China Health Reform Program for Results

(P154984)

TECHNICAL ASSESSMENT REPORT

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Contents

Figures & Tables

I. Program Introduction

1. This technical assessment has been carried out as part of the preparation of the Health Program-for-Results (PforR) operation in China. The objectives of the proposed China Health Reform Program for Results or PforR (henceforth referred to as the "PforR" or the World Bank's "Program") is to improve the quality of healthcare services and the efficiency of the healthcare delivery systems in Anhui and Fujian[1] provinces. The objectives will be achieved by supporting key areas of the health reform Masterplans in the two provinces - namely those focused on comprehensive public hospital reform and the implementation of a People Centered Integrated Care (PCIC) based service delivery system with strengthened primary care - in both urban and rural areas across the two provinces. The World Bank's Program will include support for the management of policy reform, strengthening of service delivery capacity, transforming service model, enhancing health human resources and critical information technology (IT) infrastructure development.

II. Program Strategic Relevance

A. Country, Province and Sectoral Context of the Program

2. ***China has made impressive gains on improving overall health outcomes in past decades along with its rapid economic development***. After three decades of double-digit economic growth, China has successfully lifted over 700 million[2] people out of poverty, and has significantly improved the health status of its citizens. Higher incomes, lower poverty and better living standards (sanitation and water quality, education, nutrition and housing) combined by China's early promotion of primary care and public health, introduction of barefoot doctors for rural villages, community based health insurance, and ambitious public health campaigns resulted in a significant decline in mortality and an unprecedented increase in life expectancy (Yang et al. 2008, Caldwell 1986). The infant mortality rate dropped from 52.9 per thousand births in 1980s to 8.1 in 2015, and the maternal mortality rate decreased from 97 per 100,000 birth in 1990s to 20.1 in 2015. China achieved all its Millennium Development Goal (MDG) targets ahead of schedule. When the People's Republic of China was established in 1949, the life expectancy was 35 years, it was 76 in 2015. A child born in China today can expect to live more than 30 years longer than his forebears half a century ago; it took rich countries twice that span of time to achieve the same gains (Deaton 2013).

3. ***While remarkable progress was made, issues also emerged along with the fast economic growth***. In the early 2000s, China faced challenges of rapid increase of health expenditure and high Out of Pocket (OOP) expenses. The OOP expenses as share of total national health expenditure reached the peak in 2001 at over 60%. The affordability and accessibility of health services became a big concern of general public. In 2009, China unveiled an ambitious national health care reform program, committing to significantly raise health spending with the goal of providing affordable, equitable and effective health care for all by 2020. The government reaffirmed its role in the financing of healthcare and provision of public goods with an initial financial commitment of RMB 1380 billion, and defined the comprehensive reform in 5 priority areas, namely basic health insurance, health service delivery at grassroots

[1] The PforR will not be implemented in Xiamen.
[2] http://www.stats.gov.cn/tjsj/sjjd/201510/t20151016_1257098.html

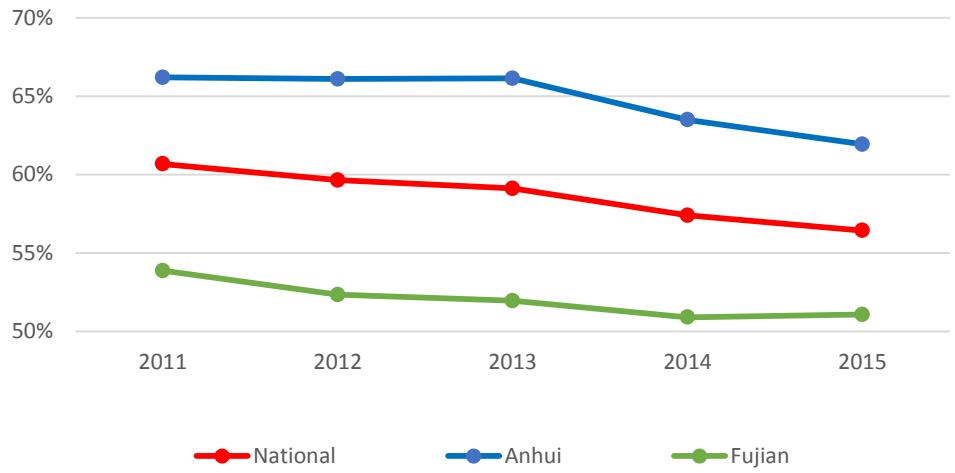
level, essential public health service, essential drug program and public hospital reform. After seven years of implementation, China has made impressive progress. It has achieved universal health insurance (HI) coverage at a speed that has few precedents globally or historically. Benefits have been gradually expanded, the population coverage reached nearly 95%. As a result of significant investments in health infrastructure, the hospital bed capacity increased rapidly from 2.27 million to 5.33 million between 2003 and 2015, service capacity has been strengthened, utilization of health services has risen and out of pocket spending as share of total health expenditures has started to fall, leading to a more equitable access to care and greater affordability. The essential drug program is improving access to effective drugs. Finally, the reform also spearheaded innovative pilots in health financing and service delivery at the local level in many locations, but they have not been scaled up.

4. ***Despite the impressive progress of the early reform, new challenges are emerging***. The population of China is aging rapidly given the improvements in life expectancy. The population over 65 years old was 138 million in 2014, which is over 10% of total population. According to the World Population Prospects, by 2030, the proportion of senior citizens above 65 will increase by about one fourth, and by 2050, the aged will account for about a quarter of the overall population. At the same time, the increasing non-communicable diseases (NCDs) have become a heavy burden on the Chinese health system. NCDs are already China's number one health threat, accounting for over 80 percent of the 10.3 million premature deaths annually, and 77 percent of Disability Adjusted Life Years (DALYs) lost[3] in 2010. In 2012, NCD mortality rate was 533 per 100000 residents, accounting for 86.6% of total deaths[4]. Moreover, more than 50 percent of NCD burden falls on the economically active population (ages 15-64), which may adversely affect the labor supply and compromise the quality of human capital. More so than the aging population, high health risk behaviors such as smoking, poor diets, sedentary lifestyles, and alcohol consumption, as well as environmental factors such as air pollution, are powerful forces behind the emergence of chronic illnesses in China.

5. ***China's health system is not well positioned to respond to these challenges***. China's current health system is hospital-centric, fragmented and volume-driven. Service delivery has a strong bias toward doing more treatment than improving population health outcomes, and serving more people at hospitals rather than at grassroots levels. Service at primary care level is perceived by citizens as low quality, and people bypass the lower level facilities to seek treatment in hospitals late in disease progression and with high cost. A national survey revealed outpatient services occurred in PHC facilities (urban community health centers, rural township health centers and village clinics), among all the healthcare facilities, have decrease from 2010 to 2015 nation-wide. This national trend is also mirrored in the provinces as demonstrated by Anhui and Fujian. (Figure 1).

[3] IHME 2010, WHO 2014.
[4] "Chinese Residents of Nutrition and NCD Status Report (2015)", http://www.nhfpc.gov.cn/jkj/s5879/201506/4505528e65f3460fb88685081ff158a2.shtml.

Figure 1 Proportion of Outpatient Services Delivered by Primary Care Facilities

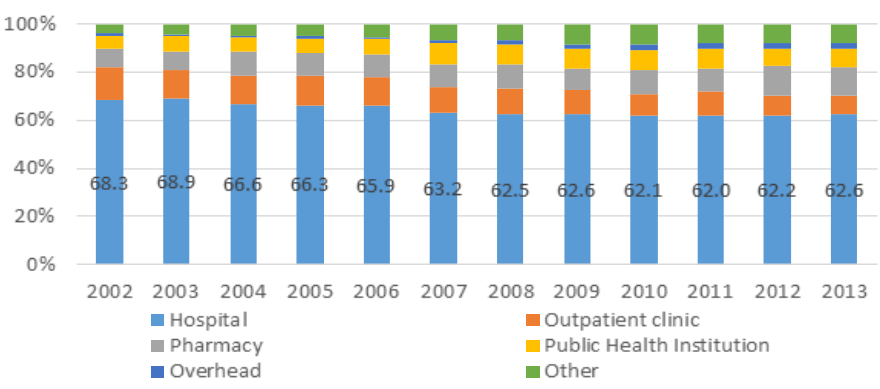


6. ***Utilization of hospital services has been expanding***. Hospitalization rates rose rapidly from 4.7 percent of the population in 2003 to 14.1 percent in 2013. The volume of hospitalization, in both secondary and tertiary hospitals, tripled in roughly the same period. There has also been a shift in capacity expansion and utilization towards higher-level facilities. Between 2002 and 2013, the number of tertiary and secondary hospitals increased by 82 and 29 percent, respectively, while there was a slight decline in the number of primary care providers (Xu and Meng 2015)[5]. Adverse incentives have played important role – health insurance historically did not cover outpatient care and hospitals were rewarded for production of services through fee-for-service financing system. Both patients and hospitals were incentivized to produce and consume more services driving up investment and recurrent cost. China now has more hospital beds per capita than United States, Canada or United Kingdom, and is now on par with OECD median. Hospital services account for over 60% of China's total health expenditure, while the primary care only accounts for less than 10% and the percentage keeps shrinking in the past decade (Figure 2).

7. ***Integration of health services across provider tiers (e.g., tertiary, secondary and primary) and between preventive and curative services is weak***. Providers at various levels do not routinely communicate to coordinate patient services. Linkages between hospitals and primary health care (PHC) providers, including structured referral systems, patient discharge and handover mechanisms, and patient outreach are generally not in place. Providers at different levels have incentives to compete with each other to keep the patients so as to maximize their revenue, rather than managing population health in a coordinated and cost effective manner.

5 Xu, Jin, and Qingyue Meng. 2015. People Centered Health Care: Towards a New Structure of Health Service Delivery in China. The World Bank. Washington, DC USA

Figure 2 Distribution of Total Health Expenditure



Data source: Results and Analysis of China National Health Accounts in 2013. WAN Quan, ZHANG Yu-hui, WANG Xiu-feng, et al. Chinese Health Economics, 2015,34(3):5-8

8. ***Health service delivery model is suboptimal for the high prevalence of NCDs***. Weak primary care, poor provider integration, lack of gate keeping and screening systems may have contributed to costly (and avoidable) admissions and readmissions for mostly NCD conditions which can be cost-effectively treated on an ambulatory basis, and increasingly, in patients' homes. Although there has been steady improvement in diagnosis, awareness and contrail of chronic conditions, but it is still far from effectively managing NCDs. As highlighted already above, the proportions people who are aware, treated and controlling their high blood pressure in China were all lower than that of the average middle-income countries, as well as the high-income countries. In the United States, for example, 85.3 percent of hypertensive patients aged 35 and above were aware of their health condition, 80.5 percent were on medication, and 59.1 percent had their blood pressure controlled, compared to 41.6, 34.4 and 8.2 percent respectively in China[6]. As the result, the mortality of premature death of NCDs in China is almost double that of Japan.

Table 1 Hypertension diagnosis, treatment and control (age 35-84): international comparison

Country	Diagnosed (%)	Treated (%)	Controlled (%)
China	41.6	34.4	8.2
Thailand	46.0	38.4	17.7
Turkey	49.7	29.0	6.5
South Africa	52.8	37.6	21.0
Germany	53.1	39.2	7.4
Mexico	55.8	49.5	28.0
UK	62.5	53.5	32.3
Bangladesh	62.7	54.6	30.2
Jordan	73.9	71.0	38.2
Russian Fed.	74.9	59.9	14.2
USA	85.3	80.5	59.1
Japan	NA	48.9	22.9

Source: Ikeda et al. 2014; Chow et al. 2013.

9. ***Human resource shortage at the grassroots level weakens delivery at the PHC level***. China faces a massive shortage of general practitioners (GPs) and nurses. PHC facilities and

6 Chow, Clara K, Koon K Teo, Sumathy Rangarajan, Shofiqul Islam, Rajeev Gupta, Alvaro Avezum, Ahmad Bahonar, Jephat Chifamba, Gilles Dagenais, and Rafael Diaz. 2013. "Prevalence, awareness, treatment, and control of hypertension in rural and urban communities in high-, middle-, and low-income countries." JAMA 310 (9):959-968.

poor rural areas have difficulties to recruit and retain qualified health professionals and, while the overall health workforce has increased in the past decade, the PHC workforce has fallen from 40 percent of total workforce in 2009 to 36 percent in 2013. A majority of health workers at the PHC level have only post-high school training, which further compromises the health systems' ability to deliver quality care at the PHC level. Unsurprisingly, patients prefer to bypass PHC and seek care directly in hospitals, which produce the same level of care at higher costs relative to PHC centers.

10. ***Quality of care needs to be improved***. Available evidence shows that some health professionals at grassroots level lack the knowledge and skills needed to effectively diagnose and treat common conditions (Sylvia, et al., 2014; Wu, Luo et al, 2009). The shortage of competent primary care doctors and the general poor quality of primary care contributes to a rising trend of unnecessary and avoidable hospitalization. Although quality of care is considered better at secondary and tertiary hospitals, systemic evidence on whether care is provided according to best evidence or guidelines (process of care) and data on effects on the health of patients as a result of receiving care (outcome of care) is scarce. A recent study found significant variations in outcomes across tertiary hospitals (Xu et al., 2015). Over-prescription of drugs and treatment, especially antibiotics and intravenous treatments, is a problem in all facilities. The perverse incentives that encourage profit-making and increasing volume of care, instead of rewarding high quality care, affect behaviors of management and frontline service delivery at all facilities. Hospital managers lack of sufficient motivation and public hospitals face weak requirements from the government and social insurers to demonstrate improved quality. There has been increasing number of patient-doctor disputes and violence over medial practice.

11. ***Over provision of health care is pervasive in China as a result of distorted incentives***. Over-utilization of medicines, diagnostic tests, and high technology services and high-profit margin procedures in hospitals is well documented. Facilities derive significant revenue from the sale of these services. Over time, this has translated into financial incentives for individual providers to prescribe drugs and perform diagnostic and other procedures. Over prescription leads to unnecessary health expenditures and risks to patients (as well as the public health threat of antimicrobial resistance). Pharmaceutical expenditure per capita has increased more than threefold over the past decade. While spending on medicines has declined recently as a share of total health expenditure, it still accounts for 40 percent of overall health expenditure, which is on the high end compared to other countries in East Asia and the Pacific, and significantly higher than the OECD average of 16 percent. Additionally, the structure of insurance reimbursement incentivizes use of inpatient over outpatient services; the average length of a hospital-stay, a key driver of higher costs, is high in China relative to OECD countries (9.8 days, in contrast to 7.3 days).

12. ***Rapid growth of health expenditures raising affordability and sustainability concerns***. Health expenditures have grown at a rate higher than GDP growth since 2008. Over the last two decades, total spending on health increased fourteen-fold from about 220 billion yuan to 3,170 billion yuan in real terms. The trend is not likely to reverse in the near future as expenditure pressures related to pent-up demand changing epidemiological and demographic profiles, income growth and technological change will continue to grow. Critically even though the health insurance premium has increased steadily due to the increasing contribution from the government and individuals, the reimbursements through insurance mechanisms were more than offset by increases in expenditure due to the use of higher level facilities, longer length of stay,

and use of more expensive treatment items. The cost of healthcare is growing rapidly, and the financial burden on patients remains high, raising affordability concerns for government health spending, as well as for households. As seen in some high income countries, without adequate controls rapidly escalating health spending can lead to an unsustainable burden on individuals, firms and government. The joint flagship study[7] of the World Bank concluded that business as usual, without reform, would result in growth of total health expenditure from 5.6 percent of GDP in 2015 to 9.1 percent in 2035, an average increase of 8.4% per year in real terms. Over 60 percent of increase is expected to be in inpatient services.

13. ***Specific features of the health financing and delivery system drive inefficiencies, fragmented governance structure makes it difficult to address***. The payments to the service providers by the insurance funds are still heavily based on the fee-for-service mode, driving up volume and cost of care. Insurance funds are yet to become more active purchasers of health services to help enforce quality and patient safety standards improvement. The outdated price schedules of health services are distorted in a way that favor drugs and high-technology procedures over labor based services. The hospital revenue and medical staff remuneration tied to volume- and revenue-based bonus payments. There are over ten government agencies involved in the decision making and administration of health sector. Each pursues its line ministry's core interests with limited shared vision of the big picture making it difficult to have coordinated and coherence policy formulation and implementation of the comprehensive health reform all the way down to provincial and local level. Coordination among institutional actors has been identified as an impediment to innovation and sustained reform implementation.

14. The study, conducted jointly by the World Bank Group, Commission for Health and Family Planning, Ministry of Finance, Ministry of Social Security and Human Resources and WHO and launched in July 2016, analyzes the achievements of early phases of reforms, as well as the persisting and new challenges. It calls for deepening China health reforms to avoid the risk of creating a high-cost-low-value health system and **build a 21st century delivery system to address the 21st century challenges of chronic diseases, ageing and affordability**.

B. Government Health Reform Program

15. ***Recognizing these challenges, China embarked on a so called 'deep water' phase of its national health reform in 2014.*** On October 29, 2015 the 18th Session of the Central Committee of the Fifth Plenary Session of the CPC endorsed a national strategy known as "Healthy China" which places population health improvement as the main system goal. Guided by this strategy, the Government of China(GoC) has articulated a comprehensive national health reform agenda, including a Healthy China 2030 Plan (which provides a medium-term strategic direction to health reforms), as well as a Health Sector Development Plan and the 13th Five Year Health Reform plan, which lay out sectoral agendas for the period 2016-2020. In order to operationalize the reform plan, the central government has issued various policy directives to define the national priorities and directions of health sector reform[8], with an extensive package of both comprehensive and specific measures covering all relevant facets of the health sector.

[7] Healthy China-Deepening Health Reform In China, Building High Quality & Value-Based Service Delivery.- The World Bank Group, World Health Organization, Ministry of Finance, National Health and Family Planning Commission, Ministry of Human Resources and Social Security July 2017

[8] State Council Notification on 13th five Year Deepening Health System Reform (2016) No.78

The purpose of this deep water phase is to address the systemic issues in China's health financing and health service delivery system and to put in place a reformed delivery system.

16. Overall, the reform initiatives can be organized into 10 areas, namely:

- Building an effective tiered service delivery system. Specific focus areas include improving the service delivery structure, strengthening primary health care providers, promoting first contact at grassroots levels, fostering two-way referrals, expanding the empanelment of family doctors, emphasizing the role of family doctors in managing chronic diseases, expanding the supply of general practice physicians to staff primary care facilities; promote the continuum of care model consisting of diagnosis and treatment, rehabilitation, and long-term care; enhancing community based NCDs management; engage the hospitals in the integrated care; establishing IDS/medical alliance;
- Deepening public hospital reform based on the successful pilot in Sanming prefecture and select other reform pilots. Specifically the reforms focus on county level and urban public hospital reform; improving hospital governance and management; reforming medical service pricing scheme to increase the labor based service revenue; controlling the growth of the expenditure; performance based compensation and salary system; strengthening quality of hospital services through clinical pathways and clinical protocols; establishing quality centered hospital performance M&E system.
- Enhancing universal health insurance. Specific activities include continued expansion of population coverage and benefits coverage, stepping up the integration of rural and urban resident insurance scheme, reforming provider payment by introducing prospective payment systems such as capitation, case based payment, per diem payments by bed days, and global budgets.
- Strengthening drug procurement and supply, especially expanding centralized drug procurement by public hospital through mechanisms such as' two invoice system,' and 'batch procurement';
- Enhancing the regulatory framework for the sector, including enhancing the functions and regulation of the State Food and Drug Administration, and strengthening the regulation of the private sector;
- Building an effective health information system including ensuring connectivity to population health portals at national, provincial, prefecture and county levels; accelerating the building of tele-medicine system to support integrated care and primary care service; achieving linkages of medical records in the hospitals with citizens' health files in primary care settings; continuing to improve the functions and connectivity of vertical information systems including public health, medical services, health insurance, drug procurement and family planning; establishing telemedicine networks and alliances to foster integrated service delivery; [9]
- Strengthening human resources for health (HRH), especially for primary health care. Issues related to HR policies, compensation and a shortage of qualified health professionals have been identified as critical bottlenecks for health reform, especially for enhancing primary health care. Specific reform activities include reform of the HR policy to grant more mobility to health professionals; complete implementation of a

[9] Information system was scattered in all major reform areas, and is consolidated into one single reform area

standardized resident and GP training program; increasing the supply of GPs in primary care settings; strengthening the capacity of village doctors; increasing the supply/training of medical professionals that are in great shortage, such as pediatricians, midwives, and assistant physicians;

- Improving the Essential Public Health Service program[10] (the government subsidy in 2016 is RMB 45 per capita); and promote government purchasing of essential public health services.
- Promoting health care industry (private sector), including medical tourism, elderly care;
- Lastly, and perhaps most importantly, strengthening the leadership and stewardship for the implementation of the comprehensive reforms, including aligning the governance structures within various government agencies and mitigating fragmentation in decision making and policy formulation.

17. ***The responsibility for translating the national/provincial vision into action plan rests with the provinces***. While the GoC's 13th five year health reform plan provides an overall vision for the sector, it does not specify a budgetary/financing plan. But it does subsidize the implementation of key reform elements through central budgetary transfers to provinces, e.g. for the essential public health package, social health insurance, standardized GP and resident training, and public hospital reform. Based on the central policy vision, central and provincial own resources, the provinces are tasked to put in place plans and budgets to implement the reforms.

C. Anhui and Fujian are the forerunners of health reform innovations

18. ***Following the policy directives of central government, various pilots have been initiated at local levels including provinces, prefectures and counties***. In January 2015, the State Council National Health Reform office identified 4 provinces, namely Anhui, Fujian, Jiangsu and Qinghai, as the first group of national designated health reform pilot provinces, which have the mandate to pilot innovated reforms on the ground in the critical areas, and serve as the demonstration model for the rest of the nation. This list has been expanded to 11 provinces in year 2016. Among the 11 provinces, Anhui and Fujian have been the forerunners in piloting innovative reforms.

19. Anhui province is located in the central-eastern region in China and has 16 prefectures, 105 counties/districts and population of 69 million. Its per capita GDP in 2015 was 35,997 RMB, ranked at No. 25 out of 31 mainland provinces of China. Fujian, located on the southeast coast of mainland China, has 9 prefectures, 1 Comprehensive Economic Experimentation Zone,

[10] This program was initiated in year 2009 aimed to provide additional financing to support primary health care. The initial investment was RMB 15 per capita to provide basic primary health care to all Chinese citizens. The budget is co-financed by central government and sub-national governments at different levels and has increased steadily every year. It was RMB 45 per capita in 2016. The subsidy is expected to increase further to RMB 50 per capita in 2017. The nation-wide program covers twelve categories of primary care services, including: a) health file for every citizen; b) health education and promotion; c) enhanced vaccine immunization program; d) growth monitoring for children; e) health management for pregnant women; f) health management for elderly population; g) health management for hypertension and type II diabetic patients; h) mental health management; i) tracking and management of tuberculosis patients; j) health management with Traditional Chinese Medicine; k) direct online reporting of infectious and emergent diseases; l) Community Hygiene.

85 counties/districts and population of 38.74 million. Its per capita GDP in 2015 is 67,966 RMB, which places it seventh nationally.

20. ***Mirroring the national context, the provinces of Anhui and Fujian have made significant progress on health outcomes***. For instance, life expectancy at birth was more than 76 years in Anhui and 77 years in Fujian in 2015 compared to 72 years and 72.55 years respectively in 2000. The Infant Mortality Rate (IMR) had also dropped to 4.54 and 4.64 per thousand live births, respectively in Anhui and Fujian in 2015, from 26.1 and 23, respectively in 1990. They however also face the same challenges as the country as a whole associated with a rapidly aging society, increasing burden of NCDs, fast rising health expenditure and a health service delivery system that needs to be reshaped.

