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CHINA

Multidisciplinary teams and integrated service delivery across levels of care

COUNTRY CASE STUDIES ON PRIMARY HEALTH CARE

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This document was produced under the overall direction of Vivian Lin, Peter Cowley, Khin Pa Pa Naing and Anjana Bhushan (WHO Regional Office for the Western Pacific) and Tuohong Zhang (WHO China Country Office).

The principal writing team consisted of Amy VanderZanden, Hannah Ratcliffe, and Asaf Bitton at Ariadne Labs, Harvard, Boston, USA.

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Background

Decades before the Declaration of Alma-Ata established the goal of "health for all", China had a health system grounded in primary health care (PHC), which focused on providing community-based services to a primarily rural population. Under this system, doctors and health workers lived in the villages and communities they served. They provided basic health care that focused on limited treatment of acute illnesses and disease prevention, including maternal and child health services, health education, and infectious disease surveillance and monitoring *(1)*. This community-based model stood in contrast to other well-known vertical, disease-specific efforts across different parts of the world; although the system was not without flaws, China's rural health system became an oft-cited example by proponents of universal health coverage *(1,2)*.

By the 2000s, however, China was undergoing rapid economic and demographic transitions that challenged this system. Chronic diseases – including cardiovascular disease, cancer and chronic respiratory diseases – became the leading causes of death in China *(3)*. Rising expectations for broader, more technologically advanced services, as well as a growing lack of trust in village health workers and primary health facilities, frequently led patients to bypass these options in favour of hospitals *(4)*. These trends created financial incentives for hospitals to provide a broader array of primary and specialty care services, which drew resources away from local primary care services and led to a dramatic increase in health care costs *(5)*.

In particular, the ability of many people to pay for these services, especially the rural poor, was heavily compromised, with resultant decrements in health outcomes. In 2000, social health insurance covered only about 15% of China's population; in the same year, patients' share of out-of-pocket expenses was as high as 60% *(6)*. While the country was making progress on decreasing the burden of infectious diseases, death rates from treatable noncommunicable diseases, such as diabetes and cardiovascular disease, grew by as much as 10–20% between 1990 and 2000 *(3)*.

Building on earlier reforms that established a national system for health insurance *(5)*, and to counter rising health costs and achieve the goal of universal health coverage by 2020, national health care reforms were unveiled in 2009. The reforms included five major areas of focus: expansion of insurance coverage, establishment of a national list of essential medicines, improvements to PHC and its delivery system, equitable provision of public health services and pilot-testing of public hospital reforms *(4)*. Efforts at reform were supported by international partners, including the World Health Organization (WHO) and the World Bank *(5)*. These efforts included pilot projects that, based on their outcomes, might be considered for nationwide adoption. Since 2009, the central government has confirmed at least 100 pilot cities across China; each of which is tasked with using policy experimentation to establish feasible, innovative and scalable approaches for nationwide hospital reforms *(6)*. Important examples of PHC-oriented reforms are the County Integrated Healthcare Organization (CIHO) pilot in Anhui province, which focuses on rural health, and the Joint Management by Three Professionals (JMTP), which is a tiered health service delivery approach to chronic disease management in the city of Xiamen, in Fujian province. In an effort to achieve "more health rather than more treatment" *(5)*, the goals of both the CIHO and JMTP pilots are to encourage patients' use of community level resources and to strengthen the delineation between levels of care *(7,8)*.

Intervention

Anhui province, in eastern China, is a largely rural province of more than 70 million inhabitants. Through the Anhui pilot programme, the CIHOs are formed to unite three rural health service providers – county hospitals, township health centres and village clinics – to provide tailored, sustainable PHC to rural populations (200 000 to 300 000 local residents per CIHO), at all stages of life *(7)*. As part of the pilot, the New Rural Cooperative Medical Care System (NCMS), an all-encompassing health insurance scheme that previously only covered hospital-based care, was expanded to cover all health services. The NCMS now provides coverage to 95% of the population of Anhui for most of their care needs, and is the main source of revenue for CIHOs *(7)*. Reimbursement ratios for NCMS are 10% higher for services received at the local level, providing an incentive for patients to access community health services. Within the CIHO system, each type of service provider is responsible and accountable for a fixed set of duties. Village clinics conduct acute outpatient consultations, chronic disease management services and preventive health screenings, and make necessary referrals. General practitioners and family doctors act as gatekeepers for health care and NCMS funds, and are responsible for educating local populations about health information and hospital navigation. Township health centres facilitate outpatient care, minor illness hospitalization, rehabilitation, essential public health services, chronic disease management and referral services *(7)*.

Under the CIHO system, experts from county hospitals are frequently sent to township health centres to provide clinical backup, education and extra guidance to local doctors. The organizations receive funding on a capitation-based global budget, according to the population within each CIHO catchment area. Alliances are obliged to cover any deficits, and they retain any surpluses within the given global budget *(7)*. This delineation of responsibilities reinforces the gatekeeping function of grass-roots health and medical organizations; it also represents a significant shift in the orientation of the health care system – from hospital-based clinical care to prevention and condition management – throughout the broader community.

In addition, this delineation encourages patients to choose community health organizations (village clinics and township health centres) as their first point of contact for health concerns. It also helps to reinforce two-way referral systems *(7)*, in which more complex cases are referred up to secondary and tertiary hospitals, and hospitals refer less complex cases back to community health care providers.

