*The Lancet Global Health* Commission on

**Financing Primary Health Care**

# SCOPING REPORT

## Financing Primary Health Care in China

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**2021**

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## Acronyms

| | |
|---|---|
| BPHS | Basic Public Health Services |
| CMS | Cooperative Medical Scheme |
| EBPHS | Equalization of Basic Public Health Services |
| FFS | Fee-for-service |
| ICT | Information and Communication Technology |
| NHC | National Health Commissions |
| PFM | Public Financial Management |
| PHC | Primary Health Care |
| UEBMI | Urban Employee Basic Medical Insurance Scheme |
| URRMI | Urban and Rural Residents Medical Insurance |
| VP | Vice Premier |

# Executive summary

This report provides an assessment of the role of financing to realise China's Primary Health Care (PHC) ambitions. It was undertaken for the Lancet Commission on Financing Primary Health Care, which aims to generate evidence-based, actionable policy recommendations on how countries can use health financing tools to improve efficiency and equity of PHC. The report is part of a set of country case studies that present empirical evidence on arrangements for financing PHC, drawing on published and unpublished literature, policy documents, surveys and census data. The other study countries are Brazil, Chile, Ethiopia, India, and the Philippines.

### PHC system in China

Primary health care (PHC) services are systematically organized and widely distributed across China. Almost everybody has a PHC facility within their neighbourhood and, since the early 2000s, there has been a steady increase in resources dedicated to PHC. Although there is no single vision statement about PHC in China, it is referenced in several policies including the Central Government's Opinions on Comprehensive Health System Reform, which adopts the vision of a focus on PHC. The Basic Health Care and Health Promotion Law, which was passed in 2020, describes the role of PHC facilities as providing "prevention, health care, health education and disease management," as well as "receiving patients transferred from hospitals, and transferring patients to ... hospitals." At the national level, the Department of Primary Health Care in the National Health Commission is responsible for issuing PHC policies and setting national targets. Provincial and municipal Health Commissions add details to these policies, and county and district Health Commissions put the policies into practice and manage local services. National policies set out several mechanisms to ensure the equitable distribution of PHC services including greater central government funding contributions to less developed regions, and financial incentives for medical students to train and work in primary care facilities in rural and remote areas.

Integration between primary, secondary and tertiary health services is being promoted mainly through various forms of medical alliances between health facilities based on location or medical speciality. County (rural) tight medical alliances and urban medical groups promote unified administrative and business management, including management of drugs and consumables, drug lists, procurement, distribution and payment. The government has also promoted the integration of health care and long-term (social) care services through, for example, mutual referral arrangements or onsite medical care at long-term care facilities.

There are a large number of private clinics that provide PHC services; in most villages, clinics/doctors are private providers who are registered with and managed by township health centres and are responsible for treating beneficiaries of social health insurance schemes and health management of local residents. Since 2019, the government has encouraged the creation of new private independent clinics to strengthen the supply of ambulatory care outside hospitals and reduce congestion of patients in hospitals.

### Health expenditure

General government expenditure on health increased from 1.75% of GDP in 2000 to 3.45% of GDP in 2017 and increased as a proportion of total health expenditure during this time.

In 2019, primary care, including outpatient and ambulatory physician services, constituted 31% of public expenditure on health (8.5% of total expenditure on health).

### Mobilisation and allocation of PHC resources

There are two major revenue sources for the PHC system in China: local government subsidies and funds from social health insurance schemes. In some less developed areas, the central government also provides a substantial fiscal transfer to PHC facilities. Local government subsidies consist of several components, some of which are regular, covering for example, the package of basic public health services and personnel costs. Other government subsidies vary across areas, depending on local government budget space, and include subsidies for infrastructure and equipment or to make up for lost revenue to facilities following the abolition of drug mark-ups.

PHC facilities provide both public health services and medical services to all residents. The Equalization of Basic Public Health Services (BPHS) policy sets out the minimum package of public health services and major public health programmes that should be provided to every citizen free of charge. Medical services, e.g., consultations, standard diagnostic, surgeries and pharmaceuticals, are covered under pre-paid health insurance plans, the most common being the Urban and Rural Residents Medical Insurance (URRMI) scheme which covers 95% the population. The fragmentation of revenue streams has created several challenges, exacerbated by the use of different pooling agencies and the practice of earmarking different streams of government funds for specific services. Local health authorities and PHC facilities do not have the autonomy to accumulate funds and reallocate them to services based on local needs.

### Purchasing

Four different payment methods are used to pay PHC providers: funding for BPHS is based on the number of residents in an area (capitation) and adjusted for performance; fee-for-service for medical care; a salary budget for permanent staff; and line budgets for equipment etc. Facilities make salary decisions about their staff within the government's policy framework and may hire additional non-permanent staff at their own expense.

Performance-based incentives are used at both the facility level and for individual health workers. At the facility level, the local health administration department rewards better-performing health facilities with higher levels of BPHS subsidies, although the amount is limited. Health workers may receive financial incentives from their facility, especially for increasing service revenue. However, overall salary levels for PHC doctors are relatively low compared to other specialties and considered a disincentive for new graduates to choose PHC as a setting for practice.

### Digital technologies and health financing

A digital information management system identifies and monitors the welfare situation of families living in poverty so as to facilitate the application of targeted poverty alleviation policies. Other digital health services include remote consultations or telemedicine services provided by hospital staff. Payments for such services are usually made to PHC facilities who share a portion of the revenue with the supporting hospitals and internet technology providers.

# 1. Organisation of the PHC system in China

## 1.1 Current "vision" for PHC

Although there is no single vision statement about PHC in China, PHC appears in many of the government's key statements about health care. For example:

1. The current official guidelines for health affairs (revised in 2016) says "put stress on primary health care."[1]
2. The master document of the comprehensive health system reform, launched by the Chinese government in 2009, aimed to establish a basic health system that covered all its population by 2020. Essentially, the government promised access to basic health services for the whole population. The guiding principle of the reform is summarized as "ensuring the essential services, strengthening primary care, building institutions."[2] The document specified two service delivery sub-systems of the basic health system: the public health service system and the medical service system. It also clarified that PHC facilities provide the basic level of services in both sub-systems.
3. The Basic Health Care and Health Promotion Law passed in 2020 further legalized the role of PHC facilities: 1) "Article 35 Grassroots medical institutions [PHC facilities] shall mainly provide prevention, health care, health education, and disease management, create health files for residents, diagnosis and treatment of common diseases and frequently-occurring diseases, and rehabilitation and nursing of some diseases, receive patients transferred from hospitals, transfer patients beyond their service capacity to hospitals, and provide other basic medical services." 2) "Article 18 The people's governments at or above the county level shall, by forming professional public health institutions, grassroots medical institutions and hospitals or purchasing services from other medical institutions, provide basic public health services."[3]

PHC is not clearly defined by policy documents, however, in practice, the government PHC policies mainly target primary health care facilities. PHC in China includes both the basic medical services and basic public health services provided at PHC facilities.

## 1.2 Key actors in PHC services

The political figure with the highest authority and a clear mandate for PHC is the vice premier (VP), who is responsible for health, sports, education and others. The current VP is Sun Chunlan. Under the VP, the National Health Commission (NHC) is directly responsible for PHC. The current director of the NHC is Ma Xiaowei.

The national agency with a clear mandate for PHC is the Department for Primary Health Care in the NHC. The Department has existed for more than two decades. In 1998, it was called Department of Primary Health Care, and Maternal and Child Health.
Usually, local vice governors/mayors are the leading figure responsible for PHC at the local level of government. Local Health Commissions and their Division for PHC are the agencies with a clear mandate for PHC.

[1] Central Committee & State Council, 2016, An outline of the "Healthy China 2030" Plan, http://www.gov.cn/xinwen/2016-10/25/content_5124174.htm
[2] Xinhua, 2010, Li Keqiang: focus on "ensuring the essential services, strengthening primary care, building institutions" in health reform. http://www.gov.cn/ldhd/2010-05/23/content_1611981.htm
[3] National People's Congress. 2020. Basic Healthcare and Health Promotion Law. http://www.npc.gov.cn/npc/c30834/201912/15b7b1cfda374666a2d4c43d1e15457c.shtml

