government would be responsible for the personnel and financial input for the local administrations. In Chinese, this is called “localization”, which is quite similar to the concept of devolution. To date, localization is still being used.

In the process of administrative reform, substantial measures were taken in the health sector.

In March 2006, the Ministry of Health issued a document entitled *The plan for releasing information on the epidemic of legal reported infectious diseases and public health emergencies*. According to the plan, health

authorities at the provincial, autonomous region and municipality levels were given the right to regularly release general information on the epidemic situation of those infectious diseases that have to be reported by law and public emergencies in their jurisdiction monthly or annually as regulated. The specific time, approach and procedure for releasing the information would be decided by the provincial health authority. The shift of function in releasing local information on such infectious diseases from central to provincial health authority is an example of delegation, which is an attempt at decentralization.

### **Abolishing the examination and approval function attached to the government**

In July 2013, the NHFPC announced that the government function of examining and approving the production of disinfectants and disinfecting equipment would be abolished, except for disinfectants and disinfecting equipment produced with new materials, new processes and technologies, or new principles of sterilization. Consequently, manufacturers are requested to carry out hygiene and safety evaluations in accordance with the national hygiene standards and technical specifications. The relevant local agencies should supervise and examine manufacturers and their products. This measure can be seen as privatization and an effort toward decentralization.

#### ***2.4.2 Decentralization of governance mechanism***

In legislation, the National People's Congress at the central level has the right to revise the Constitution and to make and revise criminal and civil basic laws; its standing committee is authorized to make special laws; the State Council has the right to formulate administrative regulations; provincial People's Congress has the right to make laws effective in a province. The provincial laws have to be consistent with principles of the legal documents by people's congresses at higher levels. Provincial government has the right to make administrative regulations.

In the health sector, the NHFPC is in charge of developing health regulations, guidelines and policies; proposing national health development plans and strategic goals; defining technical specifications and health standards; and monitoring implementation. Local health authorities, under the direct leadership of local governments, are responsible for health administrations, and develop their health development and regional resource allocation plans accordingly. Some review and approval power is also shared by health administrations

at different levels. For example, the Regulation of Allocation and Application of Large Medical Equipment requires that hospitals apply for the procurement quota of A-class major medical equipment at their local health administration first before being referred to higher-level administrations. Only after provincial health administration review and approval can the application be reported to the national health department.

Among the health administrations at different levels, the division of powers and duties is dynamic. For example, according to the general requirement of the national administrative system reform, devolution has been implemented in the health sector. The Regulation on Internal Organization and Staffing of the Main Responsibility of NHFPC says that the approval function for products involved in drinking-water safety, produced without new materials, new techniques or new chemical substances, has been devolved to the provincial health and family planning sector, and the approval function of short-term medical practice by foreign medical teams has been devolved to the health and family planning sector at city level in consultation with districts.

### ***2.4.3 Decentralization of fiscal expenditure and revenue***

The taxation reform of 1994 clearly defined the responsibilities of central and local governments and rationally allocated revenue between central and local governments by grouping tax categories into national, local and shared groups. The national tax group includes taxes that reflect national right and interests and have the function of macro-control power; taxes suitable for local collecting and managing are included as local taxes; and taxes directly related to economic development are shared by central and local governments. According to the reform, the larger part of revenue from tax is retained by the central government, which solved the problem of the central government being “much weaker than local governments in terms of fiscal capacity”. Special local agencies have been set up to collect taxes for the central and local governments.

The fiscal burden of local governments is closely related to the administrative level of the agencies that run the health-care facilities. Central and provincial governments can set up a few centres of clinical excellence to deal with complex and difficult diseases at national or regional levels. The city government can set up a certain number of health-care facilities in line with its health plan. The county level is mainly responsible for running county and township hospitals, community health



centres and village clinics. Local governments, especially the lowest level of government, are the main funders of health service delivery. In order to promote health financing equity, the central government has gradually increased transfer payments for health and spent more on local health development.

Expenditure sharing schemes may differ with various health expenditure items.

- **Basic operation expenditure.** Expenditure for public health-care facilities mainly depends on affiliation status. Central government provides fiscal transfers to poverty-stricken areas.
- **Infrastructure expenditure.** Local governments shoulder most infrastructure expenditure. The central government provides special subsidies to former revolutionary base areas, areas inhabited by minority nationalities, remote and border areas, and poverty-stricken areas.
- **Equipment purchasing expenditure** is funded mainly by local governments. Central government provides special subsidies to central and western areas, rural areas and minority nationality areas.
- **Mandatory expenditure.** Expenditures for public health emergencies are defined according to the scope and extent of externality caused by the emergency or other public health problem, and the central government increases transfer payments. The expenditure for equalization of basic public health services is shared by different levels of government depending on economic development. In central and western regions, the national government takes the main spending responsibility, while local governments spend more in the eastern regions.
- **Subsidies for basic health insurance schemes.** National and local governments, as well as insurance enrollees, make contributions to the NRCMS (rural residents) and URBMI (urban residents). But in central and western areas, the national government takes most of the financing responsibility.

## 2.5 Planning

Currently, China has a three-part planning system with a three-tier structure. By administrative level, there is a national plan, provincial (autonomous region, municipality) plans, and city/county plans. By objectives and functions, there are general plans, special plans and regional plans. The health development plan is a type of special plan.

The time period of general national, provincial and regional plans is usually five years, but may sometimes be extended beyond 10 years. The national plan for social and economic development and local plans at provincial (autonomous region, municipality), city and county levels are developed by governments at the respective levels. National and local development and reform sectors, joined by other relevant sectors, are responsible for drafting general development plans, while the government submits the draft to the people's congress of its level for approval. The special plans are organized and developed by relevant departments at different levels. Of these, special plans relevant to the general economic and social development of China must be approved or examined by the State Council, national-level special plans with a large amount of central fiscal subsidy should be approved by the State Council, while other plans are to be approved by relevant departments of the State Council.

The State Council commissions the national Five-Year Plan for the economy and social development and the Annual Program, which is developed and implemented by the NDRC; the Five-Year Plan (draft report) is submitted to the National People's Congress.

The national health development plan is under the national economy and social development plan. The NHFPC is responsible for drafting the national health medium- and long-term development and special plans. The plan is connected with the general national plan by the NDRC and implemented with approval of the State Council.

### **2.5.1 National Health Plan**

The Five-Year Plan for Health Sector Development is a national special plan. Usually it begins with a review of the current status and future trends of health development, then delineates guidelines, goals, tasks, distribution planning, main programmes and enabling mechanisms of health reform and development. It is an essential guiding document for the development of the Chinese health system over a five-year period. Since the founding of the People's Republic of China, 12 five-year plans for health development have been developed. In March 2012, the *Implementing Plan of Deepening the Health Care Reform in the 12th Five-Year Plan* period was issued by the State Council. The staged goals, priorities and main tasks of health care system reform during 2012–2015 were defined. Under the leadership of the State Council Steering Group of Deepening Health Care Reform, the plan was a

coordinated effort of many ministries and commissions (including health, finance, civil affairs and human resources, and social security). Local governments at different levels are responsible for developing regional 12th five-year plans, based on the overall health sector plan and health reform policies, adjusted to regional conditions. The regional plan cannot be executed until it has been reviewed and approved by the higher-level health administration. In October 2012, the *12th Five-Year Plan for Health Sector Development* was published by the State Council. A series of goals were proposed: basic health-care system covering the urban and rural residents to be established and improved; universal coverage of basic health insurance to be realized; the accessibility, quality, efficiency of health service to be improved significantly and patients' satisfaction increased; the economic burden for health service to be largely reduced; the gap in regional health resources and population health status to be gradually narrowed; and life expectancy to be increased by one year.

Moreover, other fields related to health development – such as health financial protection, food and drug safety, environment and health – also have special plans developed by the relevant administrative department, such as the *12th Five-Year Plan of Social Security*, the *12th Five-Year Drug Safety Plan*, and the *Action Plan on Environment and Health (2007–2015)*.

### **2.5.2 Special professional plans for health**

Under the guideline of the *Five-Year Plan for Health Sector Development*, development plans for specific areas are prepared. Generally, these specific plans are developed by the relevant departments of health administration based on practical demand, and are connected with the *Five-Year Plan for Health Sector Development* and other relevant national specific plans. The specific health plans can be grouped into two types.

The first type includes plans and programmes targeting major health issues and risk factors. Generally speaking, a medium- and long-term plan will be drafted first. Examples include the *National Medium- and Long-Term Plan for HIV/AIDS Prevention and Control*, the *National 12th Five-Year Plan for Endemic Disease Prevention and Control*, and the *National 12th Five-Year Plan for Chronic Disease Prevention and Control (2010–2015)*. A staged implementation plan and programme is developed later.

The second type of plan includes the essentials and supporting systems for health development, such as health-care facilities, human resources and information systems, such as the *Medium- and Long-Term Health Personnel Development Plan (2011–2020)*, the *Health Information Development Plan for the 12th Five-Year Period*, and the *Reform and Development Outline for Health Education in China (2001–2015)*. These plans are important policy instruments in their respective areas, and are often developed by departments of the national health administration, with collaboration from the NDRC and other relevant sectors (such as science, education and information technology). The plans are only executed after being linked to the *Five-Year Plan for Health Sector Development* and relevant specific plans.

### 2.5.3 Health Service System Development Plan

The *Health Service System Development Plan* aims at strengthening health-care delivery and promoting health development by implementing infrastructure development projects, improving policy and measures, and upgrading overall health service infrastructure. Normally, the NHFPC makes proposals identifying priorities and defining needs, and designs projects for NDRC approval. The two commissions jointly publish and implement the plan after it has been reviewed and approved. Local governments also develop regional health service construction plans.

In 2003, drawing on the experience with SARS prevention and control, the Chinese Government decided to further strengthen the infrastructure development of the public health system. The *Development Plan for Disease Prevention and Control* and the *Development Plan for Medical Treatment of Public Health Emergencies* were implemented step by step. In 2006, the *Development Plan for Rural Health Service System* was jointly issued by the former Ministry of Health, the SATCM, the NDRC and MOF, focusing on the infrastructure development of township health centres, county hospitals, county MCH facilities, and village clinics. Since the launch of the new round of health reforms in 2009, a series of plans has been formulated, including the *Development Plan for Community Health Service Facilities*, the *Development Plan for the Mental Illness Prevention and Control System*, the *Development Plan for Improving the Rural Health Service System*, the *Development Plan for the Rural Health Emergency System (2011–2013)*, the *Development Plan for the Child Health Service System*, and the *Development Plan for Major Disease Prevention and Treatment Facilities*. With increasing inputs to the health sector,

infrastructural development in public, rural and urban health service systems has been strengthened in China.

#### **2.5.4 Regional health plans**

The *Decision on Health Reform and Development* by the State Council in 1997 proposed to use regional health planning as an essential tool for deepening health system reform. In March 1999, the former National Planning Commission, MOF and former Ministry of Health formulated the *Guidance on Regional Health Planning*, putting forward specific requirements for the goals, content, methods, measures, organization and management of regional health planning activities. Since then, regional health plans have been developed across China. The *Opinions on Deepening the Health Care Reform* by the State Council in 2009 proposed to “strengthen regional health planning”. The provincial government is responsible for defining criteria for health resource allocation, and formulating a regional health plan and a health-care facility development plan to clarify the amount, size, distribution and function of health-care facilities. Municipal government is responsible for developing and implementing the regional health plan and health-care facility development plan in its jurisdiction, based on central government guidelines and provincial resource allocation standards, normally for a period of five years.

#### **2.5.5 New issues for health planning**

With the development of the social economy and the acceleration of globalization, China is facing new issues such as the growing number of public health emergencies, increasing medical aid to foreign countries, as well as more international patients. Corresponding arrangements for these problems have been made in the health plan, while research is still needed to efficiently deal with all these new issues. For example, the *National Emergency Response Plan for Public Health Emergencies* issued by the State Council requires that related departments respond to public health emergencies according to their duties. The *12th Five-Year Plan for Health Sector Development* proposed to deal with all kinds of major public health emergencies, to actively provide emergency health aid for major accidents, and to launch medical security for major events. With multilateral cooperation, some border areas have also put these in their local plans. For example, the plans of some border areas in Guangxi and Yunnan provinces have included consideration of the flow of both patients and health personnel to or from some South-East Asian nations.

## 2.6 Intersectorality

China has a long history of promoting health by cooperation between departments. The Patriotic Public Health Campaign is a typical example. The Commission of the Patriotic Public Health Campaign is a coordinating agency between governments at different levels. It is composed of several departments including the CPC, governments, army and the people. The operating agency is the Office of the Commission of the Patriotic Public Health Campaign. The Commission of the Patriotic Public Health Campaign is responsible for guiding and coordination. In recent years, the concept of “Health in All Policies” has received great attention from different parties, and has been proposed as a guideline to promote the building of healthy cities.

### *2.6.1 Planning and implementing mechanisms between and across departments*

Coordination among multiple departments on health affairs comes in many forms. “Joint conference” refers to a kind of equal cooperation among departments which do not have administrative subordinating relations, but which have some overlap in work areas; it aims at solving certain health problems and achieving the same health goals. For example, during the avian influenza outbreak, the former Ministry of Health and Ministry of Agriculture held several joint conferences to lay a solid foundation for reaching agreement and taking consistent action. It is also a commonly used coordination mechanism that enables high-level officials to take the lead. Furthermore, for multi-ministry cooperation that requires long-term communication, agencies to coordinate the various departments involved have also been set up. For example, the Health Reform Steering Group of the State Council is a standing agency set up by the State Council Steering Group, responsible for coordinating the relevant departments regarding health reform and promoting related work. The State Council Commission Office for HIV/AIDS Prevention and Treatment is another typical example. It is in charge of putting forward the plan and relevant policies on HIV/AIDS prevention and treatment, guiding relevant units to develop an annual workplan and work programme, providing technical support on HIV/AIDS prevention and treatment, organizing relevant units to monitor and examine HIV/AIDS prevention and treatment, coordinating relevant units to research and solve the concrete problems, and other issues. Governments also commonly set up temporary deliberative organs and coordinating organs,

usually to cope with urgent issues like disasters and public health emergencies. The SARS Office set up in 2003 was in this category.

### **2.6.2 Evaluation of health risk factors**

The systematic approach for evaluating health risk factors that is elaborated in “Health in All Policies” has not yet been fully developed in China. With increasing focus on the health impacts of air, water and noise pollution, China has attached more importance to environmental factors that may impact on health. On 1 April 2008, the Ministry of Environmental Protection (MOEP) issued the *Guideline on Assessment of Environmental Influences – Human Health (Draft)*, showing that the Government had begun to include health impact evaluation in the assessment framework for engineering programmes. However, the evaluation of risk factors for health is still inadequate, and a strong long-term evaluation mechanism needs to be established.

### **2.6.3 Food safety, agriculture and ill-health related to workplace and environment**

Food safety, agriculture, occupational health and environmental health involve many departments. Therefore, the Government usually nominates a coordinating agency to organize the decision-making process and coordinate different ministries and departments.

**Food safety.** The main administrative body for food safety is the China Food and Drug Administration. At national level, besides CFDA, there are the NHFPC, the Ministry of Agriculture, the AQSIQ, the SAIC, the Ministry of Commerce (MOC), MOEP and others. The Food Safety Commission was also set up by the State Council, in which the CFDA is responsible for formulating the implementation plan of food production licensing and monitoring its implementation, establishing a mechanism for publicizing food safety information and publicizing the major food issues, participating in formulating a risk monitoring plan and standards for food safety, reviewing major legal infractions and constructing an emergency system for food safety. The NHFPC is responsible for monitoring and assessing the food safety risk, formulating and publicizing food safety standards, overseeing food safety, food additives, and relevant new raw materials and new varieties. The State Council Food Safety Commission is responsible for analysing food safety, arranging and guiding food safety work, proposing major policies on monitoring food safety, and supervising the implementation of food safety responsibilities. These departments

work together to form an entire safety system for producing, processing, selling and consuming food through regular meetings, prioritizing exercises and signing of a memorandum of understanding. However, in reality, there are issues with overlapping duties and coordination because of the lengthy policy-making process and engagement of multiple agencies. This may have detrimental impact on food regulation by multiple agencies.

**Agriculture.** The control of zoonotic disease requires cooperation across sectors. Faced with increasing prevalence of zoonotic disease, the then-Ministry of Health and the Ministry of Agriculture jointly formulated a guiding document on a cooperating mechanism for zoonotic disease prevention and treatment. They set up a coordinating group on zoonotic disease prevention and treatment; established a mechanism for regular meetings among relevant departments; and regularly report outbreak and epidemic zoonotic disease among humans and animals. On the basis of the epidemic status, two departments jointly organize expert teams, carry out epidemiological investigations and laboratory testing, and issue advice according to the results. The two ministries also organize regular expert meetings, research possible testing and diagnostic methods for emerging communicable diseases, develop a monitoring plan and carry out monitoring according to their own need, report abnormal cases and test results, and supervise zoonotic disease prevention and treatment.

**Occupational health.** The Cross-Ministerial Conference on Prevention and Care for Occupational Health has been established. The NHFPC is responsible for drafting laws, regulations and standards on occupational health, categorizing occupational disease and risk factors, supervising occupational health diagnosis, appraising and reporting, carrying out monitoring, research and assessment on occupational diseases, organizing health education on laws, regulations and knowledge of prevention and treatment of the occupational disease, and promoting the health of relevant occupational populations. The State Administration of Work Safety is responsible for supervising and inspecting workplaces, issuing the licences for occupational health safety, appraising and managing the qualification of health-care facilities that help to examine and assess patients with work-related injuries, and examine occupational health issues of newly-built, rebuilt, extended or modified structures. The MOHRSS is responsible for monitoring the implementation of the labour contracts and social security for the patients of occupational disease. The All-China Federation of Trade



Unions is obliged to participate in the investigation and handling of workplace accidents in accordance with the law, review individuals' appeals of occupational health, give feedback and advice, and safeguard the legitimate rights and interests of labourers.

#### **2.6.4 Public health emergency preparedness**

China has established a cross-ministerial collaboration programme on public health emergency preparedness coordinated by the central government. The State Council has set up the Headquarters of Public Emergency Preparedness (HPEP) in which ministries and military departments participate, chaired by the director-general of the State Council. In a public emergency, the NHFPC and other ministries are obliged to act. At provincial level, the government is responsible for setting up the HPEP, with the provincial governor as chair. Health administrations above county level are in charge of investigation, disaster control and medical aid delivery for public emergencies. Municipal and provincial government departments make preparations for emergencies. The NHFPC also issues policy documents requiring health and family planning commissions at all levels to strengthen communication and policy coordination with civil affairs, land, water resource, earthquake and meteorology agencies, and to analyse possible health and service delivery impacts of natural hazards. It also works on developing relevant protocols, plans and guidelines for public health emergency preparedness.

#### **2.6.5 Policies on tobacco taxation, marketing and sales**

Multiple ministries and departments have been involved in making policies on tobacco taxation, marketing and sales, including the NDRC, the Industry and Commerce Bureau, AQSIQ, NHFPC, the Ministry of Education, customs, the Ministry of Agriculture, and the State Tobacco Monopoly Administration (STMA). In 2005, China signed the WHO Framework Convention on Tobacco Control (FCTC), tightened control over tobacco advertising, promotion and donation, and adopted a smoking ban in public areas. Tobacco control efforts and cross-ministerial cooperation have been led by the Ministry of Industry and Information Technology and jointly implemented by the NHFPC, the Ministry of Foreign Affairs, MOF and the STMA. The country still lacks medium- and long-term planning for tobacco control. The *Guideline on Sanitation Management in Public Areas* was issued on 1 May 2011, banning smoking in public areas indoors. In May 2009, the central government adjusted base prices for

tobacco taxation and consumption tax on cigarettes of various brands increased between 6% and 11%. Wholesale tobacco sales are taxed ad valorem. However, the increase taxes have not been reflected in retail prices of cigarettes. Moreover, although China has signed the FCTC, Chinese tobacco legislation still has a lot of detailed provisions that need to be amended. For instance, the Law on Tobacco Advertisement only targets direct advertising of tobacco, but does not cover indirect or disguised tobacco advertisements like keeping naming rights of tobacco companies.

### **2.6.6 Pro-poor health programmes**

The Leading Group of Poverty Alleviation and Development of the State Council is the highest organization for poverty reduction in China, with all ministries as member institutions. Ministries and departments collaborate on poverty reduction through research, joint policy and plan development, fundraising, monitoring, supervision and experience-sharing. Meanwhile, governments at provincial, municipal (prefecture) and county levels have set up their own poverty reduction agencies, coordinating various departments to contribute to poverty reduction. The NHFPC is a member of the Leading Group of Poverty Alleviation and Development. Along with poverty alleviation, the Government has attached great importance to health aid for the poor. The NHFPC issued Guidance on Pro-poor Health Programmes during the 12th Five-Year Plan period, aiming to improve the accessibility and equity of basic health services in poor areas and to reduce the burden of disease on households. In making and implementing health policies, the Chinese Government has tried to reduce poverty-induced ill-health. The NHFPC and Medical Financial Aid (MFA) jointly deliver health financial protection schemes targeted to low-income groups. Financial protection schemes for catastrophic illness are funded by the NHFPC. The NRCMS and MFA have played an important role in providing financial protection against catastrophic illness and stopping the vicious cycle of poverty and illness. In regional health planning, some regions have allocated more resources to infrastructure, internal management and personnel development of health-care facilities in remote and poor areas. NGOs have made major efforts to reduce poverty-induced illness. For example, the “China Pro-poor Health Programme” launched by the China Primary Care Foundation and the China Red Cross has identified a series of interventions and technologies with better cost-benefit and provided support to PHC development.

### **2.6.7 Public health promotion funds from sources other than the health sector**

For many years, the Chinese Government has stressed cross-sectoral efforts in health promotion. In addition to the health sector, sports, education, industry and mining enterprises and social organizations have also contributed to public health programmes. For example, schools have launched many activities to improve the health status of students. The national fitness campaign is another example of a public health promotion initiative funded by an agency outside the health sector. Aimed at improving the overall health status of the population, the national fitness campaign was launched and funded by the State Sports Bureau. Since 2001, funds raised by the sports lottery have been donated to develop public sports infrastructure and promote fitness activities.

## **2.7 Health information management**

Health information is a critical component of the health system. In the new round of health reforms, health information development is a key reform for providing backup to other programmes.

### **2.7.1 Information systems**

The Chinese health information system comprises mainly hospital information systems, the public health information system, health insurance information systems, health administrative platforms and regional health information platforms. These information systems are all managed by the NHFPC except the UEBMI and URBMI systems.

- Hospital information systems capture, store, process, extract, transmit and aggregate various types of data, and produce required information. Hospital information systems, mainly based on the digital records of patients, include a business application information system, the hospital information platform and other applications based on the platform.
- The public health information system horizontally encompasses the disease control and prevention system, MCH system, health surveillance system and health emergency preparedness system. It has multiple levels, covering national, provincial, prefecture (city), district (county), and township health systems.
- Health insurance information systems refer to those of the NRCMS, UEBMI, URBMI and MFA.

- Hospital information platforms supply patient distribution, diseases, costs and billing data.
- The health administration platform aims to pool and share information between health administrations at various levels to improve decision-making and coordination of activities. It delivers mainly a data-aggregation service and information about activity coordination.
- The regional health information platform is a data exchange and sharing platform for essential activities of various health-care facilities in a region, which is developed on the basis of the health records of local residents.

Health information management mainly includes making policies, laws and regulations concerning health information management, establishing systematic and comprehensive solutions for data pooling and sharing, standardizing health information, improving health information infrastructure and network development, and strengthening information security. For instance, the former Ministry of Health developed the National Protocol for the Public Health Information System and thereby improved national disease control and prevention, the public health emergency reporting system, the ministerial (provincial) emergency management system, and the medical aid information system.

The application-oriented Chinese health information system has played an important role in improving work efficiency and decision-making capability. With widespread information technology, extended networks and more advanced data mining techniques, more and more data and information quickly accumulate. However, without proper standards in place, information resources cannot be efficiently pooled, leading to inadequate utilization of data and high costs of information-sharing. There are widespread issues with information-sharing between health records and health information systems, between payment and health delivery information, and between information systems of various health facilities. As a result, there is a need to develop comprehensive information platforms at national, provincial, prefecture and municipal (regional) levels to integrate and improve key information systems.

There are laws and regulations for data reporting and information security, like the Statistics Law, the National Guidance on Health Survey and Statistics, the National Regulation on Health Supervision and Investigation and the Reporting Requirements for Public Health

Emergencies and Epidemic Surveillance. Various health information management schemes clearly define issues such as reporting duty, time, quality control and data-keeping. According to the National Health Statistics Management Rule, health administrations and facilities at all levels must report authentic, accurate and complete data on time and in line with relevant requirements; health authorities review data analysis results submitted by local health facilities and request verification or review of mistaken data.

### **2.7.2 Health technology assessment**

Health technology assessment (HTA) is an important tool for evidence-based health governance and decision-making. It was first introduced to China in the 1980s and explored by a few research institutions and university faculties. With deepening of the new round of health system reform, HTA has gradually attracted the attention of policy-makers at various levels and has seen rapid development in recent years. Results of major HTA programmes have provided evidence for clinical management and application of health technologies, such as large medical devices (e.g. Gamma Knife, CyberKnife and surgical robots) and interventional procedures (e.g. organ transplant and dialysis for patients with end-stage renal disease). In addition, China has also applied HTA methodology in the implementation of evidence-based clinical pathways and payment reform at many rural public hospitals, beginning with pilot rural county hospitals in 2010. The Science and Education Department of the NHFPC organized HTA experts and practitioners to develop HTA Guidelines in early 2014, which will help to standardized approaches, procedures and presentation of results in preparation for full-fledged institutional arrangements of HTA. Meanwhile, the second edition of the Health Technology Assessment Textbook was published in 2014, which will contribute to HTA development in the country.

## **2.8 Regulation**

All the key areas of health service delivery in China are regulated. There are three common means of health regulation – standard-setting and compulsory execution, guidance and direction, and bans. Local governments are responsible for making health regulations and overseeing their implementation within their jurisdictions. Some affiliated public institutions are obliged to perform as local regulators, but under the authorization of local government. The central government is in charge of overall planning and distribution of health and family

planning resources and responsibilities nationwide. Local governments regulate health service delivery in their respective jurisdictions in line with laws and regulations. The NHFPC, MOF, MOHRSS, MOCA, NDRC and CFDA are the main players in health regulation. Local governments set up corresponding agencies to work with the line ministries above. National and provincial departments usually have several affiliated public institutions beneath them, which, to some extent, are local supervisors that do not have compulsory administrative power in health regulation. The main regulatory players above conduct planning activities based on their respective duties, providing a framework for defining benefit packages and the reimbursement level of health insurance schemes, regulating provider behaviour, and ensuing safety and quality of care.

For regulatory functions that require more technical backup, the central government entrusts professional groups or associations to define and develop protocols, participate in regulation and behave like third-party evaluators. For example, in addition to professional training and education, the CMA also organizes regular assessment of doctors, exerts self-regulation, protects doctors' rights and provides information and evidence for the government to make decisions, and develop laws and regulations. These professional associations usually have local sub-branches to ensure better coordination and delivery of activities. Internal regulations and management guidelines of these professional groups play a role in professional regulation by requiring members to obey the rules.

### ***2.8.1 Regulation and governance of the third-party payers***

The main third-party payers of health services in China are social health insurance schemes. The UEBMI and URBMI are organized and managed by national and local social security departments, while the NRCMS is organized and managed by the NHFPC at national level and mostly by health and family planning commissions at local level (except a handful of cases that are organized and managed by social security agencies). The fundraising of SMI and NRCMS follows the same protocol. The MFA programme is overseen and implemented by MOCA and its local counterpart agencies for the poor and vulnerable. Due to the fact that the urban and rural health insurance schemes are overseen by different ministries, they have certain differences in terms of specific regulations, which results in health financing inequity and inconsistency of urban and rural health service delivery.

Urban and rural insurance schemes for catastrophic illness were initiated in 2012. Catastrophic illness is defined as high medical expenditure exceeding the per capita last-year income of residents. Since then, under the leadership of local health reform steering groups, commissions for health, social security, and reform and development in each province have worked together to define policies concerning premiums, benefits, minimum reimbursement ratios, care-seeking and billing of insurance schemes for catastrophic illness. Commercial health insurers have been selected through a tendering process organized by the Government (National Development and Reform Commission, Ministry of Health and Ministry of Finance, 2012).

Commercial insurance companies often offer contract-based voluntary health insurance schemes. Commercial health insurance is regulated by insurance regulatory commissions at various levels. Benefit packages of social health security programmes are defined by local governments based on principles set by the central government with consideration of local realities, and programme implementation is overseen by the local authorities. Accountability mechanisms have been established for overseeing the operation of health insurance programmes – for instance, central government requires that local government lists NRCMS fundraising as a key point for assessing leading officials' political merit. This policy directly influences the performance of local authorities. In addition, the people's representatives often submit various kinds of proposals concerning health insurance fund management and health system strengthening and development in people's congress meetings and political consultative conference. This is also an important form of health regulation.

### ***2.8.2 Regulation of health-care providers***

In China, regulation of health-care providers covers the whole process of service delivery from entry control, practising mode and quality control to pricing, cost management and patient health demand.

The NHFPC has health licensing power, and is responsible for defining technical standards, quality indicators and safety protocols, and for supervising the quality of care delivered by health-care facilities directly or by commissioning a third-party evaluator to check quality. Meanwhile, professional associations and social organizations have co-regulatory power. The NHFPC comes up with basic requirements for the infrastructure development of health-care facilities, while health and

family planning commissions above county level will set their own criteria for developing health-care facilities and issue certificates for new health-care facilities. Only with a certificate can a new facility be established.

The NHFPC developed rules and criteria for ranking and reviewing health-care facilities. Health and family planning authorities at provincial level might add more evaluation criteria. Evaluators may be from a third party commissioned by the health and family planning authority.

Health-care facilities apply as for-profit or non-profit organizations and obtain licences with the approval of health administrations. Non-profit health-care facilities are entitled to favourable taxation and apply prices set by Government, while for-profit institutions define their own prices. The Notice on Orderly Implementation of the National Fee Schedule and Relevant Issues was issued by the NDRC, the former Ministry of Health and the SATCM in 2012 to regulate prices in non-profit health-care facilities. The National Fee Schedule for Health Services (2012 version) was published in the same year to guide medical pricing in all health-care facilities.

Moreover, third-party payers can also be co-regulators in overseeing health-care facility performance – for example, by listing or delisting a hospital, or by signing a contract with a hospital to control the total budget and regulate a health-care provider's behaviour.

The Administration of Hospital and Medical Management of the NHFPC is in charge of health quality management of all health-care facilities in the country, governing curative and nursing care quality by developing hospital quality standards, implementing health quality programmes, and checking and assessing health-care facilities. Local hospital authorities are responsible for quality management of local hospitals.

Self-regulation of professional organizations has been stressed in China. In 2013, the “nine not-to-dos” (the Code of Conduct of Health Providers) issued by the NHFPC and the SATCM made it clear that health staff cannot have salaries linked to drug sales or diagnosis charges; cannot charge commission; may not have irregular charges; are not to take social donations illegally; are not to participate in marketing activities or any kind of medical advertisement; are not to analyse prescriptions for any commercial purpose; are not to procure any medical products without formal approval of health authorities; are not to take any kickbacks from



any pharmaceutical or device company; and are not to take extra payment from patients. The regulations are enforced by due penalties.

The State Council issued the *Handling of Medical Incidents and Errors* in 2002, defining that medical incidents and errors need to be reviewed and assessed by social academic groups (medical associations), and recorded and supervised by health administrations in accordance with the rules concerning classification and appraisal of medical errors and incidents. The Law of Practising Doctors, the Health Care Facility Management Regulation, and the Medical Accident Management Regulation define the rights and responsibilities of health-care facilities, medical staff and patients, regulating doctors' and patients' behaviour.

China is trying to integrate its health resources and improve coordination between hospital care and PHC, and between different health providers, so that urban and rural PHC providers mainly take care of patients with common illnesses, highly prevalent diseases and those chronic illnesses with defined diagnoses. Secondary and tertiary hospitals focus on delivering specialist care for rare diseases. However, this is just a blueprint for future development of a well-coordinated and integrated health-care delivery system. It has not yet been achieved, and two-way referral mechanisms are not fully established.

The Chinese Government encourages and supports development of the private sector, and allows investments to enter the fields where private partners are not forbidden by law. Furthermore, regulation of private health-care providers can be referred to the same policies as their public counterparts in terms of market entry, social insurance listing, funding for key clinical departments, professional accreditation, academic ranking, and introduction of new technology. Private health-care facilities need to be covered by regional health planning and overseen by provincial health and family planning commissions. Private hospitals' capital funding decisions for large medical devices also need to be covered by the regional devices allocation plan and its share shall be no less than 20% of total funding for large medical devices in the region. Local governments organize experts to review proposals submitted by private health-care facilities in terms of staff, capacity, number of beds, and in- and outpatient visits. After obtaining approval, private for-profit health-care facilities are required to register with industrial and commercial bureaux, while non-profit ones register with civil affairs bureaux. The central and provincial health authorities are developing a policy concerning

multiple-site practise by medical professionals. This policy will allow doctors to move in an orderly way among health-care facilities of various ownerships. Private hospitals will be covered by the same quality control and appraisal system and the same policy on introduction of health technologies in clinical settings.

### ***2.8.3 Registry of medical staff and personnel development planning***

The Law on Practising Doctors of the People's Republic of China requires doctors to pass examinations to obtain their licence. There are examinations for practising doctors and assistant doctors. The NHFPC has set examination rules, while the local health authorities organize practising doctors' examinations.

China implemented a new appraisal programme for medium-level general practitioners (GPs) in 2001 (Ministry of Human Resources and Ministry of Health, 2000). There are several types of GP education, including general medical education at medical universities and colleges, standard training for graduate GPs, continuous education and in-post training (State Council, 2011). According to the Tentative Regulation on Specialist Training by the Ministry of Health, training of medical specialists in each jurisdiction is managed by the local health authority. The NHFPC and provincial health and family planning commissions have established the Postgraduate Medical Education Council, which does research on specialist training, provides guidelines, coordinates activities and controls training quality.

According to the Drug Administration Law, the CFDA is responsible for developing quality-control regulations concerning R&D, production, marketing and use of pharmaceutical products, and oversees their implementation. The CFDA is also in charge of developing a surveillance system for adverse reactions to drugs, making and improving pharmacy policy, guiding and monitoring the registry of practising pharmacists, participating in essential medicines policy-making, drafting laws and regulations, and developing a strategic plan, sectoral rules and management standards. Meanwhile, the NHFPC is responsible for making national drug policies and the Essential Medicines Policy.

### **Drug production, marketing and surveillance**

In China, drug manufacturers are required to acquire two certificates and one licence, namely a drug manufacturing licence and a Good Manufacturing Practice (GMP) certificate, and a business certificate

issued by the Industrial and Commercial Administration (China Food and Drug Administration, 2007). Permission to sell a new drug can only be granted after it obtains a new drug certificate issued by the CFDA through a review and appraisal process. If the applicant has the Drug Manufacturing Certificate and is regarded as suitable for drug production, it will be given the Registry of Drug Approval, which it also needs to obtain the GMP certificate. Registration is required for imported drugs and the CFDA is responsible for organizing random inspection and review.

National-level technical institutions working on pharmaceuticals include the National Institute for the Control of Pharmaceutical and Biological Products, the State Pharmacopoeia Commission, the Centre for Drug Evaluation, the Certification Centre for Drugs, the National Committee on the Assessment of the Protected Traditional Chinese Medicinal Products, the Centre for Drug Re-evaluation, the National Surveillance Centre for Adverse Drug Reaction and the Centre for Medical Device Evaluation. Apart from these, there are 19 medical control institutes at border ports, 33 provincial drug control institutes and 325 prefecture- and municipal-level drug control institutes (China Food and Drug Administration, 2013a).

The Drug Marketing Approval is required for all wholesale enterprises for prescription and non-prescription drugs, and for retail enterprises for prescription drugs and Class A non-prescription drugs. Other commercial companies with certificates issued by drug regulators at provincial level can sell Class B non-prescription drugs. Retailers of Class B non-prescription drugs need to have properly trained staff with education level above senior high school and to gain approval from the provincial drug administration or agency authorized by the provincial drug authorities (China Food and Drug Administration, 1999).

### **Drug quality**

Drug quality is guaranteed through the GMP accreditation process. The CFDA and local food and drug administrations (FDAs) organize quality inspections and grant approval for new drugs. Sub-quality drugs are tracked and followed by tests, and an information-sharing mechanism has been developed to release news on pharmaceutical manufacturers and product quality. Drugs with potential safety issues are recalled in accordance with the Regulation on Drug Recall. Legal liability is taken by manufacturers that have infringed the law. Pharmaceutical production plants without licences are closed down, and fake and sub-quality drugs

destroyed. The crime of producing and selling fake or sub-quality drugs is defined in criminal law.

### **Vaccine production, utilization and surveillance**

In China, there are two types of vaccines for humans: those provided by the Government for free (including the National Immunization Planning Vaccines), and those used and paid for by individuals by choice. China has a relatively comprehensive vaccine system covering R&D, production, utilization and surveillance of vaccines. A series of regulations for vaccine products has been established overseeing licensing, surveillance and testing, production quality management, vaccine batch distribution, operation quality management, and adverse effect reporting/surveillance. These regulations form a safe-use and quality-assurance system for vaccine R&D, production and distribution, which ensure and promote the quality and safety of vaccine use. In March 2011, the Chinese Vaccine Regulation System passed a WHO-organized evaluation.

In terms of management, the health and family planning commissions at all levels are responsible for the surveillance and regulation, organization and implementation of preventive immunization. The biological products industry arranges production according to government plan or market demand, and drug surveillance and administrative departments are responsible for quality control.

In terms of production, China is one of the few countries that can produce and supply all the vaccines it needs. Along with the gradual expansion of its product catalogue and production size, China has become the world's leading vaccine-producer. It has 40 vaccine manufacturers producing 60 types of vaccine, which can effectively prevent 34 communicable diseases. These vaccines represent nearly all the vaccines available in developed country markets. In 2013, the output of domestic vaccine production reached 1 billion doses per year in total. Domestic products account for more than 95% of the vaccines used in China, easily meeting the immunization demands of the population.

### **Drug patent protection**

In China, drugs are grouped into patent, brand name and generic drugs, each with separate regulations. The CFDA and the State Intellectual Property Office formulated the regulation relevant to drug patent protection, which has been mandatorily enforced through legislation. In 1985, the Patent Law of the People's Republic of China started patent

protection for innovative methods relevant to the pharmaceutical field, and began 20-year patent protection for new drugs after the amendments in 1993. At the same time, other laws also play a positive role in drug development and marketing management, such as the Trademark Law, the Drug Administration Law, the Law for Countering Unfair Competition, the Protection for Traditional Chinese Medicines Regulation and the Regulation of the Protection of Medicine Administration.

### **Cost-effectiveness of drug utilization**

In order to ensure the cost-effectiveness of drug utilization, the NHFPC enforces the Regulation of Prescription Drugs and other rules to address improper provider behaviours such as over prescription, which may induce unwarranted demand. The National Essential Drugs List has been established to encourage use of safe, effective and cheap medicine, and to prevent overuse of expensive medicines and imported drugs.

Health insurance schemes have defined drugs benefit packages and restrict the types of drugs that can be used by contracted hospitals. In addition, third-party payers have adopted a global budget for the hospital as a whole including drugs to reduce big prescriptions. If costs exceed the ceiling, health insurance schemes will only pay for the costs budgeted, leaving the remainder to be shouldered by the hospital.

### **Drug pricing**

There are three ways of pricing drugs: prices set by the government, prices guided by the government, and market prices subject to the market mechanism. Drugs on the National Essential Drugs List and drugs with a monopoly in production and marketing are priced by the government or with guidance from the government. Other drug prices are left to the market. The Drugs Administration Law provides a detailed description of the three pricing mechanisms.

Pricing management agencies of the State Council and provincial governments draft and publish drug-pricing catalogues for national and provincial levels, respectively. Government pricing management departments monitor the changes in the real purchase price, market price and price difference in circulation.

In 2009, the new health-care reform started to reduce or eliminate drug price mark-ups in order to encourage public health facilities to do more for the public interest and reduce the economic burden of drug

expenditure. The Provisional Regulation on Price Management in the Distribution Process, enacted in July 2012, is intended to regulate and control price differences among wholesale companies and non-profit health-care facilities. It also allows bigger differences for lower prices and smaller differences for higher prices, and tries to abolish drug price mark-ups in health-care facilities step by step – they represent one of the major sources of income for health-care facilities.

### **Drug advertisement regulation**

Drug advertising must be approved by the local FDA with a drug approval number; drugs without such a number may not be displayed. Prescription drugs may be advertised in academic health or medicine-related journals (which are designated by the State Council Health Administration and Drug Administration), but may not be advertised through public media or other marketing channels to reach the general public. Over-the-counter drugs may be promoted in public media (National People's Congress, 2001).

