Title: ALMA ATA 2008: LOOKING FORWARD TO A RENEWED PRIMARY HEALTH CARE SYSTEM IN CHINA

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Abstract
In 1978, China began extensive market-oriented health reforms, effectively abandoning its equitable and efficient approach to primary health care (PHC) the year it was celebrated in the Alma Ata declaration. Thirty years later, how is China renewing its PHC system? This article analyzes China’s potential to become a high performing system by examining its: 1) accessibility and equity of health care, 2) PHC workforce, 3) efficiency in care delivery, and 4) quality of care through literature review, government reports, and case studies. China’s primary care system is performing poorly on many dimensions. Access to primary care is limited by low rates of insurance coverage, especially for the poor. The PHC workforce consists of doctors and nurses low levels of training. Drug sales can make up 60% of a community health centre’s revenue, which creates incentives for overprescription and limits efficiency. Urban community health centres are underutilized, with low patient trust and satisfaction with services. Demonstration projects showed viable community-based models which increased access to care and were acceptable to patients, but coordination with tertiary services remained problematic. Proposed reforms aim to achieve universal health care, but focus on major illness rather than PHC services, and do not address models of care and coordination. After three decades of focus on economic development, the growing political will and financial resources committed to PHC indicate a renewed role for the state, and the hope that China can once again create a primary care system that is a model for the world.
Introduction

Almost sixty years ago, China developed a health system that produced good health at low cost. From 1952 to 1982, China saw rapid improvement in health; life expectancy rose from 35 to 68 years and infant mortality fell from 200 to 34 per 1000 live births. PHC in China was a comprehensive, population health approach linking education, community mobilization, sanitation, and animal husbandry to promote prevention and treatment of common diseases. Their approach provided nearly universal health insurance and high accessibility to health care through barefoot doctors to more than 90% of the population. However, in 1978, China abandoned this equitable and efficient approach to health care the same year it was celebrated in the Alma Ata declaration on PHC, which called for a PHC system using appropriate and affordable technologies, with integrated, fully functional referral systems.

After market reforms in 1978 China’s universal health insurance gradually collapsed and there was a shift in funding from rural to urban facilities and from PHC to specialized and hospital-based care. This has resulted in a rapid rise in out of pocket health expenses, decreased access to care and utilization, and a growing health disparity between rural peasants and urban city dwellers. In 2002, the mortality rate among children under five years was over 2.5 times greater in rural areas (39 per 1000) than in urban areas (14 per 1000). Reduced government expenditures and reforms encouraging facilities to generate their own revenue have led to rising costs with dubious efficiency. PHC’s prominence within the health system also changed, with reduced intersectoral coordination in rural areas and a shift towards seeking care in hospitals while neglecting community health services. Government health spending decreased from approximately 36% in 1980 to 15.5% in 1998 and out-of-pocket health spending raised the number of rural households living below the poverty line by 44%.

Since 2006, there has been broad political support for PHC renewal with an increased flow of funds and plans to restructure community health services in the coastal region and large cities by 2010. Rural areas, where 57% of the population lives, are also undergoing financial reform through introduction of new cooperative medical insurance systems. Drawing on the published literature, pilot demonstration projects and government reports, we examine how China is moving forward in renewing its PHC system. This paper is divided into two sections: 1) analysis of the current performance of China’s PHC system and 2) use of demonstration projects to illustrate new, emerging models of PHC delivery.

In the Alma Ata Declaration, PHC was presented as both “a level of care and an overall approach to health policy and service provision”, leading to different interpretations. A common division is between primary care, defined as “family doctor-type” services provided to individuals and PHC, the broader system-wide concept described in the Alma Ata Declaration. Primary care is one of PHC’s “core” services. This paper focuses on primary care, which relies on health workers suitably trained to respond to the needs of the community. Primary care contributes to increased public knowledge about health and health care; reduces risk, duration and effects of acute and episodic conditions; and reduces risk and effects of chronic health conditions. A strong primary care system which provides patients with a regular provider is associated with improved medication adherence, reduced use of emergency services, shorter hospital stays, and lower overall health-care utilization. Moreover, coordination
between primary care facilities and hospitals is one of the reasons why a strong primary care system is associated with lower overall costs.²⁷

**Toward a high performing primary care system.** Examining China’s primary care system using the Commonwealth Fund framework for a high performing system highlights current challenges. A high performing system is one that helps all people lead long, healthy, and productive lives through the achievement of four goals: 1) access and equity for all, 2) skilled primary care workforce, 3) efficient care, and 4) high quality care.²⁸ Improving the performance of the health system requires: a) a clear national strategy for achieving its mission with a process to implement and refine this strategy, b) delivery of care through models that emphasize coordination and integration, and c) establishment of a performance measurement system to track health outcomes, access to care, population-based disparities, and efficiency.²⁸ The benefits of PHC to health system performance come from its widespread utilization as the entry point to the health system.²⁷