Table 2 Health Facilities, Human Resources and Facility Level Data in Anhui & Fujian

Indicators	Anhui		Fujian	
	Year 2009	Year 2015	Year 2009	Year 2015
# of primary healthcare facilities	23,584	22,030	25,835	25,876
# of township health center /community health centers	1897	1789	1049	1099
# of hospitals	710	1,018	411	570
# of public hospitals, of which:		391		263
- Tier Three (public hospitals)		54		56
- Tier Two (public hospitals)		202		145
- Tier One (public hospitals)		93		60
# of beds per thousand population	2.56	4.35	2.97	4.51
# of (Assistant) Physicians per thousand population	1.25	1.75	1.57	2.04
# of nurses per thousand population	1.03	1.94	1.37	2.36
# of General Practitioners per thousand population		1.20		1.33
# of physician-nurse staffing ratio	1:0.82	1:1.11	1:0.87	1:1.16
# of outpatient visits per person per year		4.25		5.52
# of inpatient admissions per person per year		0.11		0.11
Average length-of-stay	9.8	9.1	9.8	8.7
Bed occupancy rate (%)	85.4	85.0	89.9	82.6
Health expenditure per capita (RMB)		870		926
Expenditure per outpatient visit (RMB)		209.9		207.5
Expenditure per inpatient admission (RMB)		7311.9		8695.1

21. ***Both Anhui and Fujian have displayed solid political commitment and implementation capacity to pioneer the innovative reforms tackling underlying system issues for service delivery system.*** Anhui has always been at the forefront of the 2009 health reforms, being the first province to implement the "zero mark-up" policy for drugs and PHC reform at the grass-roots level. Starting in Tianchang county, Anhui has launched an integrated health service delivery system (IDS), which amalgamates services at county, township and village level, and has introduced an innovative capitation payment system throughout this network. Sanming, an inland prefecture in Fujian province with 2.3 million population, started the public hospital reform in year 2012 that has become a successful and highly regarded, model of public hospital reform pioneering multiple dimensional innovations in governance, price scheme reform, drug procurement, human resource management, remuneration, and health insurance management. These provincial innovations have been identified by the national government as successful

reform models to be expanded, deepened and scaled up in these two provinces through this health PforR and to the whole nation later on.

D. Anhui and Fujian Provincial Health Reform Masterplans

22. ***Adhering closely to the national reform template, Anhui and Fujian provinces have laid out coordinated health reforms for the 2016-2020 13th Five Year Plan period in their respective health sector reform Masterplans***. These Masterplans focus on the respective provincial contexts while adhering to the national directives. In the two provincial Masterplans, the 10 national level reform areas have been consolidated into five reform priorities, namely (i) comprehensive public hospital reform; (ii) building an effective tiered care health system; (iii) addressing the enabling environment, which includes cross-cutting areas applicable to both hospitals and tiered care; (iv) enhancing the regulatory framework for the sector; and (v) promoting the private health industry From a strategic perspective, the two provincial plans are very similar.

E. World Bank's Involvement

23. The World Bank, as a long term partner, has been actively engaged in government health reform agenda. At the invitation of the GoC, in particular the Premier Li Keqiang, the Work Bank, working closely with the China Ministry of Finance, National Health and Family Planning Commission and Ministry of Human Resources and Social Security, has conducted in-depth analysis, provided comprehensive diagnostic, and suggested the way forward through the joint flagship health study: Deepening Health Reform in China Building; High Quality and Value-Based Service Delivery. As the follow up action, the GoC has requested this lending operation in Anhui and Fujian provinces. Drawing from the recommendations of the joint flagship health study, the PforR operation will support government's health reform program with a focus on health delivery system reform, including scaling up the successful reform innovations that have been piloted in Anhui and Fujian.

III. Program Description and Technical Soundness

A. World Bank Supported China Health Reform PforR (the "Program")

24. The World Bank Program will support over a five-year period (2107-2021) key areas of the Anhui and Fujian Governments' health reform Masterplans (see details in Table 3). As noted, the provincial governments' Masterplans cover a timespan from 2016 to 2020. The World Bank Program, which is expected to start in August of year 2017, will support the reform implementation across the years 2017 to 2020, and will focus on knowledge generation, the dissemination of lessons learned, and evaluation in 2021.

25. The Government's ambition, which the World Bank Program will support is to scale up reforms province-wide by financing a purposely-selective subset of Result Areas with a sharpened focus on health service delivery reform along with the institutional and policy reforms needed to facilitate it. The program includes three reform areas, with associated disbursement-linked indicators (DLIs), namely: a) comprehensive public hospital reform; b) building an effective tiered service delivery system based on PCIC; and c) implementing cross-cutting health

systems improvements required to achieve success on both the hospital and PCIC fronts (Table 3).

Table 3: Activities of National Health Reform included in the China Health Program

Government health reform plan	Included in the PforR	Health PforR Result Areas (Mirroring priority areas identified by Provincial reform plan)	Objectives to be achieved under the PforR program	Comments
Deepening Public hospital reform Procurement of pharmaceutical products	Yes	Result Area 1 Comprehensive Public Hospital Reform (also the priority area 1 of provincial reform plan)	• Improving the governance and management of public hospitals • Controlling the growth of health expenditures • Strengthening quality assurance in the delivery of hospital services • Institutionalizing an effective hospital M&E system	
Establishing a tiered service delivery system Providing essential public health services	Yes	Result Area 2 Building an effective tiered service delivery system based on PCIC(also the priority area 2 of provincial reform plan)	• Strengthening primary care • Improving service organization & strengthening integrated service provision for NCDs • Reforming provider payment arrangements for PCIC • Establishing quality assurance mechanisms	
Strengthening the leadership and stewardship for reform implementation Improving social health insurance Building health information systems Strengthening human resources for health	Yes	Result Area 3 Building an Enabling Policy and Institutional Environment (also the priority area 3 of provincial reform plan)	• Establishing the institutional structures required to provide overall stewardship to the health reform • Integrating the management of the three health insurance schemes • HR policy reform and professional training to strengthen the health workforce particularly for the primary health care setting • Building standardized and effective health information system to support service delivery system reform • Knowledge generation and sharing platform for reform implementation	
Enhancing the regulatory framework for	No			Not covered in gov't budget/ financing plan.

the health sector				Also, the regulatory framework is the mandate of GoC, while PforR focuses on supporting health system reform in two provinces
Promoting the healthcare industry (private sector)	No			Not covered in gov't budget/ financing plan. The architecture for effective public private collaboration in China is still being debated

26. The choice of the three Result Areas and activities within the Result Areas is driven by two factors, i.e. the need to: (i) support the most important interventions in the Government health sector program that can help achieve the program results, and (ii) limit the proposed World Bank supported Program to a reasonable scope within the overall Government program. Ideally, the first two Result Areas should be addressed together since hospitals and PCIC represent a continuum and both are integral to service delivery; however the government has expressed a strong preference for separating out these two levels of the delivery system (as underscored in the national reform strategy and in the provincial Masterplans), in order to highlight the experience of the Sanming public hospital reform, and Anhui's IDS pilot. The cross-cutting stewardship, financing and institutional reforms that are needed to support service delivery these levels are however clustered in Result Area 3. As shown in Table 3, the Program will not support the proposed national level enhancement of the health regulatory framework, since this is beyond the scope of the provincial reform program, as well as the promotion of the private health industry, since the underpinnings and the architecture for effective public private collaboration in China are still being worked out. Furthermore, neither area is currently being provided budgetary support by the government.

27. The overarching goal of the Program is to secure efficiency gains and quality improvements in the health service delivery system in the two provinces. In sum, the interventions in these three reform areas will include the following 5 categories:

- Comprehensive policy reforms, including medical services pricing, health insurance and provider payment, health care providers' governance and management, service delivery, the drug logistics system, HRH, quality assurance, which will require resources to leverage and implement in an evidence based manner. These will entail the government mobilizing technical expertise to develop policy packages, technical guidelines and action plans, organize relevant training and workshops, and ensure effective implementation, monitoring and supervision of the PforR. Most of the policy reforms are currently being financed by the budget of government agencies. Accordingly, the government plans to increase its current budgetary allocations to support the policy reform.
- Strengthening of service delivery capacity, with a focus on county/district level and below, including county level hospitals, rural township health centers, village clinics and

urban community health centers and emergency care at county level and below. County level hospitals are considered as the rural health facilities and one of the key reform objectives is to keep the utilization of most of the services (90 percent of hospitalizations in the case of inpatient care) at the county level and below so as to reduce the overreliance on the urban tertiary hospitals. Therefore, strengthening the service capacity of county hospitals is the focus of government program. In the government program, there will be no completely new construction of county level hospitals, but it includes upgrading, rehabilitation and/or new construction of healthcare facilities at the county level, township and village levels. It also includes the procurement of appropriate, mobile and portable equipment, as well as the expansion of the telemedicine network, which the PforR will support.

- Improving the quality and efficiency of service delivery by introducing PCIC based service models, fostering the integration of providers at all levels, supporting the design of appropriate clinical norms and standards for the delivery of high quality health services, together with effective implementation of these standards; as well as changing the financial and governance incentives that providers face through reforming provider payment of health insurance and government financing to the providers..
- Establishing effective health information platforms according to the national government's overall plan with the focus on expanding telemedicine network to support integrated care; establishing population health portal and disease management system to support NCD management; strengthening quality assurance and monitoring system by health administration and health insurance; and
- Enhancing human resources through intensified training programs and upgrading/new construction of training centers and medical professional training schools, such as assistant physician training centers.

28. ***In implementing the Program, a "scaling-up" approach will be pursued***. As noted, China has a good track record of implementing innovative pilots at county or prefecture level to guide future scaling up of these experiences nation-wide. But these pilots have been somewhat ad-hoc, and have not been systematically scaled up for a variety of reasons. However, the central government is now determined to pursue, and the two provincial health reform Masterplans have committed themselves to a "scaling-up" approach. The proposed operation will leverage the lessons learned from the Sanming and Anhui IDS pilots, as well as from international experience - including on the reform implementation pathways, the sequencing of actions, and the institutional and financing milieu – in incentivizing the government's plan to scale-up these successfully piloted initiatives across the two provinces.

B. Technical Soundness

29. The overall vision and the policy interventions defined in the Health PforR are comprehensive, targeting the key reform areas of the government policy directives and, importantly, they build on the lessons learned from the health reform experiences in China (including in Anhui and Fujian provinces), as well as international best practice. The Government program was found technically strong during the assessment as it builds on the outcomes of the 2009 health reform program as well as the follow-up "Deep-water phase" reforms; it also draws on the findings and recommendations of the Joint Health Delivery Study.

There are, however, areas that need strengthening, which will be addressed in this PforR, particularly through the following three result areas:

Result area 1: Comprehensive Public Hospital Reform

30. Objectives: This Result Area draws on the reform model in the Sanming prefecture and elsewhere to deepen and mainstream the comprehensive public hospital reforms. The goal of this Result Area is to support the government's efforts to improve the quality and efficiency of hospital services in Anhui and Fujian, and thereby contribute to reigning in the fast growth of health expenditures and improve both patient outcomes and satisfaction.

31. Sanming is an inland prefecture in Fujian province with 2.3 million population. With the aim to address the same underlying system issues of the health system as describe above for China, Sanming started the public hospital reform in year 2012. There are five key elements of Sanming reform:

1) Governance reform to tackle fragmented policy making: Put the oversight responsibility over medical service, medicine, and medical insurance under one prefecture leader, which ensures the coordination and alignment of reform policies making;
2) Integrate the management of three parallel health insurance schemes, which ensures unified payment policies and aligned incentive schemes;
3) Reform the procurement, distribution, and use of drug/medical supplies, to reduce waste and inefficiency in drug procurement and distribution; the key actions include 'two invoice system', centralize procurement of drug/ medical supplies by prefecture/province
4) Reform medical service pricing schemes to increase the price of labor-based medical services; and
5) Reform compensation for physicians and hospital directors so that delink hospital revenues and physician bonuses from service volume and raise the salary of physicians to 3-5 times of local average annual income.

32. Sanming's reforms are robust and effective in tackling the fundamental system issues as well as the distorted incentives that have been identified above**.** The reforms are unprecedented in a way that they made breakthrough on the "macro policy" environment as well as the governance reform for public hospitals, which are widely considered as the 'deep water' areas which are difficult to change. Sanming's reform has a real demonstration effect as it showed to the rest of the country that these tough reforms can be implemented on the ground.

33. While Sanming's reforms ensured an enable macro policy environment, more needs to be done to directly address the efficiency of hospital services, assuring the quality of services and patient safety, and ultimately put the brake on the rapid growth of service expenditure. Quality measures such as clinical pathway, treatment protocol, performance monitoring system and provider payment reform, which proven to be effective interventions according to international practice, are yet to be introduced.

34. Therefore, building on the successful Sanming reforms, the Program will scale up Sanming experience through a set of reform actions including

1) Improving the governance and management of public hospitals;
2) Controlling the growth of health expenditures, to which hospitals contribute very significantly;
3) Strengthening quality assurance in the delivery of hospital services; and
4) Institutionalizing an effective hospital Monitoring and Evaluation (M&E) system that is integrated with the broader Health Management Information System (HMIS).

35. Improving the hospital governance and management will entail a set of three intertwined interventions. First, empowered local leadership committees (Hospital Management Committee), consisting of the relevant government agencies, and chaired by a senior political official at the county/prefecture level (i.e. vice-mayor and mayor, respectively), will be formed to oversee the reform of the public hospitals and ensure coordination among the various departments. Both Anhui and Fujian have begun to establish such leadership committees at prefecture and county level. These committees will be responsible for the integrated management of the medical insurance programs, medicines and hospital supplies, and hospital services within their jurisdiction, thereby has the power to coordinate multiple ministries/departments in formulating policies for governing public hospitals. Secondly, hospital autonomy will be expanded by giving hospital directors decision rights over the use of savings from the prospective payment methods, as well as the hiring/firing of both tenured and contracted staff. Thirdly, accountability will be strengthened by introducing performance based compensation systems for hospital directors and hospital healthcare professionals, tie remuneration with performances that include quantity, quality and patient satisfaction and delink physicians income from drug sale revenue or profits; Implementing these changes will require political will, as well as resources for capacity building.

36. Controlling of hospital expenditure. Growth in total health expenditures at the national and provincial level has ranged from 10-28% annually over the last several years, and while it seems to be stabilizing in the 10-18% range (), still significantly outstrips GDP growth. Hospital expenditures contribute very significantly to the observed growth in total health expenditures, and this inflation needs to be addressed as a matter of priority. Controlling expenditure growth at hospital level and balancing drug, diagnostics and service pricing will entail a combination of interventions, including establishment of transparent, online centralized procurement systems for hospital supplies with public disclosure of the results to reduce waste and inefficiencies; use of the "two invoice" system for drug and medical supply procurement, an expanded use of generics, Essential Drug Lists (EDLs) and formularies; implementation of the "zero markup" policy for drugs, adjustment of the official fee schedules to increase labor based service pricing and reduce fees for diagnostics; and very importantly, the introduction of prospective payment systems that are consistent with international standards.

37. The financial incentives offered by the health insurance payers to health care providers are a key instrument to shift the incentives and change the behavior of service providers. Currently, the payment to the providers by the three health insurance schemes in China are still largely based on fee-for-service, which provide incentives for over-provision of services with expensive pharmaceuticals, high-tech diagnostics and tests. Provider payment reforms to replace fee-for-service with prospective payment (case-based payment, DRGs, Global budget and capitation) will be a key intervention to incentivize the providers to increase the efficiency and quality of their services and at the same time control the costs

38. Interventions to strengthen hospital Quality Assurance (QA) will include the development of standardized clinical protocols/pathways at province level that are applicable to all levels of care and applied systematically across Anhui and Fujian; introduction of additional policies to promote the rational use of pharmaceuticals and diagnostics (e.g. adherence to Essential Drug Lists and treatment protocols, diagnostic testing and prescription audits and the disclosure of the audit results); and promoting the disclosure of hospital performance indicators (e.g. drug revenues vs. total revenues, costs of OPD and patient satisfaction assessments) in the public interest and to promote patient engagement. The Program will finance establishment and upgrading of diagnostic, medical and surgical capacities in facilities at the county level.

39. And, finally, provinces will strengthen hospital performance management and monitoring systems, with the electronic management of patient records (EMR) as the core, and including the use of telemedicine/e-medicine to facilitate early diagnosis and treatment; establishing population health information platforms; and fostering the integration of the hospital information systems with the overall HMIS for service and health reform monitoring. This intervention will require investments in IT infrastructure, equipment and personnel, as well as developing and adopting interoperability standards. Details on the health information systems, which are central to both public hospital reform and PCIC, are provided in Result Area 3.

40. Budgets: As described further in the expenditure framework review below, financing for these initiatives includes a combination of transfers from the central government as well as provincial budgetary contributions. For example, the central government currently transfers to the provincial budgets an annual earmarked fund of RMB 3 million for each county in Anhui and Fujian (i.e. a total of RMB 165 million in Anhui and RMB 174 million in Fujian) for implementing public hospital reform. These funds can be used by the counties to finance specific interventions under their hospital reform program. In order to support hospitals to implement the zero markup policy for drug use, Anhui allocated RMB 571 million and 630 million, respectively in the years 2014-16 and Fujian spent RMB 259 million in 2016 to compensate hospitals for the loss of revenues associated with the implementation of the zero markup policy. Fujian has also budgeted RMB 257 million per year for this purpose for year 2017 and year 2018.

41. As noted, implementation of the above interventions will also entail investments in key areas of infrastructure development including upgrading/expansion/rebuilt of county level hospitals and facilities. To achieve this goal, Anhui province allocated RMB 510, 251 and 528 million in the provincial budgets for 2014, 2015 and 2016, respectively, and intends to continue making investments over the life of the 13th Five-Year Plan. Fujian has similar plans to upgrade the infrastructure of county-level hospitals in the course of the 13th Plan. Respective budget lines have been established and Fujian provincial government has allocated approximately RMB 1.454 billion to support these activities.

Result area 2: Building an Effective Tiered Service Delivery System Based on PCIC

42. Objectives: Establishing an efficient, high quality and accountable PCIC based service delivery system, with strengthened primary health care and greater integration between the various levels of the healthcare network. The goal of this Result Area is to support the government's efforts to build an effective tiered service delivery system in order to be able to, inter alia, address the challenges of an ageing population and the rising prevalence of NCDs. The key objectives for results are to strengthen primary care, shift the service utilization and NCD

management to primary care settings, provide integrated/coordinated care, and enhance the quality and effectiveness of NCD management and treatment.

43. As noted above, the government is aware of the challenges facing China's current service delivery system and has enacted a series of policies to strengthen primary care, shift the service utilization to the lower level and establish a 'tiered service delivery system'. Important elements include strengthening grassroots providers, promoting first contact at grassroots levels, fostering two-way referrals, emphasizing the role of family doctors in managing chronic diseases, and expanding the supply of general practice physicians to staff primary care facilities. In parallel, the government has also provided additional financing to support primary health care. As noted, the 'Essential Public Health Equalization Program' is a government financed nation-wide program with RMB 45 per capita allocated in 2016 covering twelve categories of primary care services[11]. The funding is co-financed by the government at different levels, i.e. 60% by the central government, 20% by the provincial government, and the balance of 20% by the prefecture and county level government.

44. Different provinces and cities of China have experimented with pilots and new service models, e.g. the family doctor model in Shanghai, the NCD management specialist model in Xiamen of Fujian province, and the Medical alliance model in Luohu district of Shenzhen Municipality. Anhui province, particular, has been a front runner in piloting the new service model, in particular in the rural areas. Initiated in Tianchang county of Chuzhou prefecture, Anhui has been rolling out a service delivery model step by step to its counties/districts. The model features include: (i) Establishing integrated service delivery (IDS) alliances within the county among providers at county, township and village levels; the alliance is responsible for providing inpatient and outpatient care, and, in particular, health maintenance and NCD management services to the residents in their catchment area. The alliance covers the incomes of the village doctors; (ii) Building a telemedicine network linking the THCs with county hospitals, and county hospitals with city tertiary hospitals. This network has in fact brought the services of hospital specialists to the patients in THCs, and helped retain patients in the PHC setting, rather than their bypassing this level and seeking care at hospitals directly. (iii) Reforming provider payment of NCMS, and introducing capitation as the mechanism to pay for the care received by the citizens empaneled for the IDS alliance, both within and outside the county; and (iv) Having the alliances sign contracts with city hospitals (which will provide quality inpatient services and provide technical support to the alliance) to purchase the inpatient service for the citizens in their catchment area. The new service delivery model and the new incentive mechanism are shifting provider incentives from a focus on disease treatment, to one on maintaining health and providing effective disease management.

45. These innovations are aligned with PCIC model, which is a term used to refer to the WHO's global strategy of People-Centered and Integrated Health Services (WHO, 2015, a, b). The PCIC model has the following strategic directions: a) reorienting the service delivery model to strengthen primary health care and change the current roles of hospitals; b) integrating

[11] The covered services include: a) creating and maintaining a health file for every citizen; b) health education and promotion; c) enhanced vaccine immunization program; d) growth monitoring for children; e) health management for pregnant women; f) health management for elderly population; g) health management for hypertension and type II diabetic patients; h) mental health management; i) tracking and management of tuberculosis patients; j) health management with Traditional Chinese Medicine; k) direct online reporting of infectious and emergent diseases; l) community hygiene

providers across care levels and among types of services to provide the coordinated care covering the whole life Span; c) continuously improving the quality of care; and d) engaging people to make better decisions about their health and health seeking behaviors. The bedrock of a high-performing PCIC model is a strong PHC system that is integrated with secondary and tertiary care, and with active engagement of patients in their care. It utilizes multidisciplinary teams of providers that track patients with eHealth tools, measures outcomes over the continuum of care and focus on providing quality and effective disease management for NCDs.

46. The new service model is a transformative change from the current hospital centric system and would require new set of incentives, new way of doing business and new institutional and organizational settings. Two Provinces just started the journey and the reforms are all in initial phases, the 'devil in the details' requires much deeper and more comprehensive technical design as well as effective implementation. Drawing from international experiences and building on provincial initiatives, the reform actions to be supported under the Program, which will be catalyzed by a combination of incentives to be provided through revamped provider payment mechanisms, and improved governance, monitoring and regulation of the PCIC system, include: (i) Strengthening PHC service capacity; (ii) Institutional and organizational reforms needed to strengthen integrated service provision for NCDs; (iii) Enhancing quality through adoption and improvements of evidence based clinical pathways, clinical protocols, continuous quality improvement in health facilities, and quality monitoring and public disclosure by health administration and/or health insurers; (iv) Introducing prospective provider payment schemes to incentivize the provision of integrated NCD management; and (v) Establishing an enabling environment for PCIC through policy reforms and enhanced Health Management Information System (HMIS), the details of which are described in Result Area 3.

47. Strengthening PHC capacity will focus on a standardized upgrading and new construction of health facilities at county (districts in urban areas) level and below; procurement of basic equipment, portable devices, innovative new technologies and telemedicine to support the new service delivery model; training of the health workforce, including GPs, residents, nurses, community health workers; upgrading or new construction of health professional training centers that are compliant with national standards; enhancing the staffing of the primary care facility for delivery of PCIC services; and promoting application of proper treatment techniques at primary care level. Both Fujian and Anhui will establish/upgrade their telemedicine systems to link primary health care facilities with hospitals at the higher level. Anhui plans to completely upgrade its 8 training centers for assistance physicians in the province. Both central and provincial government have been injecting considerable funds to enhance the capacity of primary health care, with over RMB 45 billion allocated through central transfer for the years 2009-2013. In the case of Anhui, the central government provided RMB 361.9, 276.6 and 117 million in 2014, 2015 and 2016, respectively on civil works alone, while the province allocated RMB 19.86, 39.5 and 16.7 million in the three years to complement the central government's contribution. Anhui is planning to gradually upgrade the facility of its 440 central township health centers to enable these centers to provide more services. In order to achieve this goal, the province intends to continue making investments on strengthening primary care over the life of the 13th Five-Year Plan for at least RMB 714 million.