## ***2.8.5 Medical equipment and accessory equipment regulation***

### **Medical equipment production regulation**

The CFDA takes charge of medical equipment surveillance and management throughout the country. FDAs at county level or higher are responsible for local medical equipment surveillance and management (China Food and Drug Administration, 2000). A stratified management system has been built for medical equipment, and the classification standard is set by the CFDA and the NHFPC. The State Council, provincial and municipal FDAs are responsible for the registration, review and approval of different types of medical equipment. A five-year licence is issued upon approval, which must be renewed if it expires (China Food and Drug Administration, 2004). FDAs at county level and above designate a medical equipment inspector to check on manufacturers, distributors and health-care facilities. If they violate the law, these companies are prosecuted.

So far, China has set up a medical equipment technical surveillance system, which covers agencies at both state and provincial levels. The State Centre for Medical Equipment Quality Surveillance and Testing is responsible for preregistration testing of type III medical equipment and imported medical equipment, and random quality testing of domestically produced equipment, while provincial medical equipment testing

institutions are responsible for random testing and some preregistration testing in province; universities, colleges and research institutions with medical equipment testing capability can play a complementary role in medical equipment testing. Medical equipment technical committees of various types are responsible for standardization of different kinds of medical equipment.

### **Allocation and utilization of large-scale medical equipment**

Health authorities are responsible for the allocation and use of large-scale medical equipment. The NHFPC is responsible for developing regulations and relevant policies for equipment allocation and utilization, while the central and provincial health authorities split administrative responsibilities for managing different types of equipment and cooperate with each other. Large-scale medical equipment are grouped into Categories A and B. The NHFPC defines the procurement quota and management of Category A, while the provincial health and family planning commission makes the allocation plan for Category B, in accordance with the guidelines developed by the NHFPC (Ministry of Health, National Development and Reform Commission and Ministry of Finance, 2004).

In the Regulation of New Large-scale Medical Equipment, published by the former Ministry of Health in 2013, specific provisions are set up for management and proper use of new medical equipment imported or developed domestically with a retail price exceeding 5 million yuan. The NHFPC takes responsibility for overall administration, while the provincial health administration oversees the allocation and use of such equipment.

#### ***2.8.6 Capital funding/investment regulation***

The national health capital funding plan is jointly formulated by the NDRC, NHFPC and MOF. MOF funds the plan, and the local development and reform commission, health and family planning commission and bureau of finance organize and implement the plan. Local large capital investment projects are usually formulated by the local development and reform commission, health authorities and bureau of finance together. In order to balance different districts and levels, national and local plans consider the level of economic development and health system development.

The NHFPC is responsible for defining standards of health-care facility reconstruction. The standard is required to be approved by the Ministry of

Housing and Urban–Rural Construction, to obtain a registry number. For example, the Ministry of Housing and Urban–Rural Construction approved the Infectious Disease Hospital Construction and Quality Checklist as national standard, and part of the provision is compulsory and needs to be implemented strictly.

In 2012, the *Notice of the State Council for the 12th Five-Year Planning for Health Development* aimed to facilitate health system infrastructure building, including supporting development of a prevention and control system for critical illness, a health surveillance system, an emergency service system in rural areas, a food safety monitoring system, a prefecture-level comprehensive hospital, key clinical specialties, and child health facilities. In the meantime, the notice supports the improvement of the basic infrastructure of county-level hospitals and village clinics, and arranges mobile health care with basic medical and emergency equipment.

## **2.9 Empowerment**

Several civil laws and health laws have relevant provisions to protect patient rights, such as the Law on Practising Doctors, the Drug Administration Law, the Blood Donation Law, the Maternal and Infant Health Care Law, the Law of Prevention and Treatment of Communicable Diseases, the Tort Law, the Health-care Facility Management Regulation and the Medical Accident Management Regulation.

### **2.9.1 Patient right to information**

The information patients acquire when seeing doctors relies on notification by physicians. As defined in the Medical Accident Management Regulation, the Law of Practising Doctors, the Health-care Facility Management Regulation and other law provisions and practice, notification responsibilities include illness condition, treatment and risks, expenses and more.

In terms of health service quality, in the case of a medical accident, according to the Medical Accident Management Regulation, patients have the right to see and copy their medical records. The health-care facility is obligated to provide this information. Patients also have the right to know about medical accidents and medical malpractice. Health-care facilities are obliged to notify and explain after identifying malpractice. Physicians suspected of medical malpractice or medical accident, or who feel that a



medical accident is likely to be disputed, are investigated and checked by staff in the hospital responsible for health service quality monitoring, and designated quality inspector(s) of the hospital are to report and explain the situation to the patient.

### **2.9.2 Patient choice**

Patient choice includes choice of insurance institution, health service provider and treatment. The type of social insurance residents are enrolled in is decided by registered residence and occupation, while private insurance is voluntary. For example, UEBMI for urban employees is compulsory social health insurance, mainly covering urban state-owned and collective company employees; URBMI for urban unemployed residents and NRCMS for rural residents are voluntary insurance schemes. In general, social health insurance schemes already cover almost all of the population; patients enrolled visit designated health-care facilities. Hospitals at different levels and in different locations have different reimbursement rates, which influence patients' decision-making.

According to the Medical Accident Management Regulation and other relevant regulations, patients have the right to select or reject treatment plans provided by physicians. Patients have the right to refer to physicians' suggestions, to weigh risks and benefits, and finally to decide the best treatment plan for them.

### **2.9.3 Complaints process (conciliation claims)**

There are several approaches to address medical disputes: a physician and patient compromise settlement, a health administration settlement, third-party conciliation (e.g. Medical Dispute Civil Conciliation Committee) and civil suit. In general, medical disputes are resolved by the two parties involved outside of court, partly by the NHFPC or the Medical Dispute Civil Conciliation Committee. If conciliation and consultancy cannot settle the dispute, the civil suit process will start. Hospitals adopt a policy of "The first staff who received the complaint should be responsible for the whole complaints process". Usually, the dispute is resolved on site. Otherwise, the recipient department or the department involved in the case shall direct the patient to an administrative agency which handles patient complaints. If the situation is very complex and requires further investigation and verification, the agency will provide feedback to the patient within five working days. Disabled patients are handled in

accordance with the Letters and Calls Regulation of Disabled Persons' Federation issued by the China Disabled Persons' Federation.

#### ***2.9.4 Rights protection for privileged groups***

The Chinese Government has enacted laws to protect the rights of special population groups. According to the Protection Law of the Disabled, governments and relevant departments should set up departments of rehabilitation in hospitals, maintain a rehabilitation institution if needed, and organize scientific research, training and technical guidance for rehabilitation. For employment-related conditions, the National People's Congress approved the Amendment for Occupational Diseases Prevention Law, which defines the Government's responsibility in the prevention of employment-related illness, strengthens employers' obligations, and further protects employees' rights. For HIV/AIDS prevention, in addition to the HIV/AIDS Prevention Regulation, the State Council recently established the Five-Year Plan for HIV/AIDs Prevention and Public Prevention and Control of Syphilis Plan (2010–2020), and the Sexually Transmitted Diseases Prevention Regulation. The HIV/AIDS prevention programme has made gradual progress, social discrimination has decreased, and the quality of life for HIV-positive and AIDS patients has improved.

#### ***2.9.5 Public participation***

In China, people are increasingly participating in health policy formulation. The NHFPC usually first publicizes policy drafts and invites opinions from all sectors of society. Take the health system reform plan in 2009 for instance: the central government used the Internet to solicit public opinion. Since China has the largest online population in the world, there will be increasing numbers of Chinese citizens publicly airing their opinions on health policy and care quality.

#### ***2.9.6 Patients and global health care***

Along with economic development, increasing numbers of Chinese residents have chosen overseas health care. According to statistics from the Republic of Korea Embassy in China, more than 3000 medical tourist visas were issued in 2012, an increase of 76.5% over 2011. For foreigners working in China, the Department of Human Resources and Social Protection published the Regulation for Social Insurance for Foreigners Working in China in 2011. The provision requires foreigners with work identification to join social insurance (including UEBMI), which provides

health insurance for foreigners. At the same time, China promotes global medical tourism in some developed districts. Some districts have already explored this area. For example, Shanghai and Beijing have established programmes to promote medical tourism, led by the local government. Gansu, Sichuan and Guangdong provinces have developed international medical tourism by promoting TCM and ethnic medicines. In 2013, the State Council approved the Hainan Boao Lecheng International Medical Tourism Pilot District, and required the district to develop medical care, elderly care, R&D and other relevant medical tourism based on local ecological resources. In addition, the district piloted a new review and approval mechanism for: imported medical equipment and drugs; market entry of new health technologies; allocation of large-scale medical equipment; time of practice for foreign physicians; health-care facilities funded by foreign donors; discounted duties on imported medical goods; land-use quotas; communication with international organizations and other fundraising channels. Implementation of these policies will generate experiences for developing medical tourism in China.

## 3 Financing

### Chapter summary

From 1995–2012 the total health expenditure (THE) of China increased by a factor of 13, while THE as a proportion of GDP increased from 3.5% to 5.4%. Government health spending as a proportion of GDP decreased during 1980–1995, but almost doubled during 2005–2012. Out-of-pocket payments reached their peak in 2000 at 59% and began to drop gradually to 34% in 2012. Government expenditure, social expenditure and OOP payments are the main sources of health financing. In 2012, government expenditure on health as proportion of total health expenditures was 30%.

A basic health insurance system covering residents in both urban and rural areas has been established. Employees and retirees in urban areas are compulsorily enrolled in the Urban Employees' Basic Medical Insurance (UEBMI) and expenses for ambulatory health services, hospital admissions and retail pharmacies authorized by the insurance schemes can be reimbursed. Other residents in urban areas can enrol in the Urban Residents' Basic Medical Insurance (URBMI), whose main funding comes from the individuals with some subsidization by the government. Rural residents can participate in the New Rural Cooperative Medical Scheme (NRCMS) as households to cover inpatient and outpatient services. Individuals pay premiums per capita and governments also provide subsidies for NRCMS. Pooling funds have been established for eligible hospital admission expenses and outpatient expenses for some severe diseases. Deductibles, co-payments and ceilings are used by the three basic medical insurance schemes to establish a cost-sharing mechanism with patients. Medical Financial Assistance for the Poor (MFA) provides assistance in covering OOP payments for family members living on the minimum living allowance, and other poor people.

From 2003–2006, the Disease Prevention and Control System and the Medical Treatment System for Public Emergencies, covering both urban and rural areas, were established with financial support from central and local governments in China. In 2009, the National Essential Public Health Services Programme was implemented so that three categories

and 11 subcategories of basic public health services could be provided to all residents free of charge. The Government provided at least 30 yuan per capita for public health services in 2013. Public health services, the human resources expenses of professional public health service institutions, and basic construction and business development expenses came from the government budget, and specific subsidies were provided for public health services in public hospitals.

Different provider payment methods have been implemented in China: basic public health services are funded by financial provision per capita, while basic medical services are funded by basic medical insurance through mixed payment methods such as fee-for-service (the majority), case payment and global budget. Patients are also charged via fee-for-service.

### 3.1 Health expenditure

As shown in table 3.1, during the period 1995–2012, total health expenditure (THE) increased 13-fold, rising from 215.5 billion yuan to 2811.9 billion yuan. THE per capita increased 11.7-fold, from 177.93 yuan to 2076.67 yuan, with a large differential between urban and rural areas (i.e. in 2012, the urban THE per capita was triple that of rural areas). THE as a proportion of gross domestic product (GDP) increased from 3.5% to 5.4% (GDP was 6079 billion yuan and 51 947 billion yuan in 1995 and 2012, respectively). More specifically, 1980–1985, 1990–1995 and 2005–2012 experienced high growth rates, while 1985–1990 and 1995–2005 had only moderate growth. Public expenditure (or general government expenditure) on health as a proportion of THE, which was mainly composed of government spending, increased rapidly, with growth rates of 38% in 2000 and 56% in 2010, and private expenditure on health as proportion of THE has decreased.

**Table 3.1 Trends in health expenditure in China, 1980–2012**

Expenditure	1980	1985	1990	1995	2000	2005	2012
Total health expenditure (100 million yuan*)	143	279	747	2155	4586	8659	28 119
Total health expenditure (US\$ 100 million)	-	95	156	258	554	1057	4454
Total health expenditure per capita (yuan)	14.5	26.4	65.4	177.9	361.9	662.3	2076.7

**Table 3.1 Trends in health expenditure in China, 1980–2012 (Cont.)**

Expenditure	1980	1985	1990	1995	2000	2005	2012
Total health expenditure per capita in urban areas (yuan)					813.7	1126.4	2999.3
Total health expenditure per capita in rural areas (yuan)					214.9	315.8	1064.8
Total health expenditure as % of GDP	3.2	3.1	4.0	3.5	4.6	4.7	5.4
Mean annual real growth rate in total health expenditure <sup>1</sup>	10.0	10.4	13.6	9.6	14.6	10.1	12.8
Mean annual real growth rate in GDP	7.7	10.8	7.9	12.3	8.6	9.8	10.4
Government health spending as % of total government spending <sup>[A]</sup>	4.2	5.4 <sup>[C]</sup>	6.1 <sup>[C]</sup>	5.7	4.5	4.6	6.7
Government health spending as % of GDP <sup>[A]</sup>	1.1	1.2 <sup>[C]</sup>	1.0 <sup>[C]</sup>	0.6	0.7	0.8	1.6
OOP payments as % of total expenditure on health <sup>[A, B]</sup>	21.2	28.5 <sup>[C]</sup>	35.7 <sup>[C]</sup>	46.4	59.0	52.2	34.3
Public (general government) expenditure on health as % of total expenditure on health <sup>[B]</sup>	--	--	--	50.5	38.3	38.8	56.0
Private expenditure on health as % of total expenditure on health <sup>[B]</sup>	--	--	--	49.5	61.7	61.2	44.0 <sup>1</sup>
Government health spending as % of total government spending <sup>[B]</sup>	--	--	--	15.2	10.9	9.9	12.5
Government health spending as % of GDP <sup>[B]</sup>	--	--	--	1.8	1.8	1.8	3.0
OOP payments as % of private expenditure on health <sup>[B]</sup>	--	--	--	93.7	95.6	85.3	78.0

**Table 3.1 Trends in health expenditure in China, 1980–2012 (Cont.)**

Expenditure	1980	1985	1990	1995	2000	2005	2012
Commercial health insurance as % of total expenditure on health <sup>(B)</sup>	--	--	--	--	0.6	3.5	3.1
Commercial health insurance as % of private expenditure on health <sup>(B)</sup>	--	--	--	--	1.0	5.8	7.0

\* All the currencies in Chapter 3 are in their nominal values.

1 The growth rates of GDP and total health expenditure (by source) were calculated by constant price, with the previous year as 100, and it was the average growth rate during the periods leading up to the years indicated in the first line, except for the year 1980 – this information is only available from 1978 so the value represents the average growth rate of 1979 and 1980.

(A) These indicators were calculated using domestic classifications (please refer to Box 3.1 and Table 3.2 for further explanation and examples of WHO NHA classifications and domestic classifications).

(B) These indicators were calculated using WHO NHA Classification (international classification).

(C) Using the international classifications, private expenditure on health as % of THE was 44% for 2012. This consisted of OOP payments, commercial health insurance expenditure (34.3% and 3.1%, respectively), and nongovernmental health facilities and social donations (6.6%, not listed in Table 3.1).

Sources: China National Health Development Research Center, 2014; World Health Organization NHA Indicators, 2013

When it comes to the composition of THE by source (using domestic classification), government health spending as a proportion of GDP decreased during 1980–1995 but almost doubled during 2005–2012 (Table 3.1). However, government health spending as a proportion of total government spending decreased from 5.7% in 1995 to 4.5% in 2000. Although it grew to 4.6% in 2005 and further grew to 6.7% in 2012, this indicator remains relatively low. Out-of-pocket payments made up a high proportion of THE, reaching a peak in 2000 at 59% and then beginning to drop gradually. In 2012, OOP payments as a proportion of THE were at their lowest level in two decades at 34%. OOP payments were also one of the main components of private expenditure on health, which decreased gradually from 95.6% in 2000 to 78% in 2012.

### Box 3.1 Mapping of different classifications of THE by source

“THE by source” represents information on health expenditure according to its financing sources, which indicates the sources and density of health financing and assesses the economic burden and health financing equity of government, society and residents.

There are two classifications for the sources of THE: an international classification, used in the World Health Organization National Health Accounts (NHA) database and which facilitates international comparison; and the domestic classification, which has been widely used in China since 1996. To facilitate comprehensive domestic and international comparison, the two kinds of classification are both recorded in this chapter.

For international classification, THE is categorized into public and private health expenditure. The former is also known as general government health expenditure, which can be further categorized into government budget, or earmarked taxes, and social insurance contribution, indicating the role of governmental organizations or institutions in health financing. Private health expenditures are expenditures which are financed by residents themselves or subsidized by their employers through enrolment in voluntary insurance or community-based insurance (other than government or compulsory insurance) schemes. Expenditures that mainly cover private medical insurance, and OOP expenditures, are categorized as the main sources of private health expenditure. Nongovernmental facilities’ expenditures are also included as private health expenditure.

In China, government health expenditure, social health expenditure and OOP payments are the three main sources of THE. For government health expenditure, the spending by all levels of government on health care services (including both medical services and public health services), health insurance, administration and family planning affairs are included. Other government funds for health investments are also included. Social health expenditure indicates investment from the whole of the rest of society (i.e. government excluded). More specifically, contributions from social health insurance (subsidy from governments excluded), premiums from private medical insurance, donations, investment in health-care facilities from nongovernmental capital and administrative fees are included as social health expenditure. OOP payments indicate cash payments from residents for medical services.

In the rest of the text, the term “social expenditure” refers to the domestic classification, which mainly consists of contributions from social insurance, nongovernmental facilities and social donations. The term “social insurance expenditure” comes under the “public health expenditure” category in the international classification, and includes both subsidies from government and contributions from individuals and their employers.

Table 3.2 briefly lists the differences and overlaps used by different classifications. (Only major differences are listed. For further information, please refer to *Manual: a system of health accounts* (2011) by WHO and *China national health report 2013* by China National Health Development Research Centre.)

Source: China National Health Development Research Centre, 2014; World Health Organization, 2011



**Table 3.2 Mapping of different indicators of international and domestic classifications of THE**

WHO classifi- cation	Categories		Detailed indicators	Categories	Domestic classifica- tion
	Public health expenditure (General govern- ment health expenditure)	Government budget (ear marked taxes)	Medical services, public health services, health supervision, etc.	Government expenditure	
		Social insur- ance expendi- ture	Government subsidy for social insurance*	Social expendi- ture	
			Social insurance contribution from individual, employer		
	Private health expenditure	Private medi- cal insurance	Private medical insurance contri- butions		
		Other private expenditure	Nongovernmen- tal facilities and social donations		
		OOP payments	OOP payments from individual	OOP payments	

\*Social insurance refers to UEBMI, URBMI and NRCMS

Source: China National Health Development Research Centre, 2014; World Health Organization, 2011

With the opening up and reform of China, and the rapid development of the market economy and advancement of medical technologies, the health industry of China has entered into a rapid development phase. Health expenditure has increased during this time. However, OOP payments as a proportion of THE remains high, because the health insurance system has not been established for very long (at that time, UEBMI was in its infancy) and only a limited population was covered by basic health insurance schemes. The fairness indicator of China’s health financing ranked 188th in the world in the 2000 World Health Report, grabbing the attention of Chinese society. To reduce OOP payments and improve the accessibility and equity of health services, the Chinese Government has increased its spending on health and established basic health insurance, which facilitated the drop in OOP payments as a proportion of THE since 2001.

**Figure 3.1 Health expenditure as a share (%) of GDP in China and selected countries, 1995–2012**



Source: World Health Organization, 2013

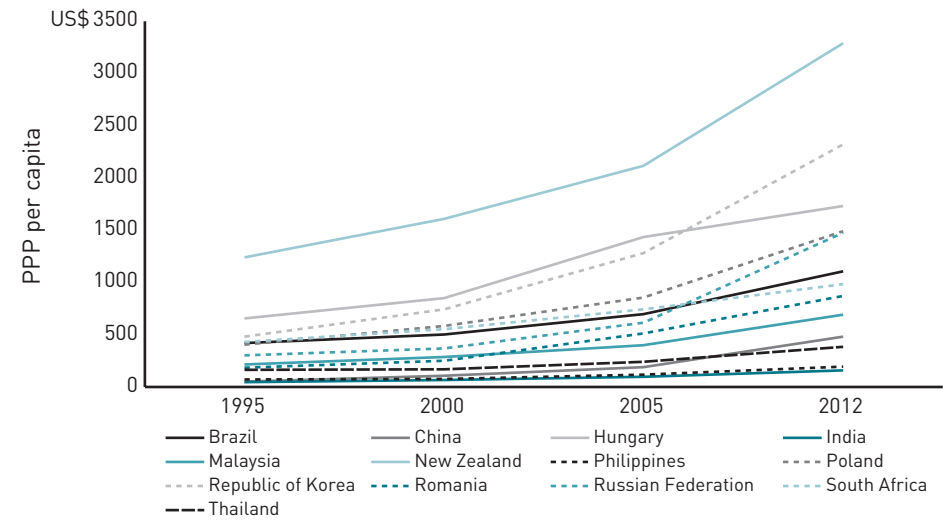
Figure 3.1 presents health expenditure as a share of GDP in China and selected countries<sup>2</sup> during 1995–2012. It indicates that health expenditure as a share of GDP in China has maintained an upward trend and remained higher than that in Malaysia, the Philippines and Thailand, and lower than that in Brazil, New Zealand, Poland, Romania, Russian Federation and South Africa (Figure 3.1).

Figure 3.2 indicates that selected countries retained a rising trend in health expenditure in US\$ PPP per capita during 1995–2012. Among the countries in Figure 3.2, Republic of Korea and New Zealand maintained a high growth rate, while other countries saw lower growth. China has comparatively low health expenditure per capita, but it expanded nine-fold, from US\$ 51.7 in 1995 to US\$ 480 in 2012, higher than that of India, the Philippines and Thailand.

When comparing public health expenditure (general government health expenditure) as a share of THE from 1995 to 2012 among selected countries, Republic of Korea and Thailand had relatively high ratios of

<sup>2</sup> Criteria for selected countries: BRICS (Brazil, India, Republic of Korea, Russian Federation and South Africa), Asia-Pacific countries (Malaysia, New Zealand, the Philippines, and Thailand) and central European countries (Hungary, Poland and Romania) with a similar level of economic development to China.

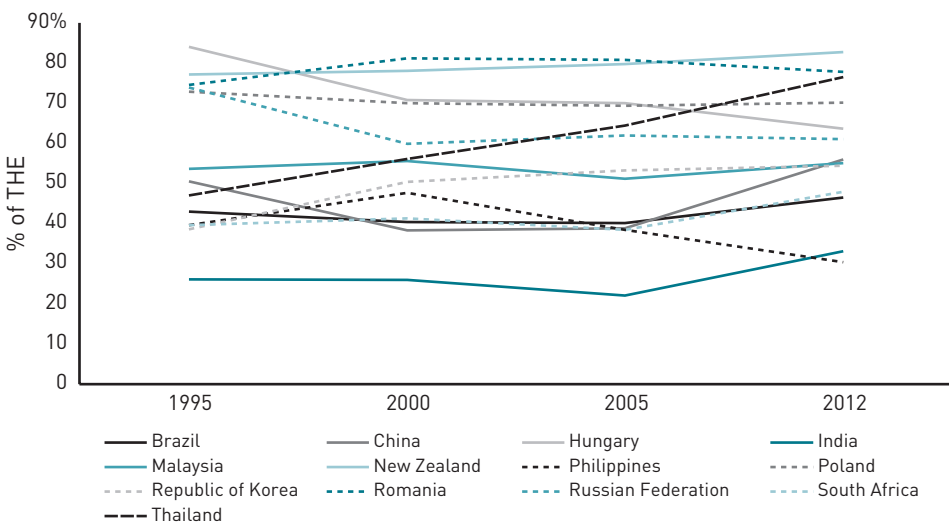
**Figure 3.2** Health expenditure in US\$ PPP per capita in China and selected countries, 1995–2012



Source: World Health Organization, 2013

public health expenditure as a share of THE, with stable growth rates. In the meantime, public health expenditure as a share of THE remained around 40% during 2000–2005 in China, increasing rapidly to 56.0% in 2012 (Figure 3.3).

**Figure 3.3** Public (general government) health expenditure as a share (%) of THE in China and selected countries, 1995–2012



Source: World Health Organization, 2013; World Bank, 2014

**Table 3.3 Composition of THE in China by provider (100 million yuan)**

	1990	1995	2000	2005	2010	2012
Hospitals						
City hospitals*	281.9	999.43	2296.74	4695.61	8459.54	11 763.35
	32.76%	41.72%	47.16%	51.02%	39.78%	39.57%
County hospitals*	93.05	206.07	425.74	690.11	2615.01	4138.26
	10.81%	8.60%	8.74%	7.50%	12.30%	13.92%
Community health service centres <sup>1</sup>	--	--	--	72.53	488.65	873.63
	--	--	--	0.79%	2.30%	2.94%
Township health centres <sup>1</sup>	91.36	243.3	371.67	587.22	1322.58	1794.72
	10.62%	10.16%	7.63%	6.38%	6.22%	6.04%
Other hospitals	16.27	34.84	66.71	56.51	37.24	32.12
	1.89%	1.45%	1.37%	0.61%	0.18%	0.11%
Subtotal for hospitals	482.58	1483.65	3160.86	6101.98	12 923.01	18 602.09
	56.07%	61.94%	64.90%	66.30%	60.77%	62.57%
Ambulatory health facilities <sup>2</sup>	180.09	398.8	662.65	1107.93	1813.73	2709.53
	20.93%	16.65%	13.61%	12.04%	8.53%	9.11%
Retail pharmacies	19.18	108.46	310.1	884.41	2511.6	3237.72
	2.23%	4.53%	6.37%	9.61%	11.81%	10.89%
Public health facilities	56.25	131.87	246.82	567.8	1687.22	2207.04
	6.54%	5.50%	5.07%	6.17%	7.93%	7.42%
Health administration and insurance	2.96	8.84	26.81	72.53	565.15	650.7
	0.34%	0.37%	0.55%	0.79%	2.66%	2.19%
Others	119.56	263.83	463.12	469.49	1763.24	2321.8
	13.89%	11.01%	9.51%	5.10%	8.29%	7.81%

\* Before 2007, county-level city hospitals were categorized as city hospitals, but they were later classified as county hospitals.

1 Community health service centres and township health centres were also known as “grassroots providers” and “primary health care facilities/institutions”. More specifically, community health services centres and community health services stations are the grassroots providers in urban areas, while township health centres and village health stations are the grassroots providers in rural areas.

2 Ambulatory health facilities refers to facilities providing outpatient visits, ambulatory services and community-based family health care services. In most cases, they don’t provide inpatient services. Outpatient departments, clinics, community health services stations and village health stations are included.

Source: Ministry of Health, 2013a

As shown in Table 3.3, total expenditure on city hospitals, county hospitals, community health centres, township health centres and other hospitals has increased since 1995, and the share of THE for different kinds of hospitals have a variety of growth rates. The proportion of THE for city hospitals increased from 1995, but a turning point appeared in 2005 and it dropped from 51% in 2005 to 40% in 2012. Conversely, the proportion of THE for county hospitals has increased consistently since 2005. The proportion of THE for community health centres has tended to rise, but remains a small proportion at just 2.94% in 2012, while the proportion of THE for township health centres has shrunk since 1995 to 6.04% in 2012.

Total expenditure on ambulatory health facilities, retail pharmacies, public health facilities and health administration and insurance has increased rapidly since 1990s, but the proportion of THE for different facilities has varied. For instance, the proportion of THE for ambulatory health facilities decreased from 16.7% in 1995 to 9.1% in 2012, while the proportion for retail pharmacies increased from 4.5% to 10.9%. The proportion of THE spent on public health facilities dropped during 1990–2000, and then increased over the next decade. However, this proportion decreased again by 2012. When it comes to the proportion of THE spent on health administration and insurance, the share remains low, although it has increased continually since 1990.

## **3.2 Sources of revenue and financial flows**

Table 3.4 provides sources of revenue as a percentage of THE in both domestic and international classifications.

Government expenditure, social expenditure and OOP payments are the main sources for health financing in the domestic classification. Taking 2012 as an example, government expenditure on health as a proportion of THE was 30%, social expenditure on health was 35.6% and OOP payments made up 34.4% (Figure 3.4). Figure 3.5 illustrates the financial flows of the health system in China.

Under the international classification, the public health expenditure (general health expenditure) as a proportion of THE dropped to 38% during 2000–2005, from over 50% in 1995. This indicator then rebounded significantly to over 55% in 2012. Conversely, private health insurance reached its peak during 2000–2005 and dropped to 45% in 2012.

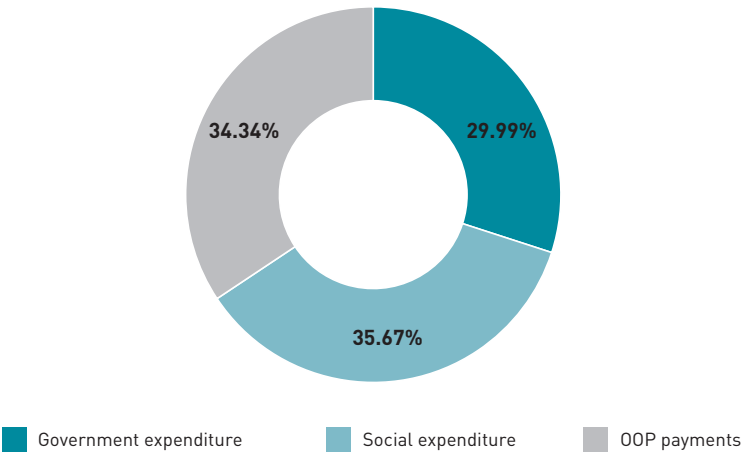
**Table 3.4 Sources of revenue as percentage of THE according to source of revenue, 1980–2012**

Classification*	Source of revenue (%)	1980	1985	1990	1995	2000	2005	2010	2012
Domestic	Government expenditure	36.24	38.58	25.06	17.97	15.47	17.93	28.69	29.99
	Social expenditure	47.41	32.96	39.22	35.63	25.55	29.87	36.02	35.67
	OOP payments	21.19	28.46	35.73	46.40	58.98	52.21	35.29	34.34
International	Public health expenditure	--	--	--	50.50	38.28	38.77	54.31	55.96
	Social insurance expenditure as percentage of public health expenditure	--	--	--	64.18	57.18	54.14	64.17	67.92
	Government budget (earmarked taxes) as percentage of public health expenditure	--	--	--	--	34.50	37.53	31.54	29.65
	Private health expenditure	--	--	--	49.50	61.72	61.23	45.69	44.04
	OOP payments as percentage of private health expenditure	--	--	--	93.74	95.56	85.26	77.24	77.97
	Private medical insurance as percentage of private health expenditure	--	--	--	--	0.99	5.79	7.42	6.97

\* The most significant differences between the domestic classification and the international classification are how they classify government subsidies for health insurance and expenditure on nongovernmental health facilities. For domestic classification, government subsidies for health insurance are regarded as government expenditure instead of social expenditure, while for international classification, they are regarded as social insurance expenditure. Nongovernmental health facilities are included as social expenditure for domestic classification but included as private expenditure for international classification. For further comparison between the two classifications please refer to Box 3.1 and Table 3.2.

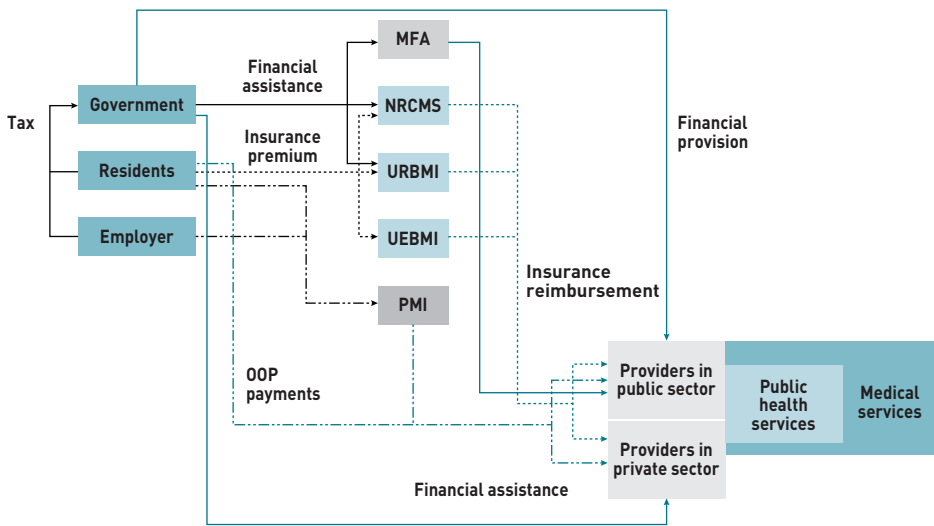
Source: China National Health Development Research Centre, 2014

**Figure 3.4 Percentage of THE according to source of revenue (domestic classification), 2012**



Source: China National Health Development Research Centre, 2014

**Figure 3.5 Financial flows**



KEY:  
 Governmental financing system (———)  
 Social financing system (.....)  
 Private financing system (- - - - -)  
 Black lines indicate financial sources and blue lines indicate spending.  
 MFA: Medical Financial Assistance for the Poor  
 NRCMS: New Rural Cooperative Medical Scheme  
 URBMI: Urban Resident Basic Medical Insurance  
 UEBMI: Urban Employee Basic Medical Insurance  
 PMI: Private Medical Insurance  
 Source: Developed by the authors

## 3.3 Overview of the statutory financing system

### 3.3.1 Coverage

The basic medical security system covering urban and rural residents in China consists of basic medical insurance schemes and Medical Financial Assistance (MFA) schemes for the poor. More specifically, employees in urban areas are covered by UEBMI, unemployed residents in urban areas are covered by URBMI and residents in rural areas are covered by NRCMS. The MFA is the security net for the poor in both urban and rural areas which helps them to enrol in basic medical insurance and also provides extra reimbursement for medical expenses. The public health system, which is mainly financed by the Government, provides basic public health services to all residents free of charge.

In 2012, OOP spending made up one third of THE under the basic health insurance which covered over 95% of the population. Although the population coverage of health insurance is satisfactory, scope and depth can still be improved. For beneficiaries of UEBMI, basic medical services – outpatient visits, hospital admissions and designated pharmacies – are eligible for reimbursement. However, the content of “basic medical services” is still limited by a national insurance list. For example, in the national insurance drug list of 2009, 1140 allopathic medicines (including 349 in Category A), 987 Chinese medicines (154 in Category A) and 45 folk medicines were included. For beneficiaries of URBMI and NRCMS in most regions, only inpatient services and outpatient services for several catastrophic diseases are eligible for reimbursement (40.5% of the cities with URBMI included general outpatient services in 2009). Additionally, the list for basic medical services is narrower than that of UEBMI and the reimbursement rate is even lower (Ying X et al., 2011).

### Basic medical insurance schemes

A basic health insurance system covering residents in urban and rural areas has been established. There are three components of the basic health insurance system: employees (including retirees) in urban areas are compulsorily covered by the UEBMI, and expenses for ambulatory health services, hospital admissions and retail pharmacies authorized by the insurance schemes can get immediate reimbursement with the beneficiary’s insurance card. Residents in urban areas who are not employed by any organization can voluntarily enrol in the URBMI, which aims to cover expenses from hospital admissions as a priority, while a



pooling fund for outpatient services is established where possible.<sup>3</sup> Rural residents can participate in the NRCMS at the household level to get coverage for inpatient and outpatient services. By the end of 2012, the UEBMI, URBMI and NRCMS had covered 265 million, 272 million and 805 million residents, respectively (Ministry of Human Resources and Social Security, 2013; Ministry of Health, 2013a).

In general, pooling funds have been established by the three basic health insurance schemes in prefecture-level cities and counties. Eligible expenses from hospital admissions or outpatient services for severe diseases may be reimbursed from the pooling funds, with certain deductible, co-payment and ceiling settings.<sup>4</sup> The OOP payments for insured residents are mainly for medicines or services excluded from the basic health insurance reimbursement list, deductibles for outpatient visits or hospital admissions, co-payments, and expenses over the ceiling (see also medical insurance fund under section 3.3.3).

### **Medical financial assistance and emergency rescue**

MFA for the poor, including the Urban Medical Financial Assistance for the Poor and the Rural Medical Financial Assistance for the Poor, is the security net for the multilevel health security system in China. Multiple channels, such as government funding and social donations, are used to raise funds for MFA to ensure access and affordability of basic medical services for the poor; that is, to provide financial assistance for family members on minimal incomes in urban areas, to ensure beneficiaries of

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3 The central government encourages cities with sufficient contributions and government subsidy, along with developed information systems and management experience, to establish a pooling fund for outpatient services so as to improve the service coverage of URBMI.

4 Deductible, co-payment and ceiling settings are the cost-sharing mechanism used by basic insurance schemes and are applied to eligible medical expenses (services on the insurance list). Different areas and schemes may have different settings. For deductibles (or excess), there are two kinds of arrangement: a certain number of deductible payments or a certain percentage of annual average income in the previous year. Patients need to pay for the deductible before they can get reimbursement from insurance. Generally, deductibles at tertiary hospitals would be higher than those at primary hospitals, and for a first hospital admission would be higher than for a second hospital admission. Co-payment usually applies to a certain percentage of the eligible medical expenses after the deductible. Co-payment ratio can be progressive that higher expenses get more reimbursement. Similar to deductibles, the co-payment ratio is higher in tertiary hospitals than in primary hospitals. Ceiling refers to the “stop-loss” for the insurance schemes, which should be at least six times the average income. Patients have to pay out of pocket or by other supplementary insurance when expenditure is over the ceiling. There are two kinds of ceiling: per visit and per year. The subjects of the ceiling could be total eligible medical expenses or total reimbursement from health insurance. Different areas use different kind(s) and standard(s) of ceiling setting.

the “five guarantees” (food, clothing, medical care, housing and burial expenses) – the aged, the infirm, old widows and orphans – are taken care of by the people’s communes in five ways in rural areas, and for the care of other poor people. Hospital admission expenses are the priority of MFA, but outpatient services can also be covered. MFA also provides financial assistance for poor people to enrol in URBMI or NRCMS so they can enjoy the benefit package of the insurance. OOP payments such as deductibles and co-payments are also eligible for financial support from MFA. In 2012, 18 billion yuan was collected for MFA, helping 58.78 million beneficiaries to enrol in basic health insurance schemes and providing financial support for 21.74 million hospital visits (Ministry of Health, 2013a).

The Emergency Rescue and Financial Assistance System for Disease was established in 2013. Emergency expenses for patients without identity documents, or unpaid emergency expenses for patients with identity documents but without capacity to pay for it, should be paid by the perpetrator(s) of the accident, injury insurance, basic health insurance, public health funds, medical financial assistance funds, social assistance funds for road traffic accidents and/or any other related insurance schemes. If none of these channels are available or there are still some unpaid expenses after their payment, the Emergency Rescue and Financial Assistance Fund should provide financial assistance (General Office of the State Council, 2013a).

### **Public health system**

Public health services in China are mainly provided by three kinds of facilities. First, specialized public health care facilities include disease prevention and control facilities, health supervision facilities, maternal and child health institutions and disease prevention facilities for specific diseases. Next is primary health service facilities, including community health service facilities, township health centres and village health centres. General hospitals are another major provider of public health-care services. These three types of facilities provide different kinds of public health services in accord with their own functions and capabilities.

During the period 2003–2006, two major public health systems (the Disease Prevention and Control System and the Medical Treatment System for Public Emergencies) were established in China. In 2009, the National Essential Public Health Services Programme was implemented so that basic public health services are provided to all residents free of charge. This programme facilitates equal access to basic public health

services by residents in regions with different economic development statuses. The programme has three categories, with nine subcategories of services: public health services for the whole population, including the establishment of health records for residents and health education; services for targeted population groups such as children, mothers and the elderly; and services for primary disease prevention and control. Vaccination, prevention of communicable diseases, and disease management for chronic diseases like hypertension and diabetes and for severe mental illnesses are included (Ministry of Health, 2009). Thirty yuan per capita was paid by the Government for public health services in 2013. Health management for Chinese medicines as well as health supervision and co-management were included in the public health services programme in the same year (National Health and Family Planning Commission, 2014).