**Accessibility, equity and utilization.** In China, primary care is delivered by physicians, nurses, and public health workers through hospital outpatient departments and community health centers (CHCs). These CHCs are found in urban areas with smaller community health stations which can act as their satellites to provide primary care to a specific catchment area. The mandate of CHCs includes health promotion, disease prevention, health education, medical treatments, family planning, and community rehabilitation within 15 minute walking distance to people’s homes. The vast majority of these facilities are in the public sector, though there are also private providers of primary care.²⁹

Although people have few geographic barriers to accessing primary care, lack of universal health care coverage continues to create inequitable access to care. While 93% of urban residents in a national survey found CHC services convenient, only 35% said they were affordable.³⁰ In 2007, almost 80% of the population had some type of health care coverage.³¹ A recent census of urban CHCs suggests that primary care is reimbursed by insurance in only 42% of districts and fiscal decentralization means that local government subsidization of health care for the poor remains highly variable.⁴ Moreover, the rate of reimbursement in rural cooperative medical insurance is generally low (30-50%), and the ceiling may not be high enough to prevent financial hardship.³² Rural insurance plan focus on catastrophic costs such as inpatient services, and thus do not support access to primary care.³⁰ A new medical financial assistance for the poor offers some promise, but it requires individuals to pay first and then be reimbursed, thus limiting access to the very poor.³¹

In urban China, tertiary hospitals can be accessed readily, with rates of utilization at 91% of capacity, as compared to secondary hospitals at 70% and primary or “street hospitals” (which includes some CHCs) which operate at 50% of capacity (see table 1). Hospital based providers see three times as many patients per day as those in CHCs.⁹ This suggests that many urban residents bypass community health services and are using tertiary hospitals for first-contact care. There are many reasons for this: lack of financial barriers, lack of insurance coverage for CHC services and inconsistent quality of care.³³ A national patient survey in 112 communities found that 59% of respondents were aware of CHCs, but only 31% had used them.³⁰ In the same
survey, 93% of respondents felt that community health services were convenient, but only 35% felt the services were safe, and overall satisfaction was 48%.

**Primary Care workforce.** Faced with an aging population with increasing multiple morbidities, adequate supply of qualified primary care providers is essential. A survey of urban community health facilities reported the average CHC has 18.1 physicians, 13.1 nurses, and 3 public health workers, while the health stations have an average of 3.5 physicians and 2.4 nurses. However, the distribution of healthcare personnel remains uneven, with over two times more in urban versus rural areas (4.84 vs. 2.19 healthcare professionals/1,000 population).

Training of primary care providers is not standardized, as family medicine is a newer discipline, with the first program granting this degree in 1999. Only one quarter of physicians working in urban CHCs have completed a full 5-year medical program, while 65% have 3 years of training past high school. In rural areas, 70% of village doctors had no more than a high school education and an average of 20 months of medical training. Many physicians working in urban CHCs with full medical training are specialists who have been assigned to community health services. There are several in-service training programs for these doctors, but at least a third of those surveyed had not yet received family medicine certification. It is not clear how this level of training relates to population needs, but the majority of providers do not hold ministry specified qualifications. There are approximately 1.4 physicians per nurse in community health centers, which is a higher proportion than most developed and developing countries. Nurses are overwhelmingly from the technical and junior college level, with less than 2% having bachelor’s degrees, so their scope of practice is relatively restricted.

**Efficiency.** As part of market reforms, public financing of health facilities has been reduced to less than 9% of operating budgets. Despite being publicly owned, financing of primary care remains inefficient as clinics generate 59% of their own revenue through the sale of drugs. Since the cost of medical visits is minimal and the cost of some basic drugs and procedures are fixed below cost to improve access, health facilities have an incentive to promote use of high-tech diagnostic services and new drugs, which are marked up. This has led to a dramatic increase in overall health spending, with declining government spending and rising patient out-of-pocket spending (Figure 1)

A more recent initiative has been to subsidize or provide free rent to CHCs, to reduce their dependence on drug revenues to be financially solvent. Separation of drug revenue from operating revenue in community health centres has been piloted in Beijing and Shanghai. Under this plan, drugs are sold close to cost in CHCs, the earnings go to the municipal health bureau, and in exchange the majority of operating costs are covered by the government.