48. Transforming service delivery to strengthen the integrated service provision for NCDs will include activities aimed at: 1) Organizing the integrated care among different levels of providers, including redefining and assigning the responsibility and tasks of each, setting up

service alliances, with the participation and technical leadership of tertiary hospitals, and establishing corresponding incentives to encourage vertical collaboration. For example, Anhui is well-advanced in establishing service delivery alliances for certain conditions/specialties, linking the province, prefectures and counties/districts, e.g. for diabetes, hypertension, pediatrics; 2) Automation of the NCD risk stratification and defining the tailored health/disease management package for various risk groups; 3) Strengthening the empanelment mechanisms of GPs centered multi-disciplinary teams at PHC level based on tailored service packages, thus transforming the service model of primary care; 4) Development of integrated NCD management pathways covering prevention, medical treatment, rehabilitation, self-management supports and follow-up to guide providers at different levels for NCD management and treatment; and 5) Establishing citizen engagement mechanisms in health/disease management programs, making them responsible for their own health.

49. Social health insurance, as an important financial source for integrated service delivery, is critical in forming the new service model. The payment from health insurances has become the major source of the revenue of service providers (more than 60% overall). The financial incentives offered by the payers to health care providers are a key instrument to shift the incentives from a focus on disease treatment to the promotion and prevention activities and effective disease management through integrated care. Provider payment reforms to be supported by the Program, such as introducing prospective payments (using capitation payments in service alliances, as piloted in Anhui's Tianchang county), will be a key intervention to incentivize providers to deliver integrated care and enforce compliance on clinical guidelines through service contracts. Furthermore, the coverage for outpatient services within the urban and rural health insurance programs is still shallow, as the health insurances were established initially to provide financial protection only for inpatient services, given that these expenditures were the main contributors to catastrophic health expenditures that led to impoverishment. Therefore along with the increased contributions to the social health insurances, the insurance coverage will need to expand to cover outpatient services, so as to provide incentives for both providers and citizens to utilize more PHC services.

50. Enhancing service quality is another aspect of the reform, which requires enhanced attention and action. This will be achieved through the adoption, further refinement, and use of evidence-based clinical pathways and clinical protocols as being done in Anhui, and continuous quality improvement in health facilities as well as the quality monitoring and public disclosure of quality data by the health administrators and/or health insurers, as initiated in Anhui. As noted, the HMIS system will be critical for the integration and coordination of health services.

51. Budget: Funds have been provided by the Chinese government to finance PHC through the Essential Public Health Equalization Program. The program was initiated in year 2009, with an investment of RMB 15 per capita to provide basic primary health care to all Chinese citizens and has increased to RMB 45 per capita in 2016. The funding is co-financed by governments at lower levels. The total allocations have been increasing steadily every year. In Anhui, the provision for public health programs in 2015 was RMB 2.42 billion with RMB 1.86 billion coming from central government transfers and RMB 549 million from the provincial budget. Similarly, Fujian allocated RMB 1.15 billion in its 2015 budget for primary care through a combination of central and provincial resources. The subsidy is expected to increase further to RMB 50 per capita in 2017.

Result area 3: Building an Enabling Policy and Institutional Environment

52. Objectives: Addressing the cross-cutting dimensions of the policy, institutional and financial environment, as well as program stewardship and building institutional capacities, for the health reform. The goal of this result area is to support the government in strengthening key cross cutting issues that represent the foundations on which the proposed public hospital reform and PCIC are premised.

53. The reform actions to be supported by the Program in this result area include: (i) Institutional arrangements needed to provide overall governance and stewardship to the health reform; (ii) Strengthening comprehensive management and information systems, including information technology (ICT) for the various levels of service delivery and reform; (iii) Training for health providers and para-professionals to improve the delivery of both hospital and PCIC services; and, (iv) Strengthening program stewardship at the central level, including building implementation capacity in the two provinces.

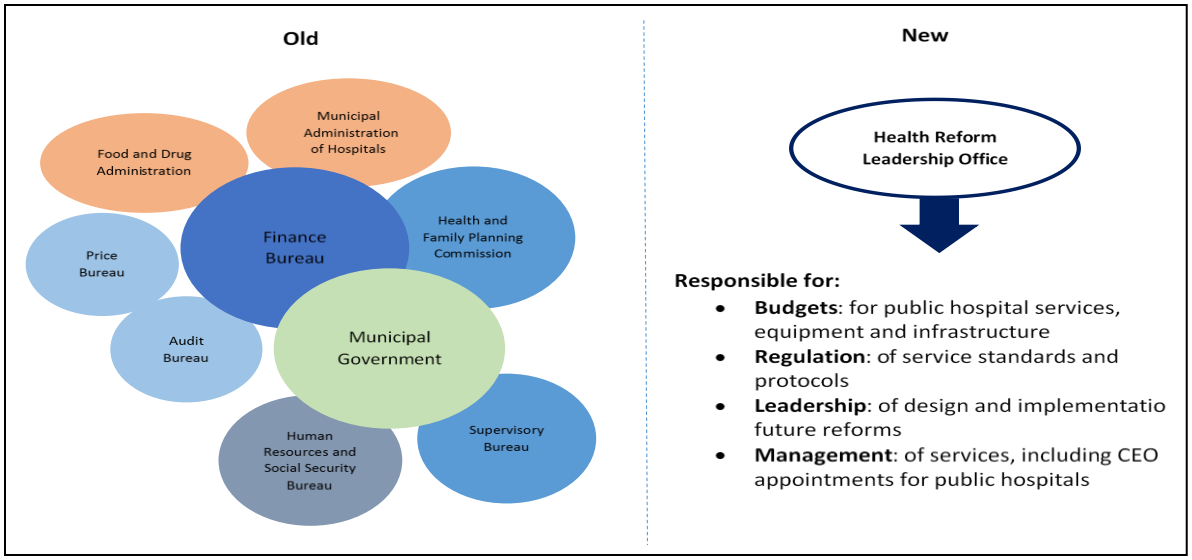
54. Stewardship: Dispersed oversight at the provincial and local levels, and institutional fragmentation both horizontally and vertically, are identified as a key weakness in the health governance structure by the flagship Joint Health Study. The dispersed oversight is due to the large array of institutions involved, the low priority attributed to health reform at the local level, and the fact the incentives faced by local officials to plan and implement health reforms are generally weak when compared to incentives to promote economic growth and development. The Program will therefore support activities that help the central and provincial governments consolidate and strengthen the oversight of the reform program and introduce systems to actively monitor and validate implementation progress from a broader systems perspective.

55. Accordingly, at the central government level, a multi-agency, high-level Healthcare Reform Leading Group has been established to provide overall direction and leadership nationwide. This Group includes decision makers from all relevant agencies across the central government structure. This Leading Group is headed by the Vice Premier, with the Department of Healthcare Reform of NHFPC (also called State Council Healthcare Reform Office or SCHRO) serving as the Secretariat. The SCHRO has 6 divisions with specific responsibilities for advising on national policies and guidelines that also encourage local innovation and flexibility as relevant to the local context. Mirroring the central structure, in Fujian province, a multi-agency, high-level Leading Group has been established, headed by the Party Secretary-General and comprising of the Director Generals of the Health and Family Planning Commission, the Departments of Finance, Human Resources and Social Security, and the Bureau of Medical Security. Similarly, in Anhui province, the Leading Group is headed by the Governor and comprises of the director generals of the Health and Family Planning Commission, and the Departments of Finance, Human Resources and Social Security. The structures at the county and city/prefecture levels, in turn, resemble the provincial structure, and are in the process of being established province-wide.

56. It should be noted that the template for the proposed approach to addressing fragmentation in governance under the program is derived from the leadership structure initiated in Sanming prefecture in Fujian. In China, the four most important functions relevant for health service delivery, namely health insurance, medical services, medicines and medical service pricing are under the jurisdiction of different line departments within the government, headed by

different vice governors/mayors. Alignment of decision-making and policy formulation has proven to be difficult under this fragmented structure. Sanming was the first to place the overall responsibility for all these line departments under one vice-mayor in the prefecture, thereby ensuring alignment in policy-making for the health reform. This model has been adopted at the provincial level in Fujian. One vice governor now oversees the departments of health and family planning, social security, SFDA and price bureau within Fujian province. The State Council Health Reform Office has indicated that it would like to scale up this governance model across the country.

Figure 3: Formation of Health Reform Office in Sanming Prefecture, Fujian



57. Another important governance reform in Sanming and Fujian province is the integration of the management of the three health insurance schemes in China. As noted, China has three stand-alone health insurance schemes for urban workers (URBMI), urban residents (URBMI) and rural residents (NCMS), respectively. The two urban schemes are managed by the Department of Human Resources and Social Security, while the rural scheme is managed by the Health and Family Planning Commission. The contribution levels, risk pooling levels, the benefits packages, and the provider payment policies all vary across these three schemes. While financial incentives offered by the payers to health care providers are a key mechanism for lowing costs, and improving efficiency and quality, the provider payment mechanisms work best when they are defined and applied consistently across all payers and span over the full continuum of health care providers. The fragmentation of the health insurance schemes in China undermines the leverage the health insurances can have if a single, uniform and network-wide incentive scheme design were to be put in place. Sanming's initiative consists of a package of consolidated actions including: (i) establishing a Health Insurance Management Center, which takes over the management of the three health insurance schemes; (ii) making the Center responsible for developing policies on the centralized procurement of drugs and medical supplies, setting up the pricing schemes for health services and formulating unified policies on provider payments; and (iii) full integration of the urban resident health insurance with the rural resident health insurance. This model has consolidated several key functions that were

previously under different government agencies, and ensured unified policy making and enforcement. The Program will facilitate and support the integration of the health insurance schemes in Fujian and Anhui province.

58. Health Information & Communication Technology: The Program will also support the provincial plans for establishing comprehensive health management information systems to support effective management and M&E for the two provinces. Fujian has made a special plan to improve the health information technology across the entire province called the "Healthy Fujian Information and Communications Technology." This plan covers nine areas, namely ICT infrastructure, digital hospitals, ICT in support of tiered health services, "internet+" health care innovations, health big-data application, information management for public health, ICT for Chinese Traditional Medicine, ICT for family planning and general health administration. The province also plans to monitor health service delivery, and disclose the findings to the general public on a regular basis, in order to improve quality of care in the primary health facilities. While not as far along as Fujian, Anhui is also working to strengthen ICT by promoting telemedicine linking the county hospitals with the PHC facilities, including building up the distant diagnosis, medical imaging, and lab testing. Anhui also plans to support the application of the standardized clinical pathways through the use of appropriate ICT tools.

59. HRH Reform and Training: The Program will support the provincial plans for strengthening HRH. Strengthening HRH entails reform of relevant HR policies, including headcount quota reform and the establishment of performance-based compensation for hospital and PCIC staff; recruitment and training of health professionals in areas with shortages, including training of GPs for locally recruited students who will return to practice in local health facilities; and the integrated management of village doctors.

60. Specifically, for PCIC, the Masterplans propose medical training programs for physicians and physician assistants working at PHC institutions, so as to increase the numbers and quality of the PHC workforce. For example, Fujian plans to train around 600 General Practitioners (GPs) over the next five years through various medical training programs including: (i) Residency programs of 3 years of standardized training for those have completed 5 years of undergraduate medical study; (ii) Physician assistant training programs of 2 years of standardized residency training for those have completed 3 years of junior medical school and more likely to work in rural and remote areas; (iii) Continuing education of 1 year for physicians who are working/registered as specialists at PHC institutions to be converted to GPs; and iv) Part-time continuing education programs. The first two programs will be jointly funded by the provincial and central governments (funding per student is roughly RMB 30,000 per year of residency training). The third program is funded by the provincial government (funding per student is RMB 15,000). The financing of the fourth program is shared by the trainees and their employers. Anhui has a similar plan and provides full funding for some students enrolled in the first two programs, provided the enrollees will work in the designated THCs for 6 years upon graduation. In 2016, Anhui recruited 350 students to this program, and the government plans to continue this program for the next few years. Moving forward, Anhui plans to upgrade its 8 training bases for assistant physicians in order to intensify the training and ensure the supply of assistant physicians for primary care.

61. In addition to training for physicians and physician assistants, Fujian plans to set up 3 to 5 nurse training centers to train 300 to 500 nurses per year, 4 to 6 clinical pharmacist training

centers to train 200 to 300 pharmacists per year, and train 1,800 public health workers and 1,000 maternal and child health workers per year for 13th Five Year Plan. Anhui is also working on a similar plan

62. Finally, the provinces are planning to train specialists in areas of severe shortage at county level hospitals. Anhui is planning to train physicians in the following specialties: pediatrics, psychiatry, pathology, rehabilitation, geriatric medicine and maternal and child health. Fujian is considering a similar plan.

63. Central Level Program Implementation Support: Program stewardship and building institutional capacity at the provincial and local levels will require strong technical assistance and capacity building support from the Central level. The PforR will support the State Council Health Reform Office's (SCHRO) role as the steward of the sectoral reforms. The SCHRO is expected to support institutional capacity building at the provincial and local levels. The SCHRO is also expected to contribute to the achievement of the PDO of the PforR through implementation-oriented guidance, technical assistance provided by national experts, introduction of systems for monitoring and validating progress, and assessing implementation from a "big picture" and system perspective. Finally, the SCHRO is expected to support the provinces in their efforts to foster knowledge generation and sharing (through learning networks based on the Transformational Learning Collaboratives (TLC) model, a knowledge-learning platform, and two-way international knowledge sharing/dissemination) in the process of scaling up reforms. The TLC approach to collaborative learning has been demonstrated to improve health outcomes and the quality of healthcare services with lower costs and greater convenience than is possible by traditional means of communication.

64. Given the potential of this Program to generate lessons for scaling up reform both in China and globally, the process of knowledge generation/sharing will be particularly important. The knowledge and learning framework will have three dimensions. First, a knowledge and learning network will be established to support learning at the frontlines of reform implementation, drawing on the idea of Transformational Learning Collaboratives (TLCs) described in the Joint Health Study. The goal of this network is to assist local care sites to adopt national and international standards for evidence-based practice, to learn from each other's success or failure and to close the gap between knowing and doing. This approach to collaborative learning has been demonstrated to improve health outcomes and the quality of healthcare services with lower costs and greater convenience than is possible by traditional means of communication, such as conferences/seminars and audio-conferencing. Second, drawing on the China Rural Health Program experience, a knowledge learning platform will be established to facilitate knowledge generation and sharing in Anhui and Fujian, as well as nationally. Third, through south-south learning programs, study tours, technical assistance, presentations at international conferences and publications the Program will actively support two-way knowledge sharing/dissemination between China and other countries.

C. Institutional Arrangements for Implementation

65. There are strong commitment and acceptable capacity in both provinces and at the central level to implement the PforR.

66. **Institutional Arrangement at the Provincial Level**: The PforR covers a part of the overall provincial health reform programs. The existing structures in the provinces will, therefore, continue to be used under the PforR. In each province, there is vertical structure for the health reforms that extends from the province to the prefectures and the counties/districts.

67. In Anhui, the Provincial Healthcare Reform Leading Group is headed by the Governor. Under the multi-agency high level leading group, there is a Healthcare Reform Office located in the Provincial Health and Family Planning Commission, and headed by the Director General of the Commission. The responsibilities of the Office are to: (i) prepare documents and reports for the Leading Group; (ii) formulate policies and measures to deepen the reforms; (iii) draft mid-term and long term plans and annual plan; (iv) coordinate among relevant agencies in drafting reform documents and implementation plans; (v) organize monitoring and evaluation activities; (vi) provide technical support and training; (vii) organize research and knowledge sharing activities; and (viii) provide secretarial service to the Leading Group.

68. In Fujian, the Provincial Healthcare Reform Leading Group headed by the Party Secretary-General is the leading organization for the overall health sector reforms program. It comprises of director generals from each sector of the provincial government. There is a Healthcare Reforms Office, located under the provincial government. The Healthcare Reforms Office and the Provincal Health and Family Planning Commission are in charge of the reform activities in the province. In addition, there is a provincial Medical Security Administration, with a mandate to consolidate and manage the three medical insurance schemes.

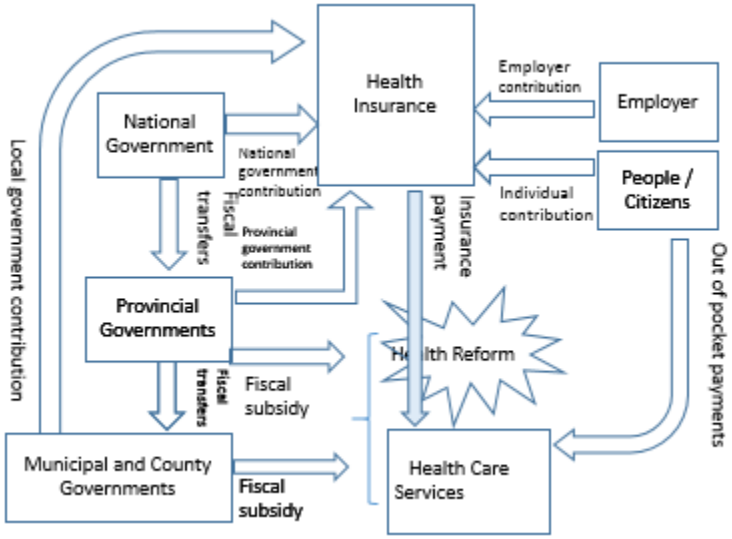
69. **Institutional Arrangement at the Central Level**: The existing institutional arrangements and capacity at the central level were assessed as adequate to implement the proposed PforR. At the central level, the SCHRO is the leading agency for the national health reforms agenda. It provides policy guidance to all provinces in the country. For the PforR, SCHRO is the direct counterpart of the World Bank at the central level. Under the leadership of SCHRO, consisting of NDRC, MoF and NHFPC, a Central Steering Committee is established. SCHRO is empowered to make decisions for the PforR direction and will play an important role in ensuring the achievement of the PforR development objectives. The Center for Project Supervision and Management of the NHFPC (CPSM) will serve as the secretariat to the SCHRO for this PforR. The CPSM will be responsible for supporting the two provinces in the PforR implementation through technical assistance, ensuring coordination across provinces, capacity building, exchange of experiences and implementation support/guidance to the provinces. The Expert Panel at the central level will serve as a pool of technical experts to the government agencies under the national health reform program.

IV. Program Expenditure Framework Analysis

70. ***The health systems in the two provinces include ongoing programs and proposed health reform interventions financed from various sources***. Revenues from various financing sources "cascade" down the different levels of government (national, provincial, district, commune, and ultimately frontline hospital or clinic), and include a range of general and specific/earmarked expenditure lines. For the case of health insurance schemes, financing from the government at various levels, from employers and citizens are pooled. A major intervention is therefore to consolidate the various insurance schemes, and reform provider payments, so as to better incentivize the achievement of the health reform goals. The central contributions to the

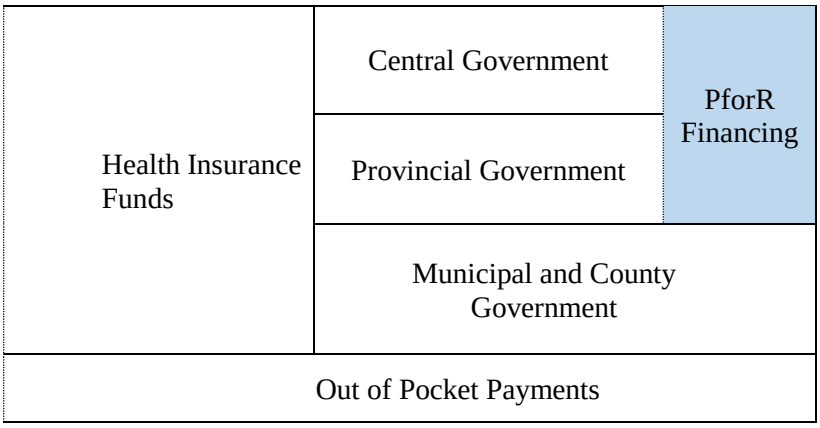
health sector include direct budgetary transfers to the provinces, as well as contributions to the urban and rural health insurance programs. These include general and earmarked transfers, depending on the specific scheme and flow of funds. These transfers from the central and provincial level for the two provinces totaled an estimated RMB35.1 billion in 2015. Overall health spending, including social health insurance expenditures, by all levels of government, totaled RMB83.94 billion in 2015 in Anhui and Fujian. An estimated 60 percent of these expenditures can be attributed to Anhui, while expenditures in Fujian make up the other 40 percent. Facilities serve as the main delivery points, financing flows from the various levels of government, coupled with their own revenues (including health insurance payments and Out-of-Pocket (OOP) payments), support the operations of the health care system (Figure 1).

Figure 4 Financing of Provincial Health System



71. ***Part of the central and provincial government financing for health is closely associated with the healthcare reform program outlined in the provincial health sector reform Masterplans***. Given the strategic role played by the central, and particularly provincial, levels of government in steering and supporting province-wide health reforms, the PforR focuses on those contributions by the central and provincial level that serve to finance the healthcare reform initiatives. These include financing for policy reforms, capacity building, and some strategic infrastructure such as IT systems and facility. While expenditures by the sub-provincial levels of government also contribute to the health reform program, these expenditures are not included in the financial boundary of this PforR due to practical reasons (Figure 2). In 2015, baseline expenditures for the on-going health reform program, defined in this manner, amounted to RMB5.7 billion, which are Programed to total over RMB27.5 billion over the four-year implementation period of the PforR. As defined, the overall value of the PforR supported government health care program is thus well beyond the operation's financing contribution.

Figure 5: Financing of Provincial Health Services Including World Bank PforR Supports



72. ***PforR Expenditure Boundaries***: The expenditure boundaries with respect to the Masterplans are defined as core investments by the Anhui & Fujian Provincial Health and Family Planning Commissions (APHFPC/FPHFPC) for capacity building and reform management, key capital outlays for physical and IT infrastructure. The PforR will include only those expenditures traced to the central and provincial level that reform and strengthen the health delivery systems. Thus, health insurance contributions are not included in the PforR expenditure framework, since – while they are critical for incentivizing provider behavior - they do not finance the health reforms per se. The management expenditures on health insurance schemes, however, are included since these expenditures finance the health policy reforms associated with provider payments through the health insurance schemes. Drug procurement expenditures are not included, although the compensation paid by the government to hospitals for the revenues foregone due to the implementation of the zero markup policy is included. The PforR is also not planning, as noted, to finance the infrastructure of hospitals beyond county level; the upgrading, rehabilitation and/or new construction of healthcare facilities at the county level, township and village levels are included (See Annex 4).

73. The total IBRD f loan is US$600 million, which is 15 percent of total estimated financing of the Program (See Table 4). Of the US$600 million, US$593.5 million(after deducting the US$1.5 million front-end fee) will be disbursed against DLIs under the responsibility of the two provinces to support the Program at the provincial level, and US$5 million will be disbursed against one DLI under the responsibility of the National Health and Family Planning Commission. The results achieved under the three successful pilots (i.e. the Sanming hospital reform, Fujian's integration of the management of the health insurance programs, and Anhui's IDS initiative) will be supported upfront with the disbursements of US$15 million to Anhui and US$40 million against DLI 1.1 and DLI 1.2 upon the PforR becoming effective, and after verification, following the DLI verification and disbursement procedures.

Table 4: PforR Financing

Source	Amount ($ million)	% of Total
Government	**3,466**	**85**
IBRD/IDA	**600**	**15**

Total PforR Financing	**4,066**	**100**

V. Description and Assessment of Program Results Framework and M&E

74. The Results Framework for the proposed Program is presented below, along with the disbursement-linked indicators (DLIs) that have been agreed with the two provinces. The four main criteria for defining these DLIs were that: a) the desired results will improve key aspects of the current government program, b) are within the control of the government; b) are achievable in the Program period; and c) are verifiable. The following principles were applied in formulating the specific DLIs: a) Maximizing the use of existing indicators in the government's program, and prioritizing the use of the government's routine information system and existing reporting mechanisms in order to ensure sustainability; b) Ensuring that the DLIs correspond to the key priorities in the Result Areas, especially the major bottlenecks along the results chain, and provide the incentives for removing them; c) Balancing ambition ("stretch") and feasibility ("realism"); and d) Facilitating scaling up of successful pilot reform initiatives. Where applicable, undisbursed amounts for a DLI in a given year will be rolled-over for use in subsequent years with a cap.