### ***Insurance Programme for Catastrophic Diseases***

The Insurance Programme for Catastrophic Diseases (IPCD) is an extension of the basic medical insurance and provides further financial protection for the high medical expenses of patients with catastrophic disease. IPCD was established by UEBMI under the supervision of the appropriate provincial authorities. A certain percentage (decided by the prefectural governments) of the UEBMI fund is reserved for the IPCD, and beneficiaries of UEBMI can get reimbursement from the fund for medical expenses over the set ceiling of UEBMI. In order to improve the affordability of medical expenses for catastrophic disease for beneficiaries of URBMI and NRCMS, a guidance document was issued by six departments of central government in 2012 recommending that the IPCD be established. On incurring high medical expenses, patients would be reimbursed by URBMI or NRCMS first, and the IPCD would provide further reimbursement of the rest of eligible OOP payments. However, unlike basic health insurance schemes, it is recommended that the IPCD be operated by commercial insurance companies. The bureau of health, human resources and social security, financing, and reform and development should issue basic requirements for financing, reimbursement, management and other key issues relating to the IPCD. It is also the duty of local government to select commercial insurance companies through an open tender based on their reimbursement ratio, revenue ratio, and operational and management capacity. In order to reduce the economic burden on patients with catastrophic disease, the reimbursement rate of the IPCD should not be less than 50% of

eligible expenses beyond the ceiling of basic insurance. Moreover, the IPCD should have a progressive reimbursement rate such that higher expenses get more reimbursement (National Development and Reform Commission, Ministry of Health, Ministry of Finance, Ministry of Human resources and Social Security, Ministry of Civil Affairs and China Insurance Regulatory Commission, 2012).

### ***Migrant issue***

In the process of urbanization and development of agriculture, more and more people, especially young surplus labourers, migrate from rural to urban areas. Additionally, quite a number of people move from their hometown to other places for better job opportunities or education. Most migrants can only enrol in basic medical insurance in the place where they have registered their “Hukou”<sup>5</sup> (registered place), or they have to pay the whole premium without any contribution from local government in their city of residence, which sometimes becomes a financial barrier. It is hard for migrants to get reimbursement from the basic medical insurance for three reasons: first, geographic barriers exist in many places, so beneficiaries are required to go back to their registered place in person with the invoices to get reimbursement. Second, the reimbursement ratio for use of medical services in places other than one’s registered place is usually 15–25% lower. Third, beneficiaries are required to pay all the expense first and then get reimbursement, which can be beyond their ability to pay.

To address this issue and improve the access to and affordability of medical services, policies are being developed to make medical insurance enrolment more portable. Big cities with large migrant populations (e.g. Shanghai and Shenzhen) have special insurance for migrants.

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5 Hukou is a register system in China with a long history. In most cases, people are registered as household units. Basic information such as name, birthdate, relative relationships, marriage status, and address are recorded; thus it can be used as legal identification. Residents have the right to choose where they live; however, they need to get approval before they can change their Hukou from both the place they originally registered and the place they plan to register. The Hukou system has further influence because of its close relation to many other policies, such as the social welfare policy. In this case, only people with a local Hukou are eligible for the basic medical insurance in that place. Migrants, who numbered 236 million in 2012, are very likely to be excluded from the basic medical insurance in the city they work in until they get Hukou there. In most cases, only those who marry local people with Hukou become eligible to join the insurance in their city of residence.

Table 3.5 provides an overview of the statutory financing system in China, including the coverage, collection and pooling of funds for different schemes.

**Table 3.5 Overview of the statutory financing system**

A detailed case study is provided as illustration of this table in Appendix 1 at the end of Chapter 3.

		Coverage			Collection		Pooling of funds	
		Breadth	Scope*	Depth*	Government health expenditure	Social insurance contribution	Financial transfer payment	Insurance funds*
Basic medical insurance	UEBMI	Employees and retirees in urban areas	Inpatient/outpatient/pharmacy services in designated institutions	Deductible, co-payment and ceiling settings for eligible fees listed on the insurance drug/diagnostic and therapeutic items/medical services list		Individual and employer. At least 2% and 6% respectively of annual income		Personal accounts and pooling of funds
	URBMI <sup>1</sup>	Unemployed residents (students included) in urban areas	Inpatient services as priority, cover outpatient services if possible		√	Individual and government subsidy	√	Pooling of funds
	NRCMS <sup>1</sup>	Residents in rural areas			√		√	
MFA and Emergency Rescue		Poor			√		√	
Public Health System		All residents			√		√	
IPCD						√		Pooling of funds

\* Varies between different regions and schemes

1 Although residents in urban and rural areas can voluntarily join in URBMI and NRCMS, the two schemes are operated and financially supported by both the central and local governments. To conclude, URBMI and NRCMS are voluntary but have more in common with public or social insurance, so that their expenditures were listed as social expenditure.

IPCD: Insurance program for catastrophic diseases

URBMI: Urban Resident Basic Medical Insurance

UEBMI: Urban Employee Basic Medical Insurance

NRCMS: New Rural Cooperative Medical Scheme

MFA: Medical Financial Assistance for the Poor

Source: Summarized by the authors

### 3.3.2 Collection

#### Government expenditure on health

Taken from the national government's tax revenue and non-tax revenue, government expenditure on health is a major component of health financing and national financial expenditure as well. During 2009–2013, total input into the health sector from the Government was 2242.7 billion yuan, with a growth rate of 27.3%, which was 8.2% higher than that of overall national financial expenditure during the same period. Additionally, investment in health care as a proportion of total government expenditure increased from 4.4% to 5.7%. Meanwhile, the total input in health care from central government was 655.5 billion yuan in 2013, accounting for 3.2% of the expenditure of central government, up from 2.3% in 2009 (National Health and Family Planning Commission, 2014). The Government's emphasis in health investment is on improving

**Table 3.6 Government financial subsidy for hospitals in 2012 (million yuan)**

	Average revenue per institute		Average government financial subsidy per institute		Average government subsidy as percentage of total revenue (%)	
	2011	2012	2011	2012	2011	2012
<b>Hospitals</b>	56.65	67.41	4.61	5.13	8.14	7.61
<b>Public hospitals</b>	88.32	109.50	7.67	8.93	8.68	8.16
Tertiary hospitals	494.60	553.20	35.25	37.72	7.13	6.82
Secondary hospitals	72.80	83.63	7.18	7.85	9.86	9.39
Primary hospitals	8.62	10.13	1.20	1.47	13.92	14.51
<b>Public general hospitals</b>	169.16	205.66	13.13	15.28	7.76	7.43
Ministry hospitals	2146.70	2642.61	162.91	165.84	7.59	6.28
Provincial hospitals	801.03	979.26	56.15	71.81	7.01	7.33
Hospitals of prefecture cities	283.01	347.73	20.80	25.60	7.35	7.36
Hospitals of county-level cities	101.44	121.82	7.76	8.67	7.65	7.12
County hospitals	67.49	84.51	6.66	7.16	9.87	8.50

Source: National Health and Family Planning Commission, 2014

public health, sanitation in rural areas, community health care in urban areas, and basic medical insurance; and to promote the development of traditional Chinese medicine. Government health spending should also be used to increase the per capita funding for basic public health services and provide financial support for major public health projects. The necessary expenses of specialized public health facilities have been included in the government budget, while the personnel expenses and operational expenses of government-run PHC institutions are covered by both user charges and government financial assistance.

The total government subsidy for hospitals was 1562 billion yuan in 2012, of which 1466 billion yuan was distributed to public hospitals. Table 3.6 indicates the average government subsidy for different levels of hospital in 2012.

As for investment in basic medical insurance, the financial assistance policy regarding NRCMS and URBMI has been implemented and improved. Moreover, the level of financing and government assistance has increased with the development of the economy, and the rural and urban MFA has been further promoted (Ministry of Finance, National Development and Reform Commission, Ministry of Human Resources and Social Security, Ministry of Civil Affairs and Ministry of Health, 2009).

### **Social insurance contribution**

In 1998, China began to explore UEBMI to cover basic medical services, provide broad coverage of the population, use both personal accounts and pooling funds at the same time, and get financing from multiple sources. All employers in urban areas, including government agencies and institutions, state-owned enterprises, private businesses, social organizations, other private units and their employees (retirees included) are obliged to enrol in UEBMI. The contribution to UEBMI should be made by the employee and the employer together (at least 2% and 6% of the employee's income, respectively<sup>6</sup>). While the contribution paid by the employer is used to establish the pooling fund and personal account, all contributions paid by the beneficiaries go into their personal accounts. The specific contribution rate is decided by local government, commonly a prefecture-level city. Retired persons are not required to pay the contribution. Self-employed individuals and laid-off workers can enrol

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6 The central government requires that the contribution from employees should no less than 2% of their average income and 6% from employers. For cities like Beijing or Shanghai, the contribution ratio from employers can be as high as 12%.

in the URBMI or the UEBMI by paying all of the contribution which would normally be shared by the employee and employer, on the basis of the average income of previous years in the prefecture-level city. In 2012, the average contribution from both employees and employers was 2308 yuan per capita (National Health and Family Planning Commission, 2014).

In 2007, a pilot of URBMI was conducted in the urban areas. All urban residents who are not covered by the UEBMI can voluntarily participate in the URBMI. Vocational high school, college and technical school students, teenagers, and other unemployed residents are eligible for URBMI. The main funding for URBMI comes from individuals, with some subsidy provided by the government. In 2012, the average contribution from both individuals and government was 334 yuan per capita (Ministry of Human Resources and Social Security, 2013; National Health and Family Planning Commission, 2014).

NRCMS, organized by prefecture-level counties, is guided and supported by the Government, encouraging the participation of rural residents. Individuals, collectives and both central and local governments are responsible for the financing of NRCMS, and critical diseases are the priority of NRCMS. The pilot of NRCMS began in 2003 and by the end of 2012, the number of NRCMS participants reached 805 million, with a participation rate of 98.3% among rural residents. The level of subsidization from NRCMS for each enrollee was 240 yuan in 2012, and the average contribution from both individuals and government was 309 yuan in 2012 (National Health and Family Planning Commission, 2014).

The IPCD takes a proportion or a certain amount of money per capita from URBMI or NRCMS as a funding source (i.e. 36 yuan per year per capita, or 0.2% of average income). The financing of the IPCD was decided scientifically and based on evidence from related factors such as the status of social and economic development, the financing capacity of health insurance, average expenses for severe diseases, the compensation ability of basic medical insurance and the financial protection ratio of IPCD. IPCD can be established at the prefecture-level county or city level, and the idea of a provincial-level IPCD is being explored and organized in several provinces. A united IPCD covering UEBMI, URBMI and NRCMS can be further developed where conditions permit (National Development and Reform Commission, Ministry of Health, Ministry of Finance, 2012).



### **3.3.3 Pooling of funds**

#### **Financial transfer payments**

Revenue-sharing and corresponding financial transfer payment systems were established in 1994. General transfer payments and special appropriation are the basic forms of transfer payment. Social welfare departments, such as education and social security, are usually funded with general transfer payments from the central government so as to guarantee funding for social welfare. Special transfer payments are the financial subsidy from the central government to local governments, who act as an agency for central government or for specific policy or strategic objectives. The funding is then distributed to local financial agencies according to their functions.

After the implementation of the New Health Reform Plan in 2009, investment in medical services by the central government was enhanced. Central government funding for PHC facilities was mainly used for basic infrastructure investment, procurement of major medical equipment, transformation and maintenance, and physician recruitment in township health centres. Since 2005, the “10 000 Physicians Support Rural Health Project” also aims to provide an educational fund for 10 000 medical students who are willing to work in rural health care facilities after graduation. The Government has invested over 63 billion yuan during 2009–2011. Comprehensive reform of public hospitals, which is one of the main purposes of the New Health Reform, has been promoted by the central government and received a great amount of funding; for instance, 3 million yuan was provided to each pilot county to support the comprehensive reform. The Essential Medicines Policy and the establishment of performance-based salary reform also received financial assistance from the Government. During 2009–2011, a special fund of 12 billion yuan was used by the Government for the further development of the Essential Medicines Policy. Government financial assistance as a proportion of total revenue of PHC institutions increased from 29% in 2009 to 45% in 2012 (National Health and Family Planning Commission, 2014).

The national financial input toward improving the universal medical insurance system is mainly used to support the establishment of NRCMS and URBMI, help the retired staff of bankrupt enterprises and employees of endangered enterprises to enrol in the basic insurance schemes, and to enlarge the scale of MFA and its reimbursement rate. The levels of subsidies for NRCMS and URBMI increased from 20 yuan and 40 yuan at

the beginning of the schemes to 320 yuan in 2014. In the meantime, the central financial input was increased for central and western regions. The proportion of subsidization from central government has been raised from 50% at the beginning of the schemes to 69% for western China and 56% for central China in 2014. On this basis, government will provide additional financial support per capita per year towards insurance contributions for students, children with major disabilities, and families under the poverty line. For families under the poverty line, the disabled without any work ability and the elderly (aged over 60 years old) from low-income families, the government will provide extra capitation subsidies each year.

In order to promote the development of the public health system in China, funds from central and local governments were used to establish a universal Disease Prevention and Control System and the Medical Treatment System for Public Emergencies during 2003–2006. Different responsibilities are shared among different levels of government. On financing of major public health service projects, local governments take the main responsibility for public health services and prevention of major communicable diseases within their jurisdictions, while central government provides subsidies for cross-regional projects. For emerging major public health incidents, local governments take the main financial responsibility, with some central government subsidization (State Council, 2007a). In all, 57.87 billion yuan was contributed by central government and 104.8 billion yuan came from all other levels of government to achieve the equalization of basic public health services from 2009 to 2012. Provinces are categorized by their level of economic development, and underdeveloped regions such as central and western China get more financial support. The disparities between health services due to differences in economic development are offset by the different proportions of financial support from central and local governments (National Health and Family Planning Commission, 2014).

### **Medical insurance fund**

The three basic medical insurance funds are managed separately and settled with hospitals within their own regions. Each of the basic medical insurance funds are centrally managed by a local social insurance agency which reimburses insured patients for their medical expenses, surgery expenses, nursing expenses and basic examination expenses. An annual budget is a necessity for the pooling administration authorities and is decided on the basis of certain factors. More specifically, when making

a revenue budget, the status of local economic development, the income level of employees, health insurance coverage and its contribution ratio should be comprehensively considered; while the age structure of the insured population, the spectrum of disease, the growth rate of medical expenses, the benefit package of health insurance, the financial protection ratio and the surplus of the fund over the years are considered when making an expenditure budget.

UEBMI funds are mainly used for hospital admission expenses and catastrophic outpatient expenditures on beneficiaries. A pooling fund for outpatient services could be established under feasible circumstances (i.e. enough financial capacity for such an outpatient pooling fund). Hospitals and pharmacies need to be contracted with UEBMI before they are eligible for reimbursement. While a personal account can be used to pay for the outpatient services, OOP payment of hospital admissions and purchases in designated pharmacies, eligible inpatient expenses and catastrophic outpatient expenses are covered by the pooling fund. Expenses below the deductible are paid from the personal account or in cash; the majority of expenses between the deductible and the ceiling can be reimbursed from the pooling fund, and insured patients are responsible for the co-payment. The deductible, co-payment and ceiling are set by the pooling administration authority. More specifically, the deductible generally depends on the level of the hospital. In most cases, deductibles for primary hospitals are the lowest, higher for secondary hospitals, and highest for tertiary hospitals. The co-payment rate shares the same arrangement as the deductible so as to encourage more utilization of services delivered by primary-level hospitals. In some regions employees and retirees, even according to the age of the patients, would have different reimbursement levels. In general, retirees and the elderly would have lower deductible and higher reimbursement rate (Ministry of Human Resources and Social Security, 2013).

The scale and standard of basic medical services are regulated by a national basic medical insurance drug list, list of diagnostic and therapeutic terms, medical services standards and related management measures. The basic medical insurance drug list has two categories: Category A drugs are the same all over the country, their cost is eligible for reimbursement from the basic insurance fund, and patients can be reimbursed under the deductible, co-payment and ceiling

set by the insurance<sup>7</sup>. Category B drugs are only partially eligible for reimbursement. Patients first have to pay part of the expense, and then the rest is eligible for reimbursement under the deductible, co-payment and ceiling as set by the insurance (Ministry of Human Resources and Social Security, 2004). In the list of 2009, some 1140 kinds of allopathic medicines (349 in Category A and 791 in Category B), 987 kinds of Chinese medicines (154 in Category A and 833 in Category B) and 45 kinds of folk medicine are included. In addition, all the therapeutic medicines on the National Essential Medicines List would be automatically included in Category A, which includes 317 allopathic medicines and 203 TCM (Ministry of Human Resources and Social Security, 2009).

The MOHRSS is responsible for deciding the benefit package of the national list of basic medical insurance diagnostic and therapeutic items. A negative list is used, where ineligible (Category C) and partially ineligible (Category B) diagnostic and therapeutic terms for reimbursement from basic insurance are listed separately. Treatment items which are nonessential for clinical diagnosis or have uncertain effects on medical objectives are regarded as Category C. Essential treatment items for clinical diagnosis or treatment items which are effective but easily abused or lead to high expenses are included in Category B. Each province can supplement this national negative list.

The provincial human resources and social security department determines the scope of the local medical services list for basic medical insurance, with some regulation by national government. Hospital bed fees and observation bed charges for emergency or outpatient visits are included as medical services and facilities expenses for basic medical insurance, but daily necessities, wheelchairs, water and electricity are excluded.

URBMI takes reference from UEBMI and implements the national basic medical insurance drug list, list of diagnostic and therapeutic items and medical services standard and their related management

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7 Deductible, co-payment and ceiling settings are usually applied to the “eligible medical expenditure”. Here eligible means the expenditure is under the service scope of the insurance scheme, which means it is on the national insurance list for drugs, diagnosis projects or medical services. Moreover, there are two categories in the national list; category A is completely eligible, and category B is partially eligible. For example, if drug X in category A cost 500 yuan, and drug Y in category B cost 400 yuan, and the deductible is 300 yuan, then 500 yuan is eligible for drug X and up to 200 yuan can be co-payment; but drug Y is eligible for only 60% of its cost, or 240 yuan, which is under 300 yuan so the consumer receives no co-payment from their insurance.

measures to reimburse hospitals. Some regions provide different benefit packages to satisfy the demands of people with different contribution and reimbursement rates. In 2012, the average reimbursement rate for hospital admission was around 70% (Ministry of Human Resources and Social Security, 2013; National Health and Family Planning Commission, 2014).

NRCMS focuses on reimbursement for inpatient and catastrophic outpatient expenses, though pooling funds for general outpatient visits have been established in some regions. Every pooling administration authority decides the scope, level and amount of reimbursement, as well as the specific check items for the general physical examination<sup>8</sup> on the basis of the total amount of financing. The average reimbursement rate for hospital admission was about 70% in 2012 (National Health and Family Planning Commission, 2014).

The NRCMS drug list (generally at provincial level) is determined by NRCMS authorities and used to restrict the reimbursement range for medicines. The NRCMS drug list differs between different levels of hospitals – the higher the level of the hospital, the wider the range of medicines that can be reimbursed. The National Essential Medicines List (primary section) is the main body of the NRCMS drug reimbursement list for township health centres, and supplements can be selected from the provincial NRCMS drug list on the basis of health demand and the payment capacity of the NRCMS fund. NRCMS drug reimbursement lists at village level also refer to the National Essential Medicines List (primary section) and supplements such as folk medicines and medicines for endemic diseases can be added upon request. The medicines on the National Essential Medicines List have significantly higher reimbursement ratios than other non-listed medicines (Ministry of Health, 2013c).

### **Medical Financial Assistance fund for the poor**

Multiple channels including government funding and social donations are dedicated to the MFA fund for the poor. There are two ways for people to obtain financial assistance from MFA. First, eligible residents can get a subsidy for contributions to URBMI or NRCMS. Second, after the reimbursement of basic medical insurance, IPCD and other

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8 General physical examinations under NRCMS can be provided to high-risk populations as screening (for people over 60, people with specific diseases, etc.) or as a benefit package for enrollees who did not incur any medical spending in the previous year.

supplementary medical insurance, eligible individuals and their families can get a further subsidy for OOP payments (State Council, 2014).

Family members living on minimum living allowances in urban areas and “five guarantees family”<sup>9</sup> members in rural areas registered at the Ministry of Civil Affairs are automatically enrolled in MFA programmes. When visiting designated hospitals with their identity card, these people only need to pay OOP costs; the rest of the expenses are settled directly from MFA with the hospitals. Other enrollees in MFA who are not registered with MOCA have to pay the medical expenses and apply to the Ministry for reimbursement (Ministry of Finance and Ministry of Civil Affairs, 2013).

### **Emergency Rescue and Financial Assistance System**

In 2013, all levels of provincial, regional and municipal governments established the Emergency Rescue and Financial Assistance Fund, and all sectors of the community are encouraged to make donations to the fund. All patients with severe diseases or critical injuries who need first aid, but who either have no identity papers or no ability to pay, are the beneficiaries of the fund. Hospitals that deliver emergency treatment to such patients can apply to the Fund to obtain a subsidy. The Fund pays the hospital directly after the following process: first, the operating and managing agencies audit and collect the payment application from the hospitals. If approved, applications are submitted to the financial agency at the same administrative level. After the application has been audited by the financing agency, payment from the Emergency Rescue and Financial Assistance Fund is transferred directly from a dedicated social security fund to the hospital (General Office of the State Council, 2013b).

#### **3.3.4 Purchasing and purchaser-provider relations**

##### **Basic medical services**

To summarize basic insurance regulations, patients can be reimbursed for visits to a designated hospital or designated pharmacy. More specifically, patients pay service charges and in many places (cities in particular), they can get reimbursement directly from the insurance schemes. But for some rural regions, patients may have to pay all the expenses first, then wait for later reimbursement. For health services in

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9 “Five guarantees families” include the aged, infirm, old widows and orphans, and are taken care of by the people’s communes in five ways: food, clothing, medical care, housing and burial expenses.

non-designated hospitals or pharmacies, patients usually have to cover all expenses themselves.

Deductibles, co-payments and ceilings are used by the three basic medical insurance schemes to establish a cost-sharing mechanism for patients. Designation in advance, occasional supervision, and after-the-event audits are used by the insurance administration agencies to reduce the oversupply of services. Payment methods such as case payment, capitation and global budgets have been explored in some regions to facilitate more financial autonomy for hospitals (State Council, 2007b). Designation protocols are negotiated between the social insurance agencies and designated hospitals and pharmacies. A contract is made and implemented to standardize the management of designated medical institutions and retail pharmacies, specifically designating the rights and obligations of health insurance agencies, medical institutions and retail pharmacies. It is the right of medical insurance agencies to deny payment under the following conditions where:

- medication, examination and treatment costs are not relevant to the patient's health issue;
- prescription costs are inconsistent with the health issue;
- new examination items, treatment programmes and homemade preparations have not been approved by the price department or health authorities;
- expenses which are paid at the price set by the hospital have not been approved by the price department or health authorities;
- expenses violate the pharmaceutical bidding policy; and
- expenses exceed the maximum retail price.

In 2009, a provider payment reform was initiated by the State Council that recommended a mixed payment method to improve the compensation mechanism of public hospitals. After a number of pilots, Diagnosis-Related Groups (also known as "DRGs"), capitation and global budget methods have been applied in many facilities to control the expansion of medical expenses and promote the quality of health care. According to a national insurance survey by MOHRSS, about 8.6% of cities have developed global budgets for inpatient services for UEBMI patients and 23.3% have partially developed case payment systems for inpatient services in 2010 (Ministry of Human Resources and Social Security, 2014). Generally, a fixed payment per day, per visit or per case, or a global budget, would be discussed and negotiated between the hospital and

the insurer in advance. For any expenses over the criteria, the insurance fund may reject or pay only part of the expenses; for expenses below the criteria, the hospital can take a certain proportion for operational investment.

## **Public health services**

According to the implementation plan for health reform, the cost of national basic public health service programmes is brought into the government budget. From 2009 to 2013, the per capita funding for basic public health services continued to rise and the national basic public health service programmes have been included in the implementation of people's livelihood projects by the government. The increased funding was used to enlarge the population served, increase the range of services and improve their quality. The age range eligible for childcare management has been extended from 0–3 years old to 0–6 years old and child oral health care and other services are included. Second, the number of examination items for key populations such as new and expecting mothers and the elderly (over 65) was increased, while the content of health education was expanded and the frequency of service increased. Third, the number of residents registered for disease management for hypertension, diabetes and severe mental illness was raised. And fourth, more services were provided by PHC facilities, including emergency response to public health events, food safety information reports and occupational health consultations.

Whether government-run or private, all health-care institutions with appropriate qualifications, requirements and capacity can apply to deliver community public health services. To ensure equity in public health services for community residents in a particular area, local government and its related departments determine the public health service projects at the community level. More specifically, on the basis of the economic development level, financial capacity and the need for basic public health, the government decides which specific public services will be provided within its administrative region, which are also purchased by the government. For personal public health services such as immunization programmes, two methods can be used to compensate the providers. First, personal public health services can be paid for by the government through a subsidy, with a fixed subsidy per unit of service as determined by calculating the per capita cost of the service. For population-based public health services, such as health education, a fixed comprehensive subsidy can be decided by establishing the overall



cost. Alternatively, the government can compensate the providers through a fixed bundled project subsidy in which all public health services are included.

Procurement committees are organized by local finance and health departments. The provider of the public health services is selected from qualified institutions through open tendering, competitive negotiation or single-source procurement. The local finance department sets aside enough budget for the procurement of public health services and special assistance funding in accordance with the subsidy level for public health service projects. Final payment is performance-based. Direct payment can be used, or service vouchers and/or service brochures<sup>10</sup> can be used for some public health service projects. Creating a combined capitation or global budget with both public health service funds and health insurance funds can be explored, when necessary, so as to encourage medical service institutions to provide preventive services (State Council, 2009).

### **3.4 Out-of-pocket payments**

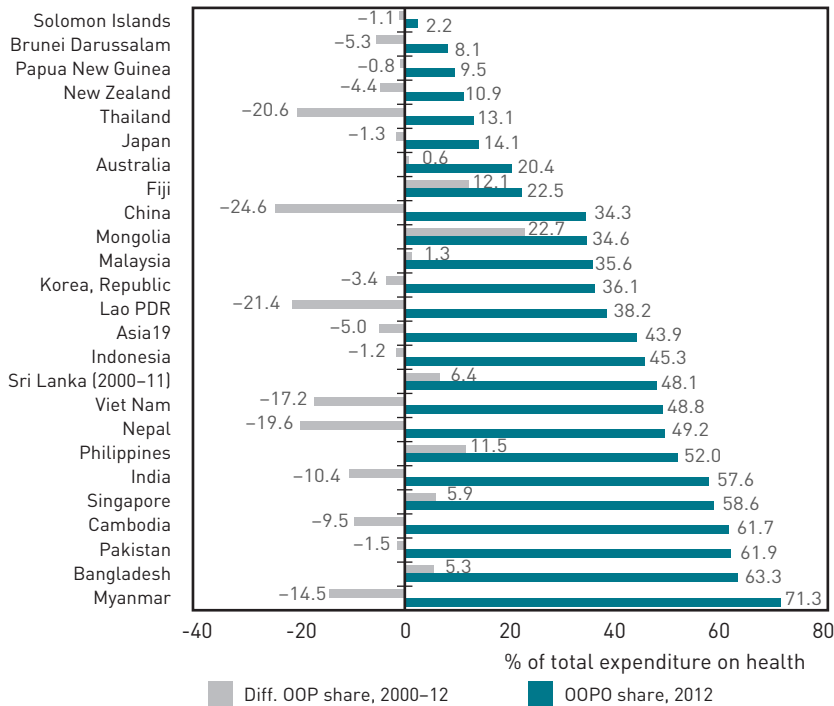
Compared to countries with a social insurance system, in China OOP payments are relatively high as a proportion of THE (34.3% in 2012). With the emphasis on health service equity, many policies and working plans have been issued by the Government to reduce OOP payments from patients. For example, social advocacy and subsidies have been used to attract more participation in medical insurance; the financing and subsidy level were raised to ease the economic burden of OOP payments; and in some places, the proportion of services which were not listed on the insurance list (thereby requiring OOP payments regardless of insurance coverage) was limited to 40% of OOP payment in the total expenses, so as to decrease the OOP payment. Moreover, the supervision of medical service institutions was strengthened to eliminate informal payments. The implementation of policies such as the National Essential Medicines Policy in PHC institutions has had a positive impact on reducing OOP payments, mainly due to the reduction of total expenses (Yang, et al. 2013). As Figure 3.6 indicates, China had the largest reduction in OOP payments for the period 2000–2012 among all Asia-Pacific countries (World Health Organization and OECD, 2014).

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10 A service brochure is a booklet issued by the local government or health authority to eligible residents. A certain package of public health services for residents are listed in the brochure.

The pooling for basic medical insurance is administered at lower levels, such as the county or municipality. Financial protection could be further improved because there is disparity of economic development and medical services and different insurance schemes are managed by different government departments. Disparity in financing leads directly to different levels of reimbursement and financial protection, resulting in inequity of health service utilization among different population groups. When it comes to financing equity, UEBMI has partially achieved vertical equity and is seeking horizontal equity in provision of services.<sup>11</sup> However, a progressive financing mechanism has not been implemented in URBMI. Vertical equity has not been achieved by URBMI or NRCMS. Raising the pooling level, covering outpatient visits, decreasing the disparities among different health insurance schemes, and conducting a comprehensive payment and income distribution reform have received increasing attention.

**Figure 3.6 Change in out-of-pocket spending as a share of total expenditure on health, 2000-12**



Source: World Health Organization and OECD, 2014

11 Vertical equity implies that people with higher incomes pay more; horizontal equity implies people are treated the same in an identical situation.

### **3.4.1 Cost-sharing (user charges)**

UEBMI patients use personal accounts to pay their outpatient expenses directly. For hospital admissions, different deductibles are set for different levels of hospital and the pooling fund will pay for the majority of the expenses above the deductible. Expenses over the ceiling are borne by the patient and/or IPCD.

Generally, URBMI patients have to pay for outpatient services themselves, while NRCMS patients can get partial reimbursement from the pooling fund for outpatient expenses. For hospital admissions, the situation is similar with UEBMI, only with different deductible, co-payment and ceiling settings determined by each pooling administration authority (Ministry of Human Resources and Social Security, 2013; Ministry of Health, 2013a).

Some voluntary commercial medical insurance plans cover the co-payment set by basic health insurance schemes. This relieves the patient of the economic burden of the cost-sharing mechanism, but weakens the effect on restricting unnecessary demand.

### **3.4.2 Direct payments**

Over 95% of the population was covered by the three basic medical insurance schemes in 2012. Uncovered patients have to pay directly for their medical expenses. Any use of non-reimbursable medicines, diagnostic or therapeutic terms listed in Category C is also paid by the users directly.

Pharmaceutical services and general outpatient visits are the services most commonly paid for with direct payments. Self-medication is widespread in China and this increases purchases in pharmacies. However, only UEBMI beneficiaries can use their personal accounts to directly purchase medicines in pharmacies; other residents have to make direct payments to buy medicines. In addition, general outpatient visits are neither commonly nor widely covered by URBMI and NRCMS, which leads to the high proportion of direct payments for the insured population.

## **3.5 Private medical insurance**

### **3.5.1 Market role and size**

With the further improvement of the market economy and the increase in residents' incomes, the demand for better health services is expanding and voluntary commercial medical insurance (private medical insurance

– PMI) is playing an increasingly important role in the health insurance system. The new health care reform plan clearly states that a multilevel medical health insurance system, which includes basic medical insurance and other kinds of supplementary and voluntary commercial medical insurance, will be established and promoted. Thus, the role of PMI will be to supplement the medical insurance system. Currently, PMI for students, supplementary medical insurance, and commercial insurance packages including all or some of medical, injury, property and life insurance are common and popular in the market. In 2012, The Advice on Urban and Rural Residents' Insurance for Severe Diseases (issued by six government ministries) again made it clear that commercial insurance agencies are encouraged to implement the IPCD so that the market mechanism will improve its efficiency, services and quality.

### **3.5.2 Market structure**

Group enrolment in PMI at the enterprise level is common, providing welfare to the employees while enhancing labour productivity. These PMIs aim to provide supplementary reimbursement above UEBMI. For example, medicines not listed on the national insurance list may be eligible for PMI and enrollees may enjoy some meal allowance. Group enrolment in PMI is also common among students. Currently, students can participate in URBMI, which is limited to hospital admission. With the help of PMI, students can obtain more reimbursement if they become sick. People with basic health insurance who seek a higher reimbursement ratio or a wider range of medical services can also invest in PMI. Factors such as age, gender, socioeconomic status, education and region will affect the selection of PMI, and factors like age, gender, family disease history and health status will also restrict the selection from the PMI's perspective (Ministry of Finance and Ministry of Human Resources and Social Security, 2002).

A major change in the market pattern of PMI in 2012 is that the IPCD is now purchasing services from PMI. More specifically, local government departments decide the policy on financing, reimbursement scope, minimum reimbursement rate and the management of medical treatment and expense settlement, and select a PMI agency for operating IPCD through a government tendering mechanism. Tenders will include specific reimbursement rate, profit and loss rate, contractor and management strength, and other issues. Qualified PMI agencies can participate in the tendering voluntarily and the winning bidder will operate the IPCD under an insurance contract. The PMI agency will

bear all the operational risks. The revenue of the PMI agency from IPCD premiums is exempt from sales tax under current policy.

Basic conditions should be met for private insurers to operate the IPCD, which are:

- more than five years of experience operating in the business of health insurance in China, and with a good reputation in the market;
- a comprehensive network of services and strong health insurance professional competence;
- sufficient full-time staff with professional background;
- permission from the headquarters of the insurer for local branches to participate in operating IPCD, with business, financial and information technology support provided by the insurer;
- ability to establish a separate account for IPCD; and
- other prerequisites requested by the China Insurance Regulatory Commission (CIRC) for operating health insurance.

### **3.5.3 Market conduct**

Employers and individuals are encouraged to enrol in PMI. The premium is generally determined on the basis of the objective of the insurance, the payment capacity of the targeted population and the operating costs of PMI agents. Health-related information is usually required for individual participants so as to estimate the premium. A group insurance premium is available for group enrolment by enterprises or other communities.

The market share of PMI is not sufficient for them to have negotiating power over health care providers. As a result, insured patients will be reimbursed retrospectively for medical expenses and receive subsidies for hospital admission or days off work. Since no strict regulations have been set on health care providers, both public and private sectors can provide medical services for insured patients.

The demand for PMI comes from two groups of people in China. First, for self-employed individuals and private sector and township enterprise employees who are excluded from basic medical insurance in some regions, PMI with fewer enrolment restrictions provides a better choice. The other group is participants in basic medical insurance who require special examination, treatment and medicines not reimbursed by the basic health insurance but covered by PMI.

### **3.5.4 Public policy**

PMI is regulated by the China Insurance Regulatory Commission (CIRC). The promulgation of the “Measures for the administration of health insurance” by CIRC in 2006 has unified the supervision standards for the operation of health insurance. In order to promote the development of the health services industry, the State Council proposed the objectives in 2013 of having richer PMI products, wider population coverage, a higher proportion of PMI expenses in THE and better health insurance mechanisms, and this laid the policy foundation for PMI development. Moreover, the provision of basic medical insurance by PMI explored in some regions will provide more opportunities in the future.

## **3.6 Payment mechanisms**

### **3.6.1 Paying for health services**

The major financing source for public health services is local government via local health departments, by capitation. Other public health services are paid for directly by the users, for instance, the HPV vaccine is not listed as a basic public health service and is paid for out of pocket by the user. For some PHC services and first aid services, public hospitals can get part of the budget from the local health department and patients have to pay the service charge on a fee-for-service basis. The local basic insurance fund will pay the hospital through mixed payment methods for its beneficiaries. For a long time, medical expenses were paid by service users (patients) in the form of service charges. This fee-for-service payment method is also applied to basic medical insurance fund payments to the hospital. The objective of reforming the payment mechanism is to strengthen total budget control, the management of funds, and explore global budget methods. On this basis, capitation will be explored for outpatient services, while Diagnosis Related Groups will be developed for inpatient and outpatient services for catastrophic diseases. A negotiated risk-sharing mechanism between the health insurance agencies and health service providers will be established and improved, and a new and comprehensive payment system with economic incentives and restrictions will be gradually established. Moreover, the new payment system should also respond to developments in basic medical insurance in the future (Ministry of Human Resources and Social Security, 2011).

The entrenched fee-for-service tradition has led to negative impacts such as a huge waste of medical resources and heavy burden on

medical insurance funds. In 2009, the *Opinions on Deepening the Health Care System Reform* issued by the State Council stated that payment reform should be applied to improve the compensation mechanism of public hospitals. The “Planning and Implementation Plan for Deepening Medical and Health System Reform for the Twelfth Five-year Period” further proposed that payment system reform should be strengthened, and DRGs, capitation and global budget methods should be applied across China with the implementation of clinical pathways, so that the increasing cost can be controlled and the quality of health care services guaranteed. A mechanism restricting the increase of medical expenses should be established. An overall goal of controlling the total spending of medical insurance funds should be made and broken down to designated hospitals. Controls on the growth of medical expenses per hospital admission, or per DRG, and individual OOP burden should be included in the evaluation system of health insurance. A negotiation and service-purchasing mechanism among health insurance agencies, hospitals and pharmaceutical suppliers should be established. The payment policy of medical insurance should further favour PHC institutions and Chinese medicines. Patients with minor diseases should be guided to PHC facilities and a treatment grading system should be developed. A mixed payment system, including global budget, capitation and DRGs, should be used to guide hospitals to control their costs, while the supervision of treatment and diagnosis should be strengthened to improve service quality. The scope of services, payment methods and standards, and quality requirements should be determined through negotiation between insurance agencies and public hospitals. Assessment of the indicators regarding use of essential medicines and OOP spending for medicines should be strengthened.

In order to promote the payment reforms for NRCMS in an active and stable manner, the *Guiding Opinions on Promoting the Payment Reform* of NRCMS, issued jointly by NHFPC, NDRC and MOF in 2012, stated that the key reform is the transformation from a retrospective payment to a prepayment mechanism. That is, the single fee-for-services payment method should be replaced by mixed payment systems through the spread of DRGs, per-diem payments, capitation and global budgets. Moreover, the basic role of health insurance needs to be changed through the switching of the hospital compensation mechanism and incentive mechanism. Global budgets for outpatient services should be actively implemented in township health centres and village posts. Capitation should be explored as a way to purchase medical services from village

doctors (GPs). Case payment will be applicable to catastrophic outpatient expenses for severe diseases. Payment methods for hospital admission such as DRGs and per-diem should be further promoted. In 2012, the Comments on the Implementation of Global Budgets for Basic Medical Insurance was issued by the MOHRSS, indicating that the payment method reform should be deepened with comprehensive implementation of budget management, and that a global budget for basic medical insurance should be conducted.

**Table 3.7 Provider payment mechanisms**

<b>Payers Providers</b>	<b>Local government</b>	<b>Local social medical insurance fund*</b>	<b>Private or commercial medical insurance</b>	<b>Cost sharing</b>	<b>Direct payment</b>
Public primary hospitals	Financial subsidy	Mixed <sup>1</sup> (global budget, capitation, case payment, FFS, etc.)	FFS	FFS	FFS
Secondary and tertiary public hospitals	Financial subsidy	Mixed <sup>1</sup> (global budget, FFS)	FFS	FFS	FFS
Private medical institutions	None	Mixed <sup>1</sup> /None	FFS	FFS	FFS
Retail pharmacies	None	FFS	None	FFS	FFS
Public health service institutions or prevention services provided by hospitals	Financial subsidy	None / FFS	None/ FFS	None/ FFS	FFS for paid services

\* Generally, capitation is applied to outpatient services and case payment to inpatient services. Global budgets and FFS can be applied to both outpatient and inpatient services.

1 "Mixed" means that in a certain insurance scheme (i.e. NRCMS), a mixed form of payment method is used for different kinds of expenses (e.g. capitation for outpatient visits and global budget for hospital admissions).

FFS: Fee for service

Source: Summarized by the authors



### 3.6.2 Paying health workers

Doctors in China are employed by hospitals and their income and benefits are closely related to hospitals. Labour costs are mainly recovered from service delivery. Besides the basic wages, workload is one of the major assessment criteria for bonus decisions. Theoretically, performance, patient satisfaction rate and the completion rate of medical insurance indicators<sup>12</sup> are included in the assessment, which should have a great impact on the bonuses earned by health-care professionals. However, workload remained the key factor in the total income of health workers in practice before the health reform in 2009.

The ministries of human resources, finance and health issued the Guidance on the Reform of the Distribution System within Health Institutions (Trial) in 2002 and proposed a distribution system which should take the health system's unique features into consideration. A fixed wage for a certain positions was combined with performance-based incomes, of which workload was the major criterion. With the advancement of PHC reform and the National Essential Medicines List, the *Opinions on Deepening the Health Care System Reform* issued by the State Council advocated the implementation of an integrated performance assessment and performance-based income system, based on the quality of service and workload of the position, to effectively motivate medical professionals. Focus on the Implementation of the Health System Reform Plan (2009–2011) again emphasized an assessment and incentive system with service quality as its core, alongside workload, job responsibilities and performance. The State Council Standing Committee Meeting decided in September 2009 that a performance income reform was to be implemented in public health, and PHC institutions did so from 1 October 2009 and achieved full implementation in 2010. Central and local governments share the responsibility of subsidizing performance-based income reform.