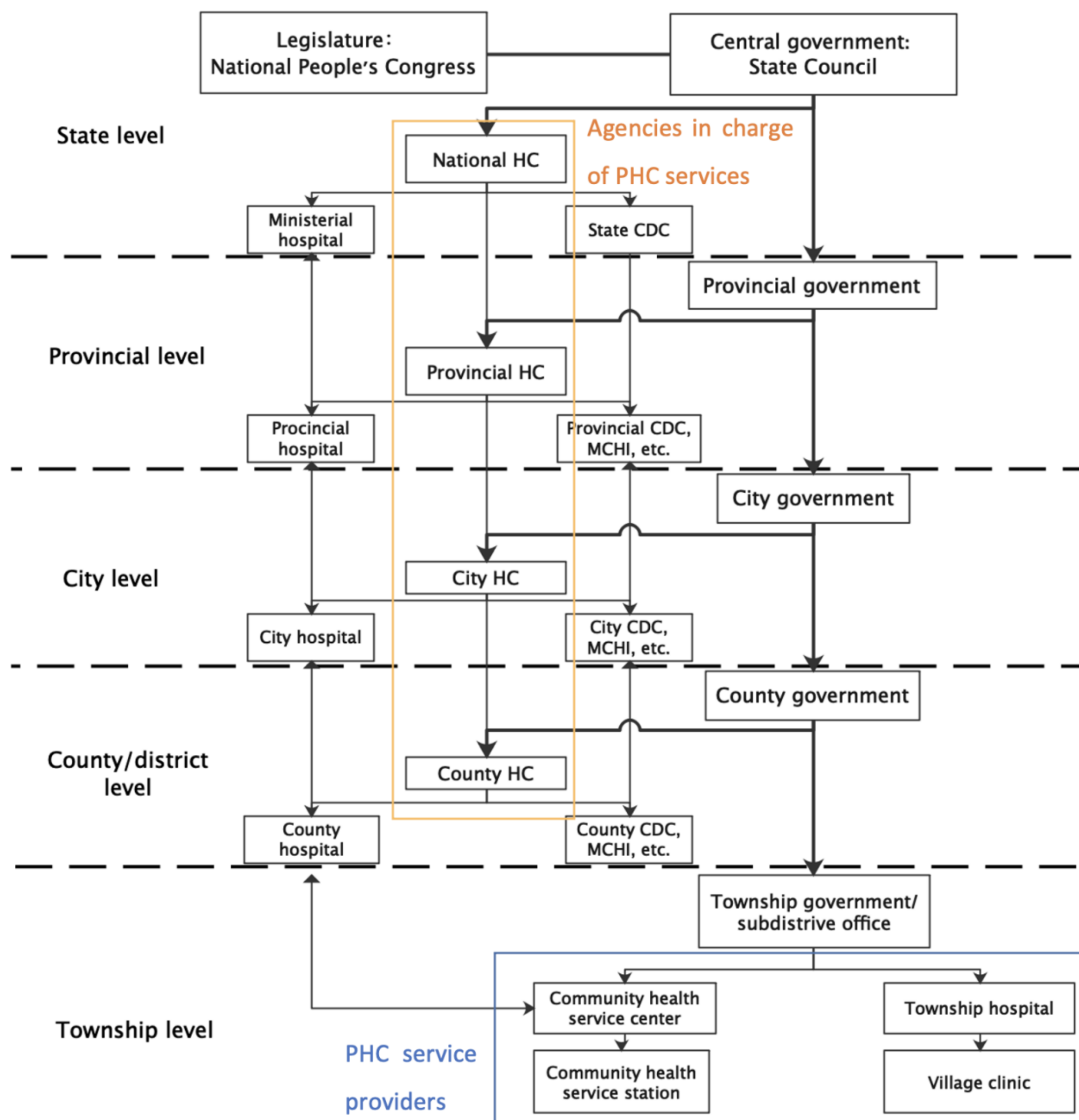
## 1.3 Administrative structure of PHC services

The NHC issues national policies. Provincial and municipal Health Commissions issue more detailed policies. County and district Health Commissions put the policies into practice and manage local services. Service and organisational performance, staffing, finance, etc., are all administered by the district or county government. Within each level of Health Commissions, there is usually a department responsible for PHC.

There are two main lines of accountability as indicated in the organigram (Figure 1.1). First, there is the horizontal line of accountability. County/district Health Commissions report to county/district government for the delivery of outcomes, for achieving and maintaining specific quality and safety standards. County/district governments are financially responsible for the infrastructure, equipment, staff salary, and take major financial responsibility for provision of public health services.[4] Similarly, the superior Health Commissions report to their corresponding level of government. Second, there is the vertical line of governance, where the local Health Commissions report to the superior level of Health Commissions for technical guidance and supervision.

[4] ZHANG L F, QIN J M, ZHANG Y C, et al . Practice and effect of "First-class Financial Supply, Second-class Performance Management" Plan in primary health care institutions [J] . Chinese General Practice, 2020, 23 (1) : 1-6, 13 .

## Figure 1.1 An organigram of the organisational structure of PHC services in China




### Degree of decision-making autonomy and powers

County and district governments have a moderate degree of decision-making autonomy. In terms of the public health services, the main categories and items of services are specified by the central government in the "Equalization of Basic Public Health Services" (EBPHS) policy. A comprehensive package and standards of Basic Public Health Services (BPHS) are also centrally defined and implemented nationwide (Figure 3.1). However, local governments can add additional service items deemed relevant to their local situation. County and district government are directly responsible for monitoring and performance evaluation.

In terms of the medical care services, service provision is influenced substantially by the policies related to social health insurance.

## 1.4 Planning PHC services

**Mechanisms to ensure equitable distribution of PHC services**

National targets for PHC services are set in the overall health planning and service system planning document, issued by the State Council. These are to be observed by local levels of governments.[5]

To ensure an equitable distribution of PHC services across provinces, the EBPHS policy and social health insurance schemes contain a specified formula for sharing of responsibility by central and local governments.[6] The sharing of responsibility for EBPHS and social health insurance is nationally specified according to the category of each province. For example, in Guizhou a Type 1 (i.e. least economically developed) province, the central government is responsible for 80% of the fund, whereas in Shanghai, a Type 5 (i.e. most economically developed) province-level city 90% is paid for by the local governments within the province. Despite this equalizing system of fiscal transfer, more developed regions still have a higher total government subsidies level for providing BPHS package because local governments with better economic development status usually increase the per capita subsidies standard for the package.

PHC services are managed by district and county governments, who oversee both rural and urban areas within their administrative borders and are responsible for local equitable distribution. However, currently there are substantial disparities in the quality of human resources between rural and urban areas, and within and across provinces.[7] Rich cities with strong public revenue are recruiting from across the country and from overseas, attracting workers with substantially higher pay of up to 350,000 Chinese yuan (about $60,000 USD per year).[8] To encourage primary care doctors to work in remote and rural areas, a contract-based general practitioner training program has been established. Under such policy, some general medical students are recruited from such areas and enrolled in medical colleges with tuition fees waivered. They sign a contract with local health agencies graduates and need to stay working at primary care facilities in such areas for certain years.[9]

**Mechanisms to ensure coordination of PHC services**

National policies for EBPHS are to be adhered to by inferior levels of government agencies. Local, provincial and municipal governments (their Department of Healthcare Security) make implementation policies for social health insurance reimbursement and decide the range of services chargeable. There is insufficient local autonomy in service coordination across policy EBPHS and medical services.

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[5] The General Office of the State Council, 2015, On Issuing of the Announcement on the Planning Outline of the National Health Service System (2015-2020). http://www.gov.cn/zhengce/content/2015-03/30/content_9560.htm

[6]The General Office of the State Council, 2018, On Issuing the Reform Plan about the Division of Responsibilities on Decision and Expenditure in the Area of Basic Public Service between Central and Local Governments. http://www.gov.cn/zhengce/content/2018-02/08/content_5264904.htm

[7] Liang S, Macinko J, Yue D, Meng Q. The impact of the health care workforce on under-five mortality in rural China. Hum Resour Health. 2019 Mar 18;17(1):21. doi: 10.1186/s12960-019-0357-5. PMID: 30885196; PMCID: PMC6423838.

[8] Shenzhen News, 2019, Coming to Shenzhen to be a general practitioner will receive up to 350,000 yuan in subsidies https://www.sznews.com/news/content/2019-12/01/content_22671753.htm

[9] Policy Document of National Health Commission, 2019, Announcement on Employment and Contract Management of Medical Students under the Contract-Based Targeted Free Training Program http://www.gov.cn/zhengce/zhengceku/2019-11/13/content_5451684.htm

## 1.5 Integration of PHC services

**Horizonal integration of PHC services**

Horizontal integration of services is achieved through a hierarchy that puts primary care facilities under district/county Health Commissions. The geographical boundaries of PHC services are generally aligned with territorial borders, and the PHC services are defined as basic medical services and public health services provided by primary care facilities, which are located in town/community level. That being said, it is worth noting that patients can almost freely bypass local primary health facilities and seek outpatient care for minor conditions in any health facilities including hospitals. Because there are no other health care providers at level of town/community, the horizontal integration in PHC services in China mainly means how the medical services (outpatient and inpatient care targeting individual patients) and public health services (preventive and management care) are integrated within the PHC system. A family medicine team system is being promoted as a nationwide policy to enhance integration of PHC services within health facilities.[10]

Although local practices vary substantially, horizontal coordination is also promoted through an agreement system between family medicine teams (also called family doctor teams but usually include nurses and public health physician besides doctors) and residents, especially the high-risk patients. Signing the agreement means the establishment of a continuous care relationship between the teams and residents. Family medicine teams provide basic medical services (diagnosis and treatment of common and frequent conditions, rational use of drugs, guidance on drug administration, and referral) defined in the social health insurance and BPHS package. The family medicine teams usually receive compensation for fulfilling the agreement. The fund sources supporting family medicine teams vary geographically, including county/district level government budget, insurance fund, or charges from the residents signing contracts.