75. ***Existing systems will be used to monitor the Results Framework for the proposed PforR***. It is to be highlighted that Anhui (69 million population) and Fujian (38 million population) provinces represent different contexts in terms of their levels of social/economic development, fiscal capacities to guide the health reform, health sector development needs, and health reform priorities. As such, the baselines for the indicators included in the results chain are also necessarily different across the two provinces. Therefore, while the core package of interventions to support the achievement of the PDO - and the proposed DLIs (with the exception of the IT related DLI, the DLIs for prior results and DLI#8) - will be the same for the two provinces, the DLI targets for each year are different for Anhui and Fujian, depending on the DLIs.

76. ***Data System:*** China has a well-institutionalized and internet-based national data collection and reporting system for the health sector. In the two provinces under the PforR, health facilities at every level are required to enter the required data and report monthly and annually using this system. Validation and aggregation of the data is the responsibility of the Provincial Information and Statistics Center and the relevant divisions in Anhui province and the Division of Planning and Information in the Health and Family Planning Commission in Fujian province, respectively. The information collected by the Center for Health Statistics and Information (CHSI) in Beijing from this system is used to compile the National Health Statistics Report. The Report, which is published annually, is one of the major sources of information for the policy makers in the National Council for Health System Reforms. In terms of the verification of the proposed DLIs, it has been agreed with the two provinces that, as most of the DLIs are from the list of indicators monitored by the State Council for Health Reforms Office, the PforR will rely on the data collected through this system.

77. ***Methodology***: The health facilities will self-report the results of the DLIs to the provincial Health and Family Planning Commission. The provinces will be responsible for the

validation of all reported data following the existing procedures. Currently the provinces carry out desk reviews and rely on the system's built-in self-checking function to select the health facilities for validation. Usually, facilities that present "contradictory" data, either based on historical comparisons or relative to other facilities, would be selected for further investigation. Under the PforR, the CHSI at the central level will take the final responsibility for verification. The Center will organize a team of experts in health system reforms, hospital statistics, information technology, financial management, and human resources management to carry out the verification. The verification protocol is summarized in Table 12. The proposed sample size is: 4 to 5 counties/districts in each province (there are 105 counties/districts in Anhui, and 85 in Fujian) and two hospitals or health facilities at each level (city and district, county and township). A random selection method will be adopted. The detailed sampling plan and selection criteria will be formulated and agreed during preparation.

78. The monitoring indicators that are included in the Results framework are also derived from the database of National Health Reform Monitoring Indicators and therefore will be compiled in the same manner as the DLIs. The monitoring indicators will be assessed on a semi-annual basis, while the DLIs will be verified on an annual basis.

79. ***Routine monitoring systems***: For most of the other monitoring indicators included in the Results Framework, data from the internet based reporting system will be used. The new indicators necessary to monitor the PforR will be added to the existing reporting system. Given its stewardship role, the provincial Health and Family Planning Commissions will ultimately be responsible for monitoring progress on these indicators and for ensuring timely collection and reporting of monitoring data and provision of necessary verification documents to the World Bank.

80. ***The Center for Health Statistics and Information (CHSI) is proposed for the verification of all the DLIs***, with the exception of DLI 8 (that is related to the technical and knowledge support to be provided to the provinces by the central government). DLI 8 will be verified by a separate third-party verification agency to be hired by the National Health and Family Planning Commission (NHFPC). Due diligence was carried by the World Bank team as part of the Technical Assessment to evaluate the credibility, qualifications and capacities of the CHSI. The assessment found that CHSI is an independent public institute at the central level, and is the technical lead in China on health information reporting, collection and analysis, including routine facility reporting and household surveys. It also provides technical guidance to the national health reform monitoring indicator system. It has many years of health sector experience, and a large team of professionals, with strong technical skills, who are well-equipped to undertake the verification, and compile verification reports that are acceptable to the World Bank. The quality of the outputs of CHSI has been acknowledged nationally, and the credibility of the data produced by CHSI is evidenced by the fact that it is used by SCHRO for evidence based policy making. As a central entity, CHSI works entirely independently from the two provinces whose performance it is tasked to verify. As part of the assessment, several alternatives were discussed with the government before deciding on CHSI, including universities, research institutions and consulting firms. The assessment concluded, however, that these institutions have neither the numbers of staff, nor the training and experience required to take on the task of verification of the PforR results in the two provinces. Furthermore, the identification of CHSI as the verification agency would ensure the building of capacities for monitoring and evaluation within a leading national institution,

and ensure sustainability of these functions within the government systems beyond the life of the PforR - a key priority of the PforR lending instrument. Overall, the assessment confirmed that CHSI has the technical qualifications and experience, as well as the financial, human and logistical capacity acceptable to the World Bank to undertake the assigned task of verification

81. The proposed operation has identified three Result Areas, and Table 8 below provides the results chain, where the results are defined in terms of health sector outcomes related to the efficiency and quality of health services, as well as improvements in institutional processes and outputs, along with the proposed DLIs.

A. Results Chain

82. The Program Development Objective (PDO) is to improve the quality of healthcare services and the efficiency of the healthcare delivery systems in Anhui and Fujian provinces. The PforR will be implemented across both provinces in urban and rural areas[12].The eight DLIs, along with the monitoring indicators, focus on measurable and achievable improvements in the efficiency and quality of health care services supported by the Program in the two provinces, which – if achieved – are expected to translate into better health outcomes and patient satisfaction with the services being delivered at all levels of the health care systems – whether facility based or population based. The results chain tables below explain the logic of how the Program activities are expected to be translated into the desired results across the three Result Areas and the rationale for the selection of the DLIs and the monitoring indicators.

83. The World Bank has been working with the central ministries and the provinces to ensure that a solid result framework exists to monitor the provincial health reform Masterplans. Special attention will be given to monitoring the three Result Areas, focused on the disbursement linked indicators, with the aim of ensuring that appropriate progress is being made towards the achievement of the PDO.

84. **DLI 1.1:** The county IDS system has been scaled up to at least 50 counties/districts in Anhui.

DLI 1.2: The integration of the management of the three health insurance schemes at the provincial level in Fujian is undertaken.

Description: The NHFPC has recently identified three successful pilots, two in Fujian (viz. the Sanming hospital reform, and the integration of health insurance management) and one in Anhui (the IDS pilot), that it has decided to scale up as part of the PforR.
Measurement and verification: The scale-up of the pilot IDS system to at least 50 counties/districts in Anhui and the integration of the three health insurance (HI) schemes at the provincial level in Fujian will be reported by the provinces, and verified by the CHSI based on documentation provided by the provinces, and field visits, as necessary. These "prior results" have met the World Bank's criterion that such actions should have been undertaken after the PforR Concept Note review, which is May 5th, 2016. Disbursements will be made after

[12] The PforR will not be implemented in Xiamen.

verification, once the Program becomes effective, following the DLI verification protocol and disbursement procedures.
Theory of change: As noted, these indicators are intended to recognize the successful pilots in the two provinces, which the national government has identified as the model to be scaled up national wide. Providing funding upfront to the two provinces is intended to reward the good performance of the two provinces on these initiatives and their contribution to the national reforms, thereby incentivizing provinces to seek such out-of-the-box solutions.

B. Result Area 1

85. This component focuses on improving the efficiency and quality of hospital services. Hospital efficiency and quality of services are expected to be improved, inter alia, by: (i) changing the payments system from a fee-for-services system which incentivizes the volume of services to one that rewards the right mix of services (DLI 2). When hospitals are paid through a case based system, the incentives to oversupply services, provide unnecessary services, and extending the bed days is removed; (ii) implementing a two invoice system for drug procurement that reduces the cost of drugs by cutting down on the number of middlemen involved in the drug supply system (monitoring indicator); (iii) introducing standardized clinical pathways in the treatment of patients (DLI 3) to as to improve the quality of services. Global experience shows that using standardized clinical pathways in the treatment of patients results in improvements in the quality of care and in patient outcomes; and (iv) revise the medical services pricing schemes to increase the supply of labor based services. These indicators are aimed at correcting the misaligned supply side incentives that public hospitals face in the two provinces.

86. Presented below are the details of the two DLIs from Result Area 1. Clearly, improvements in efficiency and quality of care in public hospitals require more interventions/activities than those captured by the two DLIs, but the DLIs are measuring the progress of two critical interventions to incentivize hospitals to increase the efficiency and quality of the services. Combined with the monitoring indicators, the DLIs will also allow the tracking of progress from the activities under this Result Area to the intended outcomes (see theory of change for Result Area 1 below).

87. **DLI 2**: Proportion of discharged patients for whom county-level public general hospitals and TCM hospitals are paid through Case-based Payment

Description: This is to measure the progress of moving from fee-for service to prospective provider payment (case-based payment) at county level public hospitals (which includes public general hospitals and TCM hospitals) in the two provinces.
Measurement and verification: Progress is measured by the number of discharged patients that are paid through case-based payment (numerator) of the total number of discharged patients covered by one of the three health insurance schemes (denominator). The verification will be done by CHSI, which will review the data generated by hospitals and the health insurance schemes. The verification will include visiting a sample of randomly selected facilities for on-site checks.
Theory of change: Changing the underlying financial incentives for health care providers from fee-for-service (FFS) payments (which encourage health care providers to carry out more tests, prescribe more drugs and keep patients in hospital longer) to prospective payments, which encourages efficient use of resources, while ensuring positive health outcomes has been shown in

the literature and in applications world-wide to be one of the most significant instruments for influencing health care provider behavior. This DLI aims to incentivize hospitals to become more efficient through provider payment reform (in terms of case mix, numbers of patients, etc.).

88. **DLI 3:** Proportion of inpatients to be treated through the use of standardized clinical pathways at county level public general hospitals.

Description: The total number of inpatients treated through the use of standardized clinical pathways in all county level public general hospitals (TCM hospitals are not included) in the two provinces out of the total number of inpatients treated at these hospitals.
Measurement and verification: Progress is measured based on the number of patients that are treated through the use of *standardized* clinical pathways (numerator) of the total number of patients that used inpatient services. Data sources include routine administrative data reported by health facilities through the national M&E system, which will be verified by CHSI by visiting randomly selected facilities for on-site checks and undertaking chart reviews and audits of a sample of medical records.
Theory of change: Appropriate use of standardized clinical pathways has been shown to improve the diagnosis, prescription and treatment of health conditions by providers, thereby improving the quality of health services provided, and leading to better patient outcomes and efficient use of resources hereby improving the quality of health services provided, and leading to better patient outcomes.

Table 5 Results Chain for Results Area 1: Comprehensive Public Hospital Reform

Inputs, Activities & Processes	Outputs	Intermediate Results	Outcomes/ Impact
Improve Hospital Governance and Management - Establish leadership committee: Strengthen leadership and governance structures to empower local health reform leading group and integrate the management responsibilities for medicines, medical insurance and medical service under one responsible leader	Established leadership committee at provincial and prefecture levels, with clear roles and responsibilities, governance structure.		
- Deepen institutional reform, including by expanding hospital autonomy • Give hospital director decision rights on use of savings from prospective payment methods • Give hospital director decision rights over hiring/firing (for both tenure and contract system) - Implement accountability systems • Introduce performance based compensation systems for hospital directors and hospital healthcare professionals • Monitor drug prescriptions in	Increase in the number prefectures/counties which allow hospital directors to decide on how to use savings [review policies issued by local insurance agency and finance] Increase in the number of prefectures issuing documents allowing hospital directors to hire and fire (both tenure and contract staff) Increase in the number of hospitals establishing and implementing	Increase in the variation in hospital directors and staff remuneration that is correlated with their performance	***Outcomes:*** Improved efficiency and quality in health service delivery (More value for money) -Reduced risk adjusted disease specific 30 day readmission rate -Reduced 30 day surgical readmission following certain procedure (e.g. hip or knee replacement) -Reduced hospital acquired infection rate, e.g. nosocomial pneumonia

order to reduce the inefficiencies/waste in the distribution system, cut the drug price, and curb the over-prescription of drugs <u>Improved efficiency and expenditure growth control</u> - Implement public disclosure of the results of hospital procurement - Price differentiation for services across levels of facilities - Introduction of prospective payment systems that are consistent with international standards - Regulate drug costs through expanded use of generics, use of Essential Drug Lists (EDLs) and formularies, and the use of the "two invoice" systems <u>Strengthen Hospital Quality Assurance (QA)</u> - Mandate the development of clinic protocols at provincial level, which are applicable for each level of care and used across the provinces - Introduce policies to promote the rational use of pharmaceuticals and diagnostics • Adherence to EDLs and treatment protocols • Prescription audits and sharing audits results • Public disclosure of information on use of diagnostics and prescriptions - Promote disclosure of hospital performance indicators (e.g. drug revenues vs total revenues, costs of OPD and patient satisfaction assessments) in the public interest and to promote patient engagement - Establish quality assurance mechanism, such as evidence based clinical pathway, clinical protocol, continuous quality improvement in health facilities and quality monitoring and public disclosure <u>Hospital M&E</u> - Implement comprehensive electronic hospital information systems, with electronic management of records (EMR) as the core - Promote the use of telemedicine/e-medicine to facilitate early diagnosis and treatment - Promote the integration of the hospital information systems with the overall health management information systems (HMIS)	performance-based formulas for directors and staff remuneration that are linked with the quality and quantity of services, as well as patient satisfaction Increase in the number of hospitals paid through prospective payment methods Increase in the number of prefectures implementing two-invoice system for drug procurement Increase in the proportion of county level public general hospitals adopting standardized clinical pathways Increase in proportion of hospitals that have public disclosure of quality report (e.g. ALOS, drug revenue as a proportion of hospital revenue, average cost) Increase in number of hospitals using data from HMIS to generate quarterly reports on ALOS, expenditure per admission, quality indicators	**DLI 8: Growth rate of medical service revenue of public hospitals in the entire province** **DLI 2: Proportion of discharged patients for whom county-level public general hospitals and TCM hospitals are paid through case-based payment** Proportion of labor based service revenue in total service revenue for all public hospitals in the province Reduction in the drug revenue as a proportion of hospital revenue Reduction in the growth of hospital expenditure Reduction in the average length of stays at county general hospitals **DLI 3: Increase in the proportion of inpatients to be treated through the use of standardized clinical pathways at county-level public general hospitals** Decrease in out-of-pocket payment as a portion of the total inpatient services expenditure Reduction in the proportion of admissions at hospitals above county level	***Impact:*** Improved Health Outcomes (More health for money) -Reduced disease-specific (AMI, heart failure, pneumonia) 30-day risk-adjusted hospital mortality rate Improved Patient satisfaction (More happiness for money): -Measured using objective indicators such as waiting time; -Patient satisfaction surveys

Capacity building for county-level hospitals - To build disinfection supply, cardiac diagnostic, lab-test, medical imaging, pathology, and distance diagnostics centers in the counties - To strengthen the 290 medical specialties that were weak at the county level (Fujian) - To establish the within-county information platform for medical services - To build standardized surgery operation wards within counties	Increase in the infrastructure and the capacity of health facilities to deliver efficient and high-quality care		

Theory of change for Results Area 1:

89. Improved efficiency and expenditure growth control is one of the key areas of intervention, which entails a number of activities including introduction of prospective payment systems that are consistent with international standards; implementing a transparent and centralized online procurement for hospital supplies; regulating drug costs through expanded use of generic drugs and EDLs and eliminating middle men in drug procurement and distribution; and the introduction of price differentiation for services across levels of facilities to ensure that appropriate services are provided/sought at the appropriate level. The government is also implementing comprehensive reform on price setting for the health services with the aim of change the perverse incentives created by the previous distorted pricing schemes, which have led to overprovision of drugs and physical exams. Increasing the price for labor based services, such as nursing, surgical operations and physician consultations to reflect the real costs can reduce the reliance of hospitals and physicians on prescription of unnecessary/expensive drugs and physical exams, and optimize the revenue structure of the hospitals as well as increase the compensation of health professionals. These activities, taken together, will lead to an increased proportion of discharged patients paid through case based payments, especially at the county level, and increasing the number of prefectures using the two invoice system. This, in turn, will lead to a reduction in the drug price markups between the manufacturer and the hospital; reduced average lengths of stay; and ultimately improved hospital performance as measured by outcome indicators focused on efficiency, and longer term impact indicators, such as reduced hospital mortality rates and improved patient satisfaction.

90. Strengthened hospital Quality Assurance (QA) will be achieved through the development and use of evidence based clinical pathways and clinical protocols at provincial level, which are applicable for each level of care and will be used across the provinces; promoting the rational use of pharmaceuticals and diagnostics; regular quality monitoring; and public disclosure of overall hospital performance. In addition to a reduction in costs (e.g. through the rational use of drugs and diagnostics), these activities will lead to improved quality of care, which in turn will result in better outcomes, as measured by reduced hospital acquired infection rates and reduced readmission rates, as well as impact measures such as reduced hospital mortality rates.

91. Improved hospital governance and management through organization reforms such as leadership committees, expanded hospital autonomy (such as giving hospital directors decision rights on HR hiring/firing, the right to retain and use savings), and establishing a corresponding

accountability mechanism (by introducing performance based compensation for hospital directors, monitoring of drug prescription) will lead to increases in the variation in hospital directors and staff remuneration that is correlated with their performance. This in turn will contribute to improved hospital performance as measured by reduced readmission rate and overall patient satisfaction.

C. Result Area 2

92. The key objectives for this Result Area are to strengthen primary care, shift the service utilization and NCD management to primary care settings, transform the service model to provide integrated/coordinated care and enhance the quality and effectiveness of NCD management, thereby leading to greater efficiency and quality in the delivery of PCIC services. The Program includes two DLI for this Result Area which are intended to promote PHC, increase the utilization of PHC services, and incentivize the delivery of integrated care for NCD patients.

93. **DLI 4**: Proportion of outpatient care delivered at primary care facilities.

Description: The total number of outpatient services, emergency services, home visits, physical checkups and health consultations provided at primary care facilities out of the total number of such services across all the levels of health care delivery, excluding patients in the TCM hospitals.
Measurement and verification: Progress is measured based on total outpatient services (incl. outpatient visits, emergency care, home visits, physical checkups and consultations) delivered by primary care facilities (numerator) out of the total outpatient visits in a province (denominator). It will be assessed using administrative data, which is regularly reported by health facilities through internet based reporting system, and verified by CHSI by visiting randomly selected facilities for on-site checks.
Theory of change: This indicator measures the ability of the system to increase the number of services that can be provided at primary care level to be actually delivered at that level, thereby reducing the need to provide these services at hospitals. Delivery of these services at primary care facilities are expected to lower the cost of these services and improve the efficiency of service delivery. This will be achieved by strengthening the service capacity at PHC level, building telemedicine networks, and supporting the integration of care among the providers at different levels.

94. **DLI 5: Number of prefectures that manage Type II diabetes patients using the integrated NCD service package** (Threshold value for a prefecture to qualify as using the integrated service package is 25% of total Type II diabetes patients managed).

Description: The qualified prefecture must ensure that at least 25 percent of the identified Type II diabetes patients in the prefecture are managed using the integrated NCD service package. Integrated management of NCDs would entail the following key elements: community risk stratification for NCDs conducted by primary health service providers, and the tailored health/disease management packages for various risk groups. The GP-centered multi-disciplinary team at PHC level will sign the service agreement with residents based on the tailored service packages, and will provide disease management based on defined disease management pathways.

Measurement and verification: The yearly results measured are cumulative. As the existing system cannot provide this data directly, the prefectural HFPCs will collect the following data from the Township Health Centers/Community Health Centers (THCs/CHCs in their catchment area and submit them to the provincial HFPCs: (i) the number of Type II diabetes patients in their catchment area; and (ii) among the Type II diabetes patients, the number managed under the integrated NCD service package. The provincial HFPCs will be responsible for the validation of the data, as well as the aggregation of indicators. CHSI will do the final verification by conducting on-site visits of randomly selected THCs/CHCs. The activities include validating data sources, and reviewing the tailored health/disease management packages, service agreements, and service records for a randomly selected sample including tracing down the patients for call interview.

Theory of change: This DLI measures the progress of establishing PCIC based new service model for NCD management. The goal will be achieved by strengthening the service capacity at PHC level, introducing a new service model for type II diabetes management, as well as through the capitation to support integrated care provision.

Table 6 Results Chain for Result Area 2: Building an effective tiered service delivery system based on PCIC

Inputs, Activities & Processes	Outputs	Intermediate Results	Outcomes/ Impact
Enhance service capability Upgrading/new construction of facilities and ensure basic equipment/portable device/new technology to support the new service delivery model Training of the health workforce, including GPs, nurses and community health workers for delivery of PCIC services **Transform the service delivery model to proivide the integrated Service provision for NCDs, including hypertension, type II diabetes and etc** Organizing the integrated care among different levels of providers, including defining and assigning the responsibility and tasks of each, and setting up service alliance, if applicable Community health risk stratification and define the tailored health/disease management package for various groups	Increase in the proportion of County hospitals / Township health centers that met the national standards for health facility Increase in the proportion of community residents have signed service agreement with GPs based on tailored service package Integrated NCD (including hypertension) management pathways covering prevention, medical treatment, rehabilitation as well as self-management supports and follow-up is formulated and implemented in two provinces Subnational guidelines for payment reform supporting integrated service provision developed and implemented in two provinces Increase in the number of	Increase in the number of GPs per 1000 persons Increase in the proportion of total Registered Physicians (assistant physician) and Registered Nurses practicing at the primary care facilities **DLI 4: Proportion of outpatient care delivered at primary care facilities** **DLI 5: No. of prefectures that manage Type II diabetes patients using the integrated NCD service package** Increase in the proportion of	***Outcomes***: Improved efficiency and quality in health service delivery (More value for money) -Increased percentage of hypertensive adults whose blood pressure is under control -Reduction in annual hospital admissions for acute complications of Type 2 diabetes

Establish the GP centered multi-disciplinary team at PHC level and roll out empanelment mechanism of GPs based on the tailored service packages Development of integrated NCD (including hypertension) management pathway covering prevention, medical treatment, rehabilitation, self-management supports and follow-up Establish citizen engagement mechanisms, engage in health/disease management, responsible for their own health Create an enabling IT and HIMS infrastructure **Establish quality assurance mechanism**, such as evidence based clinical pathway, clinical protocol, continuous quality improvement in health facilities and quality monitoring and public disclosure **Reform payment arrangements for PCIC** service provision, reform health insurance package to expand coverage to prevention and outpatient services	counties/prefectures that have adopted provider payment reform (capitation or bundled payment) to incentivize integrated care (DLI) Increase in the number of clinical conditions / Share of hospital revenue that have implemented evidence base clinical pathway Increase in the number of prefectures/counties that have a funding pool for outpatient services **DLI 1.1: The county IDS system has been scaled up to at least 50 counties/districts in Anhui.**	NCDs patients being treated as outpatients at village, township and county level Increase in the proportion of patients hospitalized within county Decrease in annual hospital admissions for acute complications of type II diabetes. Increase in the proportion of outpatient expenditures reimbursed by social health insurance Increase in the reimbursement rate of outpatient pooling fund	***Impact:*** -Better quality of life of NCD patients (measured by SF-36 score) -Reduced out-of-pocket expenses (with end goal as 20%) -Improved patient satisfaction

Theory of change for Results Area 2:

95. Enhancing service capability will be achieved by upgrading/refurbishing/renovating facilities and ensuring the availability of basic equipment/portable devices/new technology to support the new service delivery model, as well as the training of the health workforce for the delivery of PCIC services. This will lead to larger proportion of county/township health centers meeting national standards, and an increased number of communities having service contracts with GPs for tailored service package. In turn, this will lead to an increase in the numbers of GPs, a larger proportion of registered physicians and nurses at the primary care facilities, and an increase in the proportion of outpatient visits delivered by primary care facilities, thereby improving efficiency.