The performance-based income system with standardized subsidies and allowances are the two components of health professionals' income in public health and PHC institutions. The total amount of the performance-based income of all staff in a certain public health or PHC institution

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<sup>12</sup> Basic insurance schemes have certain criteria for some indicators, such as the average expense of an outpatient visit, proportion of medicine expense in total expense, and proportion of Category C medicine expense in total expense. For places with global budgets, case payment or other prepayment methods, the implementation of the payment method can also be used to assess the performance of providers.

is determined on the basis of the basic wage of the previous year and standardized subsidies, and allowances by the human resources and social security department and financial department under the principle of linking them to the average income of local government-run institutions.

Performance-based income is divided into both basic salary and performance-based salary. Basic salary, paid monthly and making up to 60–70% of total income, is related to such factors as local economic development, price index and the employee’s level of responsibility. Performance-based salary represents the workload and contribution, and is paid or distributed flexibly on the basis of performance assessment results. In practice, performance-based salary is further divided into a position allowance and a comprehensive bonus based on target assessment (Ministry of Human Resources and Social Security, Ministry of Finance and Ministry of Health, 2009).

In the long term, the performance-based income system should correct the perverse economic incentives to overprescribe and engage in other improper medical practices. Efficiency, quality of service and patient satisfaction should improve. However, the negative influence of the performance-based income system cannot be ignored – that the income gap between health-care professionals is inevitably narrowed and some health workers, especially those with high qualifications and working efficiency, may suffer a significant decrease in their total income and quit the PHC or public health institute, while other health workers may be satisfied with the basic income and have no incentive to improve their services.

### Appendix 1 Case study: The statutory financing system in City A

		UEBMI		URBMI			MFA	Public Health
Population		Employee	Retiree	Child	Old	Others	Disabled, poor, and other eligible applicants	All population
Contribution <sup>1</sup>	Individual	2% PI + 36 yuan	/	150 yuan per capita	400 yuan per capita	1200 yuan per capita	12 yuan per capita	/
	Employer	11.5% PI	/	/	/	/	/	/
	Gov. <sup>2</sup>	0.5%AI		250 yuan per capita	800 yuan per capita	/	10 yuan per capita	25 yuan per capita

## Appendix 1 Case study: The statutory financing system in City A (Cont.)

		UEBMI		URBMI		MFA	Public Health	
Funds	Personal Medical Account	2% PI+ 0.4/0.7/1.0%PI [ $< 35$ , 36~ 45, $> 46$ years respectively]	5.8/6.8% PI [ $< 70$ , $> 70$ years respectively]	/		/	/	
	IPCD	0.2% PI+ 36 yuan	0.2%AI			/	/	
	Pooling	Rest of the funds		All subsidy and contribution		All subsidy and contribution	All subsidy	
Public health services		/				/	Basic public health services including chronic disease, etc. /	
Basic insurance	Pharmacies	Personal Medical Account		/		/		
	OP visits	Personal Medical Account		/		only for disabled people; 50% of the OOP after reimbursement from basic medical insurance can be reimbursed from MFA; MFA provide 2000 yuan per year at most		
	Deductible	1000 yuan per year	700 yuan per year	300 yuan per year <sup>4</sup>				
	Copay	76%/80%/86% <sup>3</sup>	82%/85%/92% <sup>3</sup>	40%/50%/70% <sup>3</sup>				
	Hospital admission							
	Deductible	800/600/300 yuan per admission for tertiary, secondary and primary level						For 40 000 yuan (total medical expense) and over, the MFA will pay 90% of the OOP
	Copay	82%/85%/90% <sup>3</sup>	88%/90%/94% <sup>3</sup>	76%/80%/84% <sup>3</sup>	60%/65%/70% <sup>3</sup>			
	Ceiling	180 000 yuan per year		15 000 yuan per year				
	Outpatient for catastrophic disease: Same benefit package as hospital admission without deductible for each sub-population							
IPCD	Over ceiling	88%/90%/92% <sup>3</sup>		70%		/	/	
Provider payment	Public health	/		/		/	Capitation	
	Outpatient	FFS		Capitation		/	/	
	Inpatient	Global budget + Case payment					/	/
	Outpatient for catastrophic disease	FFS		FFS		/	/	

This case was simplified from a city in Eastern China with quite a generous benefit package. It demonstrates comprehensive settings for the statutory financing system with featured characteristics in prefecture-level city in 2012.

- 1 All contributions have been unified into a yearly premium per capita. In fact, UEBMI collects funds on monthly basis.
- 2 Gov.: All levels of government were included here. In cities with rapid economic growth in Eastern China, provincial and prefectural level government played more important roles in the provision of subsidies than central government.
- 3 Accordingly for tertiary, secondary and primary level health facilities.
- 4 Deductible of 300 yuan per year can be waived for outpatient visits in contracted community health care centres or stations. Residents can sign and update the services contract with their desired community health care centre every year.

AI: average provincial income last year (30 650 yuan in 2012).

PI: personal income of the employee. For PI over 300% AI or less than 60% AI, 300% AI and 60% AI was used.

FFS: Fee for service.

Source: Compiled by the authors

## 4 Physical and human resources

### Chapter summary

Health service institutions in China include hospitals, primary health care institutions and specialized public health institutions. The number of hospitals has continued to increase since 1949. The number of hospitals in 2012 (23 170) was 2.5 times that in 1978. And 42% of them were private hospitals. The number of hospital beds has also increased, reaching 4.24 per 1000 population in 2012. Major medical equipment is located mainly in secondary and tertiary hospitals. The health information system (HIS) – comprising hospital management information systems, clinical information systems and regional health information systems – has also achieved rapid progress. Government investment in health has focused on PHC, basic health financing systems and public health services.

Human resources for health (HRH) in China have been developing rapidly. In 2012, there were 4.94 health professionals per 1000 population. China has long had a shortage of nursing staff. Health professionals in the public sector in China have a clear career development system and their careers are generally stable. However, there are still challenges in the human resource distribution between urban and rural areas. In 2012, there were 8.54 health-care professionals per 1000 population in urban areas and 3.41 per 1000 in rural areas. Lack of personnel in primary health care and the relatively low education level of health-care professionals are also major HRH challenges in China. China has established a comprehensive medical education system including undergraduate education, postgraduate education and continuous professional development. The medical education system and its quality still need to be improved and strengthened.

### 4.1 Physical resources

#### 4.1.1 *Capital stock and investments*

There are three major types of medical and health service institution in China: (1) hospitals; (2) primary health care (PHC) institutions; and (3) specialized public health institutions.

Hospitals offer both inpatient and outpatient services. There is no fully developed gatekeeping and referral system in the health sector, therefore hospitals also offer PHC services. Hospitals are categorized into comprehensive general and specialized hospitals, according to their target populations or diseases. General hospitals offer medical services for the general population for all diseases, and specialized hospitals offer services in specific areas, for instance, hospitals specialized in paediatrics, ophthalmology/otorhinolaryngology, gynaecology/obstetrics or dentistry.

Hospitals in China are also classified into allopathic hospitals and traditional medicine hospitals. Most hospitals offer allopathic services, and there is one traditional Chinese medicine hospital in almost every county and city. In some regions with clustered minority ethnic populations, there are also hospitals specialized in diversified traditional medicines, for instance, traditional Tibetan and Mongolian medicine.

Hospitals are also categorized as public and private hospitals, according to ownership. Most large hospitals in China are public hospitals, but private hospital numbers have mushroomed in recent years. Most private hospitals are for-profit, but there is also a small proportion of non-profit private hospitals.

Since 1989, Chinese hospitals have been classified into three levels according to their size and function.

**Primary hospitals.** Primary hospitals or health institutions offer preventive, clinical treatment, health care and rehabilitation service in a community. Generally, a primary hospital has 20–99 ward beds, and its responsibilities include: (1) preventive health care, for instance, disease control and community hygiene, women and child health, family planning service, health education; (2) medical service, inpatient and outpatient services of common diseases in the community, first aid, medical rehabilitation; and (3) health administration such as responding to public health emergencies, health policy implementation. These hospitals are usually called PHC facilities.

**Secondary hospitals.** Regional hospitals offer comprehensive medical and health services to multiple communities and offer medical training and research. Ward beds of secondary hospitals are between 100 and 499, and their major responsibilities are: (1) medical service (continuous and comprehensive treatment, nursing care, preventive health and

rehabilitation care); (2) medical training and clinical research; and (3) supporting PHC institutions in the region for community health, preventive medicine, rehabilitation and mental health.

**Tertiary hospitals.** Tertiary hospitals serve multiple regions, offer high-level and specialized medical services and are responsible for higher education and scientific research. Each tertiary hospital has over 500 ward beds. Their major responsibilities include: (1) specialized medical services, treatment of severe and complicated cases, accepting referral cases from secondary hospitals, technical direction and training of health-care professionals in lower-level institutions; (2) training of high-level professionals in all specialized subjects, and conducting of the scientific research programme of provincial and higher levels; and (3) participating and directing primary and secondary prevention.

**Primary health care institutions** include community health service centres or stations in urban areas, township health centres and village clinics in rural areas. Most village clinics are private. PHC institutions offer PHC services, including basic medical and public health services to residents in their communities.

**Table 4.1 Distribution of health institutions in China, 2012**

Categories	Quantity	%
<b>1. Hospitals</b>	23 170	100.0
1.1 General hospitals	15 021	64.8
1.2 Hospitals of traditional Chinese medicine	2889	12.5
1.3 Specialized hospitals	4665	20.1
1.4 Others	595	2.6
<b>2. Primary health care institutions</b>	912 620	100.0
2.1 Community health centres/stations	33 562	3.7
2.2 Township health centres	37 097	4.1
2.3 Village clinics	653 419	71.6
2.4 Clinics	187 932	20.6
2.5 Others	610	0.1
<b>3. Specialized public health institutions</b>	12 083	100.0
3.1 Centres for disease control and prevention	3490	28.9
3.2 Institutions for specific diseases	1289	10.7
3.3 Maternal and children health centres	3044	25.2
3.4 Institutes for health supervision	3088	25.6
3.5 Others	1172	9.7

Source: Ministry of Health, 2013a

**Specialized public health institutions** at county and higher levels include centres for disease control and prevention (CDCs), specialized hospital or treatment and prevention institutions for specific diseases, maternal and children health centres, and health inspection and supervision facilities. These specialized institutions offer public health services in their geographic zone, including prevention and treatment of infectious and chronic diseases, MCH care, and health education. There are no specialized institutions at township and community levels, where professionals in PHC institutions handle both the responsibilities of medical and public health service.

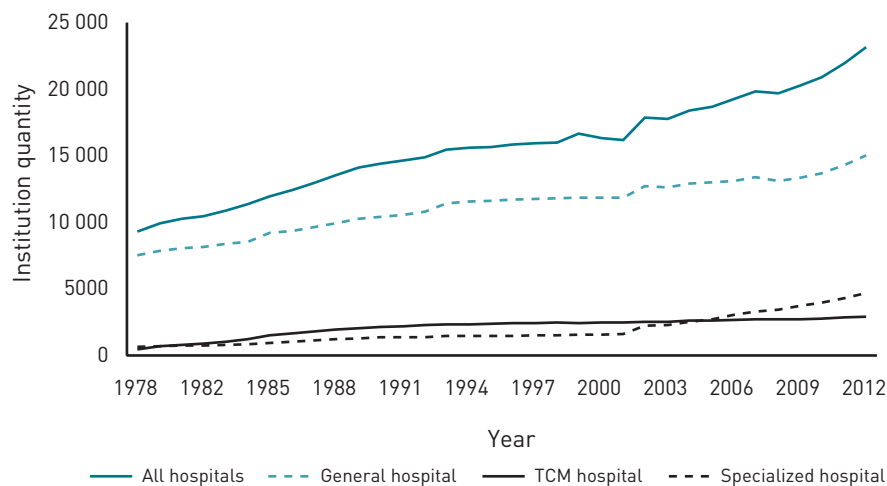
**Quantity and distributions of hospitals**

The number of hospitals in China has been increasing since 1978. In 1978, the total number of hospitals was only 9293. This had increased 2.5-fold by 2012 to 23 170. General hospitals, TCM hospitals and specialized hospitals all had significant increases (Figure 4.1).

In 2012, public hospitals accounted for 58% of all hospitals, while the remainder (42%) were private. In 2002, only 10% hospitals were private.

In terms of geographic distribution, 53% hospitals were located in urban areas in 2012, with 47% in rural areas.

**Figure 4.1    Quantity of health institutions in China, 1978–2012**



Source: Ministry of Health, 2013a

## Capital investment

As stated above, most hospitals in China are public hospitals, with the Government responsible for investment in their buildings and equipment. However, during the 1980s and 1990s, market-oriented mechanisms were introduced in hospital sector, while government investment shrank. Consequently, the financial autonomy of public health institutions expanded. Hospitals and PHC institutions can invest their income surplus in buildings and equipment. Some of them even take out loans for investment.

China initiated a new round of health reform in 2009. The Chinese Government strengthened its investment for basic medical security and PHC institutions. From 2009 to 2011, the total public fiscal expenditure on health care was 1.52 trillion yuan, of which 450.6 billion yuan (29.6%) was paid by the central government, the remainder by local government. Of the government expenditure, 432.8 billion yuan was spent on URBMI and the New Cooperative Medicine Scheme. The central government spent 59 billion yuan on construction and medical equipment in county hospitals, township health centres and village clinics, 39.5 billion yuan on basic public health services, and 15.6 billion yuan on capacity-building at specialized public health institutions (Health Reform Office of the State Council, 2012).

Although the Government increased financial input into secondary and higher-level public hospitals, this input was much less than for PHC institutions. Secondary and higher-level hospitals still can use income surplus or other financial revenues for infrastructure and medical equipment.

Governments at different levels play different roles in the construction of medical infrastructure. Central and provincial budgets make major contributions to construction and equipment of PHC institutions. County-level budgets are relatively limited and county governments are more responsible for wages of health-care professionals and less for infrastructure investment, especially in the less-developed western provinces.

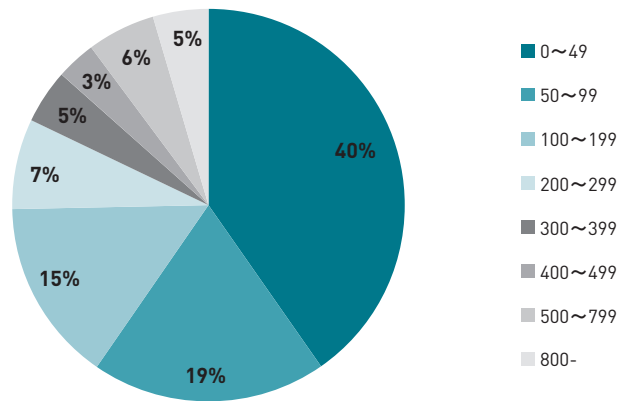
China is now encouraging non-government investment in hospitals. Private health institutions are growing rapidly and their building and hardware investment relies on private sources.



4.1.2 Ward beds in hospitals

Ward bed numbers reflect the operational size of a hospital. In official statistics in China, the number of beds is usually categorized into 0–49, 50–99, 100–199, 200–299, 300–399, 400–499, 500–799 and over 800. For 2012, hospital distribution by number of beds is shown in Figure 4.2 – some 5% had 800 or more beds.

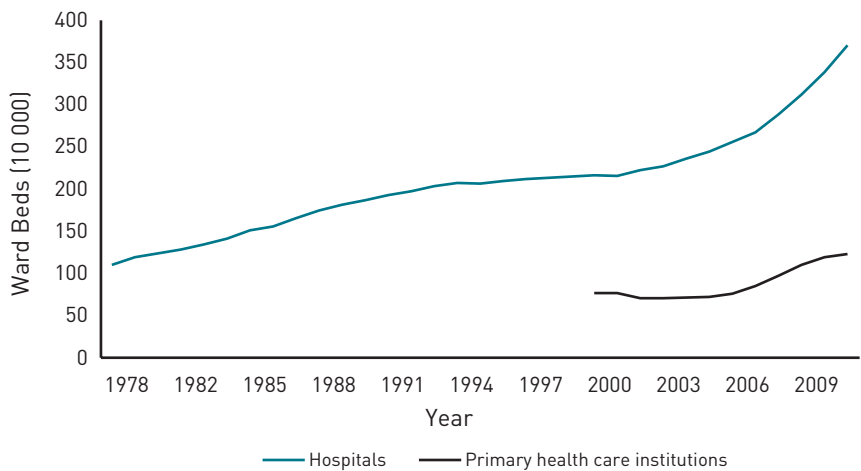
Figure 4.2 Size of hospitals in China by bed size, 2012



Source: Ministry of Health, 2013a

In 2012, the total number ward beds in China was 4 161 486 including public and private hospitals, 59% of them in urban areas and 41% in rural areas. There were 1 324 270 ward beds in PHC institutions, 12% of them in urban areas and 88% in rural areas. There were 198 198 beds in

Figure 4.3 Numbers of ward beds in health institutions in China, 1978–2012



Source: Ministry of Health, 2013a

specialized health institutions, 47% of them in urban areas and 53% in rural areas.

The number of ward beds in Chinese hospitals increased as more hospitals opened; in fact, the growth of beds has been even faster than hospital growth. In 1978, there were 1.1 million beds across China, and in 2012 the figure was 4.16 million, a 3.8-fold increase from 1978. Beds in PHC institutions also increased significantly, but at a slower rate than those in hospitals.

Considering the increasing population size, trend of ward beds is measured as beds per 1000 population. In 2007, this figure was 2.83 and in 2012 it was 4.24, representing growth of more than 50% in four years (Table 4.2).

The difference in hospital numbers between urban and rural areas is not significant; however, the urban–rural disparity in numbers of hospital beds is relatively large. In 2012, there were 6.88 beds per 1000 people in urban health institutions, which is 2.2 times the figure in rural areas. Major hospitals are clustered in urban areas; institutions in rural areas are usually relatively small. Although private hospitals make up 42% of all hospitals, numbers of ward beds in private hospitals account for only 11.1% of all beds, indicating that the average size of private hospitals in China is relatively small. Significant difference in numbers of ward beds also exists between hospitals in different regions, levels, ownership types and services offered.

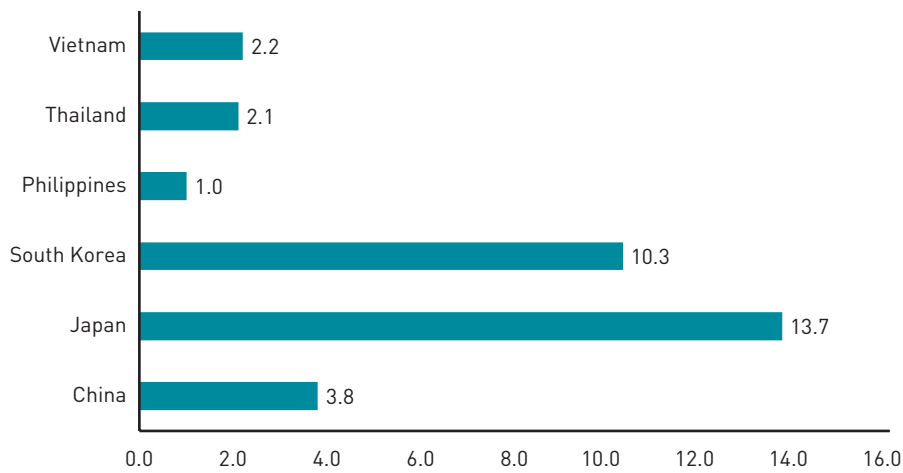
**Table 4.2    Number of ward beds per 1000 population**

Year	Total	Urban	Rural
2007	2.83	4.90	2.00
2008	3.06	5.17	2.20
2009	3.31	5.54	2.41
2010	3.56	5.94	2.60
2011	3.81	6.24	2.80
2012	4.24	6.88	3.11

Source: Ministry of Health, 2013a

To compare with other Asian countries, the number of beds per 1000 population in China is much lower than in Japan and the Republic of Korea, but higher than in the Philippines, Thailand and Viet Nam (Figure 4.4).

**Figure 4.4    Ward beds per 1000 people, selected countries**



Data year: China (2011), Japan (2009), Korea (2009), the Philippines (2011), Thailand (2010), Viet Nam (2010).

Source: World Health Organization. World Health Statistics, 2013.

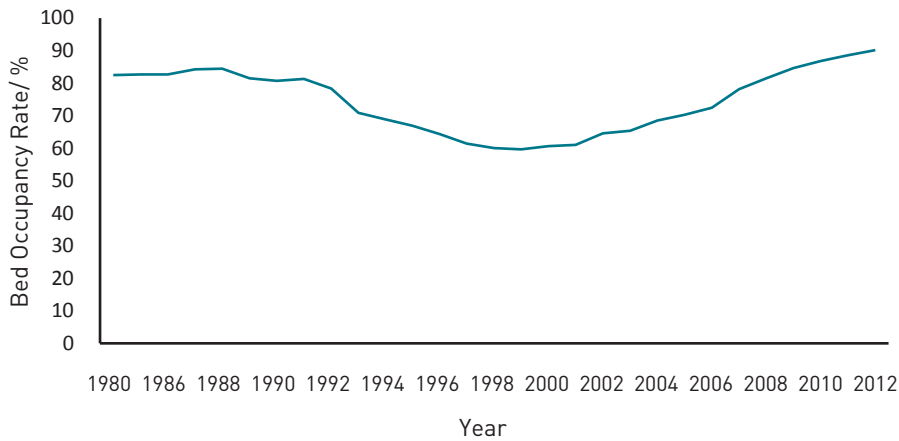
Hospital bed utilization is given by the bed occupancy rate (BOR) and average length of inpatient stay. BOR refers to the ratio of inpatient days to all available bed-days. The average length of inpatient stay (in days) is the ratio of total inpatient care days to the total number of inpatient discharges.

BOR in China started to decrease in 1992, reaching a low of 60% in 1999 and 2000. It is interesting to note that this is the same time that OOP payments reached their peak in China’s health-care financing. Since then the bed occupancy rate has grown to 90.1% in 2012.

BOR differs significantly between hospitals at different levels. In 2012, BOR was 104.5% in tertiary hospitals, 90.75% in secondary hospitals and 60.4% in PHC institutions. There is some overload in tertiary hospitals, but the utilization of beds in primary institutions still needs to be improved (Figure 4.5).

The average length of stay declined from 16.2 days in 1992 to 10.0 days in 2012.

**Figure 4.5 Hospital bed occupancy rate, 1980–2012**



Source: Ministry of Health, 2013a

### 4.1.3 Medical equipment

Medical equipment is categorized by price. In 2012, there were 3.58 million pieces of medical equipment valued over 10 000 yuan, and 74 000 pieces valued over 1 million yuan. The number of medical equipment has grown rapidly. The number of pieces of equipment valued over 10 000 yuan increased 12.9% and equipment valued over 1 million yuan increased 20.7% in 2012 from 2011. Expensive equipment is concentrated in secondary and higher-level hospitals. In 2011, there was an average of 2.51 pieces of equipment over 1 million yuan in secondary and higher-level hospitals. However, in PHC institutions the average number of pieces of equipment valued over 10 000 yuan was just 0.48 (Table 4.3). National statistics also show a steady increase of medical equipment in health facilities over the years.

In 2012, there were on average three magnetic resonance imaging (MRI), 9.4 computed tomography (CT) and 0.7 positron emission tomography (PET) scanners per million of population. Utilization frequency of major medical equipment is very high. In 2011, the average use rate of a CT scanner was 9000 per year (Table 4.4).

National investment in PHC institutions is growing gradually and the number of equipment in PHC Institutions is increasing yearly. Township hospitals are well equipped. However, in some areas, due to lack of technicians, some medical equipment in PHC institutions (e.g. ventilators) are not fully utilized.

**Table 4.3 Average number of pieces of medical equipment valued over 10 000 yuan in one health institution, 2012**

	Total	10 000~ 490 000	500 000~ 990 000	≥1 million
Hospitals	117.67	111.34	3.46	2.87
PHC institutions	0.48	0.47	0.01	0.00
Specialized Health Institutions	31.15	30.03	0.72	0.40

Source: Ministry of Health, 2013a

**Table 4.4 Major medical equipment per million population**

Equipment	Quantity per million population (2012)	Utilization (time per piece per year, data sampled in 2011)
MRI	3.0	5200
CT scanner	9.4	9000
PET scanner	0.7	2300

Source: Unpublished report from National Health and Family Planning Commission

**4.1.4 Health information technology**

Computers and the Internet are increasingly widely utilized in China. There were 620 million Internet users in December 2013, or 45.8% of the total population (China Internet Network Information Center, 2014). Popularization of computers and the Internet has profoundly strengthened the development of the health information system in China.

Rapid HIS development in China can be divided into three stages. The first stage started before 2000, when the focus was on an information system for hospital management, including hospital finance and pharmacy. The second stage started after the SARS epidemic of 2003, during which HIS in public health services developed rapidly. For instance, the national surveillance system of infectious diseases and emergent public health events can report case by case online in real time. The clinical information system was also developed, and the electronic medical history records system and Picture Archiving and Communication Systems were applied. The third stage started in 2009. Some developed regions are now building regional HIS based on electronic medical records. Health information technology progressed significantly after the initiation of latest round of medical reform in 2009.

During the 11th Five-Year Plan (2006–2010), HIS in China registered several major achievements: (1) the Government put more resources into the development of a public health information system. An information system for MCH care and immunization were established; (2) greater development of HIS in medical institutions, with most county and higher-level hospitals establishing HIS for financial management, and some hospitals started to build electronic clinical information systems; (3) information systems for the New Cooperative Medicine Scheme were established. County-level NRCMS platforms have been established; and supervision platforms at provincial level are under further development. NRCMS funds are managed online and in real time; (4) regional HIS were explored. Some regions are now actively exploring application of regional HIS, establishing an exchanging platform for resident health records and electronic medical history, and telemedicine is also developing.

HIS in China started only recently and it still has many problems and challenges in data utilization and standardization. During this 12th Five-Year Plan period (2011–2015), China is building a three-level platform with national, provincial and county hierarchy to strengthen HIS application in public health, medical service, medical security, essential medicine and integrated management. China will construct two basic databases (resident electronic health records and electronic medical records) and one special network, strengthen the information standard and information security system, and promote the development of telemedicine.

## 4.2 Human resources for health

Health personnel in China are defined as staff members who work in hospitals, PHC institutions, specialized public health institutions and other health-care institutions. Health personnel can be classified according to their educational background and qualification (Table 4.5).

Above all, the development and changes of China village doctors and general practitioners (GPs) are worth mentioning.

**Barefoot doctor.** In September 1968, China's most politically influential magazine *Hong Qi* published an article called "View the direction of medical education revolution from the growth of barefoot doctor". The term "barefoot doctor" became widespread. Barefoot doctors were both farmers and PHC personnel. They received short-term training, provided PHC services for rural residents, and were paid by the collective rural

**Table 4.5 Major categories of China health personnel**

Primary classification	Secondary classification	Tertiary classification	Description
Health professional			Includes licensed physicians, registered nurses, pharmacists (assistant pharmacists), medical laboratory technicians (inspectors), medical imaging technicians, health supervisors, intern doctors (pharmaceutical interns, student nurses and intern technicians) and other health professionals. Health professionals who engage in management (such as hospital directors, associate directors and party secretaries) are not included. This group of health personnel usually receives higher medical education.
	Physician		Includes licensed physicians and assistant licensed physicians.
		Licensed physician	Those staff with a “licensed physician” title on their medical practitioner certificate, who work in the field of medical, prevention and health care. Those who are engaged in management are not included. They have bachelor’s degree or above and majored in medicine at college or university. Licensed physicians can be divided into four categories: clinical, traditional Chinese medicine, stomatology and public health.
		Assistant licensed physician	Refers to staff whose title is “assistant licensed physician” on their medical practitioner certificate and who work in the field of medicine, prevention and health care. Those who are engaged in management are not included. They are graduates of colleges, universities or junior college and hold a medical vocational degree. Assistant licensed physicians can be divided into four categories: clinical, traditional Chinese medicine, stomatology and public health.
	Registered nurse		Refers to health professionals who have been registered as practising nurses and have received the Practising Nurse Certificate, and are engaged in nursing according to the nursing regulations to protect life, relieve patients’ pain and improve health.
	Pharmacist (Assistant pharmacist)		Refers to professionals responsible for providing knowledge of drug and pharmaceutical services. Includes chief pharmacists, associate chief pharmacists, pharmacists-in-charge, pharmacists and assistant pharmacists. Apothecary is not included.

**Table 4.5 Major categories of China health personnel (Cont.)**

Primary classification	Secondary classification	Tertiary classification	Description
	Technician		Refers to medical laboratory technicians and medical imaging technicians. Includes chief technician, associate chief technician, technician-in-charge and technician.
	Other health professional		Refers to staff who receive technical secondary and higher medical education or non-medical education, engaging in diagnosis and treatment in medical and health institutions, including intern doctors and health supervisors.
Village doctor			Were originally called “barefoot doctors”. Refers to those working in village clinics holding a certificate of “village doctor”. Those who work in village clinics without the certificate are called “health workers”.
Other technicians			Refers to non-health personnel who engage in repairing medical equipment, health education, scientific research, teaching and other technical work.
Managers			Refers to staff who take charge of leading or managing. Includes personnel engaging in management such as health care, disease control, health supervision, medical research and teaching; especially those engaged in administration such as party and government, personnel, finance, information, security and so on.
Supportive worker			Refers to staff engaged in operation, maintenance, logistic support and so on. Supportive workers include both skilled and unskilled workers. Skilled workers include inspectors, toll collectors, registrars, and so on. However, the following two kinds of staff are not included: laboratory technicians, technicians and research assistants, who are categorized under ‘other technicians’; and finance persons, accountants and statisticians, who are classified as ‘managers’.

Source: Summarized by the authors

economy. By the end of 1975, China had more than 150 000 barefoot doctors, over 41.5% of them having received training of more than six months and 24.3% were able to attend births. The barefoot doctor policy made a great contribution to the development of China’s rural health system, and eventually to the establishment of the primary health care system in line with the Alma Ata Declaration adopted at the International



Conference on Primary Health Care in Almaty, Kazakhstan in 1978. At the beginning of 1985, China stopped using the term “barefoot doctor”, and started to develop village doctors. By the end of 2012, China had 1.02 million village doctors (Ministry of Health, 2013a).

**General practitioner.** GPs have comprehensive medical knowledge and skills. They mainly provide integrated services, including prevention and health care; diagnosis, treatment and referral of common diseases; rehabilitation and management of chronic diseases; and health management. They are known as the “gatekeepers” of residents’ health. A national policy document entitled “Guiding Opinions on the Establishment of a GP System by State Council”, published on 7 July 2011, pointed out that China will gradually standardize GP training to a “5+3” mode. That is, a GP should first attend five-year undergraduate education in clinical medicine (including traditional Chinese medicine), after which they will receive three-year standardized GP training. GP training and use in China are still in their infancy and there is a severe shortage. In 2012, there were only 109 794 GPs, or 0.82 per 1000 population (Ministry of Health, 2013a). An important part of the health system reform is to establish a GP system and gradually form a GP-centred PHC team. This is of great importance to promote the level of PHC services, and to solve the problems of difficult access to doctors and high medical costs.

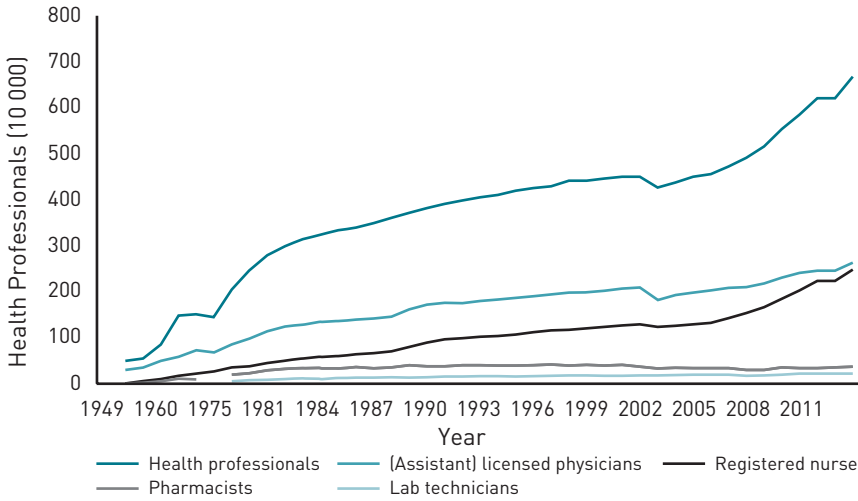
#### **4.2.2 Quantity of health human resources and changing trends**

By the end of 2012, the total number of health personnel in China was 9.12 million, including 6.68 million health professionals. There were 4.94 health-care professionals per 1000 population including 1.58 licensed physicians and 1.85 registered nurses (Ministry of Health, 2013a).

Since 1949, China’s total complement of health personnel has been generally increasing. In the 1950s, there was a rapid increase in the number of health personnel, with an annual increase of about 111 000. In the 1960s, the number of health personnel stagnated at around 1.8 million. There was a rapid development in the 1970s and 1980s with an annual increase of 150 000 people, but the rate of growth slowed after the 1990s. During the period from 2001 to 2003 there was a decline in the number of health personnel. After 2005, the number of health personnel experienced another rapid increase of over 200 000 people per year. The number in 2009 was 500 000 more than in 2008. In 2011 and 2012, the numbers of health personnel were 400 000 more than in the respective

previous year. Figure 4.6 shows the changing trend in overall health professional numbers in China since 1949.

**Figure 4.6 Changes in total health professionals in China, 1949 to 2012**



Note: From 2007, health professionals do not include apothecaries, inspectors or other types of technician.

Source: Ministry of Health, 2013a

### Structure and distribution of human resources for health

There has long been a shortage of nursing staff in China. In the early years of the People’s Republic, the ratio between doctors and nurses was 10:1. The increase in number of nurses was faster than that of doctors (including both licensed physicians and assistant licensed physicians), so the doctor-nurse ratio reached 100:95 in 2012 (Ministry of Health, 2013a).

Generally, most health personnel are female. In 2012, females accounted for 67.2% of health-care professionals in China. For registered nurses, this ratio was 98.2%. Young and middle-aged people dominate China’s health-care professionals. In 2012, workers aged 25–54 years old accounted for 82.1% of total health-care professionals, while the proportion of those 55 years and older was only 9.2% and even that low figure was an increase over the situation in 2005 (Ministry of Health, 2013a).

Educational levels of China’s health-care professionals are divided into postgraduate, undergraduate, junior college, technical secondary school, and high school and below. Health-care professionals’ educational levels have increased consistently: in 2012, health-care professionals

with bachelor’s degree or above accounted for 26.7%, an increase from only 17.1% in 2005. Among all types of health-care professionals, the educational level of licensed physicians was significantly higher than any other types, 54.5% of whom had a bachelor’s degree or higher. For registered nurses, this proportion was 10.6% (Table 4.6).

**Table 4.6 Educational level of health-care professionals in China, 2005 and 2012 (%)**

Degree	2005			2012		
	Health profes- sionals	Among which		Health profes- sionals	Among which	
		Licensed physi- cians	Regis- tered nurses		Licensed physi- cians	Regis- tered nurses
Postgraduate	1.6	4.3	0	3.7	9.9	0.1
Undergraduate	15.5	34.3	2.7	23.0	44.6	10.5
Junior college	29.2	32.1	28.9	37.6	28	45.4
Technical secondary school	43.3	24.3	60.4	32.3	15.5	42
High school and below	10.3	5.0	7.9	3.4	2.0	2.0

Source: Ministry of Health, 2013a.

In 2012, there were 1.017 million health-care professionals in private medical institutions, accounting for 15.2% of the total number of health-care professionals.

In terms of regional distribution of health personnel, human resources for health are unbalanced between eastern, central and western parts of China. In 2012, the number of medical personnel per 1000 population in the east was 5.33, while there were 4.65 per 1000 in central areas and 4.71 in the west. The differences in economic and social development, health input and demand for health services are the main reasons for the regional differences in health human resources distribution.

Imbalance of distribution between urban and rural areas is a key barrier to the development of health services in rural areas. Differences in health workforce between urban and rural areas are greater than regional differences. In 2012, health-care professionals per 1000 population in urban areas was 8.54, by contrast, the figure for rural areas was 3.41. This imbalance also affects qualifications. For example, in PHC institutions 19.1% of health-care professionals in urban community

health centres held a bachelor's degree or above in 2011, but in rural township health centres this figure was only 5.9%.

**Table 4.7 Educational background of China PHC professionals (%)**

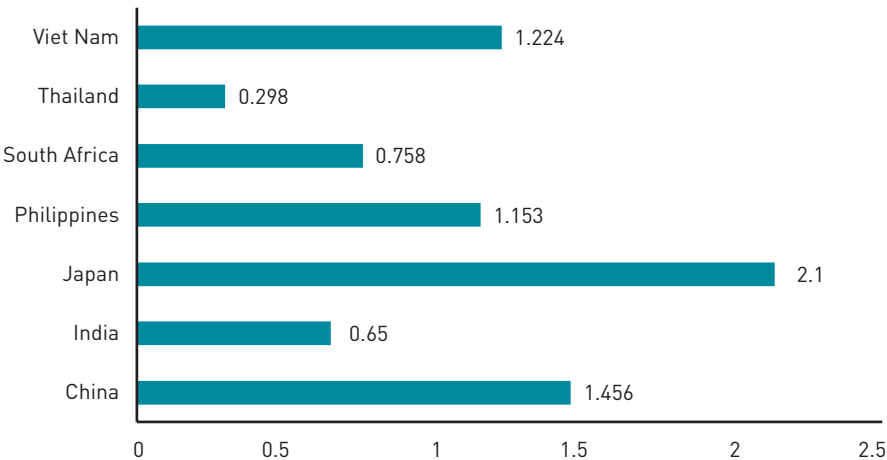
Degree	Urban community health service centre			Rural township health centre		
	Health professionals	Among which		Health professionals	Among which	
		Licensed physicians	Registered nurses		Licensed physicians	Registered nurses
Postgraduate	0.7	1.9	0.0	0.0	0.2	0.0
Undergraduate	19.3	39.3	6.8	6.1	16.0	2.4
Junior college	40.9	37.7	42.7	35.7	42.4	33.3
Technical secondary school	34.1	18.1	47.6	51.3	35.7	60.9
High school and below	5.0	3.0	2.9	7.5	6.8	3.3

Source: Ministry of Health, 2013a.

**International comparison of human resources for health**

Compared with neighbouring countries and other similar countries, the number of doctors per 1000 population in China is lower than that of Japan, but higher than that in Viet Nam and the Philippines. The number of nurses in China is insufficient and is lower than that of the Philippines and Japan. Moreover, the shortages of dentists and pharmacists in China are more severe, according to the existing comparable data.

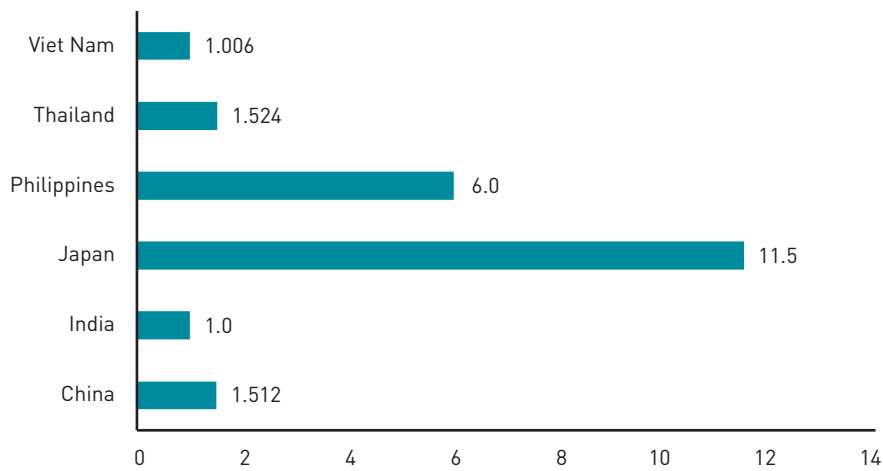
**Figure 4.7 Number of doctors per 1000 population, selected countries**



Year of data: China (2010), India (2009), Japan (2008), Philippines (2004), South Africa (2011), Thailand (2004), Viet Nam (2008).

Source: World Health Organization, World Health Statistics, 2013.

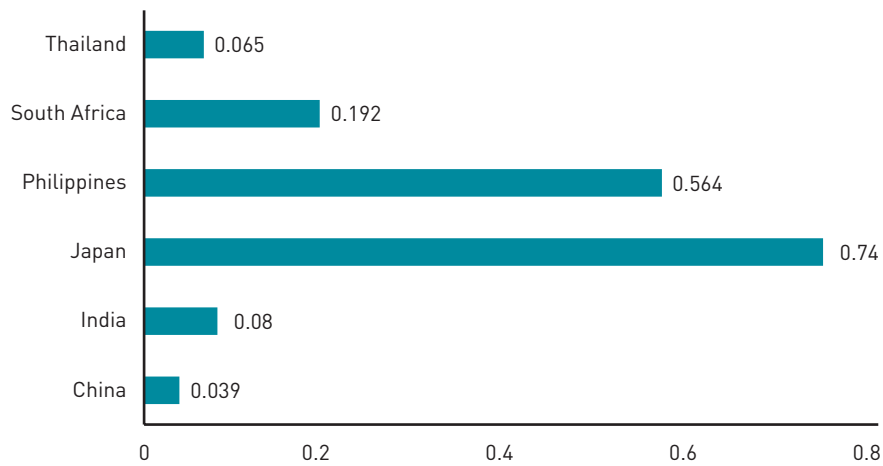
**Figure 4.8    Number of nurses per 1000 population, selected countries**



Year of data: China (2010), India (2008), Japan (2012), Philippines (2004), Thailand (2004), Viet Nam (2008).