**Vertical integration of PHC services across administrative tiers**

As mentioned above, the PHC services are essentially decentralized to the level of district/county and aligned with administrative territories. Vertical integration of PHC services have taken place in the rural areas in the form of integration between township health centres and village clinics. Usually, funds were allocated at the level of township health centres, which then shared a proportion (or an amount) with the village doctors. In the urban areas, many community health centres operate community health stations, which are satellite facilities attached to the centres. Staff of the stations are generally employed by the centres. Most equipment concentrates in the centres.

Coordination of PHC services with other services

PHC facilities are by nature the grassroots level for both public health services and medical care. Their coordination with public health is achieved through the BPHS and the health protection units within PHC facilities. The health protection staff participate in local disease control activities under the leadership of local Health Commission and the technical guidance of local Centres for Disease Control and Prevention.

[10] State Council Office of Health System Reform, National Health and Family Planning Commission, National Development and Reform Commission, Ministry of Civil Affairs, Ministry of Finance, Ministry of Human Resources and Social Security, 2016, http://www.gov.cn/xinwen/2016-06/06/content_5079984.htm

Integration between primary, secondary and tertiary health services is achieved mainly through various forms of medical alliances. The government is currently promoting four main types of medical alliances across the country.

County tight medical alliances (type 1, literally translated as "medical service community") are promoted for rural areas, while urban medical groups (type 2) are promoted for urban areas. Both promote unified administrative and business management, including management of drugs and consumables, drug lists, procurement, distribution and payment, as well as mutual recognition of diagnostic test results between participating medical imaging centres, diagnostic test centres, and health facilities. In some advanced medical alliances, payment of health insurance fund is reformed, so that a global budget of health insurance reimbursement is calculated for the medical alliances. The balance is retained by the medical alliances and distributed according to a predefined formula among participating facilities. This potentially provides a much stronger foundation for integration of services across tiers and between preventive and curative services. By the end of 2019, there were nominally 1,408 type 1 alliances and 3,346 type 2 alliances[11]. However, the implementation of integration varied substantially in reality.

Besides, a specialty alliance (type 3) has also been established, which mainly involve collaboration on a specialty (e.g., paediatrics) across multiple health facilities within a similar region. Finally, telemedicine collaboration networks (type 4) are also promoted nationwide. Among these, there are two sub-types. One sub-type of telemedicine collaboration network is led by ministerial or provincial hospitals and mainly targeted remote and poor areas. The other sub-type is aligned with type 2 alliances. Both type 3 and type 4 can be across tiers of care and regions.[12] By the end of 2019, there were 3,924 type 3 alliances, and 3,542 type 4 alliances.

Regarding coordination with social care, the Chinese government promoted the integration of health care and long-term care services (yi yang jiehe). There are four main models: (1) medical institutions (hospitals) may partner with long-term care facilities, with mutual referral arrangements; (2) long-term care facilities may set up their own onsite medical care capacity (e.g., in the form of health clinics within the long-term care facilities); (3) medical institutions may expand their range of services into long-term care; and (4) community-based health facilities may deliver home- or community-based care.[13] Administratively, coordination with other social care is also achieved through local government at township level and the village/community administration.

## 1.6 Role of private sector in delivering PHC services

There are a large number of private clinics that provide PHC services. Private clinics can register with social health insurance and receive covered beneficiaries. Most of the village clinics/doctors are private practitioners but are registered with the township health

[11] National Health Commission, 2020, Interpretation of " Measures on Medical Alliance Management (Trial)" http://www.gov.cn/zhengce/2020-07/31/content_5531670.htm

[12] National Health Commission and State Administration of Traditional Chinese Medicine, 2020, http://www.gov.cn/zhengce/zhengceku/2020-07/18/content_5528009.htm.

[13] Feng, Zhanlian, Elena Glinskaya, Hongtu Chen, Sen Gong, Yue Qiu, Jianming Xu, and Winnie Yip. 2020. Long-term care system for older adults in China: policy landscape, challenges, and future prospects. *The Lancet* 396: 1362–1372.

centres and managed by the township health centres. They are privately owned but not totally independent.

### Regulation of the private sector

Regulation for private clinics that are not community health institutions, township health centres or village clinics, is generally considered to be less effective. However, licensing is highly restricted. Since 2019, the government has encouraged the creation of new private independent clinics to strengthen supply of ambulatory care outside hospitals, among a series of efforts to strengthen "tiered-care system" and address congestion of patients in hospitals. This led to an increased number of facilities. There is no specific regulation on the specialty of such facilities. There are no available statistics, but most private clinics seem to be specialist.

### Contracting with private sector

Service provision is based on the family doctor team, mainly composed of family doctors, community nurses, public health physicians (including assistant public health physicians), etc. Secondary level hospitals are required to select physicians (including traditional Chinese medicine physicians) to provide technical support and guidance. Funding is principally through capitation payments and the basic health insurance schemes implement differentiated reimbursement policies for those covered by the capitation system.

## 1.7 Health care reforms

China's effort to extend health care coverage to all its population started with the launch of the New Cooperative Medical Scheme 2002, which was followed by the Urban Resident Basic Medical Insurance scheme. By 2015, the two schemes in addition to the pre-existing Urban Employee Basic Medical Insurance scheme reached a population coverage of 95%. This along with the newly established BPHS provides the increased revenue for PHC facilities.

Before 2009, revenue of PHC was mainly collected using fee-for-services (FFS), with a substantial reliance on drug sales mark-up. Since 2010, mark-up was removed and replaced with new ways of paying PHC facilities. Overall, the amount of revenue increased but the gap between PHC and hospitals continued to widen. It is widely believed that policies after the reform were stringent and limited the salary of PHC staff and their work morale. Recent policies since 2016 have focused on using a mixed payment system for both facilities and staff salary and establishing stronger incentives.
Since 2016, medical alliances have also been promoted with the intention to induce/encourage hospitals to support PHC.

# 2. Overview of health expenditure

## 2.1 Trends over time

As Table 2.1 shows, the trend in government expenditure on health has increased since 2000, especially since 2009 when health system reforms started. With regards to total health expenditure, the increase in general government expenditure on health has been greater than other sources: in 2017, general government expenditure as a percentage of total health expenditure increased to 54.19%, whereas out-of-pocket expenditure as percentage of total health expenditure decreased to 28.77%.

**Table 2.1: Trends in health expenditure in country, 2000 to latest available year**

| Expenditure | 2000 | 2005 | 2010 | 2015 | Latest available year |
|---|---|---|---|---|---|
| 1) Total expenditure on health as % of GDP (THE%GDP) | 4.57 | 4.62 | 4.85 | 5.95 | 6.32（2017）<br>6.64（2019） |
| 2) General government expenditure on health as % of GDP (GGHE%GDP) | 1.75 | 1.79 | 2.63 | 3.36 | 3.45（2017） |
| 3) Per capita government expenditure on health, US$ adjusted for purchasing power (“purchasing power parity” (PPP) or $ International) | 9.3 | | 97.4 | | 249.8（2017） |
| 4) General government expenditure on health as % of total general government expenditure (GGHE%GGE) | 4.47 | 4.58 | 6.38 | 7.09 | 7.49 ( 2017 ) |
| 5) General government expenditure on health as % of total health expenditure (GGHE%THE) | 38.28 | 38.77 | 54.31 | 56.13 | 54.19（2017） |
| 6) Private expenditure on health as % of total health expenditure (PHE%THE) | 61.72 | 61.23 | 45.69 | 43.87 | 45.81（2017） |
| 7) External resources for health as % of total health expenditure (EXT%THE) | | | | | |
| 8) Out-of-pocket expenditure as % of total expenditure on health (OOPS%THE) | 58.98 | 52.21 | 35.29 | 29.27 | 28.77（2017） |
| 9) Private prepaid plans as % of total expenditure on health (VHI%THE) | 0.61 | 3.55 | 3.39 | 5.88 | 8.35（2017） |

*Source*: WHO’s Global Health Expenditure Database that uses National Health Accounts (NHA) categories, available from https://apps.who.int/nha/database

Table 2.2: Public health expenditure on health by service programme, latest available year

| Expenditure | % of public expenditure on health | % of total expenditure on health |
|---|---|---|
| 1. Health administration and insurance | 46.95（2019） | 12.85（2019） |
| 2. Education and training | | |
| 3. Health research and development | | |
| 4. Public health and prevention | | |
| 5. Medical services: | | |
| a) inpatient care | | |
| b) outpatient/ambulatory physician services (primary care) | 31.19（2019) | 8.54（2019) |
| c) outpatient/ambulatory physician services (specialist care) | | |
| d) outpatient/ambulatory dental services | | |
| e) home or domiciliary health services | | |
| f) mental health | | |
| g) ancillary services | | |