96. Strengthening service organization and the integrated provision of NCD services will be achieved by defining and assigning the responsibility for NCD care among different levels of providers; stratification of communities according to the health risk and defining a tailored health/disease management package for various groups; establishing a GP centered multi-disciplinary team at PHC level, and rolling out an empanelment mechanism for GPs based on the tailored service packages; developing integrated NCD management pathways covering prevention, treatment, rehabilitation, self-management support and follow-up; establishing mechanisms to engage citizens on their own health; and creating enabling IT and HMIS

infrastructure and scale up the IDS reform in the two provinces. These activities will, in conjunction with the other activities listed, lead to a higher proportion of outpatient visits delivered by primary care facilities, an increased percentage of the population being covered by NCD service packages, and an increasing share of clinical conditional implementing evidence based clinical pathways. This in turn is expected to more hypertensive patients having their blood pressures under control, a reduction in hospital admissions for complications of Type-2 diabetes, reduced hospitalization rates for NCD patients, leading to a better quality of life for NCD patients, and improved system efficiency.

97. Establishing quality assurance mechanisms, such as evidence based clinical pathways, clinical protocol, continuous quality improvement in health facilities, and quality monitoring and public disclosure will lead to more and more clinical conditions being treated appropriately. This is expected to increase the number of hypertensive patients whose blood pressures are under control and a reduction in hospital admissions for complications of hypertension, which will lead to a better quality of life for NCD patients and improved system efficiency.

98. The reform of payment arrangements for PCIC services will mainly be done by revisiting the health insurance benefit packages and payment systems to expand coverage to preventive and outpatient services. This will require development of subnational guidelines for payment reform supporting integrated care in the two provinces, and an increase in the proportion of communities that have signed service agreement with GPs based on tailored service packages. Successful implementation is expected to an increased integration of NCD management, covering prevention, medical treatment and rehabilitation, and an increased number of prefectures/counties adopting provider payment reform. These, in turn, will lead to increased numbers of prefectures/counties having a funding pool for outpatients and improved reimbursement rates for outpatients, which is expected to reduced out-of-pocket expenses, a better quality of life for NCD patients, and improved patient satisfaction.

D. Result Area 3

99. As summarized in the Results Chain, the Program has three DLIs for this Result Area (including separate health information systems DLIs for Anhui and Fujian) that focus on cross-cutting systems that are expected to strengthen the integrated delivery of care and improve the efficiency and quality of both hospital and PCIC services (see Theory of change for this Result Area below).

100. **DLI 6 and 7**: Number of counties/districts that have set up a county-township-village population health information system [Anhui]; Number of THCs/CHCs that have established primary care health information systems [Fujian].

Description: *Description:* These two DLIs are aimed to incentivize the building of the essential health information systems in the two provinces to support the major reforms.
Measurement and verification: The yearly results measured are cumulative. As the information is not collected routinely, the provincial units of HFPCs will be responsible for collecting and validating the data, while CHSI will be responsible for final verification based on visits to randomly selected facilities and documentary evidence.

Theory of Change: These DLIs measure progress on setting up population focused health information systems, which facilitates patient participation in healthcare services, fosters accountability, and improves both the efficiency and quality of health care services.

101. **DLI 8**: Program experience sharing and dissemination.

Description: The central government will support the provinces in Program coordination, technical assistance and capacity building, implementation support; knowledge generation and sharing, and the dissemination of lessons/experiences.
Measurement and verification: The establishment of the knowledge sharing and learning platforms and the technical assistance/capacity building activities will be self-reported. Although the activities are observable, they still will be verified/confirmed by the independent third party agency (which will be independent of the Commission and is not CHSI), based on documentary evidence and field visits, as necessary.
Theory of Change: This DLI measures the support provided by the central government to the two provinces in Program implementation, as well as in knowledge generation and sharing, which are critical elements for Program success and its ultimate scale-up at the national level.

Table 7 Results Chain for Result Area 3: Building an Enabling Policy and Institutional Environment

Inputs, Activities & Processes	Outputs	Intermediate Results	Outcomes/ Impact
Establishing the institutional structures required to provide overall stewardship to the health reform -Initiate joint reform of health insurance, health care provision, and circulation of pharmaceutical products -Integrate URBMI and NCMS, gradually integrate the management of health insurances, and eventually three health insurances **HRH** Strengthen HRH and reform HR policies (training & recruitment of health professionals with shortage; training of GPs for locally recruited students who will return to practice in local health facilities; Integrated management of Village doctors; HR policy reform, headcount quota reform, HR policy reform and performance based salary) **Health Information system** - Establish health information system (Anhui) - population health information platform for sharing information among provincial, prefecture, and county level (Anhui) - Support the expansion and upgrade of	Functional and effective health reform leadership & governance structures established. Integration (at least the management) of health insurances, thereby allowing unified payment arrangement and policy for all providers **DLI 1.2: The integration of the management of the three health insurance schemes at the provincial level in Fujian is undertaken** **DLI 6: Number of counties/districts that have set up a population health information system (Anhui)** **DLI 7: Number of THCs / CHCs that have established primary care health information systems (Fujian)**	Increased number of counties that report using the population health information platform with inter-connectivity Increased number of THCs	***Outcomes:*** -Reduced risk adjusted disease specific 30 day readmission rate -Reduced 30 day surgical readmission following certain procedure (e.g. hip or knee replacement) -Reduced hospital acquired infection rate, e.g. nosocomial pneumonia -Increased percentage of hypertensive adults whose blood pressure is under control -Reduction in annual hospital admissions for acute complications of Type 2 diabetes

prefecture level information / data center (Fujian) - Software development, rolling out, installment, training for integrated care (imaging, electro-cardiography, examination, structured electronic health record, referral system to upper and lower level health facilities) (Fujian) **<u>Strengthening program stewardship,</u>** including building capacity at central and provincial levels	Increased number of counties that have established HMIS to support PCIC (e.g. full coverage of EMR and telemedicine) **DLI 8: Program experience sharing and dissemination** Knowledge sharing/dissemination events being held regularly	/CHCs that report using the primary care health information systems Increased number of counties that report using HMIS established to support PCIC (e.g. full coverage of EMR and telemedicine**)**	-Better quality of life of NCD patients (measured by SF-36 score) ***Impact:*** Improved Health Outcomes (More health for money) -Reduced disease-specific (AMI, heart failure, pneumonia) 30-day risk-adjusted hospital mortality rate -Reduced out-of-pocket expenses (with end goal as 20%) -Improved patient satisfaction

102. The goal of this result area is to support the government in strengthening key cross cutting systems that represent the foundations on which the proposed public hospital reform and PCIC are premised. The dispersed oversight and the institutional fragmentation will be addressed by establishing unified and effective health reform leadership and governance structures at both the central and provincial level. For example, at the central government level, a multi-agency, high-level Health Reform Leading Group has been established to provide overall direction and leadership nationwide. Mirroring the central structure, in the provinces, multi-agency, high-level Leading Groups have also been established, comprising of the Director Generals of the Health and Family Planning Commission, the Departments of Finance, Human Resources and Social Security, and the Office of Medical Insurance. Furthermore, the integration of the three health insurance systems will be supported, starting with the integration of their management by the provinces.

103. Human resources for health will be strengthened by supporting the provincial plans for reforms of relevant HRH policies, including headcount quota reform and the establishment of performance-based compensation for hospital and PCIC staff; recruitment and training of health professionals in areas with shortages, including training of GPs for locally recruited students who will return to practice in local health facilities; and the integrated management of village doctors.

104. The PforR will strengthen health information systems by supporting the provincial plans for establishing comprehensive health management information systems to support effective management and M&E for the two provinces.

105. Finally, program stewardship and institutional capacity at the provincial and local levels will be strengthened through technical assistance and capacity building support from the Central level. The Central level will also facilitate the monitoring and evaluation of the PforR. In addition, the central level will support the provinces in their efforts to foster knowledge generation and sharing in the process of scaling up reforms.

106. The following tables (Table 8--Table 12) summarize the information provided in the section, and provide additional information about the scalability and value of the DLIs.

Table 8 Results Chain & the Logic Underlying DLI Selection

Inputs, Activities & Processes	Outputs	Intermediate Results	Outcomes/ Impact
Result area 1: <u>Improve Hospital Governance and Management</u> - Establish leadership committee: Strengthen leadership and governance structures to empower local health reform leading group and integrate the management responsibilities for medicines, medical insurance and medical service under one responsible leader - Deepen institutional reform, including by expanding hospital autonomy • Give hospital director decision rights on use of savings from prospective payment methods • Give hospital director decision rights over hiring/firing (for both tenure and contract system) - Implement accountability systems • Introduce performance based compensation systems for hospital directors and hospital healthcare professionals • Monitor drug prescriptions in order to reduce the inefficiencies/waste in the distribution system, cut the drug price, and curb the over-prescription of drugs <u>Improved efficiency and expenditure growth control</u> - Implement public disclosure of the results of hospital procurement	Established leadership committee at provincial and prefecture levels, with clear roles and responsibilities, governance structure Increase in the number prefectures/counties which allow hospital directors to decide on how to use savings [review policies issued by local insurance agency and finance] Increase in the number of prefectures issuing documents allowing hospital directors to hire and fire (both tenure and contract staff) Increase in the number of hospitals establishing and implementing performance-based formulas for directors and staff remuneration that are linked with the quality and quantity of services, as well as patient satisfaction Increase in the number of hospitals paid through prospective payment methods Increase in the number of prefectures implementing two-invoice system for drug procurement	Increase in the variation in hospital directors and staff remuneration that is correlated with their performance **DLI 2: Proportion of discharged patients for whom county-level public general hospitals and TCM hospitals are paid through case-based payment** Proportion of labor based service revenue in total service revenue for all public hospitals in the province Reduction in the drug revenue as a	***Outcomes:*** Improved efficiency and quality in health service delivery (More value for money) -Reduced risk adjusted disease specific 30-day readmission rate -Reduced 30-day surgical readmission following certain procedure (e.g. hip or knee replacement) -Reduced hospital acquired infection rate, e.g. nosocomial pneumonia ***Impact:*** Improved Health Outcomes (More health for money) -Reduced disease-specific (AMI, heart failure, pneumonia) 30-day risk-adjusted hospital mortality rate Improved Patient satisfaction (More happiness for money): -Measured using objective indicators such as waiting time; -Patient satisfaction surveys

- Price differentiation for services across levels of facilities - Introduction of prospective payment systems that are consistent with international standards - Regulate drug costs through expanded use of generics, use of Essential Drug Lists (EDLs) and formularies, and the use of the "two invoice" systems <u>Strengthen Hospital Quality Assurance (QA)</u> - Mandate the development of clinic protocols at provincial level, which are applicable for each level of care and used across the provinces - Introduce policies to promote the rational use of pharmaceuticals and diagnostics • Adherence to EDLs and treatment protocols • Prescription audits and sharing audits results • Public disclosure of information on use of diagnostics and prescriptions - Promote disclosure of hospital performance indicators (e.g. drug revenues vs total revenues, costs of OPD and patient satisfaction assessments) in the public interest and to promote patient engagement - Establish quality assurance mechanism, such as evidence based clinical pathway, clinical protocol, continuous quality improvement in health facilities and quality monitoring and public disclosure <u>Hospital M&E</u> - Implement comprehensive electronic hospital information systems, with electronic management of records (EMR) as the core - Promote the use of telemedicine/e-medicine to facilitate early diagnosis and treatment - Promote the integration of the hospital information systems with	Increase in the proportion of county level hospitals adopting standardized clinical pathways Increase in proportion of hospitals that have public disclosure of quality report (e.g. ALOS, drug revenue as a proportion of hospital revenue, average cost) Increase in number of hospitals using data from HMIS to generate quarterly reports on ALOS, expenditure per admission, quality indicators Increase in the infrastructure and the capacity of health facilities to deliver efficient and high-quality care	proportion of hospital revenue Reduction in the growth of hospital expenditure Reduction in the average length of stays at county general hospitals **DLI 3: Increase in the proportion of inpatients to be treated through the use of standardized clinical pathways at county-level public general hospitals** Decrease in OOP payment as a portion of the total inpatient services expenditure Growth rate of medical service revenue of public hospitals in the entire province Reduction in the proportion of admissions at hospitals above county level	

the overall health management information systems (HMIS) <u>Capacity building for county-level hospitals</u> - To build disinfection supply, cardiac diagnostic, lab-test, medical imaging, pathology, and distance diagnostics centers in the counties - To strengthen the 290 medical specialties that were weak at the county level (Fujian) - To establish the within-county information platform for medical services - To build standardized surgery operation wards within counties			
<u>Result area 2:</u> **<u>Enhance service capability</u>** Upgrading/new construction of facilities and ensure basic equipment/portable device/new technology to support the new service delivery model Training of the health workforce, including GPs, nurses and community health workers for delivery of PCIC services **<u>Improve Service organization & strengthen the integrated Service provision for NCDs, including hypertension</u>** Organizing the integrated care among different levels of providers, including defining and assigning the responsibility and tasks of each, and setting up service alliance, if applicable Community health risk stratification and define the tailored health/disease management package for various groups Establish the GP-centered multi-disciplinary team at PHC level and roll out empanelment mechanism of GPs based on the tailored service packages Development of integrated NCD (including hypertension) management pathway covering prevention, medical treatment, rehabilitation, self-management supports and follow-up	Increase in the proportion of County hospitals / Township health centers that met the national standards for health facility Increase in the proportion of community residents have signed service agreement with GPs based on tailored service package Integrated NCD (including hypertension) management pathways covering prevention, medical treatment, rehabilitation as well as self-management supports and follow-up is formulated and implemented in two provinces Subnational guidelines for payment reform supporting integrated service provision developed and implemented in two provinces Increase in the number of counties/prefectures that have adopted provider payment reform (capitation or bundled payment) to incentivize integrated care (DLI) Increase in the number of clinical conditions / Share of hospital revenue that have implemented evidence base clinical pathway Increase in the number of prefectures/counties that have a funding pool for outpatient services **DLI 1.1: The IDS system has been scaled up to at least 50 counties/districts in Anhui.**	Increase in the number of GPs per 1000 persons Increase in the proportion of total Registered Physicians (assistant physician) and Registered Nurses practicing at the primary care facilities **DLI 4: Proportion of outpatient care delivered at primary care facilities** **DLI 5: No. of prefectures that manage Type II diabetes patients using the integrated NCD service package** Increase in the proportion of NCDs patients being treated as outpatients at village, township and county level	***Outcomes***: Improved efficiency and quality in health service delivery (More value for money) -Increased percentage of hypertensive adults whose blood pressure is under control -Reduction in annual hospital admissions for acute complications of Type 2 diabetes i. ***Impact:*** -Better quality of life of NCD patients (measured by SF-36 score) -Reduced OOP expenses (with end goal as 20%) -Improved patient satisfaction

Establish public participation mechanisms, engage in health/disease management, responsible for their own health Create an enabling IT and HIMS infrastructure **<u>Establish quality assurance mechanism</u>**, such as evidence based clinical pathway, clinical protocol, continuous quality improvement in health facilities and quality monitoring and public disclosure **Reform payment arrangements for PCIC** service provision, reform health insurance package to expand coverage to prevention and outpatient services		Increase in the proportion of patients hospitalized within county Decrease in annual hospital admissions for acute complications of type II diabetes. Increase in the proportion of outpatient expenditures reimbursed by social health insurance Increase in the reimbursement rate of outpatient pooling fund	
<u>Result area 3:</u> **<u>Establishing the institutional structures required to provide overall stewardship to the health reform</u>** -Initiate joint reform of health insurance, health care provision, and circulation of pharmaceutical products -Integrate URBMI and NCMS, gradually integrate the management of health insurances, and eventually three health insurances **<u>HRH</u>** Strengthen HRH and reform HRH policies (training & recruitment of health professionals with shortage; training of GPs for locally recruited students who will return to practice in local health facilities; Integrated management of Village doctors; headcount	Functional and effective health reform leadership & governance structures established. Integration (at least the management) of health insurances, thereby allowing unified payment arrangement and policy for all providers **DLI 1.2: The integration of the management of the three health insurance schemes at the provincial level in Fujian is undertaken.**	Increased number of counties that report	***Outcomes:*** -Reduced risk adjusted disease specific 30-day readmission rate -Reduced 30-day surgical readmission following certain procedure (e.g. hip or knee replacement) -Reduced hospital acquired infection rate, e.g. nosocomial pneumonia -Increased percentage of hypertensive adults whose blood pressure is under control -Reduction in annual hospital admissions for acute complications of Type 2 diabetes -Better quality of life of NCD patients (measured by SF-36 score) ***Impact:*** Improved Health

quota reform, human resource performance based salary) **<u>Health Information system</u>** - Establish health information system (Anhui) - population health information platform for sharing information among provincial, prefecture, and county level (Anhui) - Support the expansion and upgrade of prefecture level information / data center (Fujian) - Software development, rolling out, installment, training for integrated care (imaging, electro-cardiography, examination, structured electronic health record, referral system to upper and lower level health facilities) (Fujian) **<u>Strengthening PforR stewardship,</u>** including building capacity at central and provincial levels	**DLI 6: Number of counties/districts that have set up a county-township-village population health information system (Anhui)** **DLI 7: Number of THCs / CHCs that have established primary care health information systems (Fujian)** Increased number of counties that have established HMIS to support PCIC (e.g. full coverage of EMR and telemedicine) **DLI 8:Program experience sharing and dissemination** Knowledge sharing/dissemination events being held regularly	using the population health information platform with inter-connectivity Increased number of THCs /CHCs that report using the primary care health information systems Increased number of counties that report using HMIS established to support PCIC (e.g. full coverage of EMR and telemedicine**)**	Outcomes (More health for money) -Reduced disease-specific (AMI, heart failure, pneumonia) 30-day risk-adjusted hospital mortality rate -Reduced out-of-pocket expenses (with end goal as 20%) -Improved patient satisfaction

E. Disbursement Arrangements

107. ***Disbursements will be made upon the reporting, and verification of the achievement, of the PforR's disbursement linked indicators (DLIs).*** It should be noted that the total amounts allocated to the two provinces under the PforR are the same (with the exception of the amounts to be disbursed for prior results), and were pre-set by the central government. However, since the baselines and targets are different in the two provinces, reflecting the considerable differences in population size, economic development and health governance structures, and therefore the level of effort required to achieve comparable improvements on the DLIs, the allocations for increments in each indicator vary across the two provinces. Disbursement arrangements include the following:

A. Disbursements for all DLIs will be made on an annual basis. The World Bank loan proceeds will be disbursed against achieved DLI's, and released to the bank accounts designated by two provinces and central governments respectively;
B. DLIs 1.1, 1.2 are one-time payments.

C. For DLI 2, 3 and 4, disbursement is made for each percentage point[13]. Yearly disbursement is capped at the yearly allocation. Undisbursed allocations are carried over to the following year.
D. For DLI 5, 6 and 7, disbursement is made for each additional prefecture or county or THC/CHC. Yearly disbursement is not capped. Undisbursed allocations are carried over to the following year.
E. For DLI 8, the targets and achievements are in a Yes or No (achieved/not achieved) format. However, if targeted activities are completed in the following year, payments will be still be made. In that sense, allocations are carried over to the following year.
F. The two provinces and central ministry have currently not indicated a need for advances, but advances are allowed under the PforR and will be available, as needed, to the two provinces and the central government, in an amount not to exceed 25% of the loan allocation to the two provinces and the central government respectively.
G. The World Bank may agree to make an advance payment of up to 25 percent of the Financing (unless a higher percentage is approved by Management) for one or more DLIs that have not yet been met ("advance"). When the DLI(s) for which an advance has been disbursed are achieved, the amount of the advance is deducted (recovered) from the amount due to be disbursed under such DLI(s). The advance amount recovered by the World Bank is then available for additional advances ("revolving advance"). The World Bank requires that the Borrower refund any advances (or portion of advances) if the DLIs have not been met (or have been only partially met) by the Program Closing Date.

108. CHSI will carry out the verification of all the reported DLIs, except for DLI 8, using the defined verification protocol. The process includes:

A. The submission of the provincial HFPCs report on the DLIs to the CHSI, based on which the CHSI will carry out the verification.
B. Submission of a final verification report to the World Bank by the CHSI after review of the evidence against protocols.
C. Disbursement requests submitted to the World Bank by the Provincial finance bureau and the NHFPC.
D. To ensure regularity and predictability of disbursement, conformance to an annual schedule with specific dates for: (i) Provincial HFPCs to submit reports on the achievement of the DLIs; and (ii) CHSI to complete verification of results; and (iii) the World Bank to complete its due diligence.

109. For DL1 8, a third-party verification agency (not CHSI) will be hired by the NHFPC, which will verify the reports on the achievement of the yearly targets submitted by the NHFPC and the provinces. On verification, the report will be submitted to the World Bank. Like the other DLIs, the verification of DLI 8 will be undertaken on an annual basis.