Coordination between CHCs and hospitals varies significantly, with facilities either integrated or in competition with each other. In addition to CHCs built in new neighbourhoods, CHCs were either created within secondary or tertiary hospitals, or were small “street hospitals” that were transformed into CHCs. The majority of CHCs are independent, but 40% of them are associated with hospitals. The latter maintain a physical or financial link with the hospital, so the two entities remain closely integrated. Independent CHCs have to negotiate reciprocal referral contracts with hospitals or just refer their patients and hope that they will receive information...
when they come back. Even when there is a referral contract with a tertiary care hospital, CHCs seldom received consult forms or instructions, and patients did not always come back. Interviews with hospital directors showed that they were actually in competition with CHCs to maintain patient volumes and profits, so there was little incentive for reciprocal referral.38

**Quality Care.** There are some areas of patient care that can be considered high quality. For example, infant immunization rates were reported at 99% in 2006,11 and although incidence of viral hepatitis has risen from 2000 (63 per 100,000 people) to 2006 (102 per 100,000 people), deaths from hepatitis remain less than 1 per 100,000 persons.11 Yet, there are challenges for attaining high quality care such as the lack of uniform standard in documenting and monitoring up-to-date health care provider qualifications.32 A survey of urban residents found that only 35% felt that CHC services were safe, and the overall satisfaction rate was 48%.30 Irrational prescriptions are common, due to perverse incentives mentioned above,39 and the lack of a performance measurement system to monitor primary care makes it difficult to track changes in quality. Developing and implementing an integrated policy is challenging in a highly decentralized system including local and provincial governments, different ministries within the government (e.g. health, education), military, and the state owned enterprises.4 As a result, there is wide variation in standards of patient care and delivery of primary care services. On a positive note, the newly formed China Community Health Services Association has recently taken the lead on the development of a primary care performance measurement system (Chen, personal communication, 2008).

**Models of primary care delivery**

**Urban community health centers:**
Two early primary care demonstration projects were in Beijing’s Zhong Guan Cun district and in Yulin district in Chengdu, Sichuan province from 1999 to 2002.38 The former involved the conversion of one wing of a secondary hospital into a CHC and the latter a maternal and child hospital converted to an independent CHC. Both of these were largely funded through the sale of drugs and diagnostic tests, leaving in place the incentive for overprescribing. The workforce of these two CHCs consisted of nurses and retrained physicians. Zhong Guan Cun retrained general internists to be family physicians and Chengdu retrained a wide range of physician specialties. Both covered a comprehensive range of services, within walking distance from all residents in the catchment area, and provided physician on-call and consultation services 24/7. Providers coordinated with neighbourhood committees to do health education and home care in the community.

These models increased access to increased quality of primary care by offering a comprehensive array of services. The Zhong Guan Cun CHC was able to increase quality care because of its location within a hospital with other specialties whereas the Yulin CHC, with its wide range of retrained specialists also provided a wider array of comprehensive services. Yet, equitable access to these services remained challenging because of the lack of subsidies for the poor in Zhong Guan Cun and the initial inability to be reimbursed by social health insurance in Yulin. Neither clinic was well coordinated with large tertiary hospitals, as these projects could not modify organizational incentives to compete for patients. Both projects increase efficiency by using more appropriately trained primary care providers; Specialists could successfully be retrained to
deliver primary care, which is the most efficient strategy given the small number of family medicine residency programs in China. These models have been influential and have been widely replicated.  

Rural community health centres: The CHC project of Jiuxian Township in Luochuan, Shanxi province was a consumer-driven model designed to address two goals with new cooperative medical systems: 1) increase access (insurance coverage was only for catastrophic and inpatient care) and 2) efficiency (provider incentives were to prescribe medications to generate profits, limited use of primary care due to low public trust in the managers of cooperative insurance funds). A baseline survey of villagers in Jiuxian Township and 750 in a control community were collected in March of 2004 and a second survey of both groups in March of 2005. Results suggest that this project was successful in increasing access through expanded insurance coverage to include public health interventions and ambulatory primary care. Efficiency was also increased by fixing salaries for health care providers, selling essential drugs close to cost, and having representation of users (rural residents) on the managing committee of the cooperative who could hire and fire health care providers.

Seventy-five percent of residents in the pilot reported the cost of medication was reasonable, compared to only 37% in the control group and greater satisfaction with emergency treatment and walk-in services (60% vs. 35%). Moreover, 85% of residents reported it was worthwhile to purchase services in the pilot CHC compared to 72% for the township hospital, 67% for private clinics, and 61% for village doctors. Lastly, over 80% of residents in both intervention and control townships wanted representatives to present their opinions on the new cooperative medical systems.

Discussion
Once an international model, China’s current primary care system is performing poorly after years of neglect. Access to care remains inequitable because of the low level of insurance coverage and high out of pocket payments limits access to primary care and coordination of care, a key feature of primary care, is hampered by competition between hospitals and independent CHCs for patients. Low levels of training of physicians and nurses working in primary care and the skewed distribution of health care providers towards urban areas limits the capacity of existing staff to meet the needs of communities. Efficiency of services is marred by low government investment and a dependence on the sale of drugs and diagnostic tests to generate operating revenue. Finally, improvements in quality of care would require the primary care system to address patient concerns about safety of care and low levels of satisfaction.