Source: Health Statistics Yearbook 2020

Fig. 2.1 Health expenditure as a share (%) of GDP, latest available year

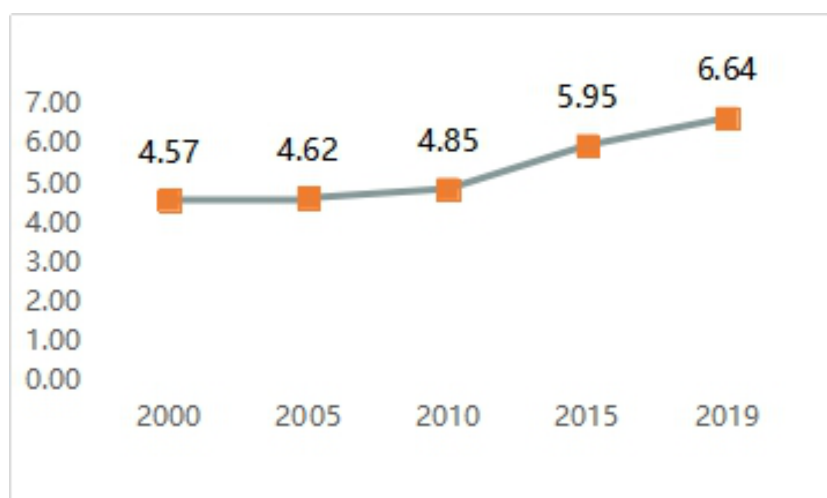


Fig. 2.2 Health expenditure in US$PPP per capita, latest available year

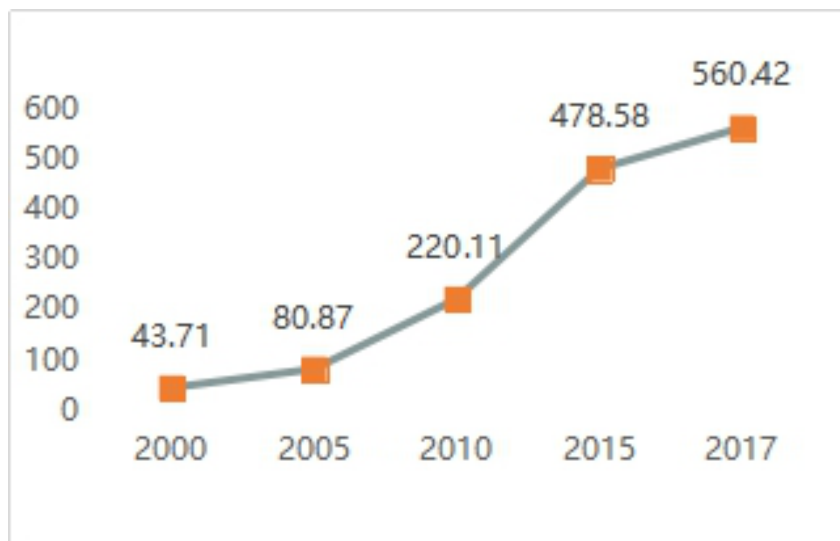
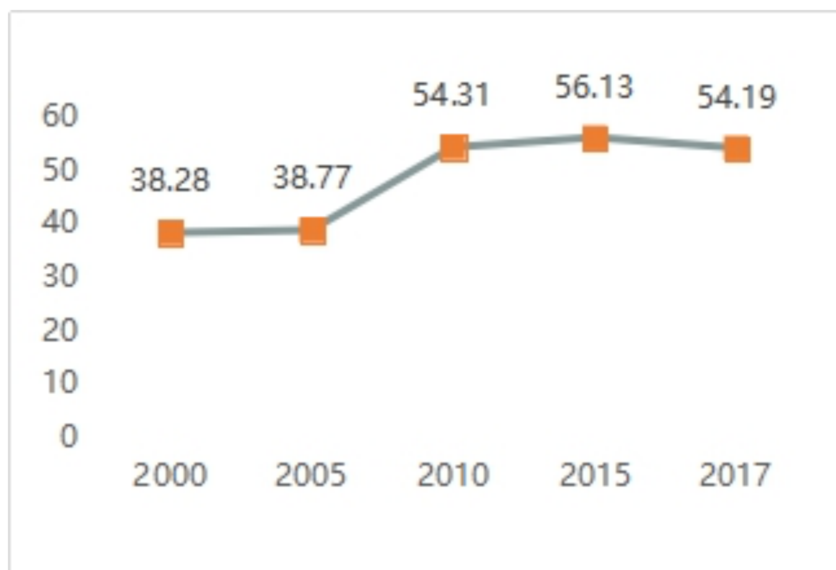



Fig. 2.3 Public sector health expenditure as a share (%) of total health expenditure, latest available year



# 3. Mobilisation and allocation of resources

## 3.1 Sources of revenue and financial flows in PHC system

There are two major sources of revenue in the PHC system in China: the government budget allocation and charges from medical services and drugs. Revenues from medical services and drugs are collected from two channels: the reimbursement from health insurance schemes and out-of-pocket payment from patients.

The government budget allocation consists of several subsidies with different purposes and management strategies. One major part of government subsidies directly targeting PHC facilities is the line budget for inputs of PHC facilities, including the costs of personnel and other supplies for operation of institutions. Local (county/district/municipal) governments allocate such funds from their public budget. In some less developed areas, the central government provides a fiscal transfer to PHC facilities. The amount of budget allocated for personnel costs is usually determined a quota set for each PHC facility and the local policies on per capita salary criteria. Personnel quota is usually calculated by the amount of covered population, the criteria on the amount of health workers per ten thousand population. Salary for such staff is covered by the public budget, however, facilities may hire additional staff at their own cost. Public PHC facilities need to conform with personnel policies for public service institutions.

In addition to the regular line budget for personnel salaries, the local government also has some irregular subsidies for other input items, in the form of improving infrastructure and equipment of PHC facilities or subsidies for revenue loss because of the removal of the markup on drug sale prices. The amount of these subsidies is determined by the application of PHC facilities at the beginning of budget year, the fiscal space of local government and the communication between health department and finance department.

Another major government subsidy directly targeting PHC facilities is the BPHS program budget. The total amount of revenue for the program depends on the number of residents in the area served by the PHC facilities and the per capita funding level--the minimum level being CNY 15 per capita in 2009, which increased to CNY 55 per capita in 2017.[14] Figure 3.1 shows the revenue sources of PHC facilities system and major categories. Figure 3.2 shows the share of different revenue sources for PHC facilities in 2019.

**Coverage: who and what is covered?**

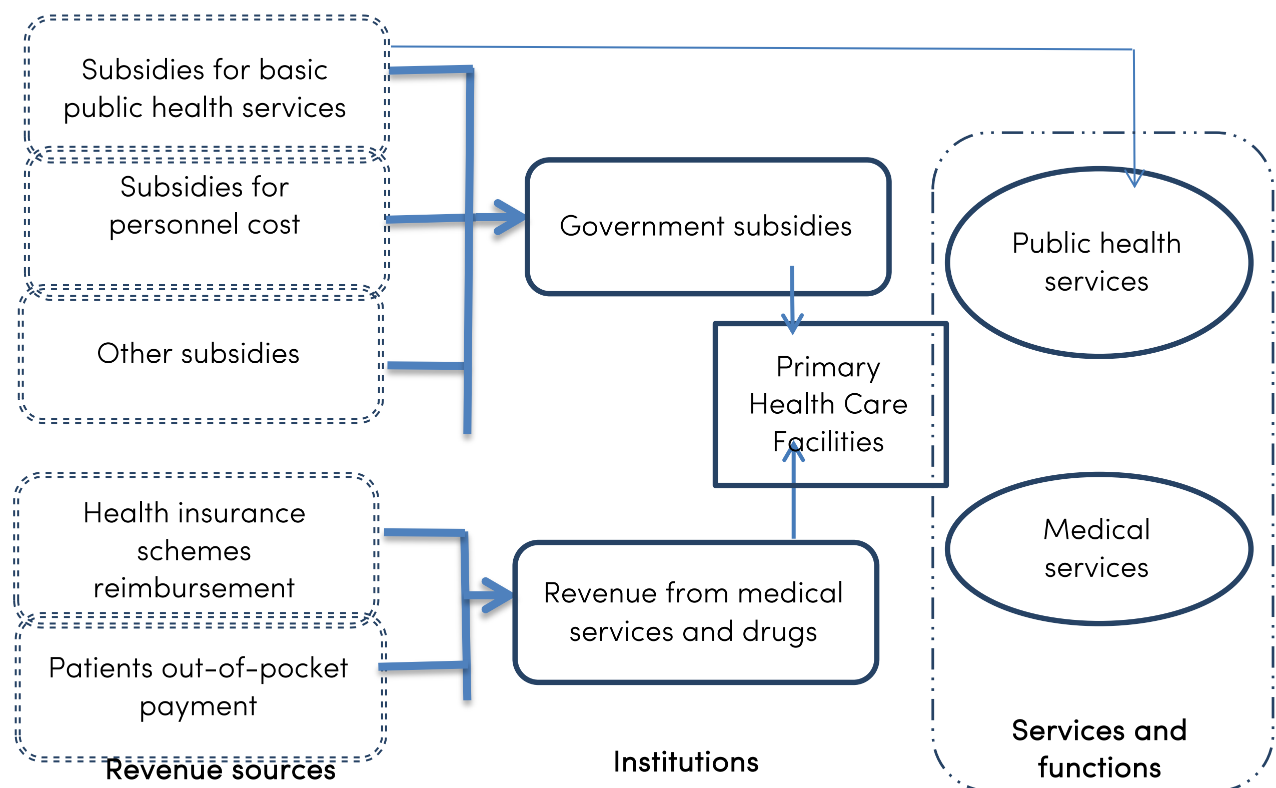
Every PHC facility in China provides both public health services and medical services (outpatient, inpatient, etc.) to residents, mainly but not limited to those located near administration region covered by the PHC facility (Figure 3.1). Public health services and medical services are categorized separately by policy documents, with their content separately defined. This fragmentation stems from overall health system design in financing, delivery system and governance.