Xiamen, an economically developed city of nearly 4 million people in southeastern China, has a relatively high level of PHC performance; however, the growth of chronic diseases is challenging the system's capacity to manage such diseases effectively *(4)*. The JMTP reform in Xiamen was implemented with the goal of providing equitable, systematic access to the diagnosis and treatment of chronic conditions *(8)*. The reform focused on establishing a system for the hierarchical diagnosis and treatment of diabetes and hypertension *(4)*, by strengthening diagnostic and treatment capacities at the PHC level, and implementing standardized care pathways across the community centres *(8)*. A core component of the reform was the establishment of multidisciplinary teams, which comprise a specialist, responsible for determining the diagnosis and treatment plan; a general practitioner, responsible for implementing the treatment plan, conducting monitoring on a daily basis and providing two-way referral of patients; and a health manager, responsible for health education and interventions on patient behaviour *(9)*.

These teams treat patients at the community level, often by conducting home visits, and they encourage the use of community health centres as a key source of usual care *(8)*. The promotion of two-way referrals, supported by an information-management platform, was another focus of the Xiamen reform aimed at achieving the goal of the "right care at the right place at the right time" *(5)*. Tertiary hospitals were incentivized by government subsidies to refer patients back to community health centres *(8)*. Other supporting mechanisms to enhance the integration of service provision – for example, further coordination between organizations in terms of human resources, financing and management – are also being established *(9,10)*.

Innovations in eHealth have helped to facilitate reforms and strengthen the gatekeeping function of community health care providers. In Anhui, care teams use a free messaging application (app) to facilitate consistent communication between patients and providers. Electronic health records are used across the province, helping to capture referrals and share patient information across the health service delivery system *(9)*. The JMTP programme has further incorporated the use of technology through resources such as messaging apps and a resident's health information website, which can be used to book appointments and access individual health information *(8)*. The Xiamen iHealth app and other information-management platforms allow primary care doctors and specialist physicians to consult remotely with patients regarding medical guidance, monitoring, health and wellness education, and referral management. This has been crucial to the functioning and sustainability of Xiamen's tiered health service delivery system *(8)*.

Impact

The CIHO pilot has widened in scale; in 2018, more than half (66 of 105) of Anhui's counties have adopted the model *(7)*. In these counties, health care has undergone a deliberate shift towards promotion of preventive PHC services and of services for chronic disease *(7)*. The CIHO pilot has led to important financial benefits for both the health system and patients. In just 1 year of implementation, from 2015 to 2016, inpatient costs in pilot counties were reduced by 4.3% *(7)*. The cost of hospitalization per person in pilot counties was lowered to RMB 5727 (about US$ 838) in 2016, compared to RMB 5985 (about US$ 876) in non-pilot counties *(7)*. A greater proportion of patients undergoing surgery at township health centres, instead of county hospitals, also led to an overall reduction of out-of-pocket expenses in 2016 *(7)*. In addition, it is increasingly common practice for CIHO county hospitals to refer their professionals to township health centres, where they can provide clinical guidance to local doctors in person rather than relying on administrative orders, as was the case previously *(11)*. These interventions reflect the system's increasing focus on people-centred services, and on strengthening health access and outcomes in local communities.

The tiered health service delivery reform in Xiamen has helped to decrease the overuse of secondary care systems, while simultaneously improving the management of chronic diseases *(6)*. In 2012, the proportion of visits to community health centres was just under 30%; by 2016, it had risen to 66.5% *(4)*. In 2017, 69% of residents in Xiamen were enrolled in community health services and, among these residents, more than 90% indicated satisfaction with the health care outcomes provided by the city's tiered health service delivery systems *(8)*. The number of patients being treated outside of frontline health facilities has decreased dramatically since the reform came into effect *(8)*. In addition to lower overall cost of care at the local level than at tertiary hospitals, reimbursement rates are also as much as 20% higher at the community level *(8)*. From 2012 to 2015, consultations at the grass-roots level increased by 44% *(8)*.

The way forward

The CIHO pilot in Anhui has helped to ensure integrated, people-centred health services for rural areas. Moving forward, the CIHO model will be expanded into other health insurance and national essential public service package funds, providing an example of a successful prepaid capitation plan *(7)*. In 2017, the Chinese Government and the World Bank announced a new programme focused on expanding the health care reforms in Anhui and Fujian provinces *(7)*. This is an opportunity to expand the quality and efficiency of health care services and systems, and will strengthen the sustainability of Anhui's reforms. Xiamen's JMTP practice has been promoted nationwide as an important model; since 2016, policy-makers and professionals have come from 12 provinces and 58 cities to study Xiamen's model of tiered health care *(9)*. Two things have been essential to both reforms – strengthening the gatekeeping function of primary care (with patient buy-in) and facilitating a true two-way referral system – both of which were enabled by strong support from local policy and health care leaders. Specialized reforms and careful study, guided by the coordinated efforts of central and local government, are enabling the translation of local successes into national policy *(6)*. These successes can be adapted into other contexts, and the computer and app-based technologies used in the Anhui and Xiamen pilots could be useful in facilitating successful reforms in China and elsewhere.

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