[13] For DLI 4, in the case of Anhui, disbursements are made for a 0.1% increase

Table 9 Disbursement-Linked Indicator Matrix

Results Areas Supported by PforR	**PDO/Outcome Indicators** (Key indicators to measure the achievement of each aspect of the PDO statement)	**Intermediate Results Indicators** (critical processes, outputs or intermediate outcomes indicators needed to achieve each aspect of the PDO)	**DLI #**	**Unit of Meas.**	**Baseline (2015)**	**End Target (2020)**
Results Area 1	1.Proportion of discharged patients for whom county-level public general hospitals and TCM hospitals are paid through Case-based Payment	-	2	%	AH: 12 FJ: 3	AH: 32 FJ: 50
	2.Proportion of inpatients to be treated through *standardized* clinical pathways at county level public general hospitals	-	3	%	AH: 4 FJ: 0	AH: 50 FJ: 50
	-	3.Growth rate of medical service revenue of public hospitals in the entire province	NA	Yes/No	AH: 8% FJ: 8.88%	<10%
	-	4.Average length-of-stay for county level public hospitals	NA	Number	AH: 8.82 FJ: 7.41	AH: 8 FJ: 7.37
		5.Number of counties/districts that have public disclosure of quality report (e.g. ALOS, drug revenue as a proportion of hospital revenue, expenditure per visit for outpatient, expenditure per admission for inpatient)	NA	Number	AH: 55 FJ:10	AH: 61 FJ: 68
		6.Proportion of labor based service revenue in total service revenue for all public hospitals in the province	NA	%	AH: 25 FJ: 24.58	AH: 30 FJ: 30.00
		7.Out-of-pocket payment as portion of the total inpatient services expenditure	NA	%	AH: 42 FJ: 50.83	AH: 37 FJ: 48.83
Results Area 2	8.Proportion of outpatient care delivered by primary care facilities	-	4	%	AH: 61 FJ: 51	AH: 61.8 FJ: 55
	9.Number of prefectures that manage Type II diabetes patients using the integrated NCD service package (Threshold value for a prefecture to qualify as using the integrated service package is 25% of total Type II diabetes cases)		5	Number	0	AH: 6 FJ: 4
	-	10.Proportion of patients hospitalized within county	NA	%	AH: 69 FJ: 63	AH: 73 FJ: 80
	-	11.Proportion of total Registered Physicians (assistant physician) and Registered Nurses practicing at the primary care facilities	NA	%	AH: 26.80 FJ:29.09	increase
	-	12.Number of hypertension patients that are under standardized management	NA	Number	AH: 4500 000 FJ: 1250 000	AH: 4700 000 FJ: 1300 000
	-	13.The county IDS system has been scaled up to at least 50 counties/districts in Anhui	1.1	Yes/No	NA	NA
Results Area 3		14.Number of counties/districts that have established a county-township-village population health information system [Anhui]	6	Number	0	20

		15.Number of THCs / CHCs that have established primary care health information systems [Fujian]	7	Number	0	500
	-	16.Number of prefectures achieving integration (at least of the management) of the health insurance schemes, thereby allowing unified payment arrangement for all providers	NA	Number	AH: 0 FJ: 2	AH: 12 FJ: 9
	-	17.Program experience sharing and dissemination	8	Yes/No	NA	NA
	-	18.The integration of the management of the three health insurance schemes at the provincial level in Fujian is undertaken	1.2	Yes/No	NA	NA

Table 10 Indicator Description

Indicator Name (#)	Frequency	Data Source	Methodology for data collection	Responsibility for Data Collection	DLIs	
					Responsibility for Data Verification	Scalability of Disbursement (Yes/No)
1.Proportion of discharged patients for whom county-level public general hospitals and TCM hospitals are paid through Case-based Payment	Annually	AH: Report; FJ: Insurance claim data	AH: Self-reporting; FJ: Report by Provincial Health Insurance Office (HIO)	HFPC, HRSS, Provincial HIO	CHSI	Yes
2.Proportion of inpatients to be treated through standardized clinical pathways at county level public general hospitals	Annually	Administrative data from health facility annual report (denominator) and report (numerator)	Routine reporting (denominator) and self-reporting (numerator)	HFPC	CHSI	Yes (except for 2017 in FJ)
3.Growth rate of medical service revenue of public hospitals in the entire province	Annually	Administrative data from health facility financial statement	Routine reporting	HFPC	NA	NA
4.Average length-of-stay for county level public hospitals	Annually	Administrative data from health facility annual report	Routine reporting	HFPC	NA	NA
5.Number of counties/districts that have public disclosure of quality report (e.g. ALOS, drug revenue as a proportion of hospital revenue, expenditure per visit for outpatient, expenditure per admission for inpatient)	Annually	Report	Self-reporting	HFPC	NA	NA
6.Proportion of labor based service revenue in total service revenue for all public hospitals in the province	Annually	Administrative data from health facility financial statement	Routine reporting	HFPC	NA	NA
7.Out-of-pocket payment as portion of the total inpatient services expenditure	Every six months	Administrative data from national health reform monitoring system	Routine reporting	HFPC, HRSS, Provincial HIO	NA	NA

8.Proportion of outpatient care delivered by primary care facilities	Annually	Administrative data from health facility annual report	Routine reporting	HFPC	CHSI	Yes
9.Number of prefectures that manage Type II diabetes patients using the integrated NCD service package (Threshold value for a prefecture to qualify as using the integrated service package is 25% of total Type II diabetes patients managed)	Annually	Report	Self-reporting	HFPC	CHSI	Yes (except year 2017)
10.Proportion of patients hospitalized within county	Every six months	Administrative data from national health reform monitoring system	Routine reporting	HFPC, HRSS, Provincial HIO	NA	NA
11.Proportion of total Registered Physicians (assistant physician) and Registered Nurses practicing at the primary care facilities	Annually	Administrative data from health facility annual report	Routine reporting	HFPC	NA	NA
12.Number of hypertension patients that are under standardized management	Every six months	Administrative data from health facility annual/monthly report	Routine reporting	HFPC	NA	NA
13.The county IDS system has been scaled up to at least 50 counties/districts in Anhui	One-Time Payment	Report	Pilot design and Implementation report	HFPC	CHSI	No
14.Number of counties/districts that have established a county-township-village population health information system [Anhui]	Annually	Report	Self-reporting	HFPC	CHSI	Yes
15.Number of THCs / CHCs that have established primary care health information systems [Fujian]	Annually	Report	Self-reporting	HFPC	CHSI	Yes
16.Number of prefectures achieving integration (at least of the management) of the health insurance schemes, thereby allowing unified payment arrangement for all providers	Annually	Report	Self-reporting	AH: HFPC; FJ: Provincial HIO	NA	NA
17.Program experience sharing and dissemination	Annually	Report	Self-reporting	HFPC	Independent third-party	No
18.The integration of the management of the three health insurance schemes at the provincial level in Fujian is undertaken	One-Time Payment	Report	Government documents	Provincial HIO	CHSI	No

Table 11 Disbursement-Linked Indicator Matrix

DLI	Total Financing allocated to DLI (in USD million)	As % of total Financing	DLI Baseline (%)	Target and timeline for DLI achievement (%)				
				Effectiveness in 2017	End of 2017	End of 2018	End of 2019	End of 2020
DLI 1.1: The county IDS system has been scaled up to at least 50 counties/districts in Anhui	-	-	-	The county IDS system has been scaled up to at least 50 counties/districts in Anhui	-			
Allocated amount:	15	2.50%		**$15M**				
DLI 1.2: The integration of the management of the three health insurance schemes at the provincial level in Fujian is undertaken	-	-	-	The integration of the management of the three health insurance schemes at the provincial level in Fujian is undertaken	-			
Allocated amount:	40	6.67%		**$40M**				
DLI 2: Proportion of discharged patients for whom county-level public general hospitals and TCM hospitals are paid through case-based payment	-	-	AH: 12 FJ: 3	-	AH: 17 FJ: 10	AH: 22 FJ: 20	AH: 25 FJ: 35	AH: 32 FJ: 50
Allocated amount:	136.15	22.69%	-		**$27.15M** (AH: $17M FJ: $10.15M)	**$31.50M** (AH: $17M FJ: $14.50M)	**$31.95M** (AH: $10.20M FJ: $21.75M)	**$45.55M** (AH: $23.80M FJ: $21.75M)
DLI 3: Proportion of inpatients to be treated through standardized clinical pathways at all county level public general hospitals	-	-	AH: 4 FJ: 0	-	AH: 35 FJ: develop 100 standardized clinical pathways that can be adapted at county level hospitals (Yes/No)	AH: 40 FJ: 15	AH: 45 FJ: 35	AH: 50 FJ: 50
Allocated amount:	132.33	22.06%	-	-	**$60.73M** (AH: $44.64M FJ: $16.09M)	**$22.20M** (AH: $7.20M FJ: $15M)	**$27.20M** (AH: $7.20M FJ: $20M)	**$22.20M** (AH: $7.20M FJ: $15M)
DLI 4: Proportion of outpatient care delivered by primary care facilities	-	-	AH: 61 FJ: 51	-	AH: 61.2 FJ: 52	AH: 61.4 FJ: 53	AH: 61.6 FJ: 54	AH: 61.8 FJ: 55

Allocated amount:	80	13.33%	-	-	**$20M** (AH: $10M FJ: $10M)	**$20M** (AH: $10M FJ: $10M)	**$20M** (AH: $10M FJ: $10M)	**$20M** (AH: $10M FJ: $10M)
DLI 5: Number of prefectures that manage Type II diabetes patients using the integrated NCD service package (Threshold value for a prefecture to qualify as using the integrated service package is 25% of total Type II diabetes patients managed)	-	-	0	-	Protocols for the integrated NCD service package for type II Diabetes developed (Yes/No)	AH: 2 FJ: 1	AH: 4 FJ: 2	AH: 6 FJ:4
Allocated amount:	90.02	15.00%	-	-	**$30.02M** (AH: $15.0475M FJ: $14.9725M)	**$17.5M** (AH: $10M FJ: $7.5M)	**$17.5M** AH: $10M FJ: $7.5M)	**$25M** AH: $10M FJ: $15M)
DLI 6: Number of counties/districts that have established a county-township-village population health information system [Anhui]	-	-	0	-	3	8	14	20
Allocated amount:	50	8.33%	-	-	**$7.5M**	**$12.5M**	**$15M**	**$15M**
DLI 7: Number of THCs / CHCs that have established primary care health information systems [Fujian]	-	-	0	-	200	300	400	500
Allocated amount:	50	8.33%	-	-	**$20M**	**$10M**	**$10M**	**$10M**
DLI 8: Program experience sharing and dissemination	-	-	NA	-	Three learning groups are established for three key reform areas (e.g., clinical pathway, case-based payment, and integrated NCD service management)	(1) Launch operational research on three key reform areas; (2) Organize two national workshops on the health reform in China	(1) Hold one international workshop and two national workshops on the health reform in China; (2) Prepare one report documenting the Program experience on one of the key reform areas; (3) Completion of one operational research report under each of the three key	(1) Hold one international workshop and two national workshops on the health reform in China; (2) Prepare two reports to document the Program experience on the two remaining key reform areas
Allocated amount:	5	0.83%	-	-	**$1.5M**	**$1.5M**	**$1M**	**$1M**

Front-end Fee	1.5	0.25%	-	-	-	-	-	-
Total Financing Allocated:	**600**	**100%**	-	-	-	-	-	-

Table 12 DLI Verification Protocol Table

#	DLI	Definition/Description of achievement	Scalability of Disbursements (Yes/No)	Protocol to evaluate achievement of the DLI and data/result verification		
				Data source/agency	Verification Entity	Procedure
1.1	The County IDS system has been scaled up to at least 50 counties/districts in Anhui	This DLI measures prior achievement/results by the two provinces in successfully piloting and documenting their experience.	No	HFPC	CHSI	Each county HFPC will provide the information, including official government documents issued by relevant provincial departments to approve the establishment of IDS, and the IDS implementation plan issued by county/district HFPC, to confirm the implementation in 50 counties/districts. The assessment will be undertaken by the verification agency, based on the documents and the field investigation as needed.
1.2	Integration of the management of the three health insurance schemes[14] at provincial level in Fujian is undertaken		No	Provincial HIO	CHSI	The provincial government will provide (i) the government official documents approving the institutional reorganization resulting from the integration of the three schemes, (ii) the government official documents on human resources appointments and retention, and (iii) the government official documents issued by the HIO, announcing the policy of three health insurance schemes. The assessment will be undertaken by the verification agency, based on the documents and the field investigation as needed.
2	Proportion of discharged patients for whom county-level public general hospitals and TCM hospitals are paid through Case-based Payment [15]	This DLI measures the payment method used by the health insurance schemes to pay county level public hospitals. The measure is the proportion of hospital discharges paid using the case based payment system. The more hospital discharges	Yes	AH: we will request health facilities to report the data to HFPCs; FJ: health insurance claim data managed by provincial HIO	CHSI	To be verified based on the number of discharged patients that are paid through case-based payment (numerator) and total number of discharged patients covered by one of the three health insurance schemes (denominator). AH: 1) Health facilities will report the numerator and denominator to the county HFPCs, and county HFPCs will report the data to the municipal HFPCs, and then municipal HFPCs will report the data to the provincial

[14] The integration of the management of the three health insurance schemes means the duties and operations of three health insurance schemes are integrated under one responsible office.

[15] Case-based payment is a hospital payment system in which a hospital is reimbursed for each discharged inpatient at rates established prospectively for groups of cases with similar clinical profile and resource requirements. Unlike historical budgeting and fee-for-services payment systems this payment system creates incentives for hospitals to reduce costs per case (See *John C. Langenbrunner, Cheryl Cashin, and Sheila O'Dougherty* 2009. "Designing and Implementing Health Care Provider Payment Systems: How-To Manuals").

		are paid through case-based payments the better.				HFPCs; 2) The provincial HFPC will validate and aggregate the data; 3) CHSI will do the final verification before submitting to the World Bank. The CHSI will conduct on-site review of selected county public hospitals. The review activities include validating data sources and statistical methods, and checking the consistency of data from various sources, such as hospital registries and health information systems. FJ: 1) Health facilities will report the data to provincial HIO using health insurance claim data; 2) The provincial HIO will validate and aggregate the data; 3) CHSI will do the final verification before submitting to the World Bank. The CHSI will conduct on-site review of selected county public hospitals. The review activities include validating data sources and statistical methods, and checking the consistency of data from various sources, such as hospital registries and health information systems.
3	Proportion of inpatients to be treated through standardized clinical pathways at county level public general hospitals[16]	This DLI measures improvement in the use of standardized clinical guidelines in treating patients. The total number of inpatients treated through standardized clinical pathways in all county level public general hospitals (TCM hospitals are not included) out of the total number of inpatients treated at these hospitals.	Yes (except for 2017 in FJ)	Numerator: we will request health facilities to report the data to HFPCs; Denominator: from the data regularly reported by health facilities in the internet based reporting system	CHSI	To be verified based on the number of patients that are treated through standardized clinical pathways (numerator) and total number of patients used inpatient services (denominator). The implementation of standardized clinical pathways must meet the following criteria: (i) the provincial HFPC issues guidelines to standardize the clinical pathway development or develops clinical pathways that can be implemented at the county-level hospitals; (ii) the provincial HFPC and health facilities, respectively, issue documents with regards to the quality control during the use of clinical pathways; and (iii) the health facilities must conduct annual assessment on the implementation of clinical pathways and draft the relevant report. Progress on this indicator will be assessed using self-reported

[16] Clinical pathways are multidisciplinary evidence-based care plans that provide specific guidance on the sequencing of care steps and the timeline of interventions. The goal of clinical pathways is to standardize care, improve outcomes and reduce cost.

						data as well as routine administrative data reported by health facilities through the national reporting system, and verified by the third party institution. 1) For the denominator, health facilities will routinely report it in the internet based reporting system; where as for the numerator, health facilities will report it to the municipal HFPCs, and then municipal HFPCs will validate and report the data to the provincial HFPCs; 2) The provincial health HFPCs will do the re-validate and aggregate the data; 3) CHSI will do the final verification before submitting to the World Bank. The verification team will review the relevant documents/reports issued by the provincial government and health facilities (see the details in the paragraph describing the criteria of implementing standardized clinical pathways). In addition, CHSI will conduct on-site review of selected hospitals. The on-site activities include (i) review selected clinical pathways and conduct chart audit to make sure the quality of the implementation of standardized clinical pathways; and (ii) check data sources, statistical methods, and the consistency of data from various sources such as hospital registries and health information systems.
4	Proportion of outpatient care [17] delivered by primary care facilities[18]	This DLI measures outpatient services provided by primary care facilities relative to higher level facilities. It shows the total number of outpatient services, emergency services, home visits, physical checkup, and health consultations provided at primary care facilities out of	Yes	Calculated from the data regularly reported by health facilities in the internet based reporting system	CHSI	To be verified based on total outpatient delivered by primary care facilities (numerator) and total outpatient visits in a province (denominator). 1) Health facilities will report the numerator and denominator to the county HFPC, and county HFPCs will report the data to the municipal HFPCs, and then municipal HFPCs will report the data to the provincial HFPCs; 2) The provincial HFPCs will re-validate and aggregate the data; 3) CHSI will do the final verification before submitting to

[17] Outpatient care includes the following: outpatient services, emergency services, home visits, physical checkup and health consultations.
[18] Primary care facility means, according to the health facility registration and license, a health facility classified as the following categories: 1) community health centers (stations); 2) township health centers; 3) village clinics; 4) outpatient clinics.

		the total number of such services across all the levels of health care delivery.				the World Bank. The verification team will conduct on-site review of selected hospitals and primary care health facilities. The review activities include validating data sources and statistical methods, and checking the consistency of data from various sources such as hospital registries and health information systems.
5	Number of prefectures that manage Type II [19]diabetes patients using the integrated NCD service package (Threshold value for a prefecture to qualify as using the integrated service package is 25% of total Type II diabetes patients managed)[20][21]	This DLI measures the number of prefectures that manage type II diabetes patients using a defined integrated NCD package. A prefecture to qualify as using the integrated NCD package, it must have at least 25% of the identified Type II diabetes patients managed under integrated NCD service package.	Yes (except Year 2017)	The existing system cannot provide this data directly. We will request THCs/CHCs to report the data to HFPCs	CHSI	To be verified based on the number of Type II diabetes patients that are managed by integrated NCD package in the prefecture (numerator) and total number of registered Type II diabetes patients in the prefecture (denominator). 1) THCs/CHCs will report total number of registered Type II diabetes patients and the number of Type II diabetes patients that are managed by integrated NCD package (both in their facilities and their catchment area) to the county HFPCs; 2) County HFPCs will submit the THCs/CHCs data to the municipal HFPCs, and then municipal HFPCs will validate and report the data to the provincial HFPCs; 3) The provincial HFPCs will re-validate and aggregate the data; 4) CHSI will do the final verification before submitting to the World Bank. The verification team will conduct on-site review of selected THCs/CHCs of qualified prefectures. The activities include validating data source, and reviewing the tailored health/disease management packages, the service agreement, and the service records for a randomly selected sample.
6	Number of counties/districts that have established a county-township-	The total number of counties/districts in Anhui that have established a county-township-village	Yes	Each county self-reports whether it has set up the	CHSI	To be verified based on the number of counties/districts satisfying agreed the criteria. The qualified county level platform must meet the following

[19] Type II diabetes is the most common form of diabetes. Diabetes is a problem with the body that causes blood glucose (sugar) levels to rise higher than normal. For the diagnosis criteria, please refer to *Type II Diabetes Prevention and Control in China (Edition 2013).*

[20] Integrated management of NCDs would entail the following key elements: community risk stratification for Type II diabetes patients is conducted by primary health service providers, and the tailored health/disease management packages are defined for various risk groups. The GP centered multi-disciplinary team at PHC level will sign the service agreement with residents based on the tailored service packages and will provide disease management based according to a defined disease management pathway.

[21] During the first year, this DLI will be measured by the establishment of protocols for the integrated NCD service packages.

	village population health information system [Anhui]	population health information system.		population health information system, as required to the HFPCs		criteria: (i) the county-level public hospital information system with EMR as the core should meet Anhui Province Population Health Information Standard[22]; (ii) as the supporting system of county, township and village integration, it includes at least two of the following five functions: dual-referral, family doctor services, EMR, long-distance electro cardiography and long-distance medical imaging; (iii) can be connected with the municipal or provincial population health information platform and the provincial public service platform. 1) The county HFPCs will report the data to the municipal HFPCs, and the municipal HFPCs will submit the data to the provincial HFPC; 2) The provincial HFPC will re-validate the data; 3) CHSI will do the final verification before submitting to the World Bank. The verification team will randomly sample a certain percent of counties/districts, check whether their system meets the qualification criteria, and the records.
7	Number of THCs / CHCs that have established primary care health information systems [Fujian]	The number of township/community health care centers in Fujian that have established primary care health information systems.	Yes	Each county self-reports, in its catchment area, the number of THCs/CHCs that have established primary care health information systems, as required, to the HFPCs	CHSI	To be verified based on the number of THCs/CHCs health centers satisfying the agreed criteria. The qualified THCs/CHCs must meet both of the following criteria: (i) the primary care health information system (hardware and software) has been installed, commissioned, and running; and (ii) the system consists of at least two of the following five functions: long-distance medical imaging, long-distance cardiac diagnostic, long-distance lab-tests reporting, EMR, and dual-referral. 1) The county HFPCs will report the data to the municipal HFPCs, and the municipal HFPCs will submit the data to the provincial HFPC; 2) The provincial HFPCs will validate the data; 3) CHSI will do final verification before submitting to the World Bank. The verification team will randomly sample a certain percent of THCs/CHCs to conduct on-site visit to check whether their system meets the qualification criteria, and the records.
8	Program experience	The central government will	No	The existing	Independent	The information is self-reported and the activities are

[22] The standard is published on Anhui Province Population Health Information Standard Portal: http://xxbz.ahwjw.gov.cn/.

	sharing and dissemination	support provinces in coordination, capacity building, exchange of experiences, dissemination of the successful pilots, and implementation support/guidance to the provinces; knowledge generation and sharing; and dissemination of lessons.		system cannot provide this data directly. We will request the unit of central government, which provides technical assistance, to report the relevant activities.	third-party	observable. Still an independent third-part will review the reports and verify and confirm to the World Bank. The launch of the operational research on the three key reform areas must meet the following criteria: (i) TORs have been developed; (ii) consulting contracts for the operational research on three key reform areas have been signed; and (iii) the technical design for the research has been formulated.

Table 13 World Bank Disbursement Table

#	DLI	Allocation to the DLI (USD million)	Financing is available for		Deadline for Achievement	Min DLI value required to trigger disbursement of World Bank finance	Max DLI value expected to be achieved for World Bank disbursement purpose	Determination of amount to be disbursed against achieved and verified DLIs (i.e. formula)
			Prior results	Advance				
1.1	The county IDS system has been scaled up to at least 50 counties/districts in Anhui	15	15	0	Effectiveness	NA	NA	This is a Yes/No for achievement of targets. USD 15 million will be disbursed to Anhui province upon assessment and verification of the establishment of the IDS system to 50 counties/districts.
1.2	The integration of the management of the three health insurance schemes at the provincial level in Fujian is undertaken	40	40	0	Effectiveness	NA	NA	This is a Yes/No for achievement of targets. USD 40 million will be disbursed for Fujian province upon assessment and verification of the integration of the management of the three health insurances schemes at the provincial level (integration at below provincial level is not required).
2	Proportion of discharged patients for whom county-level public general hospitals and TCM hospitals are paid through Case-based Payment	136.15	NA	NA	December 31, 2021	AH: 12 FJ: 3	AH: 32 FJ: 50	The maximum amount to be disbursed every year is capped at yearly allocation. Unutilized amount for previous year could be carried forward to the following year. Disbursement= (Current year achievement – baseline) * unit price – cumulative disbursed amount Unit price is: For Anhui= $3.4 million per 1% increase For Fujian=$1.45 million per 1% increase Achievements is calculated based on the number of hospital discharges that are paid through case-based payment (numerator) and total number of discharged patients covered by one of the three health insurance schemes (denominator).
3	Proportion of inpatients to be treated through standardized clinical pathways at county level public general hospitals	132.33	NA	NA	December 31, 2021	AH: 4 FJ: 0	AH: 50 FJ: 50	The maximum amount to be disbursed every year is capped at yearly allocation. Unutilized amount for previous year could be carried forward to the following year. Disbursement= (Current year achievement – baseline)

								* unit price – cumulative disbursed amount [except Fujian for Year 1] Year 1 FJ = $16.09 million (full disbursement will be made if the targets are achieved and zero will be disbursed if the target is not achieved) Unit price is: For Anhui= $1.44 million per 1% increase. For Fujian=$1million per 1% increase (except for year 1) Achievements is calculated based on the number of patients that are treated through standardized clinical pathways (numerator) and total number of patients used inpatient services (denominator).
4	Proportion of outpatient care delivered by primary care facilities	80	NA	NA	December 31, 2021	AH: 61 FJ: 51	AH: 61.8 FJ: 55	The maximum amount to be disbursed every year is capped at yearly allocation. Unutilized amount for previous year could be carried forward to the following year. Disbursement= (Current year achievement – baseline) * unit price – cumulative disbursed amount Unit price is: For Anhui= $5 million per 0.1% increase For Fujian=$10 million per 1% increase Achievement is calculated based on total outpatient visits delivered by primary care facilities (numerator) and total outpatient visits in a province (denominator).
5	Number of prefectures that manage Type II diabetes patients using the integrated NCD service package (Threshold value for a prefecture to qualify as using the integrated service package is 25% of total Type II diabetes patients managed)	90.0325	NA	NA	December 31, 2021	No minimum	AH: 6 FJ: 4	The amount to be disbursed every year is NOT capped at yearly allocation. Disbursements will be made for achievements exceeding the target. Unutilized amount for previous year could be carried forward to the following year. Disbursement is calculated as: Year 1 Anhui= $15.01 million Year 1 Fujian=$15.01 million (For Year 1, full disbursement will be made if the targets are achieved and zero will be disbursed if the

								target is not achieved) Years 2, 3 and 4 = the number of additional prefectures * unit price Unit price is: For Anhui= $5 million for each additional prefecture For Fujian=$7.5million for each additional prefecture This indicator is cumulative.
6	Number of counties/districts that have established a county-township-village population health information system [Anhui]	50	NA	NA	December 31, 2021	No minimum	AH: 20	The amount to be disbursed every year is NOT capped at yearly allocation. Disbursements will be made for achievements exceeding the target. Unutilized amount for previous year could be carried forward to the following year. Disbursement = the number of additional counties/districts * unit price Unit price = $2.5 million for each additional county/districts This indicator is cumulative.
7	Number of THCs / CHCs that have established primary care health information systems [Fujian]	50	NA	NA	December 31, 2021	No minimum	FJ: 500	The amount to be disbursed every year is NOT capped at yearly allocation. Disbursements will be made for achievements exceeding the target. Unutilized amount for previous year could be carried forward to the following year. Disbursement = the number of additional THCs/ CHCs * unit price Unit price = $0.1 million for each additional THC/CHC This indicator is cumulative.
8	Program experience sharing and dissemination	5	NA	NA	December 31, 2021	NA	NA	This is a Yes/No for achievement of targets. For each year, full disbursement will be made if the targets are achieved and zero will be disbursed if the target is not achieved. Amounts not disbursed in one year can be carried over to the next year.