Source: World Health Organization, World Health Statistics, 2013.

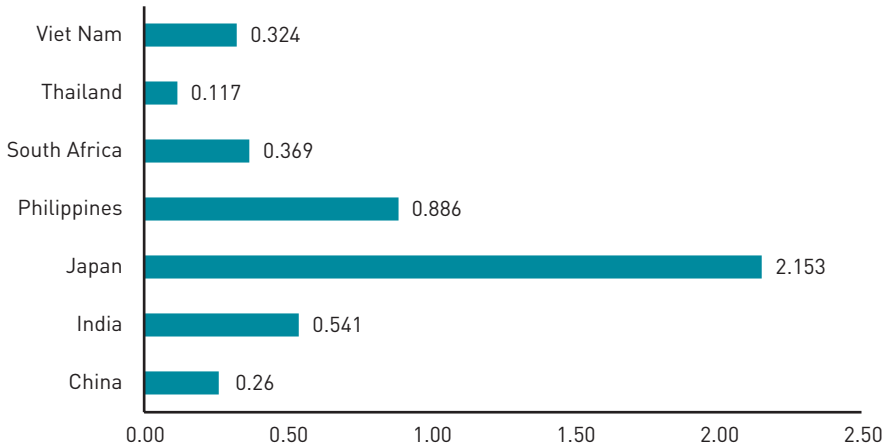
**Figure 4.9    Number of dentists per 1000 population, selected countries**



Year of data: China (2005); India (2008); Japan (2006); Philippines (2004); South Africa (2011); Thailand (2004).

Source: World Health Organization, World Health Statistics, 2013.

**Figure 4.10 Number of pharmacists per 1000 population, selected countries**



Year of data: China (2010), India (2012), Japan (2010), Philippines (2011), South Africa (2011), Thailand (2004), Viet Nam (2008).

Source: World Health Organization, World Health Statistics, 2013.

### **4.2.3 Mobility of health personnel**

Because of the differences in language and medical education systems, the migration of Chinese health-care professionals to foreign countries is not a significant phenomenon. However, the mobility of health personnel within China among different regions or between urban and rural areas is much more frequent.

Before the 1980s, after graduation, medical graduates usually went back to their hometown and worked in the local medical institutions. Some were assigned to other regions and job posts where they were needed, according to government deployment policies. After entering into the workforce, health personnel rarely moved because of the limitation of personnel regulations and China's household registration policy; most of them worked in the same hospital until retirement.

After the 1990s, with the gradual opening up of the labour market, the employment policy became more flexible. It was based on the principles of two-way selection and competition. Medical graduates had the freedom to choose their jobs instead of accepting the state's allocation. At the same time, their workplaces were no longer restricted to their areas of origin, they could work anywhere across the country. Due to the vast gaps in terms of salary, living conditions and career development opportunities

among different areas, most medical graduates tended to seek work in the well-developed eastern region, urban areas and secondary or tertiary medical and health-care institutions. Correspondingly, the underdeveloped western region, rural areas and PHC institutions had difficulty in recruiting top-tier health personnel.

Meanwhile, health personnel also have the flexibility to change their jobs to different areas and workplaces. This has exacerbated the loss of health personnel from underdeveloped regions and PHC institutions. Studies show that the turnover rate of health personnel in PHC institutions is very high. This further intensifies the imbalance of health workforce distribution among different regions as well as between urban and rural areas. The growing private sector and allowing physicians to have dual or multi-site practices will further promote the dynamism in the health labour market.

Some medical graduates and health-care professionals chose to seek jobs in non-health sectors, resulting in loss of health workforce to some extent. However, there are no national statistical data to provide accurate estimates on this issue.

In addition to the mobility of health-care professionals in the labour market, human resources for health in China also have a policy-orientated flow, which is known as “Counterpart Assistance”. Urban hospitals support their counterparts in rural areas, and well-developed regions support their counterparts in the poverty-stricken and minority areas. This is an important development in deepening the health system reform. It is crucial in cultivating local health-care professionals and promoting local capacity in health service delivery. In 2005, Ministry of Health, Ministry of Finance and the State Administration of Traditional Chinese Medicine launched the 10 000 Physicians Support Rural Health Project. By 2012, nine eastern provinces and cities (including Beijing) had sent 1722 health personnel to support eight western provinces including Inner Mongolia Autonomous Region, introduced nearly 1800 new technologies on diagnosis and treatment and trained almost 90 000 medical workers. Information about how long they stay there is not yet available.

#### **4.2.4 Education and training of health personnel**

Since 1949, China has gradually established a comprehensive medical education system, comprising undergraduate education, postgraduate

education and continued professional development. Since the 1990s, China’s medical education has developed rapidly, especially in 1999, when medical colleges expanded fast within the context of higher education expansion at national level. The enrolment in higher medical education in 2008 was six times that in 1998, and the student-to-teacher ratio had tripled. The number of higher education colleges increased from 44 at the early stage of the founding of the People’s Republic to 103 in 2010, and correspondingly the number of medical students soared from 15 200 to 1.865 million. In addition, secondary medical schools enrolled 1.684 million students.

Undergraduate education includes university, junior college and technical secondary school. After college entrance exams, high school graduates attend different colleges to receive medical education according to their examination performance. China’s existing medical educational system varies from three to eight years (Table 4.8). The education system for clinical medicine offers four degrees: a three-year vocational degree, a five-year bachelor’s degree (which has the largest number of students), a seven-year master’s degree (professional degree) and an eight-year doctorate (professional degree). Not only does medical education train clinical doctors, it also cultivates other health-care professionals such as nurses, public health personnel, health managers, pharmacists and medical laboratory technicians.

**Table 4.8 Settings of China medical educational system**

Duration of education in years	Major	Degree
3 years	Clinical, stomatology, medical laboratory, medical imaging etc.	Vocational degree
4 years	Nursing, pharmacy etc.	Bachelor of science
5 years	Clinical, stomatology, preventive medicine, nursing etc.	Bachelor of medicine
6 years	Clinical, stomatology etc.	Bachelor of medicine
7 years	Clinical, preventive medicine etc.	Master of medicine
8 years	Clinical	Doctor of medicine

Source: Summarized by the authors

Medical education in China also includes postgraduate education. Undergraduate students can gain access to postgraduate study through recommendation or by taking an examination. The educational system for postgraduate and doctoral students varies from two to four years.



Combined with vocational and bachelor's degrees shown in Table 4.8, China's medical educational system presents a fairly complicated picture. In 1998, China started an ambitious reform of the world's largest health-care professional educational system. The reforms merged training institutions into universities and greatly expanded the enrolment of health professionals. The reform had some positive achievements including an increase in the number of graduates to address human resources shortages, acceleration of production of diploma nurses to correct the skills-mix imbalance, and priority for GP training, especially of rural PHC workers. However, various concerns were raised during these developments, including rapid expansion of the number of students without commensurate faculty strengthening, the dilution effect on quality, an outdated curriculum, and ethical professionalism challenged by narrow technical training and growing admissions of students who did not select medicine as their first career choice.

Standardized residency training is part of postgraduate education. College and university medical students obtain a bachelor's degree or above after five years of study. They usually major in clinical medicine, stomatology, traditional Chinese medicine, integrated traditional Chinese or allopathic medicine. They then receive systematic and standardized training as resident physicians. The standardized training of residents is a special and indispensable stage of clinical physician training. It greatly helps to improve service quality and to ensure medical safety. For a long time, China lacked a standardized resident training system. After graduating from medical school, students are directly allocated to hospitals to engage in clinical work, without standard training in any specific discipline in clinical medicine, so their professional capability depends largely on each hospital's technical capacity and internal training process. This has seriously affected the improvement of the overall quality of health-care professionals. In December 2013, the NHFPC and six other ministries jointly issued a new policy, "Guideline for the establishment of standardized training of residents". It stated that after five years of college study, medical graduates need to receive a three-year resident standardized training in a training institute. The guideline also put forward a way to further explore the effective connection between standardized resident training and postgraduate education so that residents may be offered a master's degree in medicine after receiving three years of training.

Continuing professional development (CPD, or continuing medical education, CME) is in-service medical education, after graduate and

postgraduate education. It aims to help on-the-job health personnel to keep pace with the development of medical science, through continued learning about new knowledge and technologies related to their specific professional discipline. A credit system is applied in China's CME. In-service health personnel have to attend CME programmes to gain a certain number of credits annually. The credits comprise two categories: participating in national and provincial continuing education course gains Type I credits, while participating in activities such as self-study, writing papers, scientific research and academic activities organized by their own institute gains Type II credits.

In addition to these credit-based CME activities, in-service training is also organized by health authorities and health-care institutions. These training activities aim to help health-care professionals to improve their medical knowledge and skills or to obtain a higher degree, such as "from vocational degree to Bachelor degree" or "from Bachelor to Master's degree".

In 1998, China promulgated the Law for Licensing Medical Practitioners and implemented a licensed physician policy. Health-care professionals are required to pass the national qualification examination for licensed physicians. The NHFPC then provides them with a licensed physician's certificate or assistant licensed physician's certificate. Only those who obtain an (assistant) licensed physician's qualification are eligible to engage in medical activities independently. Institutions entrusted by health administrative authorities at county or higher level assess physicians' qualifications, work performance and professionalism on a regular basis, according to the standard for physicians' practice. Currently, physicians can only practice in the health-care institution where they are registered, but China is developing policy for dual practice.

#### **4.2.5 Health personnel career development**

Health-care professionals' career paths in China can be divided into three stages: primary, intermediate and advanced. Taking doctors as an example, graduates from junior college and technical secondary school can obtain the qualification of assistant physician if they pass the test successfully, while undergraduate students can obtain the qualification of physician or resident physician. Medical assistant and physician are primary professional titles. After working for a certain period (e.g. five years) after graduation, health workers can be promoted to attending physician (intermediate title) through certain procedures. Advanced

titles include chief physician and associate chief physician. Other types of health-care professional have corresponding career development systems.

Because of the tasks of teaching, scientific research and mentoring graduate students, health-care professionals in hospitals affiliated to medical universities also have the title of associate professor or professor.

If medical institutions have positions available (or quotas for promotion), qualified health personnel can apply to their medical institution to be promoted to these positions. Medical institutions will check the application and submit it to the high-level health administration department and personnel department for approval. Candidates applying for promotion to intermediate title (e.g. attending physician) need to pass the exams organized at provincial level, the contents of which include professional knowledge, English and computer skills. Candidates applying for promotion to advanced title (e.g. chief physician and associate chief physician) need to pass a procedure of defence. The provincial personnel and health administrative departments organize a committee with relevant experts to assess the qualification and ability of the applicant. According to the result of the defence, the provincial personnel department makes the final decision about the promotion.

## 5 Provision of services

### Chapter summary

China has established a comprehensive health system that provides integrated infectious disease control services, emergency services, outpatient and inpatient medical services, and other specific medical services. The National Health and Family Planning Commission is in charge of national health development planning and public management. The health and family planning commissions at provincial, municipal and county levels are responsible for local health system development and management.

The centres for disease prevention and control, health inspection authorities, MCH institutions, community health centres (stations), township health centres and village clinics provide public health services for urban and rural populations, including communicable disease control, chronic disease control, health promotion, food safety surveillance, workplace health surveillance, public health emergency treatment, and MCH services. Community health centres, township health centres and village clinics provide primary medical care services and essential public health services.

Secondary and tertiary general hospitals provide most outpatient and inpatient services. Mental, dental and oral health services can be acquired from specialized hospitals. Every city or county has at least one traditional Chinese medicine hospital, and most general hospitals have a TCM department that can provide herbal treatments, acupuncture and massage services.

Since the outbreak of SARS in 2003, China has greatly increased financial support to public health institutions for infrastructure development, professional capacity strengthening and increased public health service provision. China encourages and supports nongovernmental investment in the medical service market.

## **5.1 Public health**

### ***5.1.1 Public health service provision and management systems***

Primary health care institutions and specialized public health facilities provide public health services in China. The basis of the primary public health-care network is community health centres (stations), township health centres and village clinics. Centres for disease control and prevention, health education institutions, MCH institutions, mental health institutions, public health emergency treatment facilities, blood donation and supply institutions, health inspection authorities and family planning institutions provide different kinds of professional public health services. Several departments within the NHFPC – including the Disease Control Bureau, Health Supervision Bureau, Emergency Response Office, Primary Health Care Department, Maternal and Child Health Department, and Food Safety and Supervision Department – are in charge of the administration of public health. Local health and family planning commissions (or bureaux of health) at each level have also set up similar departments to those of the NHFPC, responsible for local public health management.

### ***5.1.2 Provision of basic public health services***

China launched a basic public health services equalization programme in 2009 to provide essential public health services to all Chinese people free of charge. The main points of the programme are the establishment of community health records, health education, vaccination, health management for children from birth to age six, maternal health management, health management for the elderly, hypertension and type II diabetes management, management of patients with severe mental illness, handling of communicable diseases, public health emergency reporting and handling, and health inspection. All essential public health services are provided by community health centres in urban areas, and township health centres and village clinics in rural areas.

### ***5.1.3 Communicable disease prevention and control***

A total of 39 communicable diseases are mandatorily reported by health institutions under the Law of Infectious Disease Prevention and Control. These communicable diseases are categorized into three groups according to illness severity. Group A has two diseases: plague and cholera. Groups B and C have 26 and 11 communicable diseases, respectively. China puts prevention first in the management of

communicable diseases. All infectious disease control activities are under the lead and management of the Government, and CDCs are responsible for epidemic surveillance, epidemiological surveys and epidemic situation reporting. Public and private hospitals also take responsibility for infectious disease control case reporting and clinical treatment.

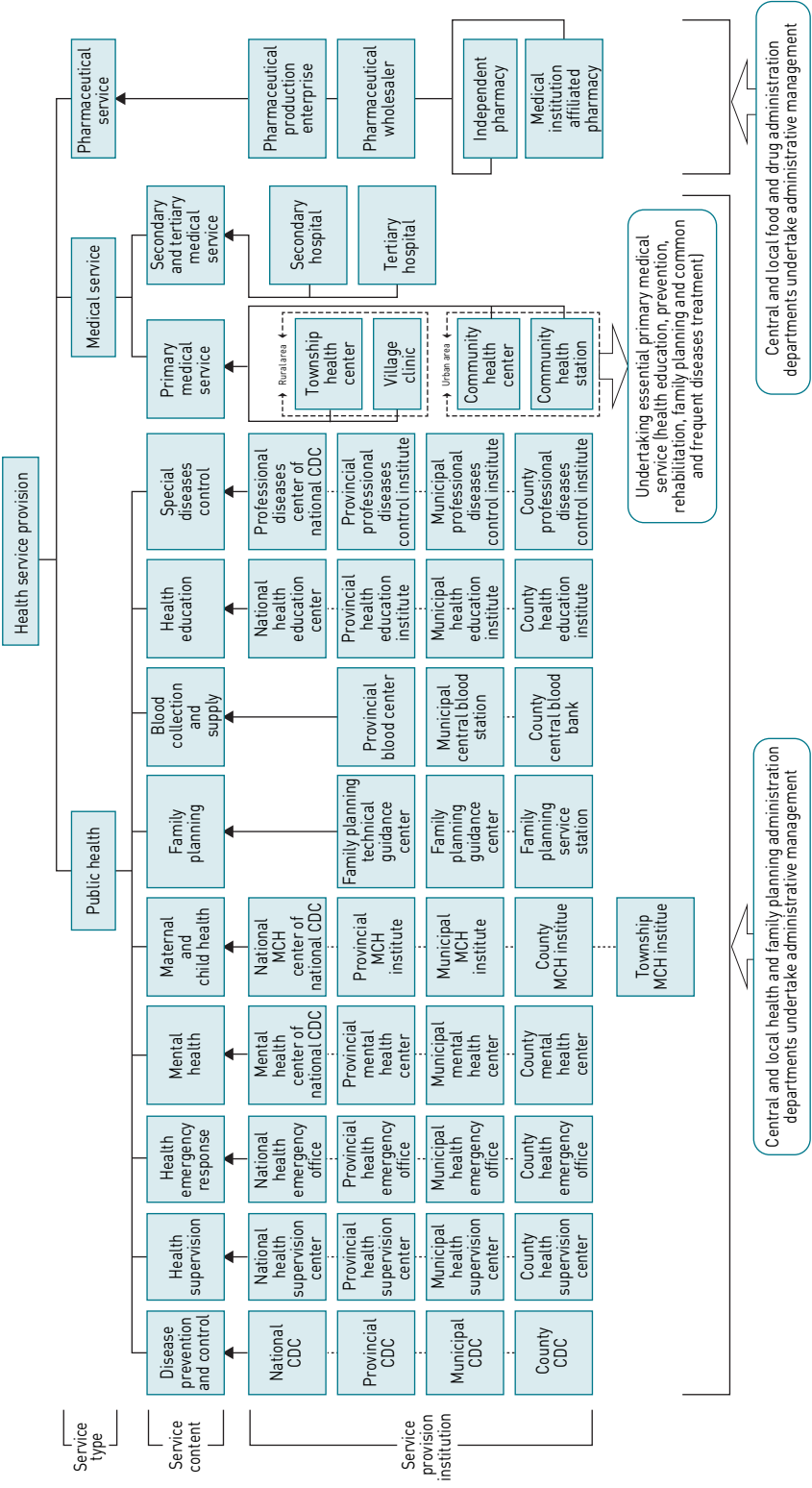
TB, HIV/AIDS and viral hepatitis are the principal communicable disease threats in China. In 2013, some 6.42 million new cases of communicable disease (of which the majority were viral hepatitis, tuberculosis, bacillary dysentery, *Entamoeba histolytica* Schaudinn and gonorrhoea) were reported, with 16 592 resulting fatalities. The five leading causes of death were HIV/AIDS, tuberculosis, rabies, viral hepatitis and Sengo fever; the reported overall incidence rate was 473.9 per 100 000, and the mortality rate was 1.2 per 100 000 (Ministry of Health, 2013c).

Since 2007, China has implemented the Expanded National Immunization Programme and 14 antigens (hepatitis B vaccine, polio vaccine, diphtheria, pertussis and tetanus [DPT] vaccine, *Bacillus Calmette-Guérin* [BCG] vaccine, diphtheria–tetanus vaccine, measles, mumps and rubella [MMR] vaccine, measles vaccine, encephalitis vaccine, group A meningococcal polysaccharide conjugate vaccine, group A and group C epidemic cerebrospinal meningitis vaccine, hepatitis A vaccine, haemorrhagic fever with renal syndrome [HFRS] vaccine (Hantavirus vaccine), anthrax vaccine and leptospirosis vaccine) are provided by the programme free of charge, which protect against 15 communicable diseases. Variola (smallpox) and newborn tetanus have been eradicated in China.

#### ***5.1.4 Epidemic surveillance and health emergency network development***

Since the 2003 SARS outbreak, China has established the world's largest online reporting system for communicable disease outbreaks and public health emergencies. It is mandatory for all public and private medical institutions, including township health centres, to directly report online to the national control centre. The average reporting time has shortened from five days to four hours. Now 100% of CDCs and 98% of medical institutions at and above county level, and 94% of township health centres and community health centres, have started online reporting on outbreaks of communicable diseases and public health emergencies (Li B, 2013).

Figure 5.1 Framework diagram of health service provision in China



“Special diseases control” includes occupational disease control, endemic disease control, etc.

CDC: Centers for Disease Control and Prevention

MCH: Maternal and child health

Source: Developed by the authors

### **5.1.5 Maternal and child health surveillance and intervention**

China has established an MCH surveillance system at all levels from provincial and city to county. In 2012, China had 3044 MCH institutions employing 285 000 health-care professionals, comprising 3038 public institutions and only six private ones; overall, 1058 institutions were in urban areas and 1986 in rural areas (Ministry of Health, 2013a). Furthermore, China has established three important information systems to strengthen MCH – the MCH information annual reporting system, the MCH status surveillance system, and the MCH institutions surveillance system.

China is actively promoting hospital births to guarantee mother and infant safety. In 2012, the hospital birth rate reached 99.2% (National Health and Family Planning Commission, 2014). The Government also implemented serious disease screening services for common gynaecological diseases, including The National Rural Women Cervical Cancer and Breast Cancer Free Screening Programme. From 2009 to 2012, a total of 22.30 million rural women received cervical cancer screening and 3.1 million rural women received breast cancer screening. In addition, 28.95 million pregnant women received AIDS counselling and testing services (Li B et al, 2014).

Activities promoting reproductive health and preventing birth defects have been strengthened. From 2009 to 2012, some 36.27 million rural women of childbearing age received free supplements of folic acid, resulting in a rapid decrease in neural tube defects (NTDs). Prenatal screening and antenatal diagnosis services were strengthened. The thalassaemia prevention project was launched in 2012 to decrease the incidence of severe thalassaemia. A newborn disease screening network was developed. The screening rate for genetic and metabolic diseases such as hypothyroidism and phenylketonuria has reached 78% coverage, and the hearing impairment screening rate has reached 50% (Li B et al, 2014).

### **5.1.6 Chronic disease prevention and treatment**

Cardiovascular diseases, cerebrovascular diseases, diabetes, malignant tumours and chronic diseases of the respiratory system are the most common chronic diseases in China. In order to prevent and control them, China developed a national chronic disease prevention and control plan in 2012. The plan included further development of the chronic



disease prevention and control network throughout the country, and establishment of a comprehensive information system for chronic disease surveillance. The plan also put in place specific targets for the year 2015: core knowledge about chronic diseases reaching 50% or above of the population; awareness of blood pressure and blood sugar reaching 70% and 50%, respectively, among adults over 35 years old; the national health lifestyle campaign covering at least 50% of counties (cities and districts); national comprehensive demonstration zones for chronic disease prevention and control covering more than 10% of counties (cities and districts); and a smoking rate among adults lower than 25%. To achieve these goals, disease prevention and control institutions are responsible for making and implementing chronic disease prevention and control plans under the guidance of the Ministry of Health. Hospitals should provide clinical treatment for chronically ill patients and should be responsible for chronic disease registration and reporting. PHC institutions are responsible for providing concrete chronic disease prevention and control activities. Health education institutions are responsible for developing a health education strategy for chronic diseases, organizing chronic disease awareness campaigns, and directing other institutions to carry out chronic disease health education activities. MCH institutions are in charge of providing advice and guidance regarding chronic disease risks to women and children.

The establishment of comprehensive demonstration zones for chronic disease prevention and control, which started in 2010, is a priority in controlling chronic disease in China. In the demonstration zones, community survey and diagnosis were used to find the main health problems and risk factors. Appropriate technologies were then used to develop a chronic disease control strategy, measures and management model. In 2012, 101 counties/cities/districts in 30 provinces across the country were designated national comprehensive demonstration zones for chronic disease prevention and control. The National Chronic Disease Prevention and Control Plan of 2012 indicated that all provinces (autonomous regions and municipalities) and over 50% of municipalities in eastern provinces should set up national-level demonstration zones for chronic disease prevention and control by 2015 (Ministry of Health, National Development and Reform Commission and Ministry of Finance, 2012). Establishment of these comprehensive demonstration zones is in progress, but there were no updated national statistics on this in 2014.

### 5.1.7 Endemic and environmental diseases prevention and control

The prevalence of endemic diseases is serious in China. The major endemic diseases are iodine deficiency disorders, goiter induced by high iodine levels in drinking water, endemic fluorosis, endemic arsenic poisoning, Kashin–Beck disease and Keshan disease. Disease prevention and control institutions and specialized endemic disease control and treatment institutions are responsible for monitoring, health education, prevention and control, and evaluation of interventions, as well as coordination of other relevant departments to popularize iodized salt and clean water. The National 12th Five-Year Plan of Endemic Diseases Prevention issued in 2012 stated that China would strengthen endemic diseases monitoring and establish a sustainable and effective endemic disease control system to eliminate the major endemic diseases in 2012–2015 (the period of the National 12<sup>th</sup> Five-Year Plan).

China implements an occupational health supervision mechanism. The National Production Safety Supervision and Administration Department, NHFPC, and the Ministry of Human Resources and Social Security are responsible for the supervision and administration of occupational disease prevention. Medical institutions authorized by provincial public health departments undertake occupational health examinations and occupational disease diagnosis. The treatment and rehabilitation costs of occupational disease patients are compensated for by industrial injury insurance, or by employers if they did not join the industrial injury insurance scheme.

The *National Environment and Health Action Plan* (2007–2015) is the first national document on environment and health protection in China. The Environment and Health Work Plan of the National Environment Protection 12th Five-Year Plan, launched in 2011, states that China will build an administrative team for environmental health protection, complete environmental health surveys in key areas throughout the country, build the primary environmental health monitoring network and create an environmental health risk management information system; however, there is no national report on the implementation status of this plan. The Plan would systematically address environmental health problems in China.

### **5.1.8 Health education and surveillance**

China has established a health education system in which the key players are professional health education institutions, PHC and related health institutions, schools, enterprises and government departments. The National Health Education Centre is responsible for providing technical guidance on health education activities and carrying out health education-related research. Local health education institutes in different provinces, cities and counties are responsible for carrying out specific health education activities. By 2010, there were 2678 professional health education institutions, covering 80% of counties in China. Many health education and health promotion activities were carried out on tobacco control, MCH, child nutrition and hepatitis prevention by governments, social groups and enterprises to promote healthy lifestyles among urban and rural residents.

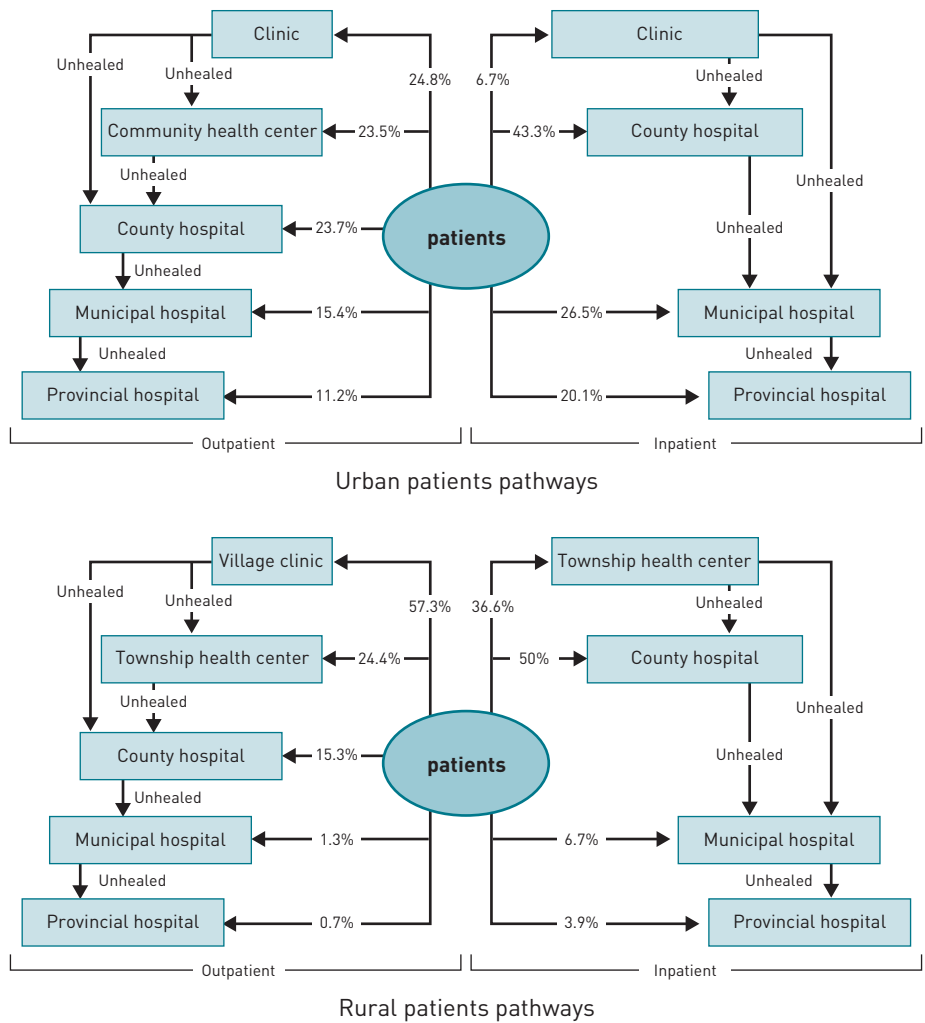
Routine health surveillance is mainly conducted at PHC institutions, such as community health stations and village clinics. Physical examinations are mainly provided by the physical examination departments of hospitals, but increasing numbers of independent physical examination clinics have appeared in recent years.

Some specific health surveillance projects have been conducted. For example, the national nutrition survey initiated in 1959 conducted its fourth survey in 2011. In recent years, more health surveillance projects have been carried out to investigate Chinese residents' mortality, registration of tumours and chronic diseases, and nutrition monitoring. The platform for chronic disease surveillance and information management is gradually being formed in China.

## **5.2 Patient pathways**

Both urban and rural patients can freely choose medical institutions for health-care services. However, the higher the level of the medical institution they choose, the higher the medical cost and OOP cost they will have to pay. It is convenient for patients to access PHC institutions, and they can get medical services without a long wait and with less transport cost. PHC institutions (community health centres and village clinics) are often patients' first choice when they believe their illness is not severe. Figure 5.1 shows rural and urban patient pathways. Table 5.2 shows the distribution of outpatient and inpatient services provided by different levels of hospital from 2008 to 2012.

**Figure 5.1 Patient pathways and their probability, urban and rural residents**



*Notes:* The bold line indicates the largest volume of patients visited. Percentages are based on first contact or first visit for a given disease. There are some other institutions besides those shown in the figure, so the sum of the proportions is less than 100%.

*Source:* Developed by authors with figures from the 4th National Health Service Survey in 2008 (Ministry of Health, 2009b)

**Table 5.2 Outpatient visits to different level hospitals (unit = 10 000 persons)**

Year	2008	2009	2010	2011	2012
Tertiary hospitals	62 127.8	68 939.3	76 046.3	89 807.8	108 670.6
Secondary hospitals	83 020.7	88 840.1	93 120.4	99 198.5	105 476.7
Primary hospitals	15 565.6	14 995.2	14 573.6	15 336.5	16 766.5
Unclassified hospitals	17 452.9	19 419.3	20 223.0	21 541.0	23 247.9

Source: Ministry of Health, 2013a

**Table 5.3 Patient admissions to different level hospitals (unit = 10 000 persons)**

Year	2008	2009	2010	2011	2012
Tertiary hospitals	2326.8	2668.3	3096.8	3717.3	4726.4
Secondary hospitals	4061.3	4636.0	5115.7	5567.4	6241.6
Primary hospitals	392.2	432.0	463.7	535.8	648.9
Unclassified hospitals	611.7	751.6	847.5	934.2	1110.6

Source: Ministry of Health, 2013a

## 5.3 Primary health care services

### 5.3.1 System for provision of primary medical care services

Primary health care services are provided by urban community health centres, rural township health centres and village clinics. Some community health stations are affiliated with local health centres, while others are independent and receive their technical support only. Most village clinics are non-government owned and receive technical guidance from township health centres. Some village clinics are affiliated with local township health centres.

Community health centres and township health centres are responsible for providing health education, disease prevention and health care, rehabilitation, family planning, and common and frequent disease management. Village clinics provide primary health services for local rural residents. Health administration departments are responsible for supervising and administering PHC institutions. CDC and professional disease prevention institutions provide them with technical support and guidelines.

### **5.3.2 Scale of primary health care institutions**

By 2012, there were 8182 community health centres, 25 380 community health stations, 39 097 township health centres and 653 419 village clinics in China. The total technical staff of community health centres and township health centres numbered 387 000 and 1 017 000, respectively. Village clinic staff numbered 1 243 000 (Ministry of Health, 2013a).

### **5.3.3 Utilization, existing problems and reform plan for PHC services**

The utilization of PHC services has increased in recent years. In 2012, some 4.102 billion out of a total of 6.88 billion medical services (including outpatient and inpatient services) were delivered by PHC institutions, an 8% increase from 2011. 42.09 million inpatient services were provided by PHC institutions, an increase of 11.5%. In 2012, 22.7% of outpatient services were provided by community and township health centres, and the bed occupancy rates of community and township health centres were 55.5% and 62.1%, respectively (Ministry of Health, 2013a).

A lack of qualified health-care professionals and rapid turnover of the health workforce are bottlenecks in the development of PHC institutions. To improve the capacity of health-care professionals in PHC institutions, health-care personnel training projects and special medical talent development programmes have been implemented in both rural and urban areas. GP training is a key programme. In urban areas, China is gradually setting up a two-way patient referral mechanism between PHC institutions and hospitals.

## **5.4 Medical services provided by secondary and tertiary hospitals**

### **5.4.1 Secondary and tertiary hospital services provision system**

Secondary hospitals are those located at county and district levels which mainly provide medical services to local residents but also undertake some clinical practice teaching and medical research. Tertiary hospitals are the highest level of hospital in China and include national, provincial, municipal and medical-school-affiliated hospitals. These hospitals provide a high level of specialized medical services, undertaking clinical practice teaching and research activities on a large scale. By 2012, there were 1624 tertiary hospitals with 1 469 737 beds and 6566 secondary hospitals with 1 827 240 beds in China. Depending on the services they provide, secondary and tertiary hospitals are classified as general

hospitals, TCM hospitals, Chinese and allopathic medicine hospitals, ethnic medicine hospitals, specialized hospitals or nursing homes. In 2012, general hospitals accounted for 64.8% of the total number of hospitals (Ministry of Health, 2013a).

#### **5.4.2 Hospital ownership**

In China, most hospitals are government-owned public hospitals. In 2012, public hospitals accounted for 57.8% of all hospitals – a 3.8% decrease compared with 2011. The remaining 42.2% were non-public hospitals (Ministry of Health, 2013a). As part of the health system reform initiated in 2009, the Chinese government has encouraged non-government entities to invest in hospital services and encouraged medical staff to practise in both public and private hospitals freely.

#### **5.4.3 Health service utilization in secondary and tertiary hospitals**

In 2012, secondary hospitals provided 1.055 billion outpatient services (41.5% of total outpatient services in hospitals) and tertiary hospitals provided 1.087 billion outpatient services (42.8% of total hospital outpatient visits), and inpatients of secondary and tertiary hospitals numbered 62.42 million and 47.26 million (49% and 37.1% of all hospital admissions) respectively. In 2012, the bed occupancy rates of secondary and tertiary hospitals were 90.7% and 104.5%, respectively, and the average lengths of hospital stays were 9.1 and 11.4 days, respectively (Ministry of Health, 2013a). Since 2005, some large general public hospitals have started setting up day-care wards to provide one-day ambulatory surgery and daytime medical observation services. Day-care service is still in the early stages of development.

#### **5.4.4 Collaboration between secondary and tertiary hospitals and PHC institutions**

China launched a two-way patient referral regulation in 2006 to promote the rational use of health services. The regulation proposes that patients should seek medical services at PHC institutions first, and that the PHC institutions refer the patients to secondary and tertiary hospitals when necessary. The patients should be referred back to the PHC institution to receive subsequent treatment once their symptoms are stable (State Council, 2007b). In addition, the Chinese Government has carried out a series of projects to promote collaboration between secondary and tertiary hospitals and PHC institutions, such as the “900 Urban Hospitals and 2000 County Hospitals Establish Long-Term Partner Assistance

Programme”, Coordination Management of General Practitioners within Condition Permit Counties, the 10 000 Physicians Support Rural Health Project implemented in western China, and the Urban Doctors Should Go To Work in Rural Areas Before their Title Promotion Programme implemented since 2006. Since the health system reforms of 2009, China has strengthened the collaborative mechanism between secondary and tertiary hospitals and PHC institutions in terms of technical support, professional training and administration; however, there are no updated national statistics on this collaborative mechanism.

#### **5.4.5 Problems and reform of secondary and tertiary hospital services**

The public hospital pilot reform started in 2010 strives to improve medical care provision, set up innovative mechanisms for improving the performance of public hospitals, increase government financial support to public hospitals, reform the payment mechanism of public hospitals, strengthen internal management and accelerate the establishment of diversified medical practice. In 2012, China launched a county public hospital pilot reform to experiment with the public hospital reimbursement mechanism and other key mechanisms. More detailed findings on public hospital reform are presented in Chapter 6.

### **5.5 Emergency medical services**

#### **5.5.1 Emergency medical service system**

*Emergency medical service* refers to first aid provided for life-threatening emergencies, trauma or poisoning, conducted on the spot, on the way to, or in medical institutions at various levels, including pre-hospital first aid, emergency department aid and intensive care unit (ICU) care. The pre-hospital first-care network involves emergency centres (or stations) and hospitals with responsibility for pre-hospital care such as first aid, continuous supervision, triage and referral to hospital. Hospitals provide in-hospital emergency treatment after admitting patients. Large emergency centres are also responsible for relevant training, awareness-raising, education and scientific research. The NHFPC is in charge of planning, guiding, supervision and system design for pre-hospital care nationwide; the public health authorities at county level and above are correspondingly responsible for the regional pre-hospital care network within their jurisdiction.

There are emergency centres, first-aid branches and stations. In urban China, there are now three types of emergency services. The first type



operates independently, the second is attached to hospitals, and the third is under the authority of emergency centres. Different types of emergency centres have different functions and responsibilities. In particular, there are professional emergency systems that play an important role in accident and emergency rescue in industries such as mining, petrochemicals, aviation and marine traffic. The disaster rescue system is being developed.

### ***5.5.2 Accessibility and quality of emergency medical services***

From 2007 to 2011, the number of emergency centres in China increased from 202 to 270; in western areas, the absolute number was the lowest but the rate of increase was highest. Accordingly the number of emergency medical services provided rose from 3.17 million to 4.64 million between 2009 and 2012. With the development of the emergency medical service, the average first-aid time has been shortened in large and medium-sized cities, and the success rate of emergency services has increased to 95.77%, with a case fatality rate of just 0.07% (Ministry of Health, 2013a). Patients need to pay for emergency medical services, but those who cannot afford it can resort to the medical aid fund and government subsidies, and avoid being denied or receiving delayed emergency medical attention. In addition, hospitals have opened a green channel for patients by offering first-aid before charging.

The emergency medical system has developed rapidly since the 1980s. After the SARS outbreak in particular, the construction of emergency centres was fast-tracked throughout the country, forming the emergency medical service network and setting new service standards. However, in contrast to urban and eastern areas, the emergency medical service in rural and central and western China was relatively weak. China lacks a specific law regulating emergency medical services, especially pre-hospital care.

In the health system reforms of 2009, emergency medical services were incorporated into the public health service system. Strengthening the pre-hospital care system and improving emergency medical service capacity in rural areas are the development priorities. China proposed to build up the emergency medical service network gradually in the 12th Five-Year Plan (2011–2015). The numbers of personnel trained in first-aid management are inadequate, and relevant knowledge needs to be widely disseminated.

## **5.6 Pharmaceutical care**

### ***5.6.1 Pharmaceutical administrative system***

The China Food and Drug Administration is responsible for all drug-related administrative activities, including drug registration, production, distribution, use, and market surveillance. Food and drug administrations at provincial, municipal and county level are in charge of regional drug administration issues. In addition, the TCM Administrative Bureau within the NHFPC is responsible for the management of traditional Chinese medicine in collaboration with the CFDA.

### ***5.6.2 Pharmaceutical production***

Drug producers are categorized as either state-owned enterprises or private enterprises. As of May 2014, there were 7401 drug production enterprises producing 160 000 medicines (China Food and Drug Administration, 2014). The market value of all drug production enterprises was 1.54 trillion yuan (approximately US\$ 256 billion) in 2012 (Chinese Medicine Statistics Network, 2013).

### ***5.6.3 Pharmaceutical distribution***

Before the current 2009 round of health system reform, most drugs were distributed from producers to wholesalers, and then to hospitals or retail drug stores, and finally to consumers. Since the implementation of the essential medicines policy, essential medicines are purchased through provincial public bidding – individual health institutions are forbidden to purchase essential medicines directly from producers or wholesalers.

At the end of 2011, there were 440 000 drug trading enterprises, including 16 000 wholesalers, 3107 private retail chain enterprises, 150 000 chain drugstores and 270 000 standalone drugstores (China Food and Drug Administration, 2013b).

All medical institutions in China have their own pharmacies, and these account for 80% of the drug market in terms of value.

### ***5.6.4 Measures to ensure the accessibility of medicines***

China made the accessibility of medicines a priority by regulating drug prices, increasing the reimbursement rate of drugs in the health insurance schemes and improving drug quality. The main aim of the National Essential Medicines Policy is to ensure that essential medicines

are available and affordable; the policy has now been implemented in all public PHC institutions in China. Furthermore, essential drugs with low usage but which are clinically indispensable are produced by designated drug producers to guarantee their supply.