[14] Yuan B, Balabanova D, Gao J, Tang S, Guo Y. Strengthening public health services to achieve universal health coverage in China. BMJ. 2019 Jun 21;365:l2358.

The public health service functions are defined the "Equalization of Basic Public Health Services" (EBPHS) policy. As Table 3.1 shows, the EBPHS includes two types of services: basic public health services package (BPHS) and major public health programmes."[15]

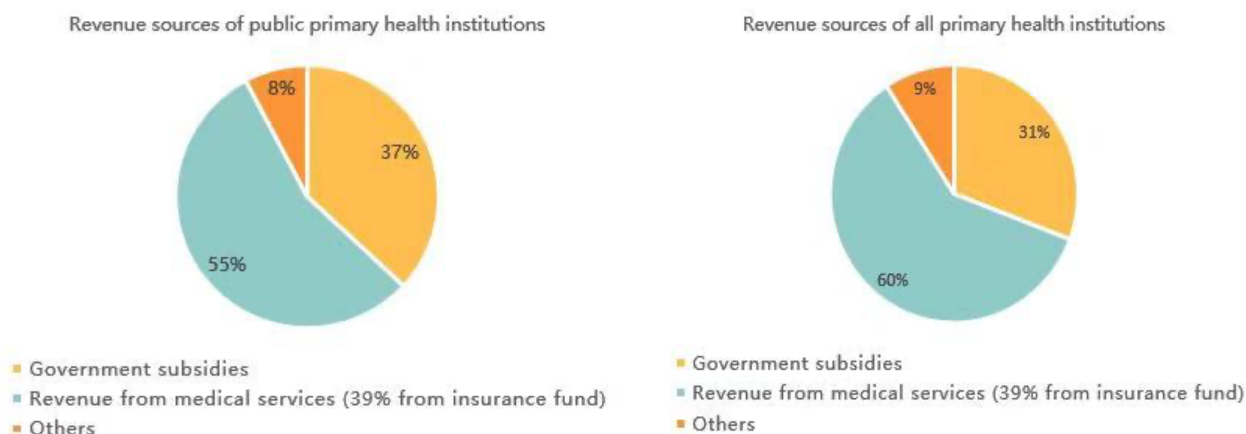
1. The basic public health services package includes a standard range of services for all citizens, and this package does not intend to cover curative services (diagnostic, treatment, surgery or pharmaceuticals), but only preventive, screening, check-up, follow-up and information management services, etc. The initial package included 9 categories of service in 2009, which was later expanded to 14 categories in 2017. Local governments can expand upon the standard (i.e., minimal) package based on local population health and fiscal capacity.
2. The major public health programmes were designed for preventing and controlling important infectious diseases (tuberculosis, HIV/AIDS etc.), non-communicable diseases, and meeting the needs of disadvantaged populations.

**Fig 3.1 The flow of funding sources for PHC system in China**




[15] Yuan B, Balabanova D, Gao J, Tang S, Guo Y. Strengthening public health services to achieve universal health coverage in China. BMJ. 2019 Jun 21;365:l2358.

Fig. 3.2 Percentage of total expenditure on primary health care according to source of revenue, 2017




The medical outpatient and inpatient services include consultation services, standard diagnostic, surgeries and pharmaceuticals for the common diseases. The residents in China are covered by at least one pre-paid plans. The most common pre-paid plan of patients seeking services from PHC facilities is the "Urban and Rural Residents Medical Insurance" (URRMI) scheme. A limited number of patients seeking services from PHC facilities are covered by the "Urban Employee Basic Medical Insurance Scheme" (UEBMI) - the medical insurance scheme mainly for all the employees in the formal sectors. All urban and rural residents who are not enrolled in the UEBMI are eligible to enroll in the URRMI scheme.

Population-wise, the URRMI enrollees mainly include children, the elderly, rural residents, and urban residents who are self-employed and working in informal sectors. Enrollment to URRMI is voluntary, but China has generally achieved universal coverage of basic medical insurance schemes, with more than 95% of citizens being covered by URRMI scheme.[17] The benefit package of URRMI includes a category of outpatient and inpatient service items, examination items and drugs. The lists have been expanded and adjusted regularly. The depth of URRMI coverage (copayment rates) on PHC facilities' medical services vary across different areas. In 2019, the copayment of total inpatients expenditure for all URRMI enrollee was about 39% on average across China.[18] The copayment rate for UEBMI is much more generous.

[16] Qing J. Progress in basic public health service projects in China. Chin J Publ Health 2017;33:1289-97
[17] Hai Fang, Karen Eggleston, Kara Hanson, Ming Wu. Enhancing financial protection under China' s social health insurance to achieve universal health coverage. BMJ 2019;365:l2378
[18] Medical Security Blue Book: China Medical Security Development Report (2020)

Table 3.1 "Basic public health services" and "Major public health programs" as defined in the EBPHS policy in 2009

| Basic public health services | Major public health programmes |
|---|---|
| ▪ Children's health management<br>▪ Maternal health management: prenatal and postpartum checks and information management<br>▪ Vaccination: implementation of vaccination<br>▪ Reporting and handling of infectious diseases<br>▪ Establishing health records for all citizens<br>▪ Health education<br>▪ Health management for the elderly<br>▪ Health management for hypertension and Type 2 diabetes patients<br>▪ Management for patients with severe mental illness | ▪ Prevention and control of tuberculosis and AIDS<br>▪ National immunization program: supplies of vaccines<br>▪ Rural hospital delivery<br>▪ Poor cataract patients' recovering visual function<br>▪ Reconstructing water supply and lavatories<br>▪ Eliminating hazards endemic fluorosis<br>▪ Replanting hepatitis B vaccine for people under 15 years old<br>▪ Folic acid supplements before and during early pregnancy for rural women to prevent neural tube defects<br>▪ Breast and cervical cancer screening for rural women |

**Collection and pooling of PHC revenue**

As analyzed above, there are two major compulsory sources of revenue for PHC facilities in China: the funds from social health insurance (mainly from URRMI and limited funds from UEBMI, the former was heavily subsidized by government) and government direct budget allocation.

**Social health insurance:** The funding of URRMI is collected from the premiums of residents (one third of total premium) and subsidies from governments (two thirds of total premium). In 2014, government subsidies, as the main source, accounted for 78% of the total premium. The premium level for the URRMI is adjusted every year with regular increases.

The central government contributes to a minimum premium, and this level increased from 450 RMB in 2017 to 520 RMB in 2019. The responsibility of premium subsidization is shared by the central and local governments, with levels varying across areas: in areas with more advanced economies, local governments take the primary responsibility of contribution; and in less-developed areas, the central and provincial governments take greater responsibility. For example, in Guizhou a Type 1 (i.e. least economically developed) province, the central government is responsible for 80% of the fund, whereas in Shanghai, a Type 5 (i.e. most economically developed) province-level city 90% is paid for by the local governments within the province. Despite this equalizing system of fiscal transfer, more developed regions still have a higher total government subsidies level for providing BPHS package because local governments with better economic development status usually increase the per capita subsidies standard for the package. [19]

[19]The General Office of the State Council, 2018, On Issuing the Reform Plan about the Division of Responsibilities on Decision and Expenditure in the Area of Basic Public Service between Central and Local Governments. http://www.gov.cn/zhengce/content/2018-02/08/content_5264904.htm

The URRMI funds are pooled at the municipal level in most of areas of China (the lowest administrative level in China is village—which is not considered a level of government, followed by township, county, municipal, provincial and national level, as the highest level), with the average population of 3.1 million enrollee in each pool. The National Healthcare Security Administration and its local counterparts were established in 2018 and assumed the management of all non-private pre-paid health schemes in China. The URRMI fund management agencies under the Healthcare Security Administration, function as purchasers.

Payment reforms for UEBMI follow the same trend as the reform of URRMI funds as described above.

PHC facilities also receive revenue from the UEBMI social health insurance scheme, although the proportions vary in different areas and between urban and rural facilities, depending on the size of formal employment. The funding of UEBMI is collected from the payrolls of employee and contributions of employers. The URRMI funds are also pooled at the municipal level in most of areas, and the Healthcare Security Administration is the fund management agency and purchaser.

**Government direct budget allocation:** Procedures for paying PHC facilities local government subsidies differ across areas: in some areas, budgets are paid directly from finance departments to PHC facilities, whilst in others the budgets are pooled in health administration departments and then distributed to PHC facilities.