VI. Program Economic Evaluation

A. Rationale for Public Intervention

110. The proposed Program is aimed at supporting the deepening of the government's reform program. The focus is to improve the quality and efficiency of service delivery by addressing the binding constraints including a comprehensive public hospital reform and establishment of an integrated health service delivery system. These have been recognized as key constraints in the government's recently issued policy directives.

111. The Program will support the government's health reform aimed at improving the efficiency of the system and quality of care thru modernizing the functioning of public hospitals and establishment of a well-functioning integrated service delivery system. The health system is hospital-centric and fragmented and fraught with inefficiency. China has more hospitals per population that a number of OECD countries including UK, Spain, Canada, and US[23]. With higher expansion of capacity and use of higher level hospitals compared to primary care facilities. This has started to reflect in increased the cost of care. As such improving the functioning of the hospital sector and integration of care is critical to enhance efficiency in the sector at all levels

112. One level of inefficiency is related to the fact that hospitals dominate the health care delivery system in China. Hospitals account for 54 percent of total health expenditure, compared to the OECD average of 38 percent. The growth of the hospital sector seems to be at the expense of primary care providers. It is growing and the increase in the number of hospitals is accompanied by decrease in primary care providers. Between 2002 and 2013, there was a significant increase in the number of tertiary (82%) and secondary (29%) hospitals but a decrease in primary care providers. Such development coupled with the increased movement of trained health workers towards hospitals is increasing the role of hospitals as principal providers of health services.

113. The other source of inefficiency is in the functioning and behavior of the public hospitals which mainly is driven by the incentive structure they are facing. Hospitals in China draw revenues mainly from service fees including mark-up drug prices charged to patients and insurance payments. This combined with the main provider payment system of fee for services, which encourages volume of services and expensive procedures, provides perverse incentive for hospitals to over-supply services, over subscribe drugs and diagnostic services to maximize revenue.

114. An integrated provider with gate keeping and post discharge care would help reduce costly hospital admissions and readmissions for most NCDs that could be treated at a lower cost in ambulatory care. The current fee structure used by payers underprices preventive and promotive services by pricing some of these activities below cost. With the existing system, the incentive for providers at different level of the health care system is to maximize profit rather than coordinate to maximize population health. The delivery system could be modified to adopt a cost effective delivery model focusing on prevention, treatment and management of NCDs.

[23] China Joint Health study

115. The interventions in the proposed Program are meant to address these areas of inefficiencies. Interventions aimed at reforming the public hospitals include gradually changing the current provider payment system of fee-for service into a prospective payment system, reduce the incentive for over prescription by adopting zero markup pricing and re balancing the revenue from labor-based sources and providing autonomy for hospital directors and gradually instituting a system of accountability to hold managers accountable for the performance of public hospitals. And strengthening the people centered integrated care to reduce costly hospital admission and readmission and change the payment system to provide incentives for coordination among providers.

116. Furthermore, despite the significant progress in increasing coverage of insurance under the three insurances, the fragmented nature of these schemes means equity in access to care and financial protection remains a challenge. Not only the three schemes, namely the rural new cooperative medical scheme (NCMS), urban resident-based basic medical insurance Scheme (URBMI), and urban employee-based basic medical insurance scheme (UEBMI), are administered and operated separately by two entities, funds for each are pooled at smaller entities: funds for NCMS are pooled at county level and funds for URBMI and UEBMI are pooled at municipal/prefecture level. This led to unequal benefit packages within a scheme (between rich and poor counties/municipalities) and between schemes. For instance given the limited funding, NCMS beneficiaries have limited access to care and bear a higher financial burden than URBMI. Furthermore, such fragmentation creates further burden on migrants. The Program will support the efforts by the provinces of Fujian and Anhui to consolidate these schemes. In some localities, the process of merging the NCMS and URBMI has already taken place.

B. Economic Impact

117. The Program supports complex sets of reform programs that will impact the sector in the two provinces for the years to come. The economic impact of the Program is assessed using the benefits that the Program generates and the costs it involves. Given the complexity of the Program and the process required to quantify the benefits, a number of assumptions were made. Throughout the analysis, the counterfactual is a scenario without the Program where the current trend of key cost/ outcome variables is assumed to continue.

Program benefits

118. Program generated benefits are summarized below. Although, the Program has many more benefits, for reasons of measurement/ quantifying them, only a limited set of benefits that correspond to the reform of the public hospital and PCIC components are considered. Some Program benefits including benefits from improved stewardship of the sector and benefits from the integration of the three insurance systems were not quantified. As such, the benefits below underestimate the overall Program benefits.

a. *Reduced hospital admission*: hospitalization rate in China has increased significantly in past few years at an average growth rate of 11 percent during the period 2003-2013 and

stands at 14.1 percent in 2013[24]. Improved primary care and integrated system is expected to reduce hospital admission of cases that can be managed at primary care level. Hence improving efficiency of the system. Table 14 below shows cases of avoidable hospital admission constructed using available data for selected non-communicable diseases (NCDs). Given the prevalence of and level of spending on these diseases, significant savings can be made by reducing avoidable admissions. For instance diabetes is estimated to affect more than 100 million Chinese and account for more than 25 billion US dollars in treatment costs (13% of national health expenses) in 2009/10[25]. The direct savings of reduced admission are average costs of hospital per bed per day multiplied by the average length of hospital stay by the number of admissions avoided.

Table 14 Avoidable Hospital Admission for Selected Hospitals and NCDs

Diseases	Possible avoidable admission rate	LOS share of possible avoidable admissions	Expenditures share of possible avoidable admissions
Diabetes	9.53%	2.92%	4.10%
Hypertension	7.67%	2.68%	2.55%
COPD	8.92%	2.99%	2.86%
CHF	11.83%	4.42%	3.13%
Asthma	8.29%	2.68%	2.04%
Total	**9.12%**	**2.92%**	**3.72%**

b. *Reduction readmission*: is used as one of the measures of quality of care at hospital. Improved quality resulting in reduction in readmission rate will result in reduction in the cost. Given the absence of reliable data on the rate of avoidable readmission from neither the two provinces nor China in general, we use the data from the literature. It assumed that the rate of avoidable readmission is about 23% of the 30-day readmissions.[26]

   The savings from reduced readmission is the direct cost of hospitalization plus lost productivity and increased morbidity due to readmission.

c. *Increase in inpatients treated through the use of standardized clinical pathways:* use of clinical pathways is expected to improve quality of care. International evidence shows large savings from improved quality of care. Medical error alone is expected to cost US $19.5 billion in 2008 of which $17 billion are additional medical costs (close to 98,000 deaths and poor care at primary level account to 10% of hospitalization)[27]. Improved use of clinical care is expected to result in reduced waste, more lives saved

[24] Deepening Health Reform in China: Building High-Quality and Value-Based Service Delivery, World Bank, Washington DC (pp 6)
[25] Weiyan Jian, Karen Eggleston, Ming Lu and Hai Fang.
[26] Carl van Walraven, Alison Jennings, and Alan J. Forster. 2011. A Meta-analysis of hospital 30 day avoidable readmission rate. Journal of evaluation and clinical practice. 18: 1211-18.
[27] Andel C[1], Davidow SL, Hollander M, Moreno DA. 2012. The economics of health care quality and medical errors. J Health Care Finance. Fall; 39(1):39-50.

and reduced hospitalization. Another study in the US on lung cancer patients reported that outpatient costs were 35 percent lower than costs for patients treated off-pathway with no difference in 12-month overall survival, or in survival for patients in first-line, and second-line settings[28].

d. *Reduced hospital acquired infection:* it is associated with increase medical costs, complications, increase in ALOS and mortality. One of the quality of care measured used is hospital acquired infection rate. The most common infections are surgical site infections. On average one in every 50 surgical cases gets hospital acquired infection in the US and on average costs USD 21,000.[29] In UK, hospital infection patient on average cost 290% higher than the uninfected patients[30].

e. *Reducing average length of stay*. (ALOS) at hospitals above the county level: improved hospital efficiency is partly measured by reduction in the ALOS. However, the reduction in ALOS will only up to a point and may even start to increase as improved integrated care led to hospitals taking more complicated and sever cases. With improved system, ALOS will likely first reduced and gradually increase before it peaks. A reduction in ALOS is expected to reduce cost/expenditure of targeted hospitals.

f. *Increased centralized procurement, increased use of generic drugs, and rational use of drugs*: centralized procurement will lead to savings resulting from large scale purchases. The use of generic drugs will also reduce the cost of drugs. These two interventions coupled with rational use of drugs is expected to reduce the cost of pharmaceuticals. Spending on medicine account for about 40 percent to total spending on health in China, which is significantly higher than the OECD average of 16 percent; it is higher even by East Asia and Pacific standards. We use OECD estimate of saving from adopting generic medicine over brand.

g. *Reduced morbidity and mortality due to NCDs*: Increase in the percentage of adults with controlled hypertension, diabetics would mean reduced morbidity and mortality due to NCDs. This is reduction in morbidity and mortality is measured in DALYs.

119. The targets indicated in the results framework for each of these results are used to measure the contribution of the Program. The counterfactual – the 'no-Program' scenario- is the continuation of the current trend in each of these results indicator. Specifically, the two questions

[28] Neubauer MA[1], Hoverman JR, Kolodziej M, Reisman L, Gruschkus SK, Hoang S, Alva AA, McArthur M, Forsyth M, Rothermel T, Beveridge RA. 2010. Cost effectiveness of evidence-based treatment guidelines for the treatment of non-small-cell lung cancer in the community setting. J Oncol Pract. 2010 Jan; 6(1):12-8.

[29] Trish Perl, M.D., professor, medicine and pathology, Johns Hopkins School of Public Health, Baltimore; Eyal Zimlichman,

[30] R. Plowman a, f1, N. Graves b, M.A.S. Griffin c, J.A. Roberts b, A.V. Swan c, B. Cookson d, L. Taylor. 2001. "The rate and cost of hospital-acquired infections occurring in patients admitted to selected specialties of a district general hospital in England and the national burden imposed". *Journal of Hospital Infection* (2001) **47**: 198–209

we focus on in measuring the Program's contribution are: what are the expected results from the Program? And, what will happen to these results in the absence of the Program.

Program Costs

120. The total PforR cost includes the Programed ear-marked budget the government at the central and provincial levels for the five-year period (2017–21) together with the World Bank's contribution in support of implementing the activities identified under the Program. The overall PforR cost is expected to be US$4,666,000,000 of this total, the government's contribution is US$4,066,000,0000 and the Bank's contribution is US$ 600,000,000. Though the Bank's portion represents a relatively small financial contribution, it will incentivize the quality improvement of the much larger government spending on the PforR.

Program Benefits

Table 15 Program Benefits

Baseline- Current Situation	**After Program Implementation**	**Counterfactual- In the Absence of the Program**
Hospital admission	18.11%	25 %
Assumptions and evidence: A study of 2.57 million hospital admissions in 822 hospital in China estimated that between 8 and 12 percent of admissions were avoidable. We assume no change in the current trend of hospital admission. Hospital readmission without the Program is expected to grow at 11.5%.		
Hospital readmission	9.625%	12.5%
Assumptions and evidence: in the absence of data on readmission, we use estimates from the literature where avoidable readmission is estimated to be about 23% of the 30-day readmissions. We assume the readmission rates to be 12.5% (of which A 23% are avoidable). As these figures represent the situation in highly functioning systems, they could be considered as the lower bound for China.		
Inpatients treated through the use of standardized clinical pathways	**28,985,055 patients** patients	12,648,024 patients
Assumptions and evidence: By promoting interventions of proved benefit and discouraging ineffective ones, it can reduce morbidity and mortality. Depending on the particularity of the chosen clinical pathways, it may also reduce cost of care by, at least, avoiding unnecessary interventions. A study in the US on lung cancer patients reported that outpatient costs were 35 percent lower than costs for patients treated off-pathway with no difference in 12-month overall survival, or in survival for patients in first-line, and second-line settings[31].		
Hospital acquired infection[32]	639767 patients	1005009 patients
Assumptions and evidence: In the US such infection happens in about one out of every 50 operations and cost around $21,000 each to treat[33]. The analysis assumes the similar rate of infection, but the cost will be adjusted to account for the difference in the cost of care in the US and China.		

[31] Neubauer MA[1], Hoverman JR, Kolodziej M, Reisman L, Gruschkus SK, Hoang S, Alva AA, McArthur M, Forsyth M, Rothermel T, Beveridge RA.. 2010. Cost effectiveness of evidence-based treatment guidelines for the treatment of non-small-cell lung cancer in the community setting. J Oncol Pract. 2010 Jan; 6(1):12-8.

[32] By project end, hospital acquired infection will be similar o that of the US.

[33] Trish Perl, M.D., professor, medicine and pathology, Johns Hopkins School of Public Health, Baltimore; Eyal Zimlichman, M.D., research associate, The Center for Patient Safety, Brigham and Women's Hospital, Boston; Sept. 2, 2013, JAMA Internal Medicine, online

Average Length of Stay	7.3 days	7.9 days
Assumptions and evidence: The assessment is based on the Program target of reducing ALOS to XX. In the long run, ALOS is expected to have a non-linear trajectory for reason mentioned above. However, for the purpose of the economic evaluation, it assumed to decline throughout the life of the Program with the lower bound being set at the OECD level of ALOS.		
Centralized procurement, increased use of generic drugs, and rational use of drugs	USD 504,000,000[34]	0
Assumptions and evidence: The assumption is that the prescription rate will reduce by **20** % due to the program but the patterns of drug use will remain the same. The use of generic drugs has a direct benefit of reducing cost and the benefit varies depending on the drug. It is estimated that generic drugs cost between 10-90 percent less than the brad product. One study conducted on hospitals in China reported An average of 44% (US$44 million) and 87% (US$90 million) and a total of US$1.4 and 2.8 billion (2014 US$) could be saved from a switch from originator brand anti-hypertensives and anti-diabetics to domestically and internationally available generic equivalents.[35] Another study in China on 12 generic medicines reported a 65% potential savings of patients from switching originator drugs to generics[36]. We assume same savings for the two provinces weighted by their population share.		
Reduced morbidity and mortality due to NCDs	USD 26,257,000,000[37]	0
Assumptions and evidence: NCD related direct medical costs are estimated to be $210 billion in 2005, and estimated to be over $500billion in 2015[38]. Taking the impact on Capital accumulation and labor productivity, the total economic impact of NCDs is Programed to be $121billion per year for 2012-2030. NCD cases will reduced by 25% in the two provinces due to the Program.		

Containment of Health Expenditures:

121. . The reforms in the Program address critical drivers of health expenditure in the health sector. According to one estimate, health policies and institutions account for a significant share of increase in health expenditures in OECD countries

122. As such long term benefit of the Program is rather in changing the trajectory of health spending by focusing on people centered integrated care and prevention/treatment of NCDs at primary care level. Public expenditure in health in China was estimated to have increased at the average of 11.2% per year for the period of 1995-2009. The drivers of increased health expenditure include demography, income growth accounting for the majority of the changes ranging between 7.3% and 9% (depending on the assumed income elasticity), and the remaining are assumed to be due to technological change, relative prices, and institutions/policies. As China develops, however, the effect of demography on health expenditure is programed to be larger

[34] It is assumed that the full savings documented in the literature will be realized only by the end of the project. Only a fraction of the assumed savings will occur every year till full savings is achieved at the end of the project.

[35] Sun J, Ren L, Wirtz V. 2016. How much could be saved in Chinese hospitals in procurement of anti-hypertensives and anti-diabetics? J Med Econ. 2016 May 10:1-8.

[36] Wenjie Zeng. 2013. A price and use comparison of generic versus originator cardiovascular medicines: a hospital study in Chongqing, China. BMC Health Services Research2013**13**:390.

[37] It is assumed that the benefits from the two provinces are proportional to their population share. And the full savings documented in the literature will be realized only by the end of the project. Only a fraction of the assumed savings will occur every year till full savings is achieved at the end of the project.

[38] David E. Bloom et al. 2013. The economic impact of non-communicable disease in China and India: estimates, projections and comparisons; Working Paper 19335

than of income. The changing age structure of China, where there will be more old age people, will certainly put pressure on the health system. People 60 years and older account to 15 percent of the Chinese population in 2013 and is expected to increase to 30 percent by 2056[39]. Although one would intuitively think that this would increase the per capita health expenditure[40]. There is little empirical evidence to support this. One possible reason is the 'healthy ageing hypotheses, where increased life expectancy, which is the force behind increase in old age population, is likely to be accompanied by improved health status at older age.

123. The Program will also change the structure and quality of public spending on health. Currently China spends no less than 54% of total health spending on hospitals, which is very large compared to OECD average of 38%. In the absence of the Program, the figure is expected to rise significantly with the estimated doubling/tripling of NCD cases in China over the next two decades. The Program is expected to reduce the hospital level services by incentivizing treatment at a lower level thru improved payment system and integration of care with people centered care. This is expected to decrease the share of hospital spending.

***Impact on Equity**:*

124. China has made significant progress in increasing coverage of insurance. The three insurances- rural new cooperative medical scheme (NCMS), urban resident-based basic medical insurance Scheme (URBMI), and urban employee-based basic medical insurance scheme (UEBMI) - taken together cover almost the entire population of China. The next challenge is harmonizing the benefits packages and financial protection across the schemes and beneficiaries so as to improve equity across rural and rural resident and also enable migrant workers benefit from their insurance. The Program will support the government's effort to integrate the insurance schemes to enable such harmonization/integration of the three schemes. This will impact an estimated 5.9 people in rural Anhui and 25.7 million people in rural Fujian with total government subsidy (to the NCMS) approximately US$ 3.35 and US$ 1.67 billion for Anhui and Fujian respectively[41].

Cost-Benefits Analysis

125. Assumptions used in computing costs and benefits include:

- *Population covered*: the interventions are assumed to cover all health facilities in Fujian and Anhui provinces and cover the entire population of the two provinces.

- *Discount rate applied*: a commonly used discount rate of 6 percent is used to discount financial costs and benefits. A rate equivalent to the average inflation rate over the past 5 years is also used for comparison purpose.

- *Benefits beyond the Program period*: the Program benefits are expected to continue beyond the Program period of 2021. However, estimate of these benefits are expected to have wider confidence interval.

[39] Chine health study (pp2)
[40] Because the share of older people will increase faster than that of any age group due to both longer lives and lower birth rate.
[41] These are estimates for 2016.

Table 16 Program Benefits over the life of the program

Discount rates	Benefits over the life of the Program (USD)	Costs over the life of the Program (USD)	NPV over the life of the Program
3%	$ 29,176,599,046	$4,401,996,230	$24,774,602,817
6%	$ 26,857,258,854	$ 4,166,836,558	$22,690,422,296

126. The overall government expenditure to which the PforR is contributing amounts to USD 4,666,000,000. Through a relatively small financial contribution, the Program will improve the quality of a much larger government spending on health reform. In particular the support will make the government's spending of close to USD 5 billion more efficient and productive.

VII. Implementation Support Plan

127. The Chinese government and the two provincial governments in particular, have demonstrated strong political commitment towards implementing health reforms and scaling up the successful pilots. As these reforms enter a "deep water" stage, with the goal of addressing some of the most difficult and deep rooted challenges in the health sector in a comprehensive and precise manner, a strong institutional framework will be required to ensure evidence-based policymaking, coordination and enforcement of policies, building of adequate technical capacity, a robust monitoring & evaluation system, and effective change management through mutual learning and implementation support.

128. Gaps in these critical areas have been identified in the Bank's assessments. For example, the reforms aim to improve the service quality through the adoption of clinical pathways and treatment protocols. The provincial governments have encouraged the pilot hospitals to develop their own clinical pathways, but there are concerns as to whether these protocols - developed in parallel by the individual facilities - are consistent with evidence-based domestic and international best practice, and are being standardized/assessed by the national and provincial experts. Moreover, the local technical capacity is low. Provinces need support and technical guidance to develop new technical guidelines for the integrated NCO management pathways covering prevention, medical treatment, rehabilitation, self-management support and follow-up. Regarding reform monitoring and evaluation system, China does have a well-institutionalized data collection and reporting system, including routine data reporting by health facilities, specific data collection for health system reform monitoring, and national household surveys every five years. However, there are questions regarding the standardization of the measurement of the indicators among different facilities; it is not quite clear how the massive self-reported data is verified, and it is clear that some indicators are not robust and may not be able to capture the results of ever-changing health reform measures.

129. Furthermore, the challenge in this effort is not merely one of addressing capacity deficits, but also one of managing large-scale reform. This is particularly so since this is the first time that innovative health reforms are being implemented at such as large scale in China (or any other developing country); to-date, most of the successful innovations in the health sector in China were undertaken as pilots involving a county or a prefecture. To foster the change, a knowledge generation and learning framework with three dimensions is planned to be established. First, to support learning at the frontline of the reform implementation, a "Transformation Learning Collaboratives" (TLCs) will be created at the front lines of service delivery with the function to assist and guide local care sites to adopt national and international standards for evidence-based practice, to learn from each other's success or failures and close the gap between "knowing" and "doing when implementing and scaling-up the reformed service delivery model. This learning approach has been used successfully in the health sector in many countries. Second, drawing from the World Bank Rural Health Program, a Knowledge Learning platform will be established to facilitate knowledge generation and knowledge sharing among Program provinces. The domestic expert panel established for health reform at all levels will help capture and document lessons learned through M&E, good practice case study, implementation guidelines, video tapes and etc. Semi-annual workshops on knowledge sharing and dissemination will be held with provinces and prefectures participating. Multi-media applications (such as WeChat group) will be developed to set up Program Data depository and to facilitate real time knowledge sharing. Third, through south-south learning program, study tour, TA, presentation in international conferences and publications, the Program will actively support the knowledge sharing/dissemination between China and other countries.

130. Given the complexity and novelty of the proposed health service delivery reform Program, and the fact that it leverages international best practice, it is anticipated that considerable domestic and international technical assistance will be required to ensure its successful design and implementation in the two provinces. These issues underscore the importance of technical and reform implementation engagement by the World Bank throughout Program implementation. The World Bank team will also work closely with national expert panel that has been assembled by the State Council National Health Reform office as well as the local expert team at provincial, prefecture and county levels. Drawing from the successful experiences of World Bank past health Programs in China, the international experts of the WB team will pair up with domestic expert team along the critical reform themes, such as provider payment reform, PCIC and M&E. They will be responsible for providing technical assistance, implementation supports and supervision on their respective focus areas as well as facilitate the formation and operation of the respective learning groups as part of the overall learning network for the Health PforR.

131. The World Bank team plans to tailor implementation support to address the capacity issues identified in the technical, fiduciary and safeguards assessments. From the technical perspective, the World Bank will focus on compliance with DLI disbursement requirements and provide continuous technical assistance. For each DLI, the Government will be requested to produce work plans every twelve months, explaining the steps already taken and those planned to ensure that targets are met. The World Bank team will review these plans and suggest adjustments as necessary. In particular, the World Bank team will bring international and domestic expertise in the following specific areas:

- Engagement with the government on the technical design, assessment, standardization

and implementation of provider payment reform. PCIC, integrated management pathway for NCDs, clinical treatment protocols, clinical pathways and corresponding training programs.

- Support in the strengthening of government monitoring and evaluation system to enhance the capacity of central and provincial government as well as health facilities in monitoring the health system performance and reform progress. Particular emphasis will be placed on the Program Result Areas and indicators, monitoring compliance with legal agreements, ensuring that the massive self-reported data is verified properly, and that the results of the constantly changing health reform measures are captured effectively.
- Support in setting up the learning network and implementation support platform, such as Transformation Learning Collaborative (TLCs), to encourage mutual learning and knowledge sharing in reform scaling up, to support front line health professionals and reform implementers in delivering the reforms and to facilitate reform dissemination domestically and internationally.

132. In addition, the World Bank will also provide technical advice on the implementation of Program Action Plan and the elimination of other social, fiduciary or governance-related bottlenecks relevant to the Program in the areas noted below. Key members of the World Bank's implementation support team on fiduciary, governance and social environment safeguards systems are based in the Country Office, which will help to ensure timely, efficient, and effective implementation support to the provinces and the central level.