Demonstration projects have been able to address some of these problems in urban and rural areas, but these projects could not to change system-level problems.

China is working to improve the performance of their primary care system through unveiling and implementing a clear national strategy for achieving a strong primary care system, supporting the growth of coordinated care models, and establishing a performance measurement system. After three decades of focus on economic development and market mechanisms, the government has laid out a vision for a universal health system to be implemented by 2020. The growing political will and increasing resources committed to building a strong health system gives hope that many of the systemic problems can be addressed. Strong health policy to meet this goal is
needed so that universal health coverage can be achieved for its burgeoning urban population, people who live in rural areas, and for the 100 million-plus “floating population” of migrant workers who move back and forth between these areas.

Given limited resources, there is a tension between promoting coverage for major illnesses and covering primary care that emphasizes prevention and patient-centered. Benefits design, workforce training, and payment policy are key levers for promoting change. Innovative, patient-centered care models could be chosen from various pilot projects taking place across the country to be modified, improved, and replicated in larger areas. Given the wide range of qualifications in the primary care workforce, responsibilities for provision of care should be somewhere between the barefoot doctor and the western general practitioner. Training based on this minimal skill set could be followed by a system of supervision and certification of provider competence. Focusing on the most common problems, with the possibility of referral to higher levels of care, could increase capacity of primary care providers within a relatively short time. Finally, the payment system should be restructured so that providers are reimbursed based on the quality of the care they provide. Incentives for prescription drugs need to be addressed, for example, separating drug revenues from clinic revenue and increased government funding could reduce the incentive for over prescription and increase the quality of care.

The creation of a performance measurement framework for primary care is in currently being developed. This framework is based on the Canadian Results-Based Logic Model for Primary Health Care which was designed guide quality improvement and public reporting. Public reporting of information on the performance of health plans and providers can spur improvements in quality and efficiency, by assisting consumers to make more informed decisions and by stimulating plans and providers to be more accountable for their results. Moreover, a performance measurement framework can assist purchasers of primary care to improve quality and efficiency by building performance standards into contracts and developing incentive programs that reward quality and efficiency in the provision of primary care. However, more work needs to be done to identify priorities for information and relevant evaluation questions.

Looking forward, this plan is a positive sign of the government’s central role in creating strong policy for PHC reform. Government regulation in the system can play an important role in protecting population health, reducing disparities in health care, controlling quality, and promoting efficient use of resources. China’s new wealth has given it the resources to invest in improving health system performance, and it remains to be seen how these will be used. Implementing its vision for primary care renewal will require restructuring of the system and organizational incentives to achieve common goals. With the increased investment in health services and a movement toward universal access basic care, China could once again have a primary care system that is a model for the world.
Figure 1. Health Expenditure in China 1980-2004

Table 1. Utilization of Hospital Services in China by Level - 2006

<table>
<thead>
<tr>
<th>Level</th>
<th>Visits (10 000)</th>
<th>Inpatients (10 000)</th>
<th>Utilization Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>147101.3</td>
<td>5562.2</td>
<td>72.4</td>
</tr>
<tr>
<td>Tertiary</td>
<td>45261.9</td>
<td>1614.0</td>
<td><strong>91.2</strong></td>
</tr>
<tr>
<td>1st Class</td>
<td>34641.7</td>
<td>1181.1</td>
<td>93.0</td>
</tr>
<tr>
<td>2nd Class</td>
<td>9495.0</td>
<td>397.7</td>
<td>87.2</td>
</tr>
<tr>
<td>Secondary</td>
<td>58092.1</td>
<td>2530.0</td>
<td><strong>70.3</strong></td>
</tr>
<tr>
<td>1st Class</td>
<td>44621.6</td>
<td>1979.9</td>
<td>74.2</td>
</tr>
<tr>
<td>2nd Class</td>
<td>12542.4</td>
<td>527.2</td>
<td>59.7</td>
</tr>
<tr>
<td>Primary</td>
<td>10308.4</td>
<td>215.1</td>
<td><strong>50.9</strong></td>
</tr>
<tr>
<td>1st Class</td>
<td>8285.0</td>
<td>176.3</td>
<td>52.7</td>
</tr>
<tr>
<td>2nd Class</td>
<td>1043.7</td>
<td>21.9</td>
<td>42.5</td>
</tr>
</tbody>
</table>

First and second class facilities are classified according to a government based on size and affiliation.

Source: China Statistical Yearbook 2006
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