### **5.6.5 Legal system, public subsidy and consumption of drugs**

After more than 30 years, China has established a complete drug management regulation system that consists of laws, regulations, departmental rules and other prescriptive documents. The Pharmaceutical Administration Law of the People's Republic of China was enacted in 1984 and revised in 2001 and 2013 to improve efficiency, clarify legal responsibilities and adapt it to institutional reform. A series of laws and regulations were enacted covering all aspects of drug registration, production and distribution. In 1995, China started to implement pharmaceutical Good Manufacturing Practice and Good Supply Practice, a Chinese herbal medicine Good Agricultural Practice certification system, and in 2006, a flight inspection mechanism (the CFDA inspects drug manufacture and supply enterprises suddenly without prior notice) was enacted to strengthen the supervision of drug production and business operations.

The NRCMS, UEBMI and URBMI have their own drug lists. In addition to the drug subsidies provided by health insurance schemes, the 14 vaccines covered by the national expanded immunization plan are provided free of charge to all Chinese people. TB is also treated for free. The antiretroviral drugs for HIV/AIDS are provided free to rural and urban patients under a heavy economic burden from disease.

According to the "Prescription management method" and other related drug management regulations, prescriptions are categorised as narcotics prescriptions, psychotropic prescriptions, common prescriptions, emergency prescriptions or paediatric prescriptions. The prescription format is formulated by provincial health administrative departments, with each prescription limited to one patient's medication, and any one prescription may not exceed five drugs.

From 2008 to 2012, the proportion of drug expense in total outpatient medical expenditure decreased from 51.3% to 50.3%. As a proportion of total inpatient cost, it decreased from 43.5% to 41.1% (Ministry of Health, 2013a).

### **5.6.6 Patient safety and adverse drug reaction monitoring**

In 1989, China set up the National Adverse Drug Reaction Monitoring Centre. An online adverse drug reaction (ADR) reporting system was formally implemented in 2004. It is stipulated that drug manufacturers, distributors and medical institutions should report adverse drug reactions to the CFDA. The CFDA releases relevant information in due course. In 2009, there were 638 996 ADR events reported online, and that number increased to 1 317 000 in 2013. The reported ADR rate in patients over 65 years old showed a slight increase, hinting that more attention should be paid to drug safety for elderly people.

### **5.6.7 Challenges and reform**

Several challenges still exist in the pharmaceutical system:

- the market concentration of Chinese drug industries is low, many links exist in the drug distribution network from manufacturers to wholesalers, retailers and hospitals, the proportion of drug expense to total medical expense is still high, and the drug pricing mechanism should be further improved;
- drug safety should be further strengthened, especially in rural areas – counterfeit medicines of inferior quality still exist; and
- irrational drug use, especially of antimicrobial medicines, in many health institutions is a major public health problem in China.

In 2013, the China Food and Drug Administration Bureau was established to further strengthen the safety and quality management of food and medicines. The use of antibacterial medicines in health institutions has been further regulated to reduce antibiotic abuse. In 2011 the Ministry of Health carried out a special three-year antibacterial regulation campaign. In 2012, the State Council issued the National Drug Safety 12th Five-Year Plan detailing arrangements to rationalize use of medicines.

## **5.7 Rehabilitation care**

Rehabilitation services are offered by medical rehabilitation institutions, the rehabilitation departments of general hospitals, and some community health centres. There are public and private rehabilitation institutions in China, including general rehabilitation hospitals, specialized rehabilitation hospitals, sanatoriums and nursing homes. By 2012, there were 322 rehabilitation hospitals nationwide, accounting for 7% of all

specialized hospitals, and about a quarter of general hospitals have a department of rehabilitation (Ministry of Health, 2013a).

Since economic reform in 1978, rehabilitation services have made great progress in terms of both quantity and quality and are becoming an important part of the health system in China. However, with society ageing, increasing demand is challenging the provision of rehabilitation. Regional imbalances and a shortage of professionals is hindering the development of rehabilitation services, which should be improving in terms of both service capacity and coverage. Of the 322 rehabilitation hospitals nationwide, 206 are in cities and only 116 are located at county and lower administrative levels; there are only 67 sanatoriums at county and lower administrative levels, while there are 194 nationwide (Ministry of Health, 2013a).

In recent years, China has issued several policies supporting the development of rehabilitation care, such as creating rehabilitation services covered by the national basic medical insurance and as part of the essential medical services list. The Government also put an emphasis on community-based rehabilitation and the integration of prevention, treatment and rehabilitation, and launched a pilot project for completion of the rehabilitation care system.

## **5.8 Long-term care**

There are three types of long-term care in China: home, institutional and community. Influenced by tradition, home long-term care is chosen by most Chinese. Home long-term care is mainly provided by family members, who are generally unable to provide medical services without formal training. Institutional long-term care can be provided in geriatric hospitals, psychiatric hospitals, rehabilitation departments of hospitals, rehabilitation centres in communities, social welfare institutions for disabled persons, old people's homes and nursing homes. However, the capacity of these professional services needs to be improved.

The level of service and price influence choice. Community long-term care is at an early stage of development and is characterized by a low socialization level. Home long-term care and community long-term care are the future direction of long-term care development in China. The planning, design and management of long-term care is mainly the responsibility of the NHFPC and the Ministry of Civil Affairs; the National

Commission on Ageing, MOHRSS and the China Disabled Persons Federation are also engaged in this work.

Whether an applicant has access to informal care or not does not influence approval of their application for long-term care services. However, the Ministry of Civil Affairs will offer some subsidies and preference to the elderly and disabled who have no access to informal care.

The extent to which medical care and social services are integrated is different under different long-term care models. In home long-term care, family members offer social services and daily living care, but few medical services such as massage; formal medical institutions are relied on for these. Long-term care institutions can offer medical care as well as social services; however, the ratio of these two kinds of service differs among institutions.

The annual *China Statistical Yearbook* produced by the National Bureau of Statistics contains information on social service institutions, community service institutions and programmes for the disabled. There are 4.165 million beds for aged and disabled people, and 747 000 disabled people are in foster care. The *Statistical bulletin of social service development* produced by the Ministry of Civil Affairs provides information about services for elderly and disabled people.

As society has aged, long-term care provision has grown greatly. Long-term care institutions for the elderly and disabled are increasing not only in quantity but also in service capacity and regional coverage. By the end of 2011, there were more than 40 000 institutions such as old people's homes, nursing homes and welfare institutions for the elderly and disabled; by the end of 2012, there were 12 000 community service centres concentrating on serving pensioners (National Bureau of Statistics, 2014). However, compared with the demand from the huge population of China and the rapidly increasing number of disabled individuals, there is still a great shortage in the provision of long-term services.

In recent years, China has issued several regulations for long-term institutions, such as Procedures of Municipalities on Managing Old-age Care Institutions. The Government will make an effort to build a pensioners' service system that is based on the family, relied on by the community and supported by institutions, and will encourage social

organizations to set up nursing homes to relieve the imbalance between supply and demand in long-term care.

## **5.9 Services for informal carers**

Informal care is mainly provided by family members. Other participants such as neighbours, friends, charitable organizations and volunteers are limited. There is no informal care network and there is no special policy of offering subsidies or tax reduction to informal carers; however, there are some nonfinancial policies protecting informal carers' relevant rights.

As society ages, the family dependency ratio increases; the number of people with chronic diseases gradually increases; and the number of disabled old people also increases, all of which pose severe challenges to informal care services. In some areas of China, training for informal carers has started, and there is active development of the volunteer system in order to promote the informal care service.

## **5.10 Palliative care**

Since the beginning of palliative care in China in 1988, many palliative care wards have been set up, mainly in general hospitals, tumour hospitals, nursing homes and community health service centres in large cities. There, integrated services including symptomatic treatment, pain management, daily living care and psychological guidance are provided by professional groups, usually consisting of doctors, nurses and pharmacists, and assisted by TCM doctors and psychologists when needed. Besides palliative services in institutions, there are some charity organizations devoted to hospice care. However, there are almost no palliative institutions in small cities and rural areas, and a specialized law or policy for palliative care nationwide is lacking.

## **5.11 Mental health**

The Law of Mental Health of People's Republic of China (hereinafter referred to as the "Mental Health Law") was put into effect on 1 May 2013. It stipulates an integrated management scheme for mental health work in China, engaging the Government, social organizations and individual families. The law is essential for the development of mental health care, the standardization of the mental health services and the protection of patients' rights. The Mental Health Law stipulates practical safeguards for the rights and interests of mental health patients in terms of personal dignity, personal and property safety, and access to education and

health services. Meanwhile, the law established specific rules relevant to the rights of mental health patients, including informed consent and access to treatment and judicial remedy, and also clear legal liability for infringement of mental health patients' rights.

In China, psychological illness prevention, diagnosis, treatment, rehabilitation and psychological counselling services are delivered in psychiatric hospitals, psychiatry or psychological departments of general hospitals, rehabilitation facilities and mental health clinics. Severe mental health patients are mainly treated by hospitalization, and service for mild and convalescent mentally ill patients is based on ambulatory treatment and community-based rehabilitation.

The management of severe mental patients is one of the essential public health services in China. All diagnosed severe mental health patients who live at home can access information, diagnosis, relevant treatment, and follow-up assessment free of charge from local township hospitals, village clinics and community health centres (or stations). At present, medical expenditure on mental illnesses is split between social medical insurance and OOP payments by patients.

According to the national health resource and service provision survey of 2010 conducted by the Ministry of Health, there were 1650 mental health institutions in China, of which 874 were psychiatric hospitals, 604 psychiatry (or psychological) departments of general hospitals, 77 rehabilitation facilities and 95 mental health clinics. Among the mental health institutions, 1146 are government-owned, accounting for 70% of the total. The number of mental health beds was 228 000 nationwide, with 201 532 government-owned beds, accounting for about 5% of total hospital beds; the number of psychiatric hospital beds was 197 000 (Ministry of Health, 2011).

The mental health service in China is still under considerable strain, with resource shortages (including beds and relevant staff and psychiatrists) and allocation imbalances that impact the accessibility and equity of mental health services. In 2010, the number of beds per 10 000 people was 1.71.(Ministry of Health, 2013a) In 2012, the average length of stay in a psychiatric department was 48.8 days, 10 days longer than the average length of stay in hospitals countrywide (Ministry of Health, 2013a). In 2004, the Chinese Government launched the National Continuing Management and Intervention Program for Psychosis (686 Programme) based on a new hospital–community integrated service model, offering



free services including registration, follow-up visits, treatment, emergency management and emergency hospitalization. By the end of 2010, the programme covered 31 provinces, 160 cities and 330 million people nationwide, had registered 2.8 million severe mental health patients and offered free drug treatment for 94 000 cases and treatment for 12 400 cases. Meanwhile, 10 000 psychiatrists and 3400 community physicians were trained in the programme.

In addition, one of the aims of the Plan for Development of the Mental Health Work System (2008–2015) is to disseminate mental health knowledge and remove the stigma of mental health patients.

## **5.12 Dental care**

Dental care is delivered in stomatology departments in general hospitals, stomatological hospitals, private dental clinics and oral disease prevention and control institutions (stations or centres). By the end of 2011, there were 18 000 departments of stomatology in general hospitals, 317 stomatological hospitals (including 136 public and 181 private hospitals), about 50 000 private dental clinics and 112 oral disease prevention and control institutions stations or centres, of which 88 were public and 24 private (Ministry of Health, 2013a).

By the end of 2010, the number of dentists was 26 589, just 0.63% of the total number of health-care professionals in hospitals – only one dentist per 15 000 people. Additionally, the distribution of dental health institutions is imbalanced – for example, by the end of 2011, some 253 of the 317 stomatological hospitals were in urban areas, and only 64 in rural areas (Ministry of Health, 2013a).

Almost everyone in China has dental problems. However, the number of people who visit a doctor for these problems is extremely low. According to data from the third national oral health survey in 2005, the prevalence of dental caries was 66% in five-year-old children, but the percentage of them who visited a dentist was as low as 3%. Among people aged 65–74, the prevalence of dental caries was 98.4%, while the percentage who visited a dentist was 9–22%. Factors in this low use rate of professional dental care include the inadequate oral health service system, insufficient capacity of oral services in PHC institutions, the weak oral health awareness of the public and low health insurance coverage for dental care.

In China, the fee schedule of all dental services in public hospitals is set by national and province-level price administrative departments, which private providers can also use as a reference. Regional health administrative departments are responsible for the supervision and quality assessment of oral health services delivered in public and private institutions.

The NHFPC has issued a series of policies on improving oral health and developed an oral disease control and prevention strategy. Three rounds of national oral health surveys were conducted by the former Ministry of Health (in 1983, 1995 and 2005) and provided the data to determine the prevalence of oral health problems. Surveillance of oral health was also initiated in pilot cities where chronic disease surveillance was conducted. Since 2008, a comprehensive intervention project has been set up in central and western China for improving children's oral health, financially supported by the central budget. The project provides oral health education for children, training of health personnel in PHC institutions, free oral examinations for school-age children, pit and fissure sealing, professionally applied topical fluorides and other benefits.

### **5.13 Complementary and alternative medicine**

Most general hospitals and PHC institutions have a TCM department that can provide herbal treatments, acupuncture and massage services. These services are fully covered by all three social health insurance schemes in China (UEBMI, URBMI, and NRCMS). By the end of 2012, the number of TCM hospitals was 2889, accounting for 12.5% of total hospitals in China (National Bureau of Statistics, 2013). In addition, there are many private clinics and individual practitioners offering TCM services. As of 2011, there were 293 000 doctors with TCM licences, accounting for 19.32% of all licensed doctors (Ministry of Health, 2013a). In 2011, 422.6 million outpatients attended TCM departments nationwide, accounting for 19.1% of the total number of outpatients in all departments; in the same year, the number of discharges from TCM departments was 14.1 million, accounting for 13.1% of all national discharges.

According to the Rules and Regulations on Chinese Medicine in the People's Republic of China, licensing and establishment should conform to regional health planning and comply with "the Management rules for the medical establishment". TCM professionals ought to pass certain examinations and obtain a practising license and registration in accordance with relevant rules and regulations before engaging in TCM.

In urban areas, a network of TCM services has been established, mainly based on TCM hospitals, ethnomedicine hospitals, integrated traditional Chinese and allopathic medicine hospitals, TCM departments of general hospitals, community health service institutions, and TCM outpatient departments and clinics. In rural areas, the TCM service system consists of county TCM hospitals and TCM departments of township health centres and village clinics. Some 75.6% of community health centres, 51.6% of community health stations, 66.5% of township hospitals and 57.5% of village clinics are able to deliver TCM services (State Council Information Office, 2012).

According to the 12th Five-Year Development Plan (2011–2015) for traditional Chinese medicine, China will further develop TCM service provision in urban and rural PHC institutions by improving TCM technological innovation, improving service capacity, encouraging the development of the TCM industry, and promoting the legalization, computerization and standardization of TCM (State Traditional Chinese Medicine Administration, 2012).

Besides TCM, many minorities also have their own traditional medicine, collectively referred to as ethnomedicine. Some aspects are similar to TCM, such as herbal treatments, acupuncture and massage services; beyond that, both of them have their own specific medical methods. Chinese ethnomedicine is composed of dozens of categories; for example, Tibetan medicine, Mongolian medicine and Miao medicine.

As of 2011, there were 277 integrated traditional Chinese and allopathic medicine hospitals and 200 ethnomedicine hospitals in China (Ministry of Health, 2013a). In addition to hospitals, ethnomedicine services are provided in temples, clinics and at home. The knowledge and skills of ethnomedicine have always been inherited and passed on by personal example and verbal instruction, or even ancestrally; this approach has enabled many specific techniques and remedies to be preserved, but restricted the diffusion of ethnomedicine. Generally, the management of ethnomedicine staff is similar to that of TCM staff.

## **5.14 Health services for specific populations**

### **5.14.1 Health services for rural migrants**

According to the *Rural migration development report 2013*, the number of rural migrants has reached 236 million, with an average age of 28 and

a sex ratio close to one. The vast majority have a low level of education. Most migrant workers can only engage in construction and service industries. In recent years, more and more families have chosen to migrate together, with grandparents looking after children.

This large-scale migration is the most notable phenomenon in the process of industrialization and urbanization in China, and is mainly from the countryside to cities, from less-developed to developed regions, and from western and central areas to eastern areas.

The National Essential Public Health Services Standard (2013 version) issued by the Ministry of Health requested that peasant workers and their children be covered by the national essential public health services programme. They can access health education, vaccines, and health-care services for children and mothers free of charge.

Trans-provincial migrants accounted for 67% of the total migrant population in 2012. Due to the regional management of health insurance, cross-province medical expenses incurred by these migrant populations cannot be reimbursed in a timely fashion. The situation should be partly solved in 2015 according to the 12<sup>th</sup> Five-year Plan (2011–2015).

#### **5.14.2 Health service for the disabled**

By the end of 2010, the number of disabled people in China was reported to be 85.02 million, of whom 25.18 million were severely disabled and 59.84 million mildly-to-moderately disabled (China Disabled Persons Federation, 2012). The Protection Law for Disabled Persons of the People's Republic of China, implemented in 2008, and The CPE Central Committees and State Council's Decision on the Development of Disabled Persons, published in the same year, stipulate the rights of the disabled to protection and development. The Protection Law for Disabled Persons contains regulations about rehabilitation, education, working as a labourer, cultural life, social insurance and a barrier-free environment for the disabled. In recent years, following the increase of social assistance to the disabled and the expansion of social insurance, 10.38 million disabled people have been rehabilitated through a series of major projects (China Disabled Persons Federation, 2012). However, social insurance and policies for the disabled are not comprehensive enough, and regulations need to be further developed. There are still many difficulties faced by the disabled in their basic living, medical

treatment, rehabilitation, education, employment and social participation (China Disabled Persons Federation, 2012).

#### **5.14.3 Health services for AIDS patients**

China has a low prevalence of HIV/AIDS overall, with some areas of high prevalence, meaning the number of HIV-infected and AIDS patients is still increasing. However, the number of new HIV infections is low. The Government has formulated and implemented the “four frees and one care” policy; namely, free voluntary counselling and blood testing, free antiretroviral treatment for AIDS patients who have economic difficulties, free medical advice and treatment for pregnant women with HIV and their babies, free education for AIDS orphans, and governmental care for AIDS patients who live in poverty – this with a view to achieving total access to HIV/AIDS prevention, treatment and related care services. The treatment of AIDS patients takes place in designated hospitals. China has also set up a monitoring network for AIDS, offering voluntary counselling and testing services.

#### **5.14.4 Health services for drug users**

A number of measures have been taken to educate and rehabilitate drug users, helping them deal with harmful dependency. Drug users are required to undergo dependency treatment and they can voluntarily resort to accredited rehabilitation institutions. There are 13 addiction treatment centres (nine set up by the Government and four by social capital) in China; 12 institutes in urban areas and only one in the countryside (Ministry of Health, 2013a).

### **5.15 Family planning services**

To control excessive population growth in China, family planning has been a basic state policy since 1982. Because of the family planning regulations set by local governments, there is great diversity in China and increased flexibility for minorities. The Chinese Family Planning Policy guidelines include: controlling rapid population growth and reducing birth defects; later marriages, later births and fewer babies; and encouraging couples to have only one child. In rural areas, the birth of a second child should be spaced 4–5 years after the first. From 2014, the policy has been changed so that couples where either the husband or the wife is an only child will be able to have a second child. The policy has worked: the total fertility rate decreased from 5.43 to 1.6, and the natural population growth rate decreased from 23.33 per thousand to

5 per thousand between 1971 and 2012. Successful control of population growth has also contributed to economic development, improving quality of life for the whole nation, eliminating poverty and conserving the environment and natural resources. The success of family planning in China delayed the arrival of the day the world's population hit 7 billion by five years (Li B, 2013).

The NHFPC is in charge of family planning services nationwide, and family planning officials at province, city and county levels, township governments and sub-district offices are responsible for regional birth control services. Family planning services for the mobile population are mainly managed by the government of their current location, cooperating with their home government.

The network of family planning services in China consists of agencies at province, city, county and town levels, and relevant treatment or health institutions, undertaking eight tasks: awareness-raising and education, technical services, contraceptive distribution, consultation, follow-up visits, reproductive health and personnel training.

Note that birth defects are an important factor affecting quality of life in China, and that intervention measures to improve birth quality should be further implemented.

## **5.16 Clinical blood supply and management**

### ***5.11.1 Legislation for clinical blood management***

The Blood Donation Law of People's Republic of China (hereinafter the "Blood Donation Law"), promulgated on 1 October 1998, established the blood donation mechanism. After the implementation of the law, the NHFPC issued a series of regulations, including the Regulation for Blood Station Management, the Regulation for Clinical Blood Management of Medical Institutions, the Basic Standard of Blood Stations, the Guideline and Planning of Blood Station Installation, the Quality Management Standard of Blood Stations, the Regulations for Technical Operation of Blood Stations and the Protocol for Comprehensively Promoting Nucleic Acid Detection of Blood Stations. All these regulations have played important roles in standardizing blood management and guaranteeing blood safety and adequate supply.

### **5.16.2 Blood supply system**

Blood stations are non-profit public welfare health institutions collecting and supplying blood for clinical uses and include blood centres, blood stations and blood banks. China spent 2.25 billion yuan on developing blood stations in the central and western areas during the 10th Five-Year Plan (2001–2005), and a well-designed functional blood supply system has been established in both rural and urban areas. China has 411 blood stations, including 32 provincial blood stations, 321 city blood stations and 58 county blood banks. There are 1005 fixed blood collection stations.

### **5.16.3 Clinical blood supply**

The implementation of the Blood Donation Law contributed to a breakthrough in development of blood safety and adequate supply for clinical uses. In 1998, there were only 50 000 blood donations, but in 2013 this figure increased to 127.8 million (1.75% more than in 2012). The rate of blood donation increased from 9.3 per one 1000 population to 9.4 between 2012 and 2013. All clinical blood supplies are from unremunerated voluntary donors.

### **5.16.4 Quality assurance of clinical blood supply**

From 2004 to 2013, a total of 330 million yuan was allocated from the central budget to ensure blood quality and safety. Blood screening, blood biochemical testing and regular blood sample quality testing are the main measures to sustain the quality of the blood supply. Since 2010, China has promoted the use of blood nucleic acid tests in all blood stations to further reduce the risk of blood-transmitted diseases.

### **5.16.5 Rational use of blood in the clinical services**

In 2012, the Ministry of Health issued regulations on clinical blood use in medical institutions which required all blood stations to strengthen regulation, personnel training, clinical blood use evaluation and supervision. Medical institutions made the rational use of blood in clinical services one of the main goals for improvement of medical service quality and safety. As a result, a large number of hospitals reduced their use of blood, while increasing inpatient and surgical services.

### **5.16.6 Challenges and reform plans**

A number of difficulties still exist in ensuring clinical blood supply. First, the development of the blood donation system has not progressed in harmony with the overall development of the health system. In 2013, the amount of blood donated increased by 1.3% compared to the previous year. Although there are no national statistics on the clinical demand for blood products, this would suggest that the increase in blood donation does not meet the increasing demand for clinical use of blood, considering the 7.6% of increase in inpatients from 2012 to 2013. Second, the infrastructure and equipment need to be improved in some blood stations, and professionals should receive more training. The blood supply system and supply capacity should be strengthened continually.



## 6 Major health reforms

### Chapter summary

From 1949 to 1979, with a very low level of economic development and limited availability of health resources, China managed to build a basic health system, and improved public health greatly by intensifying primary health, focusing on disease prevention, organizing large-scale mass health campaigns, and establishing low-level wide-coverage of urban and rural basic medical insurance systems. Economic reform initiated in the late 1970s in China created both opportunities and challenges for the health system. Demographic and epidemiologic transitions, a fragmented health delivery system, the escalating cost of medical care, and increasing financial burden especially for the poor and low quality of health care have been the major challenges. The Chinese Government has made a series of reforms since the mid-1990s to address these issues.

China's health reforms can be divided into two periods: the early 1980s to 2002 was a time of market-oriented reform, and from 2003 there have been comprehensive reforms on health financing, delivery systems and regulations. Between the early 1980s and the mid-1990s, as a result of the market-oriented reforms, government subsidies to health sector were reduced, reliance on user charges and drug mark-ups reduced health insurance coverage and encouraged over-prescription of drugs and treatments, and led to rapid cost escalation and increased barriers to health care. The central government tried to change this situation in early 1997 by issuing a reform plan, but this failed due to lack of both political and financial support. After long preparation by both government authorities and academic institutions, in March 2009, the Central Committee of the CPC and the State Council issued a guiding policy document, *Deepening the Health System Reform*, aiming to achieve universal health coverage by 2020. The main tasks of this round of reform are to expand health insurance coverage, strengthen the capacity of the delivery system, establish an essential medicine system, expand public health services, and reform the public hospitals. Eight strategies and

policies have been implemented, including human resource development, health financing reform, and reform of management systems and operational mechanisms of medical and health institutions.

China's current health system reform has made significant progress in establishing a universal medical insurance system and an equalized basic public health service system, strengthening the capacity of primary health-care institutions, establishing an essential drugs system and organizing public hospital reform pilots. These have laid a solid foundation for further deepening of the reform and achieving the overall goal of building a fully developed basic medical and health system covering urban and rural areas. Due to the complexity and systematic nature of health system reform and development, health system reform in China continues to face many challenges which require persistence and development. The major tasks of China's health reform in the future include: integrating and improving the social health insurance schemes; coordinating different components of the reform agenda; establishing an integrated and effective health-care delivery system; and speeding up public hospital reform.

## **6.1 Historical perspective**

China's health reform can be divided into the preliminary exploration period from the early 1980s and the deepening reform period from 2003 (Li B et al, 2014). These periods follow upon the years from 1949 to 1979, when China established a basic health system, laying the foundation for health reform and development.

### **6.1.1 Health system development (1949–1979)**

During its early years, the People's Republic of China patterned its economic and governance systems after the Soviet Union's socialist model. This featured replacement of private ownership with public ownership, a highly centralized planned economic system and the promotion of major economic and social projects by politicization and leaders' instructions. Within this big picture, the health system in China was subject to a highly centralized unified plan, management and development.

The first National Health Meeting in 1950 put forward three major principles in health system development in China – serving workers, peasants and soldiers; focusing on prevention; and integrating traditional

Chinese medicine with western medicine. The first principle emphasized that the recipients of health services were the people. The second gave the direction for health work amid extremely scarce resources and high prevalence of communicable diseases. The third principle emphasized the importance of using the resources of both traditional Chinese and western medicine. At the Second National Health Meeting in 1952, another policy was added to the list, calling for a combination of health work with mass campaigns; in other words, emphasizing promotion of public health through measures including social mobilization.

In constructing the health service delivery system, China focused on building rural and primary health-care institutions. By 1952, the coverage of county-level medical institutions had reached 90% of all counties. In 1953, sanitary and anti-epidemic stations (precursors of centres for disease control and prevention) were established at provincial, prefectural and county levels. At the same time, township health stations, collective clinics, private clinics, and private practitioners were set up with different modes (public-private partnership, united private and collective financing). In 1965, to tackle the problem of concentration of medical resources in urban areas, Chairman Mao instructed that there be a “shift [in] the priority of health work to the rural areas”, moving infrastructure development and medical staffing towards rural areas. As an important measure during this period, training of physicians to be “affordable in rural areas” was promoted; these were later known as barefoot doctors. Beds in township health centres as a proportion of beds in all medical and health-care institutions in township and town hospitals grew from 13% in 1965 to 35% in 1975 (Ministry of Health, 2005). Every village had at least one clinic and at least one barefoot doctor. A basic three-tiered health-care network (village clinics in rural areas and street hospitals in urban areas were the first level, township health centres in rural areas and district hospitals in urban areas the second, and county hospitals in rural areas and tertiary hospitals in cities the third level) mainly consisting of state and collectively-owned facilities was established to cover rural and urban areas.

According to the financial policies of this period, public hospitals, public clinics, anti-epidemic institutions, and other government-owned health-care institutions received government funds for construction and paying personnel, and were exempted from tax. Public hospitals and clinics had three sources of finance – government subsidies, user charges and drug mark-ups – among which user charges and drug price mark-up

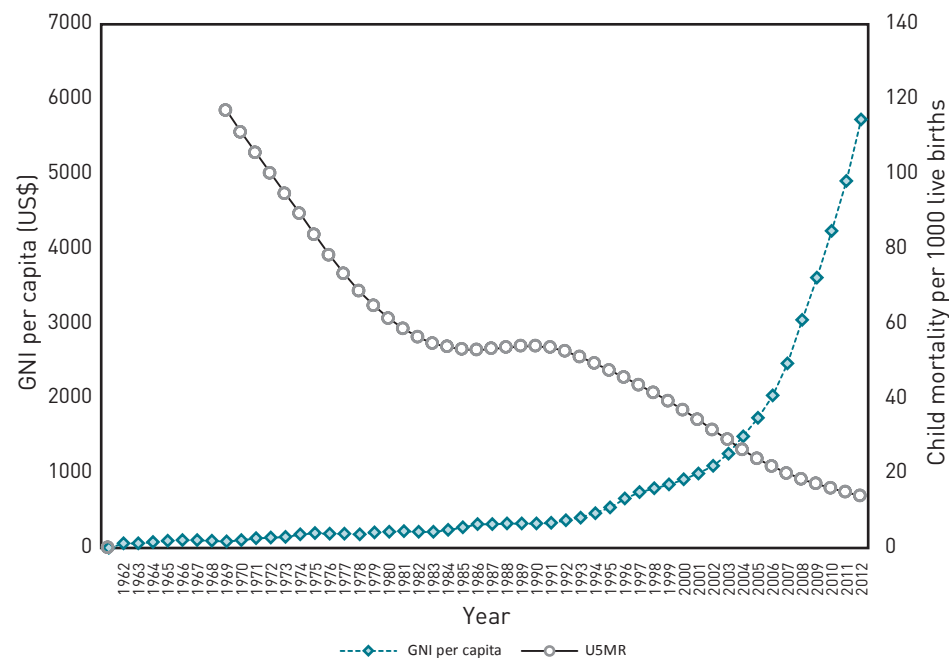
rates were under the control and regulation of government. The central government developed guidelines for the pricing of health services and provincial governments set prices of health services. Free services were provided to control communicable diseases with severe health consequences, for example, free universal cowpox (smallpox) vaccination and Bacillus Calmette-Guérin (BCG, for tuberculosis) from 1950, and free examination and treatment for schistosomiasis patients from 1966. Public health-care institutions had no autonomy to manage and use any financial surplus they gained from the user charges and drug mark-ups. Any surplus accrued by the public health providers was to be transferred to the local government.

China started to build its medical security system in the mid-1950s, which consisted of a rural cooperative medical scheme, government employee medical insurance scheme, and labour medical insurance scheme. The cooperative medical scheme (CMS) was a financing model based on mutual health assistance originally organized by rural residents in Shanxi and Henan in line with the national agricultural cooperation movement in the mid-1950s, and extended rapidly nationwide along with the growing collective economy. By 1962, CMS had covered almost 50% of administrative villages in China, and about 90% of administrative villages by 1976 (Zhou, 2002). CMS was mainly funded by farmers and the collective economy of villages and townships, and covered very basic medical services. The government medical insurance scheme was initiated in 1952, covering government employees, public institution employees and students at colleges and universities. Government funds were allocated, based on the authorized size of each department or institution, to cover the fees for outpatient and inpatient services. The labour medical insurance scheme was established in the early 1950s, covering employees working in state-owned enterprises and covering part of the medical expenses of their dependents, who could get reimbursement for 50% of their medical expenses. Funds for the labour medical insurance scheme were raised from the revenue of the enterprises, as part of the staff welfare fund based on salary level and proportions. Any deficit was covered by the enterprises themselves. The funds were earmarked for paying medical expenses only, utilized and managed by the enterprises themselves.

Under the circumstances of low economic development and scarce health resources, China managed to build a basic health service delivery and financing system and improve people's health greatly by

strengthening primary health organization and construction, emphasizing disease prevention, organizing large-scale mass health campaigns, and establishing a low-level wide-coverage urban and rural basic medical insurance system. Figure 6.1 shows the relationship between per capita GNI and under-five mortality rates from 1963 to 2013 in China, demonstrating huge success in child mortality reduction despite very low economic development before Alma Ata 1978.

**Figure 6.1    GNI per capital and child mortality rate in China**



Source: World Bank, World Development Indicators, 2014

### 6.1.2 Stages of health reform in China

China embarked on economic reforms in the late 1970s. The basic feature of the reforms was the transition from a planned economy to a market economy. The market-oriented reforms were implemented not only in the economic sector, but also significantly influenced other sectors including health. Between 1980 and 2002, the main issues in health system reforms were how to use market forces to support development of the health sector and how to minimize the negative impact of market mechanisms in financing healthcare. A series of events including the SARS outbreak and critique of past health development led to radical reform in health systems from 2003 onwards.

## **Preliminary exploration in health reform (1980–2002)**

The health system had some initial development before the reform and opening-up in 1978, but also had an accumulation of problems, including the low level of economic development and the Government's limited fiscal capacity, restriction on the entry of non-public resources into health care, the low level of technology, supply and quality of health services, weak capacity of sustainable development of health-care facilities, and suboptimal fulfilment of people's health needs.

Economic reform and opening-up imposed new requirements and brought new conditions for the reform and development of the health system in China. In this stage, health system reform was focused on adapting to the establishment of a socialist market economy, and stepwise exploration of rules for health development. The core of the reform included reform of the compensation mechanism for health-care facilities and development of health insurance systems.

In terms of reform of health financing policies, adjustment was mainly made to the subsidy mechanism for public health-care facilities. The key strategy was to increase user charges and drug mark-ups to finance the facilities.

Before 1978, more than 50% of public hospital revenues came from government subsidies. As a result of the impacts of the reform and adjustment in government input policies, only 30% of the revenue of public hospitals came from the government budget in 1980. In 1985, the State Council approved and forwarded the Ministry of Health's Report on Policy Issues in Health Reform. The core message of this policy document was "decentralization of power and benefits" and increasing financial autonomy of public hospitals, meaning that public hospitals could retain financial surpluses from user charges and drug mark-ups and have the autonomy to use those surpluses, and the public hospitals were granted the right to make decisions on expanding their reach, purchasing equipment, choosing service patterns, and setting bonus policies for their staff.

In 1989, the State Council approved and forwarded the multi-ministerial (including Health and Finance) Opinions on Several Issues Related to Expanding Health Services, which further specified the policies on medical service price reform and compensating health-care facilities through patient charges, emphasizing the central role of user charges in

financing public hospitals. In 1992, the State Council issued Opinions on Deepening Health System Reform, emphasizing that health-care facilities should “rely on government subsidies for capital investment, but rely on user charges and drug mark-ups for operational activities”. In this period of reform, the leading principle of the Government was to use revenues generated from user charges and drug mark-ups to compensate public hospitals, with the aim of improving working conditions in the public hospitals without increasing government subsidies.

The market-oriented financing reform mobilized more resources from users of health services and improved working conditions. However, due to lack of an effective health security system at that time, the financing mechanism led to escalation of medical costs and rapid increase of financial burdens of people who were sick, especially the poor. Along with the collapse of the rural collective economy, the rural CMS lost its economic foundation. Population coverage of the rural CMS decreased from 90% in 1970 to about 5% in 1985 (Zhou, 2002), and the medical insurance schemes for both labour and government employees experienced financial difficulties in providing the insured with a basic package.

OOP payment continued to increase, from 20.4% in total health expenditures in 1978 to 46.4% in 1995 (China National Health Development Research Center, 2014). These problems had become social concerns and caught the attention of central government. In December 1996, the Central Committee of the CPC and the State Council convened a National Conference on Health Reform and Development, and formulated the Decision on Health Reform and Development issued by the Central Committee of the CPC and the State Council in January 1997. The Decision put forward basic principles for health reform and development, which included the goal of serving the people, correctly handling the balance between social benefits and economic benefits, putting social benefits as the first priority, and avoiding the tendency to pursue economic benefits blindly over social benefits, ensuring equity in health sector development. It also clarified that government had critical responsibilities for health service development and that government would prioritize and ensure the provision and development of basic health services, and increase capacity-building of PHC organizations.

The Decision also announced the strong determination to re-establish the rural medical security system and deepen the reform of UEBMI.

As an overall document for the implementation of the Decision on Health Reform and Development issued by the Central Committee of the Communist Party of China and the State Council, the General Office of the State Council forwarded the Guiding Opinions on Urban Health System Reform by eight ministries (including the System Reform Office of the State Council and the Ministry of Health) in February 2000. For various reasons, particularly lack of an appropriate policy environment for reform, many of the proposed reform strategies and policies were not completely implemented, including re-establishment of the rural health security system and community health system strengthening. For example, even though the Government has tried to rebuild CMS through various methods including policy direction and financial subsidy, following the guideline in the reform document, under the socioeconomic development policies at that time, there was no broad consensus on CMS at the policy level, nor was there sufficient political and economic support for CMS. The Gross National Income of China was US\$ 1000 in 2001 and the fiscal capacity did not allow a major investment in health sector (World Bank, 2014). Therefore, the coverage of CMS remained at a low level sustained for a long period.

In 2002, the CMS policy saw a turning point. In October that year, the Central Committee of the CPC and State Council issued the *Decisions on Further Strengthening Rural Health Work*, requiring that by 2010, a rural health service delivery system and rural CMS be established for all rural areas in China as appropriate for the socialist market economic system and the socioeconomic development level in rural areas. It was clearly stated that a New Rural Cooperative Medical Schemes (NRCMS) with a focus on risk pooling for catastrophic diseases would be gradually established.

To address the problems in government and labour medical insurance schemes, central government started to introduce reforms of those schemes in 1993. The major problems included lack of risk-sharing mechanism, as funds were collected and pooled at the level of the individual work unit; and lack of effective regulation of the behaviour of the insured and the service providers, leading to escalation of medical costs and exclusion of many urban people from the schemes. In 1993, the Ministry of Labour issued *Opinions on the Reform Pilots of the Employee Medical Insurance Scheme* and launched pilots in Zhenjiang, Jiangsu and Jiujiang, Jiangxi by the end of 1994, the so-called *liangjiang* pilots. The *liangjiang* pilots specified the principle that the government,



employers and individual employees were to share medical expenditures, and established an insurance model combining social pooling with individual savings account. The fundraising and basic structure of the government-employee and enterprise-employee medical insurance schemes were very similar. In December 1998, the State Council issued the *Decision on Establishing the Urban Employee Basic Medical Insurance Scheme*, specifying the missions and tasks, basic principles and policy framework of the medical insurance reform, and initiating the national implementation of the UEBMI scheme.

At this stage, the total amount of physical and human resources for health was rapidly increasing, with significant advancement in health-care facility construction and technology, rising motivation among health-care professionals, and increased overall capacity for supplying medical services. User charges became a more important source of revenue than ever for health sector development. The reform of government-employee and enterprise-employee medical insurance schemes and issue of a policy by the central government in 2002 to launch the new CMS laid the foundation of further improving the basic health insurance system in China.

### **Deepening health reform (2003 to present)**

The outbreak of SARS was a harsh test for China's health system and its existing policies. SARS directly prompted reform of the health system. The central government and top decision-makers recognized the importance of health and health care as a result of the huge impact of the disease outbreak on social and economic sectors. It was believed that the health system could only be strengthened through radical reforms. In July 2005, *China Youth Daily* published the report of a study on health system reform in China by the Development Research Centre of the State Council, which concluded that previous health reforms in China had been unsuccessful in expanding health insurance schemes, increasing efficiency in the use of health resources, and strengthening the health-care delivery system. This report played an important role in pushing forward the new round of health reform through raising societal awareness of health issues. At the Third Plenary Session of the 16th National Congress of the CPC in 2003, the central government issued its new development concept, stating that development needed to "adhere to the people-centred path, establish a comprehensive, coordinated and sustainable development outlook, and promote all-round economic, societal and human development". It specified the direction of economic

and social development from GDP-dominated to a more comprehensive consideration of development aims including health. Besides the numerous challenges and social pressures facing the health system, the Chinese Government emphasized the harmonious development of economy and society, and stressed the people-centred governing philosophy as a major propelling force of health reform in this period. In addition, China was able to financially support the reform after decades of solid economic growth.

In September 2006, the Government established a multi-ministerial health reform coordinating team, co-chaired by the heads of the National Development and Reform Commission and the Ministry of Health. In October 2006, at the 35th group study of the Politburo of the Central Committee of the CPC, which is closely linked with key national development agenda, the then-CPC General Secretary, Hu Jintao, spoke on the health system reform, clarified the goals and direction of the health system reform and clearly put forward the establishment and improvement of a basic health system covering all Chinese citizens. At the beginning of 2007, the central government commissioned several academic institutions and international organizations to work on and provide reform proposals. Chinese scholars and international experts provided consultations for developing the reform agenda through various channels. A draft proposal that combined proposals from the institutions was publicly released through the Internet and other media to elicit comments and suggestions. Thousands of comments and suggestions for revising the reform document were received, reflecting wide consultation and citizen engagement.