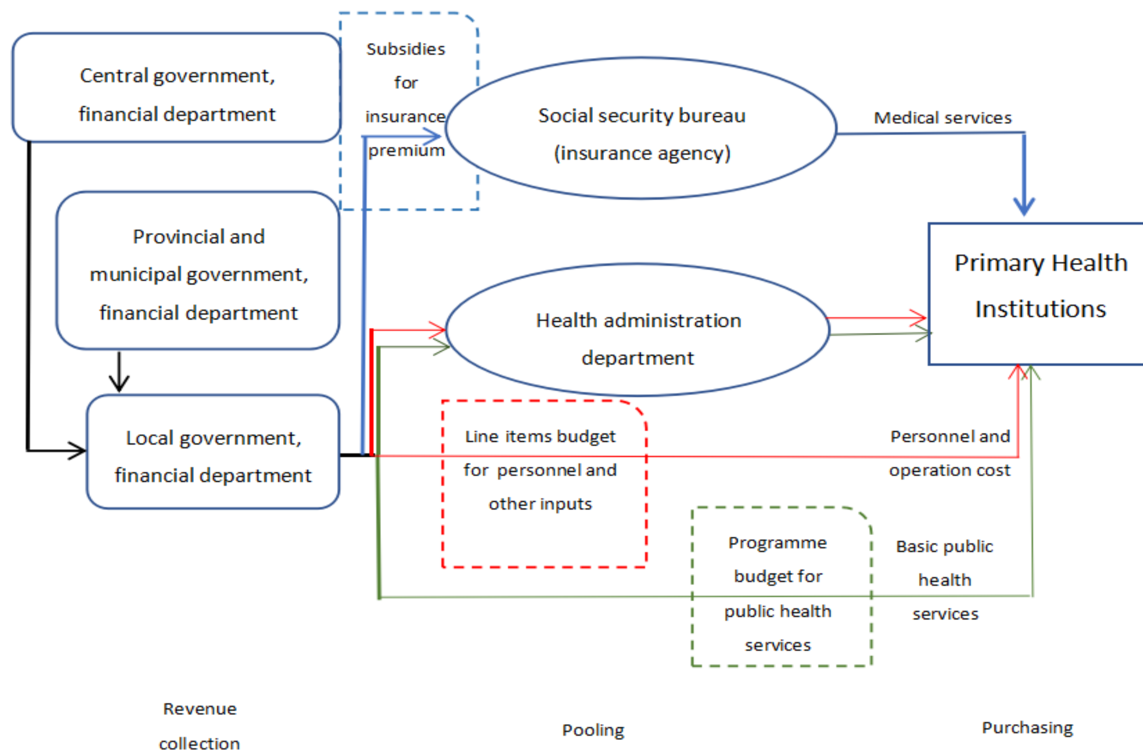
The subsidies for BPHS program are contributed by central, provincial, municipal and country government. To ensure that all PHC facilities receive the minimal funds required, the central government makes a larger funding contribution to less developed regions. The same mechanism for sharing of fiscal responsibility for social health insurance subsidization applies for sharing of responsibility for BPHS.

All the government direct subsidies are allocated to the health administration department of county/district level. The payment of BPHS fund to PHC facilities is based on the number of covered residents of the PHC facilities and also adjusted based on the performance of PHC facilities in providing this health services package. Facilities are rewarded/punished according to their performance in different ways in different areas. Most commonly, subsidies to the facilities with poorer performance are reduced while the better performing facilities receive a bonus. It is worth noting that the total amount of payment in certain areas for BPHS is fixed, based on the size of population covered. The BPHS program strongly emphasizes the need to track performance. It includes explicit performance targets for providers to ensure the uniform and universal coverage of the specified service package. A supervisory system is in place to make sure proper management and timely release of funds, in accordance with program performance. This supervisory system is funded separately with about 65 million Chinese yuan each year directly by the central government.

Figure 3.3 shows how all the government subsides to PHC facilities are collected, pooled and paid. The blue line stands for the collecting, pooling and payment of insurance funds. The red line stands for the collecting, pooling and payment of line items budget, and in some areas this part of budget is paid to facilities directly, in other areas these funds are

transferred to facilities through county/district health administration departments. The red line stands for the collecting, pooling and payment of BPHS funds. It is paid to facilities directly or through county/district health administration departments.

Fig. 3.3 The public funds management for the subsidies to PHC facilities




## Political economy and history of revenue mobilisation

Historically, the financing of PHC system experienced three stages. The first stage (1949-1978), China was a planned economy. Health was a high priority in the government's agenda. Resource mobilization for health was divided into rural and urban sub-systems, like most other social welfare systems in the country. The PHC service delivery system in rural areas included both township health centers and village-level barefoot doctors, both of which were part of the county-wide three-tier health service delivery networks across the country. While township level facilities were financially supported by the government, village-level barefoot doctors were supported by agricultural collective economy via the Cooperative Medical Scheme (CMS). Urban facilities were generally public, though they also received private payment. Overall revenue for PHC was very limited, but it was enough to cover most of the country's population.

The second stage (1979-2002), China began to implement economic reform. Economic development became the dominant concern of national affairs. While the economy steadily grew, the government's share in total health expenditure shrunk continuously, to its lowest point at around 2002. CMS almost completely collapsed. User fees became the main source of revenue for PHC and other health facilities in both urban and rural areas. Competition also intensified between health service institutions, leading to a brain drain in

PHC facilities and continuously weakened functions of PHC services, despite rapidly increasing health care expenditure. In the meantime, the financial burden of disease for residents increased significantly.

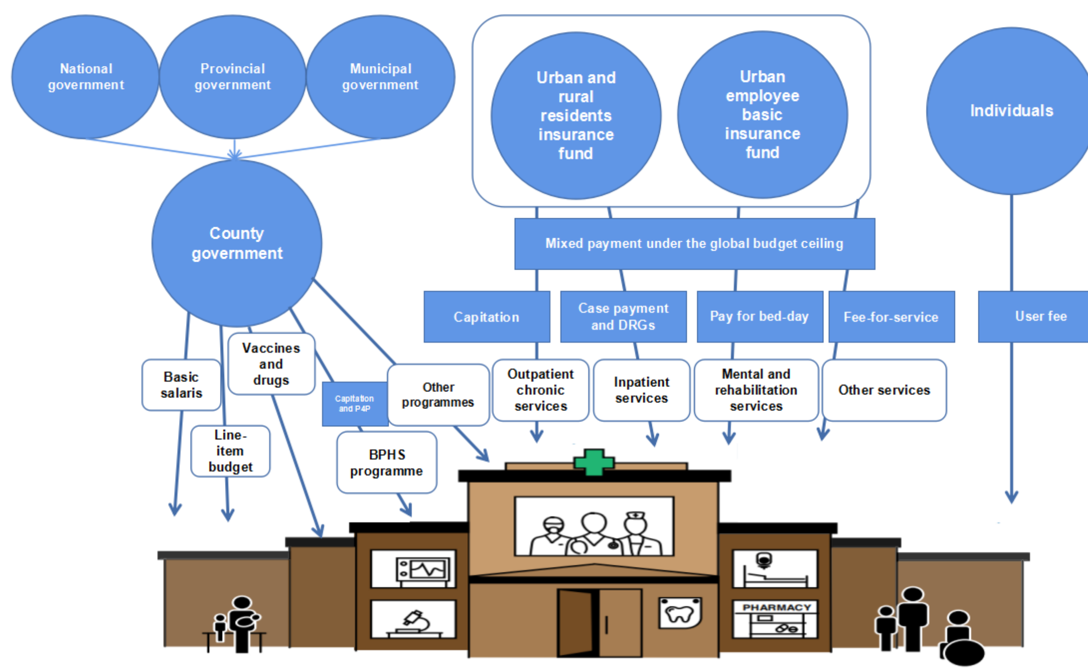
The third stage (2002-present), leaders of the country emphasized the importance of social harmony and the singular focus on economic benefits was criticized. Health and social welfare systems started to be prioritized as general public revenue increased rapidly. Equity became an increasingly important social value. The government continuously increased its fiscal input into health. Much of this additional funding went to support the expansion of social health insurance coverage for people outside the formal employment sector. The expansion of social health insurance provided new funding for PHC delivery, however, it also made hospital care increasingly accessible. As hospitals with a substantial professional advantage competed with PHC facilities, insurance expansion led to a relative decline of the role of PHC facilities despite overall growth of health expenditures. Besides, public funding was also used to establish the BPHS program nationwide as mentioned above.

### Public financial management (PFM) process related to PHC services

Figure 3.4 shows the collection, pooling and payment of all categories of government subsidies to PHC facilities.

Regarding the revenue raising function, public funds for the PHC system in China is under a mixed "make" and "buy" system: local governments operate PHC facilities through a budget for line-item inputs, and, at the same time, they buy public health services from PHC facilities through a programme budget and medical services through the subsidized insurance scheme. A challenge in public fundraising is that there is no formal process to forecast the need for an overall budget level for the PHC system and base government budget raising upon. Currently, the fragmented sources of funding are calculated and determined in parallel and different ways. There are issues with each of these funding mechanisms:

## Fig. 3.4 The sources and payment of all revenues of PHC facilities in China




1. The formulation for line-item budgets to PHC facilities is usually based on historical levels with incremental adjustments. Following the historical path, this part of the budget covers not all the personnel costs, but only the salaries of permanently employed personnel. In some areas with limited finance capacity, such funds only just cover part of the salaries. Approximately one quarter of all PHC personnel are employed on short-term contracts and their salaries are not covered by the line budget. A common blockage for line budgets is that budget classification categorizes expenditures only by input-based line items, therefore the link between the budget and the performance the government commits to achieve is weak.