- Review the implementation progress and work with the task teams to examine the implementation of the action plan, including implementation of the application of the PforR anti-corruption guidelines;
- Monitor changes in fiduciary risks, social and environment risks of the Program and, as relevant, compliance with the provisions of legal covenants.
- Continue assessing and monitoring the performance of fiduciary, and social safeguard system under the Program, provide suggestions for improvement and provide supports for capacity building.
- Assist the provinces in determining an acceptable PforR financial statement reporting process that utilizes, to the extent possible, existing government reporting processes and formats and strengthening financial reporting capabilities.
- Assist the provincial audit offices and CNAO in strengthening audit arrangements to support the audit opinion on the PforR financial statements.
- Review the Program implementation with the sector team to assess the timeliness and adequacy of the funds appropriation according to the approved budget.
- Discuss PFM issues with national government authorities that exceed the decision-making authority of provincial or lower level government institutions.

Table 17 Main Focus of Implementation Support

Time	***Focus***	***Skills Needed***	***Resource Estimate (Total amount for five years estimated***	***Partner*** [42] ***Role***

[42] Partners are the entities who will work with the World Bank to support the technical assistance

			to be US$ 7 million)	
First 12 months	Capacity Strengthening on PforR implementation including budget planning, financial statement, auditing, social and environment safeguard, monitoring and verification of the DLIs and results; engagement in technical design of major reforms.	Technical Expertise on provider payment reform, clinical pathway, integrated care for NCD management, PCIC, M&E, fiduciary and fiscal structure, social and environment safeguard	Three missions, first one will be after negotiation to provide training on PforR implementation; 2nd one is to launch the Program and start TA on technical design; 3rd one is to supervise and provide implementation supports	Partner will be invited to join the missions and provide training as appropriate
12-end of year 2020	Timely implementation of Program action plan; technical supports on key health reforms; implementation support on forming mutual learning and knowledge generation network to facilitate transformative reforms	International experts specialized on transformative learning and implementation supports, as well as technical expertise on provider payment reform, clinical pathway, integrated care for NCD management, PCIC. Fiduciary and social, environment safeguard	Regular implementation mission every six month, specially designed training and focused activities of participating health organizations	Partner will be invited to join the missions and provide training as appropriate
Last 12 months	Summarization of lessons learned and dissemination of knowledge generated	M&E, especially on evaluation	Regular missions, desk technical review, training and participation/presentation in conferences with government teams	Partners will be invited to join the disseminati on activities

Table 18 Task Team Skills Mix Requirements for Implementation Support

Skills Needed	***Number of Staff Weeks/year***	***Number of Trips/year***	***Comments***
Task Team Leader	12	2-3	HQ based
Co-Task Team Leader	12	2-3	Country based IRS
Health Economist	6	2	HQ based
Health Specialists (2)	10	4-6	Country based
Operations Officer	6	2-3	International
Provider payment consultant	8	2-3	International
PCIC specialist	8	2-3	International

Transformative learning consultant panel	24	3	International
M&E consultant	5	1	International
M&E consultant	8	1	Country based
Financial management specialist	4	1	Country based
Procurement specialist	3	1	Country based
Environmental specialist	3	1	Country based
Social specialist	3	2	Country based
Governance specialist	1	0-1	Country based

VIII. Program Action Plan

133. Based on the technical and fiduciary assessments and the ESSA, and in consultation with the provinces and central government agencies, the Program Action Plan (PAP) was developed to support the capacity building needs highlighted under the Key Capacity Building and Systems Strengthening Activities section of the PAD as well as to mitigate risks that have the potential to derail the Program implementation, and the achievement of the PDO. The PAP includes recommendations from the World Bank to address the systemic weaknesses in the two provinces identified in the technical and fiduciary assessments and ESSA, and to further improve the government's capacity to manage the health reform agenda. It includes the most critical steps required in order for the PforR to achieve its objectives, including an identification of areas where specific external support is required.

134. The technical assessment identified several areas of improvement, of which two are key areas. Firstly, successful implementation of the reform is premised on coordinated policy formulation and implementation, which will require a strong supportive institutional framework. The current fragmentation of governance as a result of three parallel health insurance schemes in China has been identified as a major challenge for deepening the health reform. The government is promoting the integration of these insurance schemes starting with their integrated management. This integration of the management of the health insurance schemed is a required action for the PforR.

135. And secondly, any comprehensive system reform requires a robust monitoring and evaluation system, and this is particularly true for the ambitious reform that the two provinces are proposing to implement. China does have a well-institutionalized data collection and reporting system, including routine data reporting by health facilities, specific data collection for health system reform monitoring, and national household survey every five years. However, there is a need to standardize the measurement of these indicators across different facilities, and verify the massive self-reported data. To strengthen the M&E capacity, the World Bank and government have agreed to assess its routine monitoring indicator reporting system at the central and province level, and enhance the online reporting system with a new data cleaning and data verification function, so as to improve the quality of M&E system of health reform.

136. The Program Action Plan also includes measures to mitigate the potential fiduciary management risks that include: (i) issuance of clear instructions by the two provinces to the implementing agencies in charge of procurement regarding compliance with World Bank anti-

corruption guidelines, as well as requiring the relevant agencies to ensure that no debarred or suspended firms that are on the World bank's suspension list will be awarded contracts financed by the PforR; and (ii) a requirement that any allegations of fraud or corruption are reported to the World Bank.

137. Measures to strengthen the institutional capacity to address social and environmental risks in the two provinces are also included by the Program Action Plan, which include:

- Design and provision of periodic training for hospital managers, health workers and the hospital Infectious Disease Control Units on the proper management of medical wastes, as well as radiation risk control, within facilities, with particular attention to lower level health facilities;

- Development and implementation of standard monitoring protocols by the responsible agencies to ensure adequate supervision of the chain of custody that covers the continuum of medical wastes classification, storage, collection, transport and disposal, and, in particular, to the capacity of Environmental Protection Bureaus and Sanitation Supervision Stations to work in areas below county level and in remote, poor areas.

- Reporting of any land acquisition under this PforR, including relevant evidence (land use certificates, compensation agreements, land price payments, and land lease agreements with affected parties), and due diligence by the relevant local governments to verify full compliance with national laws and local regulations, as well as the protection of the interests of the affected people.

- Development of a public participation plan to increase social accountability and address grievances during the implementation of the health reform, based on the successful experiences of pilot cities, which include more proactive public participation, more transparent information disclosure, and more effective grievance procedures at Program level.

Table 19 Program Action Plan

Action Description	Due Date	Responsible Party	Completion Measurement
Technical			
1. Make steady progress on the integration of the three health insurance schemes (such as starting with the integration of urban and rural resident schemes), so as to ensure unified provider payment policies across the different schemes.	Fujian: Integration of HI management in all prefectures: by December 31, 2018 Anhui: Unify the policy of urban and rural resident schemes by the end of 2017. Two provinces will	Fujian: Provincial and municipal Health Insurance Offices Anhui: Provincial Health Reform Leading Group	Fujian: Official documents on 1) organizational integration; 2) personnel appointment; and 3) health insurance policies issued by Health Insurance Offices Anhui: official document on the

	make steady progress on the integration of the three insurance schemes during the implementation period of PforR.		integration (unifying the policy) of urban and rural resident schemes and its implementation plan
2. Strengthen the National Health and Family Planning Statistics online reporting system with a new data cleaning and data verification function, so as to improve the quality of M&E system of health reform.	December 31, 2018	NHFPC, CHSI, and provincial HISCs	Software is updated, installed and up-running
Fiduciary			
3. Two provinces issue clear instructions to the implementing agencies in charge of procurement at all levels with regard to the compliance with the PforR anticorruption guidelines as well as to require the relevant agencies to check World Bank's debarred and temporarily suspended list through World Bank's client connection before they award a contract recommendation and ensure no debarred or suspended firms are being awarded contract financed by this PforR.	Upon Effectiveness of the Health PforR	Provincial Finance Bureau	Official Instruction issued by provincial Finance Bureau
4. Report in the progress report on any allegation of fraud or corruption, which has confirmed to be a major issue after a due investigation.		Provincial HFPC of Anhui & Fujian	Progress report
Environment & Social development			
5. Design and provide periodic training for hospital management, health workers and the hospital Infectious Disease Control Unit to ensure adequate awareness and skills across all levels healthcare facilities on the proper	Update/Design of training program and training materials to be done by end of 2017 Training: recurrent	Provincial HFPCs	Training model with training material (including those developed prior to Health PforR), that is jointly agreed by the

management of medical waste and radiation risk control inside the facilities, with particular attention to lower levels.	(at least once per year)		World Bank and the province, developed and submitted to the World Bank. Report the number of trainees in progress report. The information should include, at least, the type of training provided (there will be different training), the name of the health facility the trainees belong to, the title of the staff, and gender.
6. Strengthen the supervision and enforcement capacity of responsible agencies to ensure adequate supervision of the chain of custody that covers whole medical wastes classification, storage, collection, transport and disposal, in particular to the capacity of Environmental Protection Bureaus and Sanitation Supervision Stations to work on below country areas and remote poor areas.	New Design or strengthened standard monitoring protocols to be done by the end of 2017	Provincial HFPCs Prefecture/county EPBs	New/revised Protocol for storing, transporting and disposal of general medical waste and radiological waste, which is complied with the national laws and regulations, is submitted to the World Bank. Annual report on implementation of the protocol submitted as part of the progress report.
7. Report in the progress report any land acquisition under this PforR including relevant evidence (land use certificates, compensation agreements, land price payments, and land lease agreements with affected parties) and due diligences by relevant local governments to	Report if there is any land acquisition. Recurrent	Provincial HFPC in collaboration with the Bureau of Land Resources of Anhui and Fujian province	Land acquisition information (if any) will be reported in the progress report. The World Bank may conduct onsite review, where there was land acquisition,

verify full compliance with national laws and local regulations, as well as the protection of the interests of the affected people.			during the World Bank's implementation support mission.
8. Develop a public participation plan to increase the awareness of and the support on the health reform based on successful experience of pilot cities, which include more proactive public participation, more transparent information disclosure, and more effective grievance procedures at Program level.	Design: end of 2017 Implementation: recurrent	Provincial, municipal, and county Health Reform Office	Public Participation Plan jointly agreed by the World Bank and the provincial government is submitted to the World Bank. Annual report on implementation of the plan, submitted as part of the progress report.

Annex A: Description and Assessment of Program Expenditure Framework

A. Expenditure Scope

1. The expenditure framework of the PforR amount to a total of US$ 4,066 million for the next years up to 2020. US$ 595 million is estimated to be provided for public hospital reform, and US$ 3,070 million will be for the PCIC, and US$ 401 million will support the cross-cutting enabling environment. The Programed expenditure outlay is US$ 610 million on capital expenditures, US$ 2,313 million on capacity building and reform management, and US$ 1,139 million on subsidies for the health services to be delivered at sub-provincial level. Finally, US$ 500 million will support the central government's activities and results directly linked to the knowledge sharing, monitoring and evaluation as well as for program management. Annex A-Table 1 below provides an overview of the main elements of the PforR expenditure framework.

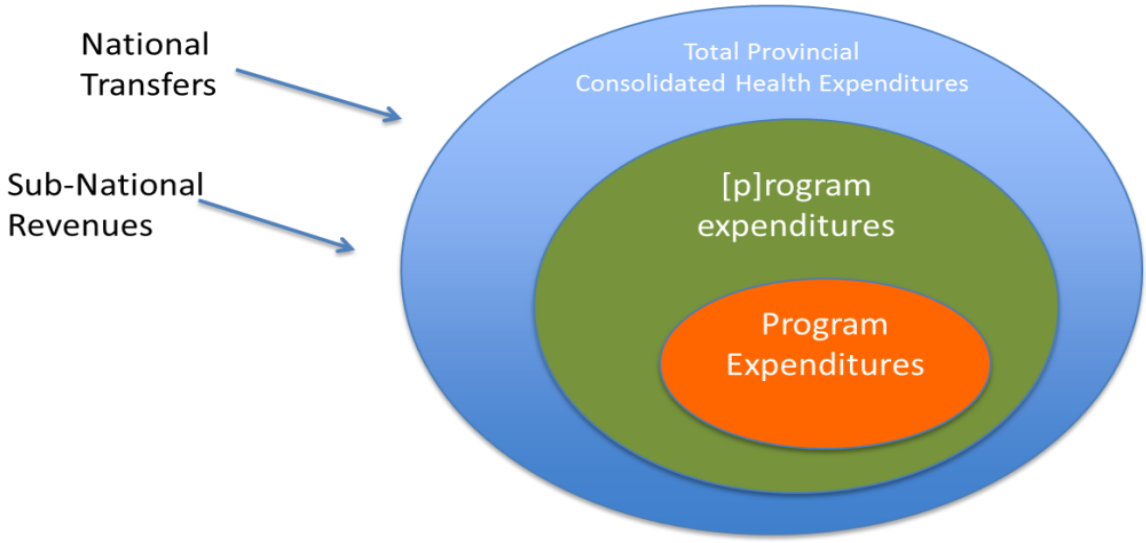
Annex A Table 1: The government expenditure framework by result areas and implementing governments, 2017-2020 (US$ million)

	Fujian	Anhui	Central	Total
The Program	1,497	2,564	5	4,066
1. Public hospital reform	284	311	-	595
2. PCIC	1,016	2,054	-	3,070
3. Enabling environment	197	199	5	401

2. **Expenditure Scope**. As the responsibility for translating the national/provincial vision into action plans rests with the provinces, the PforR expenditure framework consists of the gross provincial government expenditure programs that finance both the effective on-going operations of the health delivery system and its strengthening, and the central government's expenditure program that directly supports the two provinces' implementation of the PforR. Annex A-Table 3 presents a summary of this PforR definition, capturing both the 2015 and 2016 expenditure levels, and the 2017-2020 projections.

3. As Figures 4 and 5 in the Program Description in the main text show, public health financing associated with the operations of the hospital and frontline facility operations in Anhui and Fujian is associated with multiple levels of government and financing flows. Levels of government include the central government, provinces, prefectures, countries, and townships, as well as hospitals and clinics. While sub-provincial levels of government account for the bulk of ultimate health sector expenditures in the provinces, cascading transfers by the central and provincial levels to sub-provincial governments and facilities are integral to setting incentives for the equity and efficiency of health care delivery in the provinces. Budget contributions by the central and provincial governments, therefore, provide important leverage and accountability for realizing the health care reform system objectives.

Annex A Figure 1: PforR Expenditures within the overall Provincial Health Expenditures



4. As noted, while the Chinese government's 13th five-year plan provides an overall vision for the health sector by 2020, it does not specify a budgetary/financing plan for the health sector plans. But the central government does subsidize the implementation of key reform elements through central budgetary transfers to provinces, e.g. for the essential public health package, social health insurance, standardized GP and resident training, and public hospital reform. A systematic analysis of the objectives and operational modalities of the eight major subsidy and insurance schemes operating in the province led to the determination that: (i) subsidy schemes (Annex A Table 2, Item 1, 6, 7, 8) and (ii) only reform management and capacity building expenditures associated with insurance schemes (Annex A Table 2, Item 2-5) should be included in the PforR boundaries.

Annex A Table 2: Major Provincial Health Payment Schemes

			USD Millions		
#	*Type*	*Budget/Financing Name*	Anhui	Fujian	Total
1	Subsidy	Basic Public Health Package (BPHP)	349	218	**567**
2	Insurance	New Rural Cooperative Medical Scheme (NRCMS)	2,616	930	**3,547**
3	Insurance	Urban Employees Basic Medical Insurance (UEBMI)	0	9	**9**
4	Insurance	Urban Residents Basic Medical Insurance (URBMI)	451	174	**625**
5	Insurance	Basic Residents Medical Insurance (BRMI)	0	55	**55**
6	Subsidy	Zero mark-up subsidy for drugs (ZMDS)	64	28	**92**
7	Subsidy	Essential Drugs Subsidy (EDS)	87	38	**125**
8	Subsidy	County Level Hospital Reform Subsidy (CLHRS)	24	25	**49**
		Total	**3,591**	**1,477**	**5,068**

Source: PforR Expenditure Reviews
Notes: Budgets refer to provincial and central level contributions, unless otherwise stated

5. Program expenditures for the strengthened management and reform of the higher level health financing include various types of expenditures. The technical assessment shows that changes in policy, capacity building, and monitoring for results associated with the higher-level financing flows are likely to yield substantial returns, stemming in part from the large size of these flows. Provincial PforR expenditures associated with higher level financing for strengthened management and reform are part of the provincial-level budgets. The EFA analysis suggests that items 1, 6, 7, and 8 (BPHP, ZDMS, EDS, and CLHRS) have strong inherent reform components, and these were therefore included in the PforR boundary. However, the parallel flows 2-5 that provide recurrent financing to the system were excluded.

6. The PforR will support activities to improve the effectiveness and efficiency by which these higher level insurance payments are designed and implemented. While the higher insurance financing flows (Annex A Table 2 items 2-5) themselves will not be part of the technical boundaries of the PforR, the institutional arrangements and incentives around these flows are carefully documented to identify the contribution of the PforR expenditures associated with the strengthened management and reform of these higher level financing flows. In short, the institutional and reform analysis is critical to evaluate the budgeting and efficiency associated with the PforR. The subsidy payments, however, can be considered as more direct inputs to the PforR, especially for the PCIC component, and are therefore included in the boundary.

7. The focus of government budgetary expenditures in the past has been to support continuation and expansion of the coverage of the on-going health programs. Some activities that are essential for the implementation of the health reform program, such as IT or development of protocol, are either not funded, or funded by sub-provincial governments, at their own discretion and with their own resources.

8. The remainder of the PforR boundaries includes strategic contributions by the central and local government for eHealth IT systems strengthening and integration, critical infrastructure, and capacity building and reform management.

9. Beyond the role of the subsidies, and measures to enhance the incentives for efficient health services delivery through insurance payments, the counterparts underscored that expenditure allocations for Capacity Building & Reform Management and capital outlays for critical infrastructure/IT would also be critical for meeting the Program development objectives. The identified expenditures based on central and provincial financing were seen as instrumental to meeting the overall results of the PforR[43].

10. Budget items identified under the PforR for Capacity Building & Reform Management and Capital Outlays for critical infrastructure and IT were subject to uncertainties across the provinces. An early contribution of the PforR preparation has been to make the key budgetary inputs in the priority areas clearer in the discussions between the provincial departments of finance and health authorities. A further point of clarification has been in linking changes in the incentives associated with the provider payments (insurance and subsidies) with complementary reform management and capacity building expenditures. To ensure that reforms are having

[43] Sub-provincial governments and hospitals/facilities also co-finance certain activities (e.g., trainings), but the identified expenditure items were assessed to be the most critical inputs for achieving the PforR results.

traction in frontline facilities, they will also be supported through strengthened monitoring and verification of key indicators.

11. The PforR will provide only a small, but highly leveraged, part of the health financing in Anhui and Fujian. In particular, provider insurance and subsidy payments remain multiples of the PforR financing. However, these financing streams will be critical in driving the frontline health care delivery. Careful analysis is needed to assess the incentives derived by how these programs are allocated and reported. A significant contribution of the PforR process will be to promote more consolidate reporting of provincial health financing. Developments, such as the expansion of the BRMI in Fujian, are a step in this direction.

Annex A Table 3: PforR Boundary Nominations, Million US$

	Fujian (2015 Baseline)	Anhui (2015 Baseline)	Total (2015 Baseline)	Fujian (2016 Baseline)	Anhui (2016 Baseline)	Total (2016 Baseline)	Fujian (2017-2020 Projections)	Anhui (2017-2020 Projections)	Total (2017-2020 Projections)
RA 1. Hospital Results									
Capital Investments (incl. IT)	21	0	**21**	11	0	**11**	176	51	**227**
Capacity Building & Reform Management	64	64	**127**	28	64	**92**	108	260	**368**
RA 2: PCIC									
Capital Investments (incl. IT)	0	40	**40**	0	17	**17**	20	142	**162**
Capacity Building & Reform Management	40	310	**349**	38	351	**388**	169	1,599	**1,768**
Subsidies	131	84	**214**	148	88	**235**	826	313	**1,139**
RA 3: Cross-Cutting Health Systems									
Capital Investments (incl. IT)	0	0	**0**	0	0	**0**	50	170	**220**
Capacity Building & Reform Management	41	35	**76**	37	30	**67**	147	29	**176**
Subsidies	0	0	**0**	**0**	**0**	**0**	0	0	**0**
Total	295	532	**828**	262	549	**810**	1,497	2,564	**4,061**

Source: Provincial Authorities, staff

Notes: The PforR as summarized in this table was developed on the basis of budget/sub-program line items identified with the two respective authorities, and will form the basis of the financial report. The Fiduciary and ESSA reports provide a further discussion of salient aspects of key PforR categories.

12. **Program financing** consists of two sources: 1) the contribution of the central government; and 2) the budgetary allocations from the provincial governments' own general budget revenues. In addition to the financing schemes analyzed above, the central government will appropriate a significant portion of the PforR resources to complement the on-going government programs. The PforR is expected to promote the future roll out of support to the two provinces as an integral part of the intergovernmental fiscal framework. The PforR will, therefore, provide additional financial incentive to the two pilot provinces. While the loan proceeds will be managed in a designated account according to China's domestic financial management policy, they will be brought on the provincial government budgets and integrated with the other budgetary contributions to the PforR financing.

13. The PforR funding is expected to be predictable, and in full synchronization with local government budgeting cycle. China has a well-established budget plan, mid-term budget review and execution monitoring and reporting system. One major weakness of the budgeting system is the delayed approval and authorization by the People's Congress for the government budget. While the fiscal year starts from January 1st, the Annual Plenum of People's Congress is scheduled in March at the national level, and in January/February at provincial level. To enable provincial governments to execute the budget plans from the beginning of the year, the central MoF informs the provinces about their respective indicative budget allocations for major programs. To further ensure predictability, the Finance Department and HFPC of the two provinces will jointly develop a multi-year program expenditure and financing plan.

14. Aggregate fiscal sustainability issues were not identified as a core concern associated with the expenditures. The Programed overall financing contributions by the central and provincial governments to the programs to be supported under PforR significantly exceed the level of financing provided by the operation. Over the life of the PforR, the authorities anticipate sustaining, and even increasing, the levels of subsidies. As Annex A-Table 4 shows, while large in their own right, the whole provinces' consolidated health expenditures (including sub-provincials) represent a limited share of around 9 percent of the total general budgetary expenditures.

Annex A -Table 4: Consolidated Province Government Health Program by Functions in 2015, (million US$)

	Fujian	Anhui
Administrative affairs	129	133
Public Hospital	591	491
Local medical care	565	570
Public health	568	855
Health insurance	2,274	4,093
Traditional medicine	14	6
Family planning	638	666
Food and medicine supervision	126	103
Others	199	142
Total	**5,105**	**7,058**
% of total general budgetary expenditures	*8.8%*	*9.3%*

Source: Provincial Authorities, staff

B. Expenditure Performance

15. **Expenditure performance** of the ongoing government program has been satisfactory, with no major expenditure performance issues. However, the expenditure framework assessment finds that some activities (e.g. information systems, and development of protocols) essential for the achievement of the Program development objectives are exclusively financed by city and

county governments through PPP style arrangements. Given the importance of strengthening information systems and feedback, particularly through IT, clarity is needed on financing modalities and procurement for pivotal projects and training across the provinces, and how sub-provincial governments and providers are brought into this process. For IT lines, the authorities will need to closely track the risk of procurement and implementation delays affecting execution rates. Contribution to these essential activities from the central and provincial governments through the PforR could motivate compliance from local governments towards the achievement of the PforR results.

16. The authorities are committed to further strengthen the public finance management institution to improve the alignment of expenditure framework with the Program development objective and incentivize sub-provincial governments to make more effort in reform implementation. The government will develop a multi-year expenditure plan to prioritize the financing allocation for the achievement of the result indicators. This plan will be updated annually by drawing on the lessons learned from the program performance monitoring. This plan will also provide the basis for regular execution reporting, and serve as a framework for enhancing public transparency on central and provincial health expenditures. The provinces will look to adapt and adopt commonly accepted standards for fiscal transparency.