In March 2009, the Central Committee of the CPC and the State Council issued *Opinions on Deepening Health System Reform*. The main goal of that document was to establish universal health coverage by 2020, and the basic tasks were to improve both preventive and clinical health delivery systems, to improve the social health security system, and to reform the essential medicines system. In order to achieve these, eight strategies have been designed and implemented, including human resource strengthening, health financing reform, and reform of the management system and operational mechanisms of medical and health-care institutions. In this new round of reform, it has clearly been defined that the basic health service system is a public good that should be equally accessible to all citizens, and the reform strategies of “ensuring basic services, strengthening the primary care system and building effective

operational mechanisms (*bao jiben, qiang jiceng, jian jizhi*)” have also been established.

This stage has also marked rapid development of the health-care delivery system in China. The strong economic in China should be noted: the GNI per capita was US\$ 3610 in 2009 (World Bank, 2014). Along with the development of basic medical insurance schemes, and the increased government input into the health system, health service demand and utilization have increased significantly, while health-care facilities have been further expanded. Owing to the effects of SARS, the state has focused on the construction of public health-care institutions and increased government investment. It can be said that this period is a golden age for the construction and development of public health-care institutions, and has witnessed fundamental changes in infrastructure construction, work conditions and other aspects of centres for disease prevention and control at county and higher levels, and a new look and function of China CDC.

In terms of building the rural medical security system, the State Council issued the *Guideline for Establishing New Rural Cooperative Medical Scheme* that was proposed by the ministries of health, finance and agriculture in January 2003. This policy document clearly announced that the New Rural Cooperative Medical Scheme would be organized, guided and supported by the Government, and voluntarily participated in by rural people. NRCMS would receive joint financing from government subsidies and individuals, as rural mutual assistance with a focus on risk-pooling to prevent catastrophic expenditures. Transfer payments from the central government are mainly made to less-wealthy provinces for supporting the schemes. The majority of government funding among wealthy provinces comes from provincial and county-level governments. Government subsidy accounted for about 80% of the total NRCMS fund, and the rest was from individuals’ premiums.

In 2003, pilots of NRCMS were launched in selected counties to test its feasibility and organizational operations in terms of collection of the premiums, design of the benefit packages, and fund management and payment. In January 2006, based on the experiences from the pilots, seven ministries (including the Ministry of Health and NDRC) jointly issued the policy document *Speeding up Expansion of the New Rural Cooperative Medical Scheme*. The document required local governments to expand NRCMS population coverage by improving the institutional design,

including premium collection methods, and design of the benefit package, by increasing government subsidies to NRCMS, and by strengthening the capacity of NRCMS administration and management. By end of 2008, about 91.5% of the rural population was covered by NRCMS (National Health and Family Planning Commission, 2014). Since 2009, NRCMS has been one of the priorities for the Government in its health reform agenda in terms of increasing government financial support and sustaining population coverage. Population coverage reached 98% of total rural population by end of 2012, and per capita funding increased from 42 yuan in 2005 to 308 yuan in 2012 (National Health and Family Planning Commission, 2014).

In 2007, the State Council issued the *Guiding Opinions on Launching Urban Residents Basic Medical Insurance Pilots* document as a guide for constructing the urban medical security system, based on the steady progress of UEBMI coverage and implementation. It proposed several basic requirements for the pilots of Urban Residents Basic Medical Insurance, including goals and principles, guiding philosophy, operational guidelines, and management to build up a basic medical insurance scheme for all non-employed urban residents (including children and senior citizens). The fundraising and management of URBMI is very similar to that of NRCMS, both of which are jointly financed by the state and individuals and aimed at minimizing the burden of catastrophic medical expenditure. The establishment of URBMI marked the establishment of a basic health insurance system covering the whole population of China. In 2012, UEBMI and URBMI covered 264 million and 271 million urban employees and residents, respectively, with per capita premiums of UEBMI 2574 yuan and per capita funding of URBMI of 401 yuan (National Health and Family Planning Commission, 2014).

In the *Decision on Major Issues on Comprehensively Deepening Reform* issued at the Third Plenary Session of the 18th National Congress of the CPC in 2013, a series of policies was proposed, including the integration of basic medical insurance schemes, coordinated advancement of comprehensive reform, and deepening comprehensive reform of PHC facilities. Table 6.1 summarizes the major health reform policies from 1985 to 2013.

**Table 6.1 Major health reform policies in China, 1985–2013**

Year	Title of reform documents	Issuing agencies (document serial number)	Key contents
1985	Report on Some Policy Issues Related to Health Reform	Report of Ministry of Health approved and forwarded by the State Council ( <i>Guofa</i> [1985] No. 62)	Loosening policy regulation, streamlining of administration and decentralization, raising funds from various sources; decentralization of power and benefits, increasing hospitals' autonomy.
1989	Opinions on Several Issues Related to Expanding Health Services	Report of Ministry of Health, Ministry of Finance, Ministry of Human Resources, State Price Bureau, State Administration of Taxation approved and forwarded by the State Council ( <i>Guofa</i> [1989] No. 10)	Actively promoting various forms of contract-responsibility system; facilities were allowed to generate revenue from extra-duty services; further adjusting health service charge standards; public health and preventive care institutions were allowed to generate revenue through user charges; health facilities were to "subsidize their main business with sideline production" and "support medical services with industry".
1992	Some Opinions on Deepening Health System Reform	State Council	It was emphasized that the health facilities were to "rely on the country for construction, and rely on themselves for operation". Health facilities were required to make new achievements in "subsidizing main business with sideline production" and "supporting medical services with industry"
1994	Opinion on the Reform Pilots of Employee Medical Insurance Scheme	National System Reform Commission, Ministry of Finance, Ministry of Labour, Ministry of Health ( <i>Tigai fen</i> [1994] No.51)	Health insurance funds were separated into individual accounts for medical insurance, work units medical insurance adjustment fund, social pooling for major diseases; proportions of the components were specified clearly.
1997	Decision on Health Reform and Development	Central Committee of CPC, State Council ( <i>Zhongfa</i> [1997] No.3)	Reform of urban employee medical insurance system; reform of health administration system; actively promote regional health planning; actively develop community health services; reform health operating mechanisms of facilities; actively and steadily develop and improve the cooperative medical scheme; improve the three-tier rural health service network; consolidate and elevate rural primary health workforce; reinforce the construction of preventive care institutions; adjust and strengthen regulation of pharmaceutical logistical distribution.

**Table 6.1 Major health reform policies in China, 1985–2013 (Cont.)**

Year	Title of reform documents	Issuing agencies (document serial number)	Key contents
1998	Decision on Establishing Urban Employee Basic Medical Insurance Scheme	State Council ( <i>Guofa</i> [1998] No.44)	Policies were specified in terms of inclusion eligibility, premium levels and methods of premium collection, fund management, service package and expenditure control
2002	Decision on Further Strengthening Rural Health Work	Central Committee of CPC, State Council ( <i>Zhongfa</i> [2002] No.13)	By 2010, it was required that a rural health service delivery system and rural cooperative medical scheme that suited the rural economic and societal development level be basically established nationwide; the New Cooperative Medical Scheme focusing on risk pooling for major diseases was required to be gradually established.
2003	Opinions on Establishing New Rural Cooperative Medical Scheme	Ministry of Health, Ministry of Finance, Ministry of Agriculture ( <i>Guoban fa</i> [2003]No.3)	Specifying the basic principles and approaches of establishing NMCS, including fundraising, fund management, service package, etc.
2006	Announcement on Speeding up Piloting for New Rural Cooperative Medical Scheme	Seven ministries including Ministry of Health, National Development and Reform Commission, Ministry of Civil Affairs, Ministry of Agriculture.	Requiring expansion of pilots; strengthening government support for funding and management; proposing the goal of achieving nationwide implementation of NRCMS by 2008.
2006	Guiding Opinions on Developing Urban Community Health Services	State Council ( <i>Guofa</i> [2006] No.10)	The document developed the guiding philosophy, basic principles and targets in developing community health services, promoted guidance on establishing community health services system, improving policies and measures on developing community health services.
2007		State Council ( <i>Guofa</i> [2007] No.20)	Basic requirements including goals, principles, guiding philosophy, operational guidelines and management.
2009	Opinions on Deepening Health System Reform	Central Committee of CPC, and State Council ( <i>Zhongfa</i> [2009] No.6)	The document proposed short-term targets in effectively alleviating economic burden in seeking care and the problem of “difficulty and expense in seeking care”; the long-term goal of establishing and improving the basic health system covering both urban and rural residents; and principles and policies on building four systems and implementing eight strategies.

**Table 6.1 Major health reform policies in China, 1985–2013 (Cont.)**

Year	Title of reform documents	Issuing agencies (document serial number)	Key contents
2009	Implementation Plan of Main Areas of Health System Reform in the Near Future (2009–2011)	State Council [Guofa [2009] 12]	Five major reform areas (basic medical security system, national essential drugs system, primary health delivery system, equalization of basic public health services, public hospital reform) and their targets, requirements and policies.
2011	Guiding Opinions on Establishing a General Practitioner System	State Council [Guofa[2011] No.23]	Proposing guiding philosophy, basic principles and overall target in establishing a GP system; specifying policies and measures on the education and training system of GPs, their way of practice, etc.
2012	Planning and Implementation Plan of Deepening Health System Reform during “the Twelfth Five-year Plan”	State Council [Guofa [2012] No.11]	Announcing the goal of health development by 2015; announcing the targets, requirements and policies on the four major areas of reform (prompting the improvement of universal coverage of medical security system, consolidating essential drug system and the new operational mechanism of primary health facilities, actively prompting public hospital reform, promoting reform in related areas in a coordinated manner).
2013	Opinions on Consolidating and Improving Essential Medicine System and New Operating Mechanism	General Office of the State Council [Guobanfa [2013] No. 14]	The document announced consolidation of the essential medicines scheme, deepened comprehensive reform of the administrative system, compensation system, pharmaceutical supply, personnel affairs and payroll distribution, and so on; improvement of performance evaluation system; strengthening of construction of primary health service delivery system.
2013	Some Opinions on Promoting Health Service Industry	State Council [Guofa [2013] No. 40]	Basic principles, goals, main objectives and policy measures were specified for promoting the health service industry.

Source: summarized by the authors

**6.2 Analysis of recent reforms**

Over the past few years, health system reform in China has focused on five major areas: the social health security system, the health delivery system, essential medicines policy, universal coverage of essential public health care and public hospital sector reform.

### **6.2.1 Reform of the social health security system**

The social health security system in China consists of three basic medical insurance schemes (NRCMS, UEBMI and URBMI), as well as the medical assistance fund. The NRCMS and UEBMI were significantly developed before launch of the more comprehensive health reform in 2009. The main tasks of the reform have been to further improve these schemes in terms of institution-building and operational mechanisms.

Even though NRCMS population coverage reached a high level before the reform, many challenges threatened its sustainability. Central and local governments' continued subsidization of the scheme needed to be institutionalized. Cost escalation resulting from the introduction of NRCMS needed to be controlled through innovative payment systems which send signals to health-care providers on efficient use of health resources, and other mechanisms for maintaining the financial balance of the scheme. Expansion of the health-care package to further minimize catastrophic medical expenditure and improve health care quality are also the central issues for further NRCMS reform.

The urban health insurance schemes also need improvement. Inclusion of (former) employees of bankrupt enterprises and controlling the rapid increase of medical costs are two major issues. URBMI started in 2007, and expanding its population coverage and effective delivery to the insured are key concerns. Another cross-cutting issue is portability of insurance coverage for the floating population in the light of rapid urbanization and migration.

Reform of the basic medical insurance system has largely taken place in the following aspects.

- **Expansion of coverage of the medical security schemes.** The main reform measures between 2009 and 2011 were to continue the increase of Government input, with a focus on enrolment of underprivileged elements of the population. First, under Government financial support, enrolled retired workers of bankrupt state-owned enterprises and employees of enterprises in difficulty were included in UEBMI, expanding coverage to 8 million people; second, URBMI was promoted nationwide, mainly to address the lack of medical insurance of senior citizens, the handicapped and children; third, policies were developed concerning the portability of medical insurance enrolment, to ensure continuity of coverage to the migrant



population including migrant workers who have travelled across regions and across different insurance schemes; fourth, coverage of the urban and rural medical assistance fund which targets the poor population with financial support from the Government, was extended to all poor families across the country. In 2012 and 2013, on the basis of high population coverage of medical security schemes, the main reform task was to consolidate and expand scheme coverage. Major actions taken included continuing the increase in government input and strengthening the medical assistance for the poor. Specific measures were taken to enrol key population groups including rural migrant workers in urban areas, employees in informal economy sector, flexibly employed people, as well as students and preschool children.

- **Increasing the reimbursement rate of medical insurance schemes.** The reimbursement level for enrollees was to be boosted by measures including increasing medical security funds and restricting the proportion of surplus in insurance funds. The standard of subsidization for NRCMS for each enrollee was 120 yuan in 2010, rising to 240 yuan in 2012 and 280 yuan in 2013. The surplus of the NRCMS fund each year is to be kept under 15% of total revenue from premium and budget subsidies, because the NRCMS fund was not sufficiently tapped to cover the necessary benefits in the early stage of NRCMS in many rural counties. The Medical Assistance Fund would pay the premium on behalf of the poor people, low-income patients with severe illness, severely handicapped people and senior citizens from low-income families, to further reduce their economic burden in seeking care.
- **Expansion of service coverage of medical security schemes.** The benefit package of medical insurance schemes has been extended from inpatient services to also cover outpatient services. In addition, 20 catastrophic diseases including child leukaemia, uraemia and breast cancer were added to the package.
- **Introduction of catastrophic medical insurance.** In August 2012, the central government decided to launch a financial protection mechanism targeting rural and urban residents facing catastrophic medical expenditures. Funds for this scheme are from the NRCMS and URBMI, implying that a proportion of NRCMS and URBMI funds are allocated to the catastrophic insurance mechanism. At least 50% of the medical expenditures should be covered by this scheme and number of catastrophic diseases is to be expanded gradually,

according to the policy. Unlike NRCMS and URBMI schemes which are administered by government offices, commercial insurance companies manage the catastrophic medical scheme. The catastrophic medical scheme is currently being piloted in rural and urban areas.

- **Payment reforms.** From 2009 to 2011, policies were announced concerning provider payment reform; simplification of patient claim procedures for reimbursement under the fee-for-service method; and solving the problems related to the medical claims of migrants, mainly to control expenditure and to make care-seeking more convenient for people. In 2012, payment reform was reinforced, encouraging adoption of alternative payment methods instead of fee-for-service (including capitation, case-based payment, and diagnosis-related groups [DRGs]). In the NRCMS, the case-based payment method, capitation and global budget have been implemented, while UEBMI has piloted DRG and capitation methods.

These reforms in 2009 have helped make the three health insurance schemes more financially sustainable, built capacity in scheme management, and brought payment system reforms. Health-care utilization among the insured has increased as a result of the schemes. However, cost escalation of medical care closely associated with the insurance schemes has not been well contained.

### **6.2.2 National essential medicines system**

Drug expenditure has been a major concern in the Chinese health system. In 2008, 51.3% of outpatient spending and 43.5% of inpatient spending were on medicines (National Health and Family Planning Commission, 2014). The reliance of health facilities and providers on drug mark-ups for revenue generation have been strong incentives to prescribe more and more expensive drugs to the patients, burdening insurance funds or patients through co-payments. Unnecessary prescriptions result in both wasted health expenditures and harmful consequences for the patients. The Government had taken a number of measures to address the above issue before 2009. However, health provider prescription behaviour and drug expenditures have not significantly improved. One of the major reforms in essential medicine policy is to cut the linkage between drug prescriptions and revenue generation of health facilities, in order to promote rational use of cost-effective drugs.

- **Establishing and improving the selection and adjustment mechanisms for the national list of essential medicines.**

Mechanisms have been established so that the national list of essential medicines is regularly adjusted and updated. In 2012, additions to, and regulation of, the drug catalogue were based on the experience of using the 2009 version of the essential drugs list. The 2012 version of the National Essential Medicines List was generated to satisfy the need for medicines at PHC facilities.

- **Drug procurement mechanism reform.** According to Government policy in 2009, public health-care facilities were to use essential medicines, to be procured through public bidding by special institutions designated by provincial people's governments, and centrally distributed by the dispatching enterprises chosen from the bidding process. Provincial governments set central procurement prices for essential drugs in their provinces according to the results of bidding, within the range of guiding prices set by the state. In 2012, the procurement mechanism for essential drugs was further reformed and policies on linking the amount of drug procurement with prices and prioritization of quality with concern for prices were implemented, among others.

In terms of the use of essential drugs in primary health facilities, between 2009 and 2011, the policy was promoted that government-sponsored PHC facilities would sell essential medicines at procurement price without mark-up. All retail pharmacies and health-care facilities were required to purchase and sell national essential medicines. The basic medical insurance schemes included all essential medicines in the pharmaceutical reimbursement catalogue, with higher percentages of reimbursement than non-essential medicines. In 2012, on the basis of implementation of zero mark-up for selling essential medicines at township and community health-care facilities, zero mark-up sales of essential medicines was launched at village clinics, with policies implemented to compensate village doctors. In 2012, it was proposed that the mechanism of government purchasing services would be used to encourage nongovernmental PHC facilities to implement zero mark-up policies in selling essential medicines.

### ***6.2.3 Reform of the operational mechanism of primary health-care facilities***

PHC facilities have been facing a number of challenges in development and operation. Heavy reliance on drug revenues for operations has

negatively influenced the provision of cost-effective services to communities. Establishing a reasonable financing mechanism for PHC providers by removing incentives to charge mark ups on drugs and increasing government subsidies is a key reform issue. In addition, both physical and human resources need to be strengthened for PHC facilities.

- In terms of **strengthening the PHC facility system**, the main reform goals from 2009 to 2011 were to improve the three-tier (county, township and village) rural health service network, develop urban and rural PHC facilities including rural health-care facilities and urban community health-care institutions, and support construction of village clinics in remote areas and community health centres in urban areas experiencing difficulties. In 2012 and 2013, intensified development of township health centres was continued, with capacity-building strengthened for TCM services at PHC facilities.
- **Development of human resources for PHC facilities.** Between 2009 and 2011, free training programmes for health professionals oriented toward PHC facilities were launched. In 2011, the State Council issued the Guiding Opinions on Establishing a General Practitioner System, announcing clear policies on the education and training system for GPs, pattern of practice and other aspects. In 2012, it was further announced that human resources development, with particular focus on GPs, would be strengthened, while free education programmes for medical students oriented towards health centres in central and western areas would be continued. In service training the existing workforce is regarded as a key element of capacity-building for health. Between 2009 and 2013, governments at all levels provided financial support and organized various forms of in-service training courses. In addition, policies on establishing twinning partnerships between urban hospitals and rural counterparts have been implemented, which requires all tertiary hospitals in urban areas to provide long-term technical assistance to about three county-level hospitals in rural areas, in order to enhance the service capacity of those hospitals.
- **Financing mechanism for PHC facilities.** It has been announced that government subsidy and service charges (including reimbursement from medical insurance schemes and compensation for public health service) would be the main sources of financing for PHC facilities. The most important reform policy was that pharmaceutical price mark-up is no longer a major channel of financing for PHC facilities. The government takes the responsibility for infrastructure,

procurement of equipment and personnel costs (approved according to a national standard) of government-sponsored township health centres, urban community health centres and stations, and for the operating costs of public health services undertaken by the facilities, according to activities and services provided by those health providers. For nongovernmental PHC facilities, public health services are compensated through service purchase by government or basic medical insurance schemes. In 2013, reforms of financing mechanisms started to emphasize compensation for village doctors, clearly defining the share for village doctors in the public health compensation fund, and announcing that the implementation of the zero mark-up policy would be compensated by public finance.

- **Operational mechanism of PHC facilities.** Reform included implementation of a two-way referral system, a PHC facility gatekeeping system, and a performance evaluation mechanism for PHC facilities and personnel. In addition to referral of patients from primary health providers to upper-level health providers, the government also calls for referral of patients from upper to lower-level health providers. Performance evaluation usually includes indicators of volume of health services provided, quality of health care, and patient satisfaction.

As a result of the reforms, drug mark-ups are no longer a source of finance for PHC facilities and providers, which is a radical change in health financing policy. Governments allocate subsidies to compensate health-care facilities. The infrastructure of PHC facilities is improving. The problem that has not been well addressed in the reform is the capacity of human resources in PHC facilities. The incomes of primary health workers did not increase significantly during the reform in relation to health staff in hospitals, which affects their motivation to continue work at PHC level. Health workers become reluctant to provide medical services to people because they cannot generate revenues from those services as they did before.

#### ***6.2.4 Building institutions for equalization of basic public health services***

A key goal of health reform in China has been to promote universal coverage of equalized basic public health services in a stepwise manner, with the basic objective of “unification of urban and rural subsidy, gradual elevation of subsidy level, and continuous expansion of the service package”. The system of equalization of basic public health services consists of two types of services, namely the basic public health service

programme and the major public health programme. The main aim of this reform is to close the gaps in population and service coverage of public health care between rural and urban areas, between wealthier and poorer regions, and between rich and poor people. Most of the public health interventions are cost-effective; delivering those services to all people can bring health improvements. Government takes full financial responsibility for the selected public health intervention.

Even though population coverage of public health interventions and programmes has reached a high level (e.g. coverage of the expanded programme of immunization is 95% and above), some people are still excluded and the quality of the services needs to be improved. In 2008, the number of antenatal visits per childbirth was 8.7 in cities, yet just 4.3 in rural areas (Ministry of Health, 2009b). The poor and people in remote rural areas are more exposed to the major public health threats, including cancer and tuberculosis. Increasing provision of public health services with an institutionalized financing mechanism would address inequality in coverage of public health interventions.

- **The basic public health service programme.** A national basic public health service programme has been established with services provided to all people with full financial support from the Government. The basic public health care included in the programme is free for all people. The central government supports the provision of basic public health services in economically underdeveloped areas through fiscal transfer from central budget. The package of basic public health services is defined by relevant departments and a national public health expert panel, considering cost-effectiveness, health impact, level of financing and other factors. The range of service items will expand along with the increase in funding. Currently, the service package covers 42 services in 11 categories including family health records, MCH care, planned immunization, health services for the aged, prevention and management of NCDs and health education. The level of funding for basic public health services increased from 15 yuan per capita in 2009 to 25 yuan per capita in 2011 and 30 yuan per capita in 2013. About 40 billion yuan was allocated to the basic public health programme, accounting for 6% of the total government health expenditures in 2013 (China National Health Development Research Center, 2014).
- **Key public health programmes.** Besides the basic public health care to all people, the Government supports provision of selected key

public health programmes on the basis of existing major public health problems. The package of key public health programmes has been extended since 2009 and now includes free TB and AIDS services, hepatitis B virus immunization for those under 15 years of age, elimination of harm due to fluorosis caused by coal-burning, preterm folic acid supplement for rural women preparing for and during early pregnancy for prevention of birth defects, vision restoration for poor cataract patients, and improving drinking water and lavatories in rural areas.

The public health equalization programme has secured government subsidy for a package of public health interventions for all people. Even though it accounts for a small proportion of total government health expenditure, it has continued to grow and has shown a significant change in distribution of public funding in the health sector. This programme is crucial for the vulnerable people who need the services but cannot afford them.

### **6.2.5 Public hospital reform**

Public hospital reform has been a key area of health system reform in China as it consumes a large proportion of health resources, and is a very difficult area of reform. Public hospitals dominate provision of both outpatient and inpatient care with a mixed funding mechanism of government subsidy through the three basic health insurance systems, user charges, and drug mark-ups. The sector has been criticized for its profit-seeking behaviour. Tertiary hospitals have rapidly expanded with rising prices of services, diagnostics and medicines. Basic curative services and drugs are inadequately provided by public hospitals because those services and drugs are not profitable. Low utilization of basic drugs is an example of this behaviour. Fee-for-service has been the payment method that leads to excessive and unnecessary provision of medical services, diagnosis and drugs. Public trust in public hospitals is low. Policy is also unclear on the use of nongovernmental investments in public hospital sector.

Reform measures have covered the main aspects as follows.

- **Rural county public hospital reform pilots.** Since 2012, the central government has selected more than 300 county-level public hospitals to pilot reforms, with major measures including: (1) Reform of payment mechanism: reducing the three channels of public hospital payment to two – service charges and government financial subsidy

– and eliminating drug mark-ups. This reform means that the government needs to allocate additional funding to fill the financial gaps when drug mark-ups are removed. Under this arrangement, local governments including provincial and county governments need to allocate extra subsidies for the hospitals' financial survival;

(2) Adjusting pricing policies: increasing the prices of professional services provided by health workers and reducing the price of high technologies for diagnosis and treatment, aiming to generate incentives to hospitals to provide cost-effective medical services;

(3) Use of social health insurance schemes to influence the behaviour of health-care providers regarding medical spending and quality of care by using alternative payment methods.

- **Urban public hospital reform pilots.** Reform policies and measures similar to those taken in rural county hospitals have been piloted in 17 selected urban cities since 2010. The main reforms include removal of the drug mark-ups from public hospital financing and adoption of alternative payment systems including case-based payment method, capitation and global budget.
- **Encouraging nongovernmental investment in the hospital sector.** In 2012, the central government announced that development of nongovernmental health-care facilities would be further strengthened, with detailed policies including a requirement for local governments to issue detailed policies to encourage social capital in sponsoring medical services.

Public hospital reform in China is on the way. The impact of these reforms on the behaviour of the hospitals has not been systematically assessed on a nationwide basis, but they are central to the Government's health reform agenda.

### ***6.2.5 Mechanisms to ensure implementation of health reform in China***

In order to ensure the implementation of health reform, a series of measures have been taken in China. The major measures are as follows.

- **Establishing an organizational and leadership system.** A cross-ministerial State Council Leading Team for Deepening Health System Reform has been established in each province (autonomous region and municipality directly under the central government) to coordinate health reform in various sectors.
- **Establishing target responsibility and performance evaluation systems.** In the annual health reform work planning, health reform



tasks are specified for all line ministries at national level, with results monitored and evaluated. The State Council Leading Team for Deepening Health System Reform signs a responsibility agreement with the provincial-level Leading Team for Deepening Health System Reform annually, with specified health reform tasks for the year, followed up by monitoring and evaluation of results on completion of tasks. An information system has also been set up to monitor health reform implementation, with periodic assessment and evaluation of key indicators.

- **Ensuring financial input.** In order to implement reform, the Government has direct additional funding for health, on top of existing input for health, which has been maintained. Additional funding from central government has mainly been directed towards economically underdeveloped regions.
- **Awareness-raising and guidance.** Various media have been used for public communication to explain the reform policy, and to share lessons on health reform and the like so that society has a clearer understanding of health reform, promoting the willingness of citizens and groups to participate.

### 6.3 Future developments

Since launching the latest health reforms in 2009, China has made significant progress on the establishment of a universal medical insurance system and an equalized basic public health service system, strengthening the capacity of PHC institutions, establishing an essential drugs system and organizing public hospital reform pilots. These actions have laid a solid foundation for further reform and achieving the overall goal of universal health coverage by 2020.

Due to the complex nature of the issues, health system reform in China is faced with many challenges, which require persistence and development, as well as continuous improvement of reform policies in response to newly emerging issues and effective implementation.

In building basic medical security schemes and an equalized basic public health service system, China has achieved universal population coverage, although there remains much to be done in terms of service coverage and financing. The variations in terms of financing and service provision among the three urban and rural basic medical insurance schemes need to be reduced through bridging and ultimately unifying the schemes. Although equalization of basic public health services has provided

equal amounts of funding for urban and rural residents, the quality of public health services and resources in remote rural areas is still underdeveloped, which means it will take more time, effort and reform to realize equalization of services in the true sense. Considering the huge size of the migrant population and the accompanying rapid urbanization process, China needs to think about how to adjust the medical security system and service delivery system to realize coordinated urban and rural development. Public hospital reform has been initiated, but still lacks a substantial breakthrough – this is a key area for health reform in the future. Future public hospital reform needs more consideration of health-service delivery, and reform within the framework of system building and development. Health industry development and the realization of plurality in the funding of medical services are also important directions for the future.

China will continue to face challenges in health and demographic transitions in the future. Rapid population ageing and the high prevalence of NCDs require a more effective health system, catering to the emerging needs for health care and social care in a rapidly ageing society. Beyond the health sector, making income distribution more equal, providing better education to children, and improving environmental quality are fundamentally important for addressing health challenges. With a vision of universal health coverage by 2020, the Chinese Government has prioritized its health reform agenda in the following major areas.

- **To establish an integrated and effective social health security system.** The three basic health insurance schemes need to be harmonized and integrated in order to achieve equity in both financing and health care services, more cohesive connection between medical insurance and the Medical Assistance Fund, and portability and continued coverage for the floating population. The social health insurance schemes will be further consolidated and improved, including maintaining enrolment rates, increasing funding support, enhancing benefit levels, reforming the payment systems, and establishing catastrophic disease protection mechanisms for all people.
- **To coordinate different components of the reforms.** Health system reforms consist of several components including health insurance, medical service delivery, public health interventions, drug supply and the regulatory system. In the future, more attention will be given to making these components more coordinated. Coordinated

advancement of health reform will ensure the achievement of the overall goal of a basic health system covering both urban and rural residents.

- **To establish a people-centred and primary care-focused health-care delivery system.** Comprehensive reform of PHC facilities so that they can effectively address chronic NCD needs to be deepened, and operational mechanisms of urban and rural PHC networks need to be improved. The tiered referral system will be rationalized and improved, and a contract-based service relationship between community doctors and residents will be established. Information technology will be fully harnessed, while vertical mobility of quality health-care resources will be encouraged from higher-level facilities to primary level. Regional integration of resources for public health services will be reinforced. One major task is to include establishing a health-service delivery system with specified functions, defined positioning and coordinated actions, so that all levels and types of health-care facilities can play their role. In order to achieve this, health-service delivery needs to be integrated, including integration of the medical and public health service institutions and regional vertical linking and integration of health-care facilities, in order to enhance the capacity of the entire system to address major health challenges.
- **To speed up public hospital reform.** Public hospital reform needs to focus on financing mechanisms and payment systems, and on aligning incentives for staff toward efficiency. Reducing or removing drug mark-ups in the financing of public hospitals can be continued with increasing budget support from the Government. The behaviour of doctors towards drug prescription will change if the revenue linkage with drug sales is cut. In the meantime, social health insurance schemes can use their purchasing power to adopt innovative payment systems that control cost escalation.
- **To strengthen human resources for health and the health information system.** The quality, structure and distribution of human resources for health have always been the most important factors that restrict health service provision. Reforms will focus on improvements in the medical resident training system, an education and training system for GPs, and stabilization and retention of the rural health workforce. For the health information system, the focus of reform is to establish a unified information system through which health information can be widely shared by different types and levels

of health-care providers for facilitating provision of continued and effective health services.

- **To encourage nongovernmental investment in health care, with a priority on supporting non-profit health-care facilities.**

Nongovernmental investment is an important source of resources for the health sector which can be used for meeting different levels of need. The Government needs to develop further policies and regulations to specify the role of government and non-government health-care facilities, financing mechanisms for the different types of facilities, and how those health-care providers can work together to achieve health coverage for all.

## 7 Assessment of the health system

### Chapter summary

The health services of China adhere to the tenet of serving the people's health, and have universal entitlement to basic health care services as their fundamental guiding aim and outcome. The new round of health reform of 2009 relies on the basic principles of “ensuring basic services, strengthening primary health care and building effective mechanisms (*bao jiben, qiang jiceng, jian jizhi*)” to advance key reforms through overall coordination, with a focused and stepwise approach. The basic medical security systems covering urban and rural residents have been established, as have the state's essential medicines system and the primary health care delivery systems covering both urban and rural areas.

Equity of public health service provision has steadily improved, and the pilot reform of public hospitals has been actively promoted. As a result, universal health insurance coverage has been achieved, with a large increase in the level of financial coverage and significant improvement in the accessibility and utilization of health care. The health service has also made progress in efficiency and health outcomes. The transparency of the health system has been enhanced, and patient satisfaction with the health system has improved. Equivalence with middle-income developed countries in population health status has been achieved. However, the rate of increase in health expenditure, as well as its proportion relative to household disposable income, remains at a relatively high level. Disparities still exist in health financing, insurance coverage and health service utilization between urban and rural areas, regions of different income levels, and also between eastern, central, and western China, prompting policy-makers to further minimize the gaps.

### 7.1 Stated objectives of the health system

The objectives of health reform and development at different stages have reflected the goals of the Chinese health system, in which the balance between equity and efficiency is the core value. In 2009, the Central Committee of the CPC and the State Council issued the *Opinions on*

*Deepening Health Reform*, which highlighted adherence to the tenets of serving the people's health, safeguarding people's health as the core, and universal entitlement to basic health-care services as the fundamental aim and outcome. It also declared the establishment of the basic health-care system covering both urban and rural residents, providing people with secure, efficient, convenient and affordable health-care services.

By 2020, basic health-care systems will cover all citizens in urban and rural areas. The *Opinions* suggested that there would be, across the country:

- fairly complete public health and medical service systems
- a comparatively sound medical security system
- a secure and relatively well-regulated pharmaceutical supply system
- a comparatively sound management and operational system for health-care institutions
- a pluralistic health-care system with universal access to basic health-care services
- that the multi-layer demands of the people for health-care services would basically be met
- that the health status of the people would be further improved.

In 2008, the State Council leadership group for deepening medical and health system reform was established and coordinated the implementation of the reform. In accordance with the basic principles of ensuring basic coverage and strengthening primary health care units, the policies have been implemented and the system improved, with Government input increased. Since 2009, when the reform was initiated, remarkable progress and preliminary results have been achieved (more details in chapter 6).

## **7.2 Financial protection and equity in health financing**

In 2012, China had reached universal coverage through three basic health insurance systems. The UEBMI covered a total of 256 million people nationwide, and per capita funding reached 2308 yuan; the NRCMS covered 807 million rural residents, and funding per capita was 305 yuan; the URBMI covered 271 million people, with per capita funding of 334 yuan (National Health and Family Planning Commission, 2014). According to the National Health Service Surveys conducted in 2003, 2008 and 2011, medical insurance coverage increased from 29.7% in 2003, to 87.9% in 2008, and finally to 95.7% in 2011.

With the increasing level of financing and government subsidies, the level of financial risk protection has greatly improved. All three basic medical insurance schemes cover inpatient services, with the average reimbursement ratio increasing from 14.4% in 2003, to 35.2% in 2008, and to 46.9% in 2011. A leap of 10.5% was observed in western regions from 2008 to 2011. However, disparities still exist between urban and rural regions, as well as between eastern, central, and western China (Table 7.1). NRCMS increased the depth of financial coverage for catastrophic conditions. Since 2010, pilots including coverage for childhood leukaemia and congenital heart diseases in rural areas have been launched. By the end of 2011, treatment of six more catastrophic conditions was included: end-stage renal disease, breast cancer, cervical cancer, severe mental illness, AIDS-opportunistic infections and multi-drug-resistant pulmonary tuberculosis. Twelve additional illnesses entered the benefit package for NRCMS from 2012 including haemophilia, chronic myeloid leukaemia, cleft lip and palate, lung cancer, oesophageal cancer, gastric cancer, Type 1 diabetes, hyperthyroidism, acute myocardial infarction, cerebral infarction, colon cancer, and rectal cancer, further deepening financial risk protection for members.

Financing pools at municipal level for UEBMI and URBMI, and at county level for NRCMS, have led to regional variations across the three insurance schemes on deductibles, co-payments, ceilings, and drugs and medical services reimbursable. For instance, there are more than 2000 reimbursable drugs for the UEBMI and URBMI, but merely 400 items for the NRCMS (Meng and Tang, 2013). The breadth of benefits of basic medical insurance is relatively high, for example over 60% for families benefiting from NRCMS, as it covers both inpatient and outpatient fees (Table 7.2); those not benefiting are primarily people not utilizing health services.

With the development of medical insurance coverage, economic obstacles to accessing health-care services have been reduced significantly. The prevalence of self-discharge for financial reasons dropped from 63.6% in 2003 to 35.0% in 2008, and to 28.0% in 2011. The ratio reduced by 11.9 and 9.1 percentage points from 2008 to 2011 in the eastern and western regions, respectively (Table 7.1).

Although the medical insurance coverage and protection level has greatly improved, the proportion of households with catastrophic health

**Table 7.1 Changes in financial risk protection**

	2003	2008	2011	Annual rate of change (%)*	
				2003-08	2008-11
Health insurance coverage [%, 95% CI]					
All	29.7 (29.6-30)	87.9 (87.8-88.1)	95.7 (95.5-95.8)	22.8	2.8
Rural	21.0 (20.9-21.3)	93.0 (92.9-93.2)	97.4 (97.2-97.5)	31.3	1.5
Urban	55.2 (54.8-55.6)	73.5 (73.1-73.9)	90.9 (90.4-91.3)	6.0	7.1
Western	27.3 (27.0-27.6)	90.3 (90.1-90.5)	96.6 (96.3-96.8)	25.2	2.2
Central	22.9 (22.5-23.2)	82.2 (81.9-82.6)	94.4 (94.0-94.7)	27.0	4.6
Eastern	38.9 (38.5-39.3)	90.0 (89.7-90.2)	95.7 (95.4-96.0)	17.7	2.1
Inpatient reimbursement rate [%, 95% CI]					
All	14.4 (13.7-15.1)	35.2 (34.6-35.8)	46.9 (44.7-49.1)	18.8	9.6
Rural	5.8 (5.2-6.4)	32.9 (32.3-33.6)	43.7 (40.7-46.7)	36.4	9.5
Urban	34.5 (32.8-36.1)	41.6 (40.2-42.9)	54.6 (52.4-56.7)	3.9	9.0
Western	12.0 (11.0-13.0)	37.4 (36.5-38.3)	51.2 (49.4-53.0)	23.6	10.5
Central	12.3 (11.0-13.6)	32.1 (31.1-33.1)	41.2 (34.6-47.6)	20.2	8.3
Eastern	19.2 (17.8-20.6)	35.3 (34.2-36.4)	46.8 (44.7-49.0)	12.8	9.4
Self-discharge for financial reasons [%, 95%CI]					
All	63.6 (61.8-65.5)	35.0 (33.5-36.6)	28.0 (25.5-30.5)	-12.5	-7.5
Rural	67.0 (64.9-69.1)	36.6 (34.8-38.4)	28.3 (25.4-31.4)	-12.7	-8.6
Urban	52.8 (48.8-56.7)	29.2 (26.0-32.5)	27.0 (22.0-32.0)	-12.5	-2.6
Western	64.3 (61.6-67.1)	39.7 (37.3-42.4)	30.2 (26.1-34.2)	-10.2	-9.1
Central	65.5 (62.1-68.9)	34.5 (31.8-37.2)	31.1 (27.9-35.3)	-13.5	-3.5
Eastern	60.2 (56.5-64.0)	27.1 (24.1-30.2)	19.0 (14.4-23.5)	-16.8	-11.9

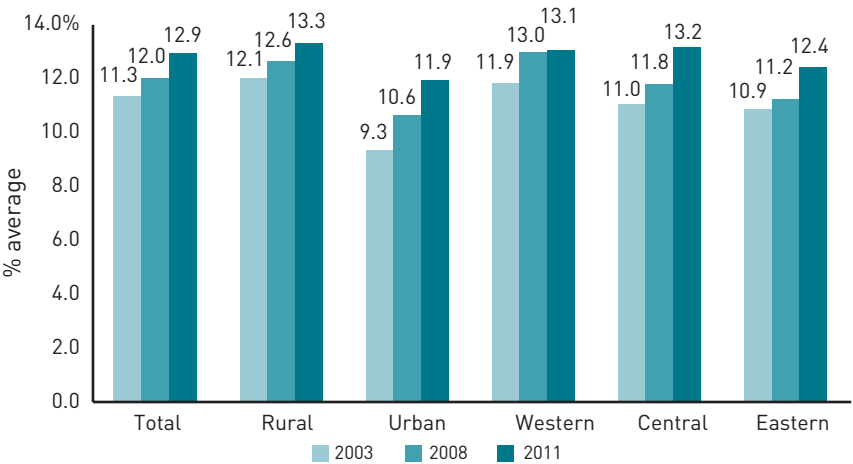
\* Average annual growth rate during the time period

Source: Meng Q et al, 2012



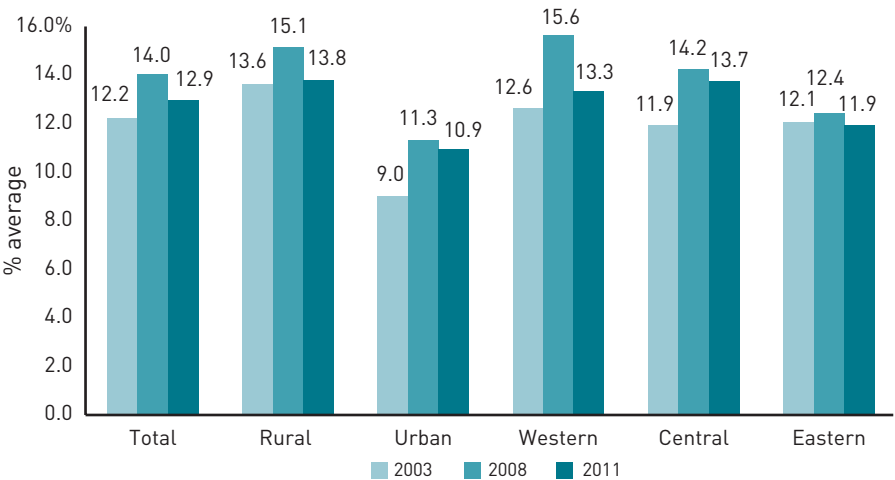
expenditure (defined as health expenditure above 40% of total household spending minus food), and health spending as a share of total household expenditure, remain at a relatively high level. In particular, despite a 2.6% decrease in the proportion of households with catastrophic health expenses in 2011 (12.9%), it was still 2.8% higher than in 2003, and specifically 4.8% and 4.0% higher than in 2003 (Figure 7.2) in urban areas and western regions.