2. Since 2009, BPHS policy was initiated with a strong political commitment to expand the universal coverage of basic health services under the context of health system reforms as a national development priority, which brought extra public funds to PHC system. However, at the beginning of the programme, the minimum budget requirement for the package was determined by the local financing space available rather than a formal priority-setting process that calculated the costs of the package of services. As a consequence, the level of funds made available was lower than the spending required for providing the service package: a study in one province calculated the cost of the BPHS package and found that the costs were 7.31 and 8.65 USD per capita in urban and rural areas respectively in 2014, which was higher than funding level being 3.97 USD for residents from all areas at that year.[20] After the COVID-19 outbreak, there has been a small increase in the subsidies for BPHS packages but there is still no evidence of implementation.

3. Public funds subsidizing the premium for social health insurance (extrabudgetary) don’t show up in the budget to PHC facilities. But these funds play crucial role in satisfying the residents’ needs for basic medical services and also the support for the operation of PHC facilities, as the URRMI (purchasing medical services) is the most important revenue source of PHC facilities (Figure 3.2). The fact that this part of funds

[20] Yin D, Wong ST, Chen W, et al. A model to estimate the cost of the national essential public health services package in Beijing, China. BMC Health Serv Res 2015;15:222.

remains separate from the overall allocation of public funds to PHC facilities makes it difficult to precisely judge the adequacy of resource raised for PHC system.

Regarding the "pooling" function, the biggest challenge is the fragmentation of revenue streams as Figure 3.3 shows, with revenues collected through the budget system and largely disbursed along input items to maintain the health institutions' personnel and infrastructure, revenues from programme budget and revenues from insurance funds. This fragmentation is exacerbated by the use of different pooling agencies: the local health administration department allocates funds for the BPHS, whereas the Healthcare Security Administration is responsible for URRMI funds. The integration of multiple public funding sources has been under discussion; however, actual implementation of such reform is rare. Another blockage in pooling function is that, due to fiscal decentralization in China, the lower-level government (district/county) has most responsibility for financing PHC. Though there are central government transfers to ensure the minimum funding level of BPHS programme and SHI premium, the well-developed areas usually increase the funding level, which contributes to inequity across different regions in availability of services to residents.

## 3.2 Resource allocation in PHC system

### Allocation from collection agencies to pooling agencies

District/county government in China takes major responsibilities in forecasting health needs, revenue raising and budgeting in local area. The processes for determining the size of health sector budget in a district/county is the mix of top-down setting fiscal ceiling and bottom-up budget needs. At the end of a budget year, the health sector usually submits an application for a budget next year and communicate with the finance department. Financial decisions are usually made based on historical budget level, the priorities in local development plans set by local authorities and local fiscal space. The health sector has historically lacked public support since the market reform starting in 1970s, during which the government reduced funds to hospitals and PHC facilities and allowed providers to charge and be responsible for their own profit and loss. Health system reforms since the early 2000s strengthened government support to health system and to PHC, however, the long-standing underspending status of PHC has not changed thoroughly. There is also no separate mechanism to determine and secure adequate budget for PHC.

As mentioned above, the budget for input items to maintain the health institutions' operation and the programme budget for BPHS allocated to the local financial or heath administration department and the budget for SHI subsidies are managed by the Healthcare Security Administration. The funds with different pooling agency are also earmarked for certain services: the programme budget for BPHS can only be used on provision of the defined package of services; the URRMI fund can only be used for the reimbursement of covered medical services. Each had its own fund execution and performance evaluation mechanisms. This fragmentation has created several PFM blockages. Firstly, neither local health authorities nor PHC facilities have no autonomy to accumulate funds and change the mix of revenue sources and input, restricting the ability of PHC facilities to adjust the package of services they deliver in cost-effective ways. Secondly, different revenue sources coming with different purchasing agencies in multiple ways and have led to conflicting incentives: BPHS links the payment with performance in preventive and management services, creating pressure on PHC facilities to provide these

services. URRMI scheme pays PHC facilities for medical services mainly through FFS, creates incentives for facilities to over-prescribe and less attention to preventive care.

## 3.3 Efficiency reform

In the PHC financing system, the biggest challenge to efficiency is the lack of incentive to provide high value services. URRMI funds only cover the medical services, under which the providers have incentives to over-prescribe and provide unnecessary medical treatment, and have no incentives to provide preventive care. At the same time, government uses extra budget to implement BPHS in order to expand the coverage of prevention and disease management. Yet the focus of the BPHS is meeting activity indicators that do not necessarily reflect the value for health status improvement or maintenance. The integration of these two funding streams to cover a comprehensive primary health care package, can potentially improve the efficiency in public fund management, especially if the integration is combined with payment reform (such as capitation) and autonomization of PHC facilities in altering the mix of inputs. In practice, however, the two revenue sources are managed by different departments and there are many barriers to implement the suggested integration model.

# 4. Purchasing PHC services

## 4.1 Provider payment mechanisms

There are four main purchasing streams used to pay PHC providers.

1. The BPHS stream is capitation-based. A budget is allocated to facilities generally based on the number of local residents. The actual payment is linked to the performance of the PHC facilities on BPHS (how well they achieved a range of service targets). A problem with the capitation-based payment system for BPHS was that patients were not actively involved. Although called capitation-based payment, the payment is essentially a fixed global budget (with some performance adjustment) based on number of residents in the catchment area. It is not related to the effective number of residents that actively choose to establish a longitudinal relationship with PHC providers.
2. The payment methods for the medical care stream is under reform. The general trend is transferring from traditional FFS to a mixed payment. The most frequently used payment method now is the mixed payment under the global budget ceiling. The ceiling is calculated based on the expenditure of facilities in the past three years, and the PHC facilities are reimbursed based on the actual expenditure, but they have to undertake the financial loss if their expenditures are over the ceiling. The payment reform progresses include: 97.5% of pooling areas have the total budget control on the payment to health care providers at different levels, 62.3% of areas started the capitation for the outpatient services of chronic diseases patients, 86.3% of areas have applied the case payment for the inpatient services, and 67.4% have used the pay for day-bed for mental and medical rehabilitation services.[21] In the areas without payment reforms, the dominate payment mechanism is still FFS under the global budget ceiling.
3. A salary budget is allocated to the facilities based on the permanent staff (quota defined by local government).
4. In addition, there is government allocation regarding line budget for equipment, limited (if any at all) compensation for removal of drug markup, and so on.

Facilities make salary decisions about their staff (e.g., doctors, nurses and others) within the government's policy framework. In most places, staff salary consists of a basic salary (60-70%) and a performance-based salary (30-40%).

1. The basic salary is usually covered by government budget. It is input based. Policies related to salary are made by the Ministry of Human Resources and Social Security. The local government determines the quota of permanent staff. Facilities may hire additional non-permanent staff at their own expense.
2. The sources of performance-based salary usually consist of government budget and service charges. The government part of the performance-based salary is generally input based with performance. The government also sets overall payroll based using the salary level of other "public service institutions" as a reference. Since 2016, the government is encouraging using surplus (if any) from medical services to pay PHC staff in addition to the overall salary limit. The policy is dubbed "two permission"

[21] Medical Security Blue Book: China Medical Security Development Report (2020)

policy (permission to go beyond locally set payroll limit for public facilities, permission to use revenue from medical care minus cost to pay staff as bonus)[22].

The central government is encouraging local piloting of various design of salary policies to boost recruitment and retention of high-quality general practitioners (e.g., annual salary).[23]

There is a lack of detailed data about the share of each payment mechanism that facilities receive. However, arrangements seem to vary substantially.

### Alignment of different payment methods

For the payment at organization level, there is synergy among the payment methods of three major revenue sources. The payment methods are designed separately for different sources and by different purchasing departments: health insurance agency and health administration department.

There is some linkage between payment methods targeting organisations and payment methods targeting individual health workers. That being said, under the "two permission policy", fee-for-service for medical care may stimulate PHC facilities to use the number of patients and the amount of revenues brought by doctors as the major performance indicators in performance-based salary. By contrast, subsidies for BHPS package cannot be used to pay individual salary, nor can the health workers get much satisfactory salary from public heath work. So, health workers usually have low morale when conducting their public health work and but have to do them under administrative pressure.