**Figure 7.1 Health spending as a share of total household consumption expenditure (% , average)**



Source: Meng Q et al, 2012

**Figure 7.2 Proportion of households with catastrophic health expenditure (% , average)**



Source: Meng Q et al, 2012

**Table 7.2 Rural households benefiting from NRCMS in 2008 (%)**

	All	Eastern	Central	Western
Households with reimbursed hospitalization fees	10.8	7.9	11.0	13.0
Households with reimbursed outpatient fees	42.2	43.1	42.0	41.5
Households with reimbursement for both	9.5	8.0	8.0	11.8
Households with no reimbursement for either inpatient or outpatient fees	37.5	40.9	39.0	33.6

Source: Ministry of Health, 2009b

## **7.3 User experience and equity of access to health care**

### **7.3.1 User experience**

According to the 2008 National Health Services Survey (Ministry of Health, 2009b):

- 57.4% of patients using outpatient services thought time spent on transportation for the visit was short or very short, 9.3% thought time spent was long or very long;
- those who thought the waiting time was short or very short were 58.9%, and 8.5% thought the waiting time was long or very long;
- 58% considered their doctors' explanation to have good or very good clarity, while 3.7% thought it was poor or very poor;
- 53.8% of patients believed that doctors did well in consulting patients about treatment options, 4.8% thought it was done poorly or very poorly; and
- the hospital environment, facilities, and the level of comfort were evaluated to be good or very good by 44.2% patients, and 7.6% assessed them as poor or very poor.

Among hospitalized patients:

- 70.5% thought that doctors' explanations had good or very good clarity, while 1.9% thought the clarity was poor or very poor;
- 66.5% believed that doctors did well in consulting patients about treatment options, 2.7% thought it was done poorly or very poorly; and

- the hospital environment, facilities, and the level of comfort were evaluated to be good or very good by 56.5% of patients, and 5.9% assessed them as poor or very poor.

Among outpatients, 80.4% trusted or highly trusted doctors, while 1.1% expressed distrust or strong distrust. For hospitalized patients, the proportions were 83.6% and 1.4%, respectively. These reflected households' high level of satisfaction with the health system.

### **7.3.2 Access to health care**

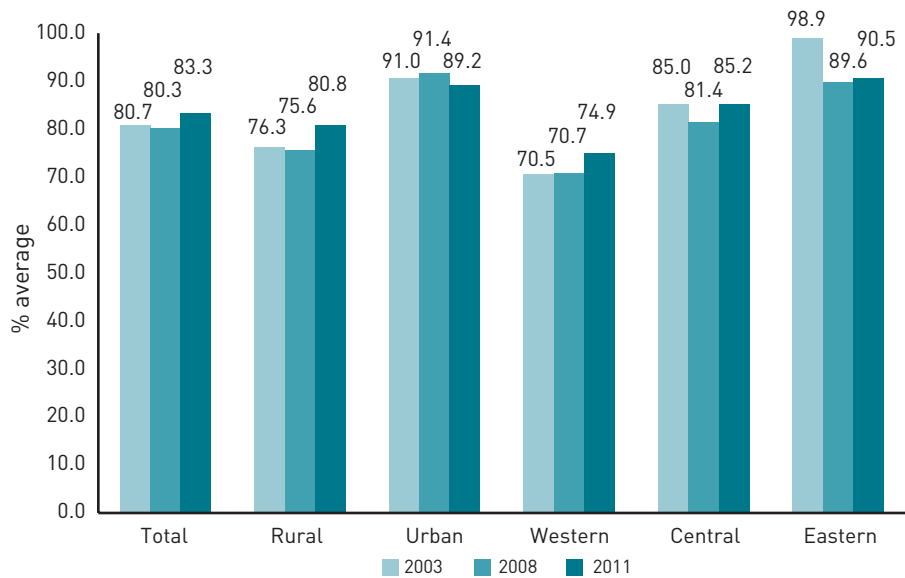
There has been immense progress in access to health care. According to the National Health Services Surveys (Figures 7.3–7.9):

- geographical accessibility to a health care institution (the proportion of families whose travel time from their residence to any public or private medical institutions is less than 15 minutes) had increased from 80.7% in 2003 to 83.3% in 2011;
- population density of registered physicians (including registered assistant physicians) increased from 1.58 in 2008 to 1.82 per 1000 population in 2011;
- the rate of outpatient utilization increased from 13.4% in 2003 to 14.8% in 2011.

The proportion of outpatient visits made within the past two weeks generally increased from 2003 to 2008, and the proportion of hospital admissions increased significantly during the same period:

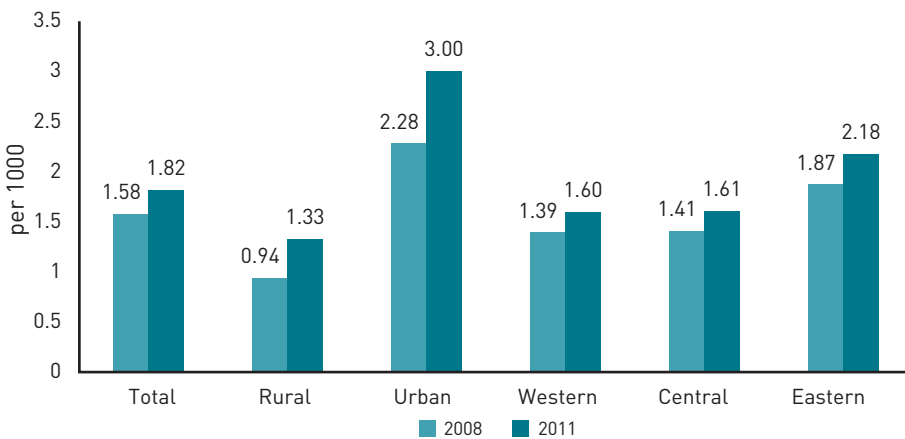
- the prenatal examination rate increased from 43.2% in 2003 to 62.8% in 2011;
- the rate of institutionalized delivery increased from 73.3% in 2003 to 95.8% in 2011;
- the proportion of residents using services at primary health care institutions also increased, especially in urban areas;
- the proportion of initial diagnoses made in community health centres rose from 48.3% in 2008 to 55.5% in 2011.

**Figure 7.3 Physical accessibility to a health-care institution (% average)**



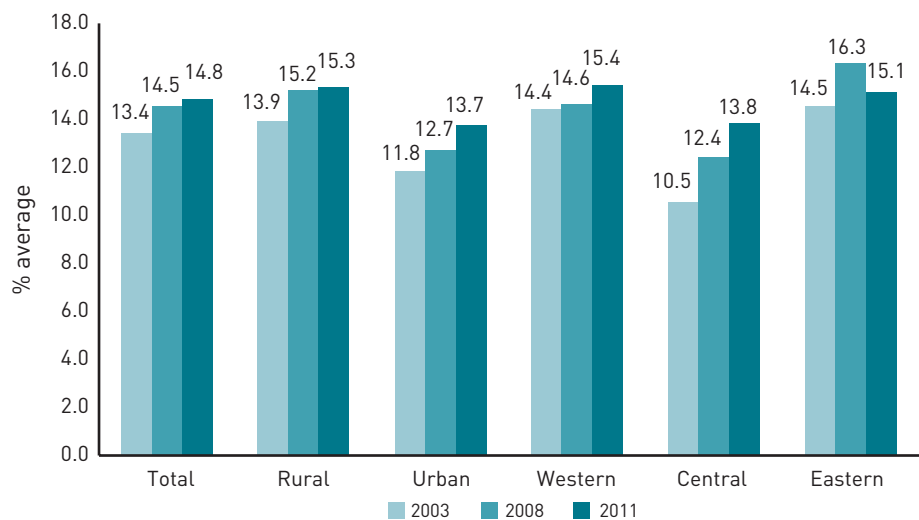
Source: Meng Q et al, 2012

**Figure 7.4 Geographic density of registered (and assistant) physicians (density per 1000 population)**



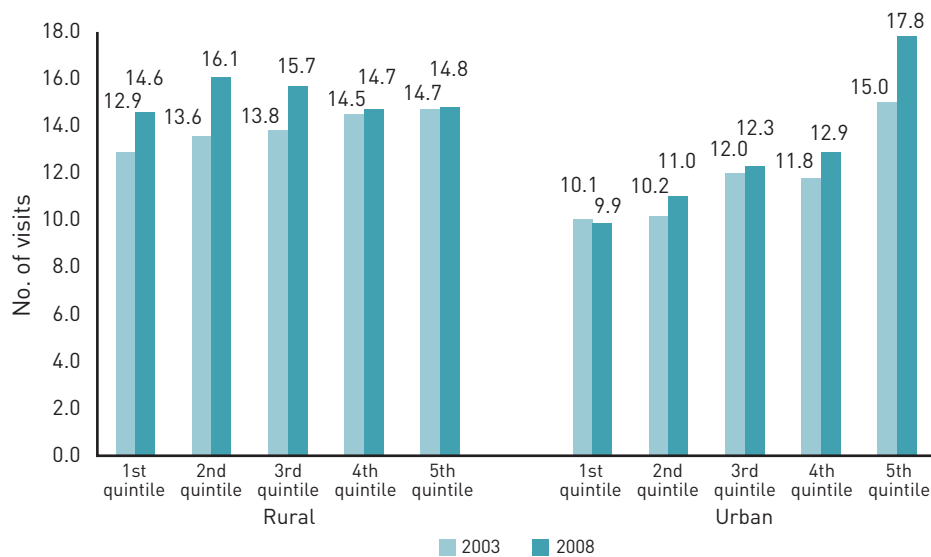
Source: Ministry of Health, 2013a

Figure 7.5 Utilization of outpatient services (% average)



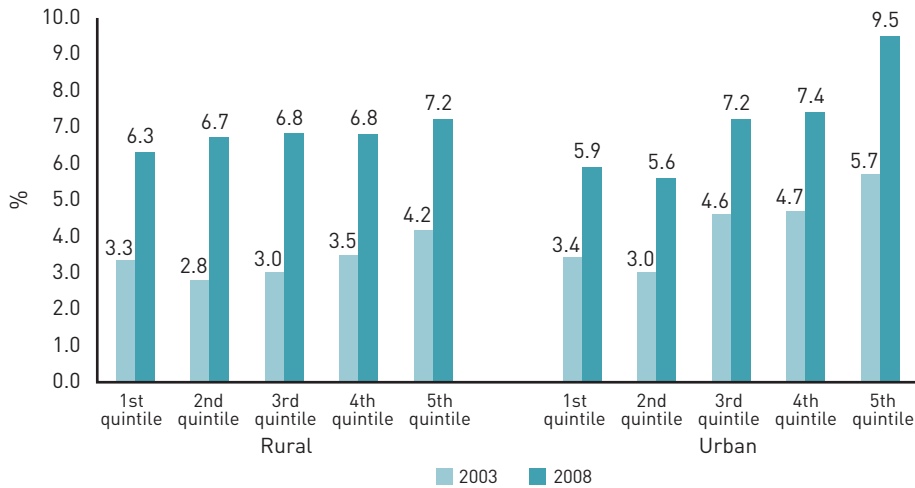
Source: Meng Q et al 2012

Figure 7.6 Outpatient visits in the past two weeks, according to income group



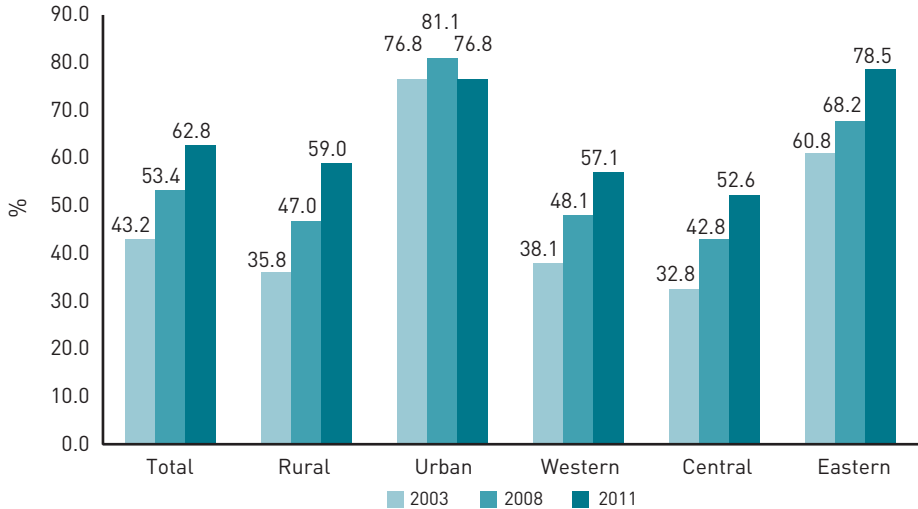
Source: Ministry of Health, 2009b

**Figure 7.7 Hospital admission in the past year, according to income group**



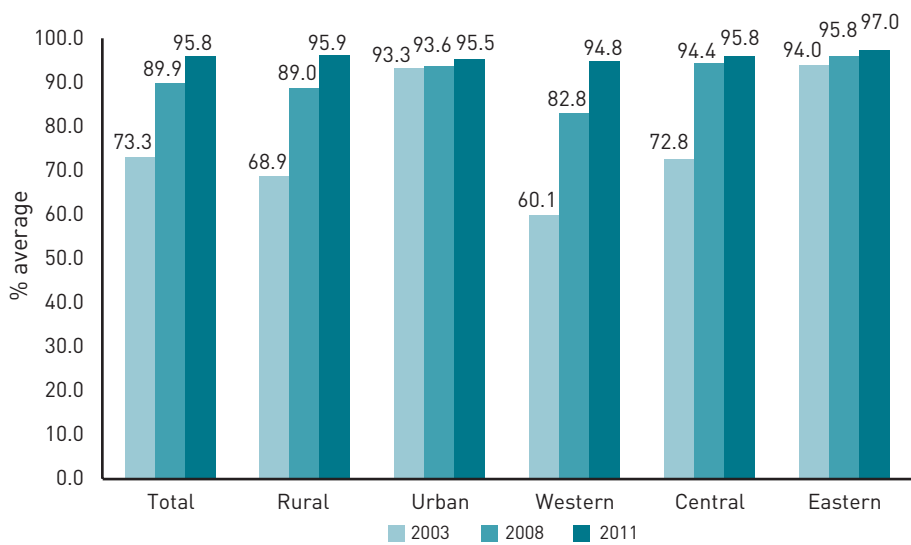
Source: Ministry of Health, 2009b

**Figure 7.8 Proportion of prenatal care (5+ visits) (% , average)**



Source: Meng Q et al, 2012

**Figure 7.9    Proportion of in-hospital service delivery (% average)**



Source: Meng Q et al, 2012

The equity of health service accessibility and utilization is affected by multiple factors. A survey study of 4209 randomly chosen households in seven provinces (Wang et al., 2012) found that enrollees with coverage for both inpatient and outpatient services have greater numbers of village clinic visits, township clinic visits and a greater total number of outpatient visits than those with inpatient coverage only; those in poverty have higher utilization of village and township outpatient services, while the affluent utilize more county hospital inpatient services and total inpatient services. As PHC is the main choice of the poor when ill, strengthening the capacity and quality of village and township health services is the key determinant of pro-poor outcomes.

Although the accessibility of health services has been greatly improved, the outlook for equity in health services does not seem optimistic. The disparities in geographical accessibility to medical institutions, the outpatient utilization rate, the rate of antenatal care, the coverage of medical insurance, hospitalization reimbursement rate, and incidence of catastrophic health expenditure between urban and rural areas, between different income levels of different regions, and between the eastern, western, or central China, have narrowed down considerably, but gaps still exist in the levels of these parameters (Table 7.3).

**Table 7.3 Trends in equity of health services**

	2003	2008	2011	Absolute change between 2003 and 2011
Ratio of rural to urban				
Physical access to facilities	0.84	0.83	0.91	-6.4
Utilization of all outpatient services	1.18	1.19	1.12	0.5
Antenatal care (5+ visit)	0.47	0.58	0.77	-23.2
Hospital delivery	0.74	0.95	1.00	-24.8
Health insurance coverage	0.38	1.27	1.07	-40.7
Inpatient reimbursement	0.17	0.79	0.80	-17.8
Catastrophic expenditure	0.66	0.75	0.79	-1.7
Ratio, western to eastern areas				
Physical access to facilities	0.80	0.79	0.83	-1.8
Utilization of outpatient services	0.99	0.90	1.02	-0.4
Antenatal care (5+ visit)	0.63	0.71	0.73	-1.3
Institutionalized delivery	0.64	0.86	0.98	-31.7
Medical insurance coverage	0.70	1.00	1.01	-12.5
Inpatient reimbursement	0.62	1.06	1.09	-11.6
Catastrophic expenditure	0.96	0.81	0.90	-0.8

Source: Meng Q et al, 2012

## 7.4 Population health and service quality

### 7.4.1 Population health

See 1.4 in Chapter 1, Main health indices, for a detailed description.

### 7.4.2 Health service quality

Health service quality is an important criterion in evaluating health services. Patients seek medical care not only looking for easy access and reasonable cost, but more importantly requiring that it meets their needs, cures disease and improves health. The main data on health service quality evaluation indices in China is based on the front page of the Medical Record (2001 revision) from the Ministry of Health. The conventional indicators for quality of care are under development. Note that some of the current quality indices lack a scientific basis, and some indices are ill-defined, requiring subjective judgment; further improvement is needed.

Improving access to basic health services and reducing the economic burden of disease are the primary goals of health-care reform in China,



so the current evaluation of health-care reform focuses on the amount and cost of health services. There is also a need to pay more attention to quality of care. In terms of quality, health administrative departments at all levels and medical institutions focus primarily on the management of medical malpractice and medical safety. There is a lack of comprehensive and integrated statistics at national level on health-care quality.

The quality of care in China, especially the quality of PHC, has some serious problems such as misuse of antibiotics, overuse of intravenous infusions and a high caesarean section rate. In addition, the prevention and treatment of chronic disease also has some obvious quality problems: 60% of diabetic patients and more than 50% of hypertensive patients are not diagnosed or detected, and thus do not obtain necessary health services, until they reach the late stage of clinical complications (Liu L et al., 2011). Among patients already diagnosed with hypertension, only 38.5% have received treatment. Among those hypertensive patients who have received antihypertensive drug therapy, only 24% of them could effectively control their blood pressure to the level of 140/90 mmHg or less (Liu L et al., 2011). Effective interventions for NCDs require further programme strengthening.

## **7.5 Health system efficiency**

### **7.5.1 Allocative efficiency**

#### **Resource allocation efficiency**

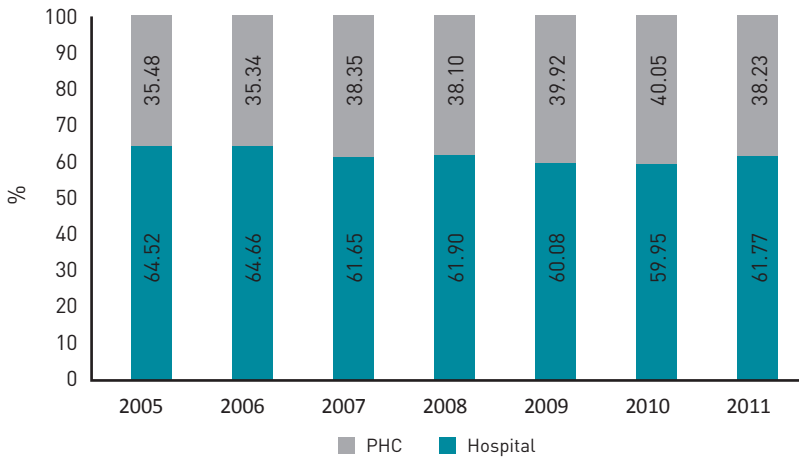
Allocative efficiency indicates the extent to which limited funds are directed towards purchasing an appropriate mix of health services. Prevention and focus on rural areas have always been the basic principles of China's health development, and were strongly implemented from the 1950s to the 1970s, ensuring appropriate resource allocation in the PHC system. But since the mid-1980s, with the continuous expansion of market-oriented reforms in the health sector and widening urban-rural disparity, the number of urban medical institutions at the secondary and tertiary levels has further expanded while rural and PHC institutions have developed rather slowly. An emphasis on medical care rather than preventive medicine has become a problem in many areas. Due to the lack of health insurance schemes, the poverty impact from ill-health among rural residents is a serious policy concern. The latest round of health system reform in 2009 has seen a series of important policy changes to improve allocative efficiency and strengthen investment in public health, PHC institutions and rural areas. A further challenge is to invest more in

primary prevention, especially of chronic NCDs, by introducing measures to, for instance, bring down the prevalence of tobacco and alcohol use, and encourage healthy diets and active lifestyles.

**Quantity and structure changes to resource allocation**

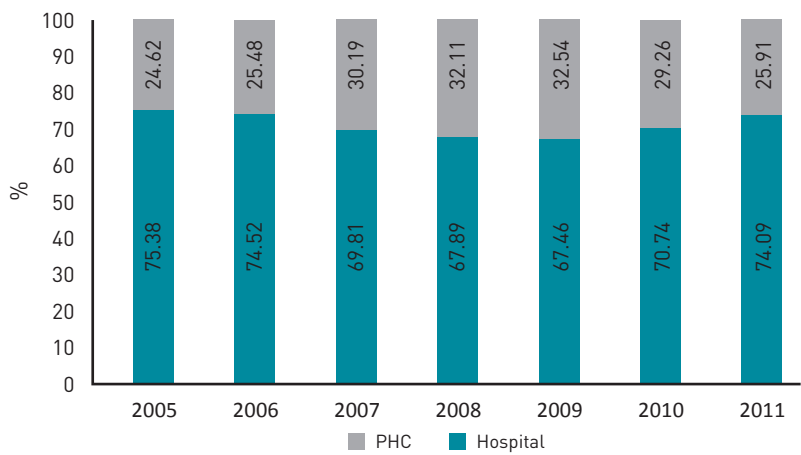
With respect to financial investment, first, there has been a significant increase in investment in public health from central and local government since the SARS outbreak of 2003. From 2009 to 2011, the central government arranged funding of 39.5 billion yuan for basic public health services. More than 15.6 billion yuan was allocated for capacity-building in professional public health services. Second, in 2003, China established the New Rural Cooperative Medical Scheme in which government investment acts as the mainstay, helping rural residents set up an effective health security system. From 2009 to 2011, the central government arranged funding of 432.8 billion yuan for the URBMI programme and NRCMS. Finally, since the implementation of health reform in 2009 adhering to three main principles – “cover the basic, strengthen the primary, build the mechanism” – the Government has strengthened investment in and construction of the PHC sector. In rural areas, the central government invested 59 billion yuan in construction and purchase of equipment at county hospitals, township health centres and village clinics. These measures have improved the efficiency of medical resource allocation, slanting the allocation of resources towards public health, primary care and rural areas.

**Figure 7.10** Trend in average number of outpatient and emergency admissions as % of total admissions in different medical institutions, 2005–2011



Source: Ministry of Health, 2013a.

**Figure 7.11** Trend of average number of hospitalization admissions as % of total admissions in different medical institutions, 2005–2011



Source: Ministry of Health, 2013a.

With respect to human resources, there continues to be an imbalance between urban and rural areas (see Chapter 4). In 2012, the number of professional health personnel per 1000 residents in urban China was 8.54, while in rural areas this figure was only 3.41. From the perspective of number of ward beds, there was also a large disparity between urban and rural areas. In 2011, the number of beds in urban medical institutions was about 6.24 per 1000 residents, which is 2.2 times that in rural areas.

**Impact of resource allocation on health service efficiency**

Despite the allocation of health resources to primary levels, more than 60% of outpatient and emergency services are supplied by secondary- or tertiary-level hospitals. Less than 40% of outpatient and emergency services are supplied by PHC institutions (see Figure 7.10). Similarly, the increasing rate of hospitalization in major hospitals is greater than in township health centres and community health centres (Figure 7.11), illustrating that there is still a tendency to go to major hospitals for outpatient and inpatient health services.

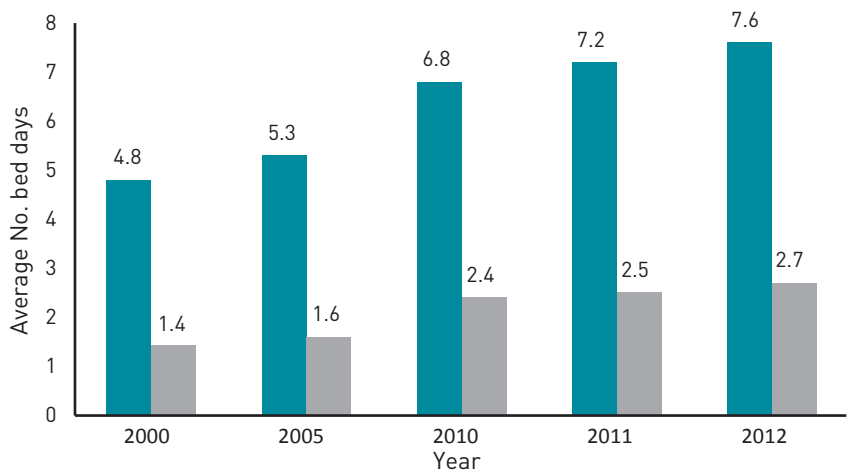
**7.5.2 Technical efficiency**

**Hospital services**

Technical efficiency indicates the extent to which a health system is securing the minimum levels of inputs for a given output, or the maximum level of output in relation to its given inputs. Since 2000, the

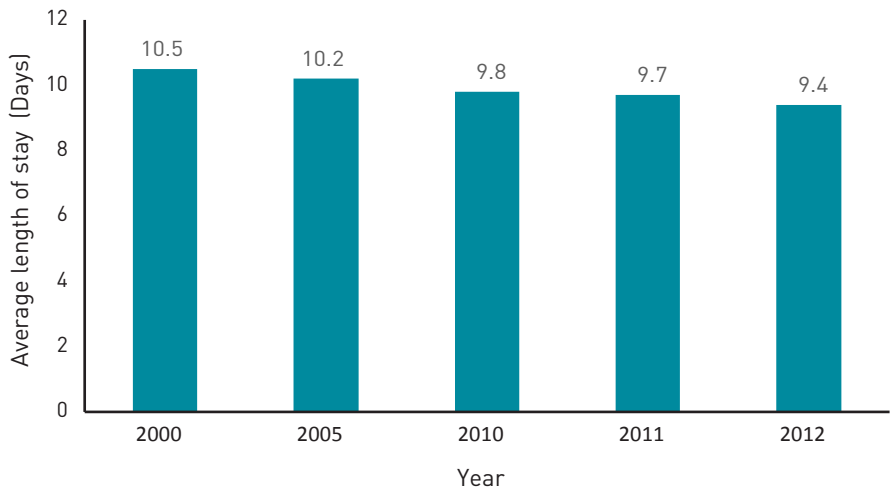
average daily hospital visits per doctor and inpatient bed days per doctor have increased significantly, indicating that technical efficiency in using hospital resources has gradually increased (Figure 7.12). Meanwhile, the average length of stay at hospital was longest in 1992 at 16.2 days; it dropped to 9.4 days in 2012 (Figure 7.13).

**Figure 7.12 Daily average rate of outpatient visits and inpatient bed days per doctor in China, 2000–2012**



Source: Ministry of Health, 2013a.

**Figure 7.13 Average inpatient length of stay (days) in general hospitals in China, 2000–2012**



Source: Ministry of Health, 2013a.

## **Pharmaceutical services**

Since the 2009 health-care reform, China has implemented the Essential Medicines Policy in PHC institutions. PHC institutions (including township health centres and community health centres) implement the Essential Medicines List. Essential drugs are centrally purchased and distributed at province level, and must be prescribed without mark-up. PHC institutions cannot make any profit from the sale of drugs. After the implementation of the Essential Medicines Policy, drug prices significantly decreased in PHC institutions. The financial burden on patients has been reduced. At the same time, the motivation of some health workers at PHC institutions has been negatively affected, indicating they need budget compensation for the loss of funding.

There is no gatekeeping in China's health system. Residents have the freedom to self-refer and walk into any hospital, resulting in overcrowding of medical services in tertiary hospitals and underutilization of PHC services. China is currently implementing a standardized training system for GPs, hoping to improve the clinical competency of PHC services and thus achieve a reasonable distribution of medical services and improve their technical efficiency.

## **7.6 Transparency and accountability**

With 30 years of sustained rapid economic growth, central and local governments began to emphasize the livelihood of the people as the priority focus of socioeconomic development. Basic health service improvements and the establishment of medical insurance are prioritized at all levels of government. The report of the 18th National Congress of the CPC in 2012 set improving people's health as the fundamental goal of health development and stressed providing safe, effective, convenient and inexpensive public health and basic medical services to the people. The health system reform of 2009 and the achievement of universal coverage in the most populous country in the world reflect strong political commitment and the government's social accountability to its citizens.

As for public health emergencies, related departments are responsible for accurate and timely reporting of the situation according to regulations. Health administrative departments of the State Council, or authorized provincial, autonomous region and municipality health administrative departments, have to disclose information or announce public health emergencies to the public in a timely manner, reflecting social

accountability and ensuring the health security of the people. Likewise, the health administrative department of the State Council should inform relevant departments of the State Council and the provinces, autonomous regions, municipalities, health administrative departments and military authorities of public health emergency situations. For cross-border outbreaks, the health administrative department of the State Council should inform the relevant countries and regions as required by the 2005 International Health Regulations.

Development of health policy is increasingly reliant on scientific evidence. The degree of transparency and social participation is growing. Taking health system reform since 2009 as an example, at the development stage of the reform, central government invited a number of academic and research institutes to propose reform plans. The preliminary reform plan drew upon each of these plans' strong points and experiences from various pilots. Meanwhile, before the formal implementation of the reform plan, there was also an online open platform to solicit comments and feedback from the entire Chinese population. After considering all the views from all parties, a final reform plan was established. During the development and implementation of the reform, policy-making departments also paid attention to the monitoring and evaluation of the process and the impact of health-care reform implementation on households through regular health surveys. Monitoring and evaluation included self-assessment by medical institutions, a comprehensive assessment by government departments, and assessment by independent third parties such as international agencies and academic institutions.

Since 2009, the State Council and provincial health reform task groups have signed letters of responsibility. All levels of the health-care reform leadership team have divided the reform goal into specific tasks and signed letters of responsibility for these tasks to relevant departments/agencies, thus establishing an accountability system. They also set up a performance evaluation mechanism including monthly, quarterly and annual assessments. They are required to report progress to the government officials in charge of health-care reform on a regular basis. The State Council formulated a special supervision programme requiring regular supervision and inspection of the reform, urging acceleration of the reform process. Local governments have also adopted various methods of supervising the implementation of health system reform.

## 8 Conclusions

Over the past three decades, China has experienced rapid urbanization, industrialization and population ageing, with a massive migrating population. China launched the reform and opening of its economy in 1978, and has achieved rapid economic growth since then. In 2010, China became the second-largest economy in the world. The health status of Chinese people has improved greatly over the past six decades. Spectacular improvements have been made in major health indicators including life expectancy at birth, infant mortality rate and maternal mortality rate. The demographic and health pattern of high birth rate, high death rate, infectious diseases and malnutrition has gradually shifted to low birth rate, low death rate, and chronic diseases. NCDs have become the major health concern in China. Meanwhile, the urban-rural gaps and regional variations in population health are still significant.

China's health system is composed of the health financing system, health service delivery system, and health supervision system. China's health laws include laws on health facilities, health professions, public health, and health services. Since 1949, the health service delivery system has undergone several steps of development until it reached its current shape. The structure of China's health administration consists of four levels, i.e. National Health and Family Planning Commission, provincial health bureaux (including autonomous regions and municipalities directly controlled by central government), municipal health bureaux, and county health bureaux. The central government is the leading force in lawmaking and decision-making in China's health system. China has a long history of multisectoral collaboration in promoting health, represented by patriotic health campaigns. Various levels of patriotic health campaign committees function as deliberative and coordinating agencies for related government sectors of the campaign.

There are four main methods of fundraising in the health system in China: government budget, social insurance, private insurance and OOP payment. Along with reform and opening-up, rapid development of market economy, and progress of medical technology, the health

system in China has entered a stage of high-speed development. Health expenditure has also been rising rapidly. In the 1980s and 1990s, due to the absence of universal health insurance coverage and low coverage of basic medical insurance, health was largely paid for in the form of OOP payments. In recent years, China has increased government investment in health and established basic medical insurance in order to reduce OOP health payments and to improve the accessibility and equity of health services. Thanks to these measures, the proportion of OOP health payments in total health expenditure has significantly declined in the last decade.

China has built a basic medical insurance system covering both urban and rural residents. Urban Employee Basic Medical Insurance is mandatory for the work force in urban areas, with premiums paid by both employers and employees, covering outpatient clinic expenses, inpatient services and designated pharmacies. Those not covered by UEBMI could join the voluntary Urban Resident Basic Medical Insurance jointly financed by enrollees and government. Rural residents enrol voluntarily in the New Rural Cooperative Medical Scheme in the unit of families, financed by the enrollees and government. Those in poverty who cannot afford the basic medical insurance premium or the OOP payment in medical insurance are subsidized by an urban and rural medical assistance system. These provide a safety net in the multi-level health insurance systems in China, which are financed through various channels including government funding and public donations, to ensure the access of poor people to basic health care.

A relatively well-developed health service system has been established in China, providing services including infectious disease control, emergency care, outpatient services and inpatient services. Health care facilities in China mainly consist of hospitals, grassroots medical institutions and professional public health institutions. Over the last 60 years, the number of hospitals has been continuously rising, as have the numbers of beds and hospital staff. The equipment in primary medical institutions is being gradually upgraded. Rapid progress has been achieved in hospital management information systems, clinical information systems and regional health information technology systems. Centres of disease prevention and control, health supervision authorities, maternal and child health care institutions, community health service centres (stations), township health centres and village clinics provide public health services in infectious disease prevention and control, prevention and treatment of



chronic and endemic diseases, health education, food safety inspection and supervision, workplace health inspection, public health emergency response, and maternal and child health care. As grassroots health facilities (or primary health care institutions), community health service centres (stations), township health centres, and village clinics provide primary medical services and some basic public health services for residents within their regions. Secondary and tertiary comprehensive hospitals are mainly responsible for outpatient and inpatient services. Every city and county has at least one independent traditional Chinese medicine hospital, and most comprehensive medical institutions and grassroots health facilities have a TCM department.

Health reform in China can be divided into two periods, namely the preliminary exploratory period from early 1980s and the continuously deepening reform period from 2003. These followed upon the period of 1949 to 1979 that was characterized by circumstances of a backward economy and scarce health resources from 1949 to 1979, China managed to build a basic health system and improve public health drastically by strengthening grassroots health construction, emphasizing disease prevention, launching large-scale mass public health campaigns, and establishing a low-level wide-coverage urban and rural basic medical insurance system. China entered a stage of preliminary exploration of health system reform in 1980, and started to adapt the system to the socialist market economy, while further exploring the rules of health development in a stepwise manner. In the reform of health economic policy, reimbursement was increased in terms of user charges and drug price mark-ups. In March 2009, the Central Committee of the CPC and the State Council issued *Opinions on Deepening Health System Reform*. The main goal of the document was to establish a basic health system covering both urban and rural residents by 2020, and the basic tasks were to form a well-developed public health service system and a fully-developed medical service delivery system, a fully-developed health security system, and a well-regulated pharmaceutical supply system. In order to achieve these, eight measures and policies have been implemented, including human resource development, health financing reform, and reform of the management systems and operational mechanisms of medical and health institutions. In this new round of reform, it is clearly defined that the basic health service system is a public good for all, and the principles of “ensuring basic services, strengthening grassroots level health care and building effective mechanisms” has also been established.

Since launching health reform in 2009, China has made significant progress in establishing a universal medical insurance system and an equalized basic public health service system, strengthening the capacity of grassroots health institutions, establishing an essential medicines scheme and organizing public hospital reform pilots. This progress has laid a solid foundation for further deepening the reform and achieving the overall goal of building a fully-developed basic medical and health care system covering urban and rural areas. Meanwhile, due to the complexity and systematic nature of health system reform and development, health system reform in China is faced with many challenges, overcoming which will require persistence and development. The reforms need to go further in promoting the coordinated advancement of the comprehensive reform of health insurance, medical service delivery, public health, drug supply, the regulatory system, integrating basic medical insurance schemes, intensifying the comprehensive reform of grassroots medical and health institutions, accelerating public hospital reform, establishing a tiered referral system, improving health-care workforces and medical information systems, and encouraging non-public health care with a priority on supporting non-profit health institutions.

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## **9.2 Useful web sites**

<http://www.nhfpc.gov.cn/>

<http://www.mohrss.gov.cn/>

<http://www.sdpc.gov.cn/>

<http://www.mof.gov.cn>

<http://www.stats.gov.cn>

[http://data.worldbank.org.cn/country/china#cp\\_wdi](http://data.worldbank.org.cn/country/china#cp_wdi)

### **9.3 Health Systems in Transition methodology and production process**

HiTs are produced by country experts in collaboration with an external editor and the Secretariat of the Asia Pacific Observatory based in the WHO Regional Office for the Western Pacific in Manila, Philippines. HiTs are based on a template developed by the European Observatory on Health Systems and Policies that, revised periodically, provides detailed guidelines and specific questions, definitions, suggestions for data sources and examples needed to compile reviews. While the template offers a comprehensive set of questions, it is intended to be used in a flexible way to allow authors and editors to adapt it to their particular national context. The template has been adapted for use in the Asia Pacific region and is available online at: [http://www.wpro.who.int/asia\\_pacific\\_observatory/hits/template/en](http://www.wpro.who.int/asia_pacific_observatory/hits/template/en)

Authors draw on multiple data sources for the compilation of HiTs, ranging from national statistics, national and regional policy documents to published literature. Data are drawn from information collected by national statistical bureau and health ministries. Furthermore, international data sources may be incorporated, such as the World Development Indicators of the World Bank.

In addition to the information and data provided by the country experts, WHO supplies quantitative data in the form of a set of standard comparative figures for each country, drawing on the Western Pacific Country Health Information Profiles (CHIPs) and the WHO Statistical Information System (WHOSIS). HiT authors are encouraged to discuss the data in the text in detail, including the standard figures prepared by the Observatory staff, especially if there are concerns about discrepancies between the data available from different sources.

The quality of HiTs is of real importance since they inform policy-making and meta-analysis. HiTs are subject to wide consultation throughout the writing and editing process, which involves multiple iterations. They are then subject to the following.

A rigorous review process consisting of three stages. Initially, the text of the HiT is checked, reviewed and approved by the Asia Pacific Observatory Secretariat. It is then sent for review to at least three independent experts, and their comments and amendments are incorporated into the

text, and modifications are made accordingly. The text is then submitted to the relevant ministry of health, or appropriate authority, and policy-makers within those bodies to check for factual errors.

There are further efforts to ensure quality while the report is finalized that focus on copy-editing and proofreading.

HiTs are disseminated (hard copies, electronic publication, translations and launches). The editor supports the authors throughout the production process and, in close consultation with the authors, ensures that all stages of the process are taken forward as effectively as possible.

## **9.4 About the authors**

**MENG Qingyue** is a Professor in Health Economics and Policy, and Dean of School of Public Health and Executive Director of China Center for Health Development of Studies, Peking University.

**YANG Hongwei** is a Research Fellow in Public Policy, and Deputy Director-General, China National Health Development Research Center, National Health and Family Planning Commission.

**CHEN Wen** is a Professor in Health Economics, and Dean of School of Public Health, Fudan University.

**LIU Xiaoyun** is an Associate Professor in Health Service Research, and Assistant to Director of China Center for Health Development of Studies, Peking University.

**SUN Qiang** is a Professor in Health Policy, and Associate Dean of School of Public Health and Executive Director of Center for Health Management and Policy, Shandong University.





The Asia Pacific Observatory on Health Systems and Policies (the APO) is a collaborative partnership of interested governments, international agencies, foundations, and researchers that promotes evidence-informed health systems policy regionally and in all countries in the Asia Pacific region. The APO collaboratively identifies priority health system issues across the Asia Pacific region; develops and synthesizes relevant research to support and inform countries' evidence-based policy development; and builds country and regional health systems research and evidence-informed policy capacity.



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