### Payment that promotes integration of care within PHC

Capitation based payment is used in some areas for family medicine contract services. Along with the introduction of a family medicine team system, came an effort to encourage capitation-based payment between patients who sign an agreement with teams. The idea is that by signing the contract, patients would be more actively engaged and thus the number in the capitation-based payment is more relevant. However, the reform has not been rigorously evaluated. Reported results are mixed. In many places, agreement signing became a policy target and a high rate of agreement has been achieved. However, there are substantial gaps between actual services provided and the standard of care specified in the range of family medicine teams. Where such capitation-based payment is a substantial part of the revenue of health workers and associated with performance evaluation, the effects seem to be more positive. Yet evidence is still thin. Whilst local governments have been granted autonomy to implement payment reforms, they are generally encouraged to follow policy guidelines from higher levels of government. The boundary is fuzzy. In practice, some local governments negotiate with their superior level of government if they want to implement innovative payment methods.

[22] Medical Security Blue Book: China Medical Security Development Report (2020)
onstruction of Health Workforce http://yzs.satcm.gov.cn/zhengcewenjian/2018-08-28/7720.html

[23] Henan Provincial Health Commission, Henan Provincial Department of Finance, Henan Provincial Department of Human Resources and Social Security, and Henan Provincial Healthcare Security Administration, 2020, http://www.nhc.gov.cn/cms-search/xxgk/getManuscriptXxgk.htm?id=5a8b3ca4093d48779e624affdf9ed8f1

## 4.2 Incentives targeted at PHC providers

At facility level, the performance-based payment for BPHS can reward the better-performing health facilities, and the local health administration department has autonomy in assessing performance and adjusting the amount of BPHS subsidies to each PHC facility. But the power of incentive is limited because the total amount of fund for BPHS is essentially fixed based on the number of covered populations.

At individual level, salary policies are made by the government, and the basic salary depends on professional title and years of work at the facility based on the government's generic policy for "public service institutions". The performance-based salary part can be designed at the facility level under the framework set by local government. The total performance-based part is generally fixed for each facility. Internal distribution of the salary needs to balance the interests among staff, so usually became low-powered. The "two permission" policy is promoted to encourage direct linkage between service revenue surplus and salary. This may strengthen incentive to provide more curative services. However, the overall salary level is still considered a disincentive for potential PHC professionals to choose PHC as a setting for practice.

In some (still rare) areas, high (relative to most other family doctors) annual salary is being introduced to attract and retain highly trained general practitioners. Career promotion policies for PHC staff are believed to have an important role in affecting the attractiveness of jobs at PHC. For example, to get promotion in professional status, PHC doctors in the past need to publish research articles. This non-financial incentive is also linked to financial incentive (i.e., salary level).

### Barriers for financial incentives

A key challenge is that the line budget part does not link payment to performance, offering limited incentives for PHC facilities and health workers to provide the right services in the right way and use the input-based funds in most efficient way. Another challenge is the different revenue sources coming with different purchasing agencies in multiple ways. BPHS programme payment and SHI scheme payment even have conflicts in incentives: BPHS linking the payment with performance in preventive and management services create pressure on PHC facilities to provide these services, while SHI scheme paying PHC facilities on medical services mainly through FFS creates incentives to over-prescribe and less attention to preventive care. Furthermore, the lack of autonomy of PHC facilities in changing the mix of revenue sources and input, cannot facilitate PHC facilities to adjust the package services they deliver in more cost-effective way in order to achieve efficiency gains.

At the facility level, the lack of autonomy in using BPHS subsidies is a barrier for designing incentives by local health administration departments. Further, restrictions on BPHS subsidies for consumable items but not personnel cost is also the barrier for designing incentives to individual health workers. The salary policies are also stringent and do not constitute strong financial incentives to attract capable staff and therefore patients. Patients are assigned to their local PHC facilities. This lack of patient choice also dampens financial incentives. Private PHC practice is generally considered to be of low quality and of low esteem. Competition with hospitals, most of which offer direct access to outpatient departments, is also an important barrier to the functioning of financial incentives.

**Interaction between financial incentives to providers and demand-side incentives**

The absolute level of user-charges at PHC, and its level compared with hospitals, has been used as a policy instrument, although this policy has limited impacts on strengthening the role of PHC. Its coordination with supply-side incentives seems weak. Reimbursement rates for PHC medical services vary across employee (can be around 80% for outpatient care) and resident schemes (usually around 50% for outpatient care) but are usually higher than reimbursement rate for hospital outpatient services.

# 5. Digital technologies and health financing

## 5.1 The role of digital technologies in financing PHC

A digital information management system for poverty-stricken families identifies and monitors the welfare situation of these families. This is essentially an online register system that records these families and regularly updates their information. The system facilitates the precise application of various poverty alleviation policies for targeted families including, for example, reductions in patient charges and co-payments.

## 5.2 Financing digital health services

According to a policy (issued in 2020) by the National Healthcare Security Administration, remote consultation would be equally reimbursed by social health insurance funds as services provided off-line.[24] The pharmaceuticals prescribed in such services will be equally reimbursed as other services. It should be noted that most of these internet health services are provided by hospital staff.

In some local areas (e.g., Ningxia, a province-level ethnic autonomous region), a sharing system for charges of the remote consultation has been established.[25] According to such policy, all contributors (the platform, participating professionals and facilities) are rewarded. Remote radiology, remote consultation, remote electro-cardiogram, are main types of telemedicine services provided among others. Usually, the patients pay the regular fee to local PHC facilities, while the PHC facilities share a portion of the revenue with the supporting hospitals and internet technology providers that provide the remote services. The intention is that providers are rewarded properly so that the collaboration is sustainable. For example, in Yinchuan, the capital city of Ningxia, a detailed revenue sharing system has been developed in relation to the sponsor of the telemedicine equipment.

If the telemedicine equipment is paid for by the government or inviting (i.e. local) health facilities, the local facilities receive 70% of the revenue, while the invited (i.e. remote) facilities get 30%. The inviting facilities then pay the third-party information and communication technology (ICT) service provider according to agreed prices. If the telemedicine equipment is paid for by invited health facilities, the invited facilities get 70%,

[24] National Healthcare Security Administration, 2020, Guiding Opinions of the National Medical Security Administration on Actively Promoting Social Health Insurance Payment for the "Internet +" Medical Services
http://www.gov.cn/zhengce/zhengceku/2020-11/03/content_5556883.htm

[25] Ningxia Internet Healthcare Documents

while the local facilities get 30%. The inviting facilities then pay the third-party ICT service provider according to agreed prices. If the telemedicine equipment is paid for by third-party ICT service provider, the invited facilities get 30%, the local facilities get 30%, and the service provider get 40%. The service provider covers the cost for service maintenance and are not allowed to charge inviting facilities. In some area, specific fees are charged for remote services. Some of these fees can be reimbursed by social health insurance.

### Facilitators or barriers for the implementation of digital health

A supportive policy environment by both national and local governments is the probably the most important aspect that affects the implementation of digital health. This will need to be accompanied with safety management measures and a well-functioning regulatory system. At an early stage, some local pioneering officials were allowed the autonomy to experiment the use of digital health services (through deregulation, infrastructure, revenue sharing policies, etc.). Later on, it became important that national government adjust the policy framework so that good local practices can be institutionalized and scaled up, while risky elements be minimized. While government permission is the prerequisite for digital health to be applied, financial arrangements appear a key leverage point in normalizing and scaling up digital health services. A key challenge for greater use of digital PHC services remains the lack of capable human resources at PHC level. While telemedicine collaboration networks between hospitals and PHC facilities are being rolled out nationwide, there is little evidence to suggest that this has led to substantial improvement on the service capacity of PHC facilities (as reflected in service volume). A key barrier in the lack of digital health services in strengthening PHC is likely the lack of financial incentive for hospital-based doctors to provide support to PHC facilities.

# 6. Conclusion

PHC services are systematically organized and widely distributed across China. Almost everybody has a PHC facility within their neighbourhood and there has been a steady increase in resources dedicated to PHC. PHC funds cover a comprehensive range of services that correspond to the functions of PHC and policies aim to equalise the allocation of funding across local government areas. However, adequacy, equity and risk adjustment need to be strengthened for PHC. Provider payment mechanisms are yet to generate strong incentives for providers to deliver needs-oriented services and funding for PHC needs to be integrated better to increase synergy between different streams. Among main success factors are a well-established organisation and a strong accountability system. If well activated, this system can produce desirable outcomes. Major threats are weak service capacity and stringent policies that do not incentivize people-centred and outcome-oriented care.

A key lever for improved organization and financing of PHC is the Comprehensive Health System Reform that adopts the vision of a focus on PHC. It is based on a strong political commitment and is embedded in a multifaceted reform. The Healthy China strategy offers a golden opportunity to further improve organization and financing of the PHC system and make it the centre of the health system, lessening the dominance of hospitals which currently influences the policy options of PHC in China.

Several contextual factors crucially shaped the PHC reform since the early 2000s. The outbreak of SARS in 2002/2003 demonstrated the urgency of strengthening the government's role in organising and financing health services, including PHC. The increasing realization of an aging population and prevalence of non-communicable diseases also shaped the agenda of PHC reforms. Until recently, the rapid increase in public revenue allowed the government to increase its input in health. Now, as the increase in public revenue slows down substantially, the emphasis is on greater efficiency of the health system. This likely implies greater effort in strengthening PHC. Finally, the institutional framework for public facility management is a critical contextual factor that shaped the organisation and financing of PHC services.