

**CLOSING THE GAP BETWEEN POLICY AND REALITY:
A STUDY OF COMMUNITY HEALTH SERVICES IN
CHENGDU AND PANZHIHUA**

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LIST OF ABBREVIATIONS

ADL	Activity of Daily Life
AIDS	Acquired Immune Deficiency Syndrome
AusAID	Australian Agency for International Development
CDC	Centre for Disease Control
CHC	Community Health Centre
CHS	Community Health Services
CMA	China Medical Association
CMS	Cooperative Medical System
COPC	Community Oriented Primary Care
COPD	Chronic Obstructive Pulmonary Disease
CQI	Continuous Quality Improvement
DALY	Disability Adjusted Life Years
DOCA	Department of Civil Affairs
DODPC	Department of Disease Prevention and Control
DOMA	Department of Medical Affairs
DOMCH	Department of (Basic Health) and Maternal and Child Health
ECG	Electrocardiogram
EPS	Epidemic Prevention Station
FPC	Family Planning Committee
GDP	Gross Domestic Product
GIS	Government Insurance Scheme
GP	General Practitioner
HCA	Health Care Agreement
HIV	Human Immunodeficiency Virus
IHF's	Individual Health Files
IHSA	Individual Health Saving Account

IOM	Institute of Medicine
MCH	Maternal and Child Health
MOCA	Ministry of Civil Affair
MOH	Ministry of Health
MOLSS	Ministry of Labour and Social Security
NCD	Non-Communicable Disease
NHS	National Health Service
PHC	Primary Health Care
PHI	Public Health Institution
PHW	Public Health Worker
PUMC	Peking Union Medical College
QA	Quality Assurance
SAOs	Street Administrative Offices
SOE	State-owned Enterprise
SPF	Social Pooling Fund
UNAIDs	Joint United Nations Programmes on HIV/AIDS
UNICEF	United Nations Children's Emergency Fund
URI	Upper Respiratory Infection
WCUMS	West China University of Medical Sciences
WHO	World Health Organisation

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ABSTRACT

The development of community health services (CHS), characterised in particular by the emergence of general practitioners and the establishment of community health centres, is one of the top priorities on the policy agenda for urban health reform in China. The primary and secondary levels of hospitals are being urged to change functions, shifting from traditional hospital services to CHS.

This study aimed to contribute to the development of training strategies for CHS through documenting the policy, administrative and institutional arrangements of the CHS programs, identifying performance problems, and analysing relevant determinants that underpin the practice and performance of CHS. Document analysis, indepth interview and questionnaire survey were adopted as main methodological approaches. The study was undertaken in Chengdu and Panzhihua, which included observation of 14 community health centres, interview with 23 general practitioners and managers, and a random sample survey among 1041 residents.

This study revealed that the top priority of the CHS programs was to try to stay alive through competing with other health institutions for consumers who could afford medical charges and to provide clinical services that would generate good revenues. The accessibility to medical care for the community residents had not been improved significantly. Poor response to local population health issues, inefficient use of resources and poor quality of services were amongst the key performance problems. There was little prospect of the CHS institutions achieving sustainable development.

There was a widespread agreement among the CHS managers and practitioners that training is an essential strategy in improving the CHS performance. However, when policy, system, and cultural barriers are not properly addressed, training means little. There were evident organisational failings and lack of inter-governmental collaborations and leaderships in developing CHS. The lack of policy coherence with respect to organisational incentives impeded the achievement of the goals of CHS. There was also a lack of consumer participation and support.

These findings have implications for both policy development and training arrangements. The development of CHS needs to be considered as a system change rather than in terms of isolated institutional developments. Training arrangements for

CHS need to offer competencies for a wide range of organisations and professionals to enable them to improve their daily works and also to contribute to solving some of the system problems. The training programs developed for governmental officials, hospital and CHS managers, general practitioners, community nurses, public health workers, pharmacists and other CHS practitioners need to be aligned with a unified goal and facilitate the development of the supportive environments and inter-organisational collaborations (partnerships).

STATEMENT OF AUTHORSHIP

Except where reference is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis submitted for the award of any other degree or diploma.

No other person's work has been used without due acknowledgement in the main text of the thesis.

This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.

All research procedures reported in the thesis were approved by the Ethics Committee of the Faculty of Health Sciences, La Trobe University, and the directors of the municipal health bureaux of Chengdu and Panzhihua.

Chapter One

INTRODUCTION

This research seeks to identify the training needs for community health services (CHS) in urban China through an analysis of the current performance and challenges facing CHS. Although China has a long tradition of strongly emphasising primary health care (PHC), the more recent urban CHS initiatives adopt a new approach characterised by the emergence of general practitioners (GPs). Through a case study in Chengdu and Panzhihua, I outline the current situation in CHS development, and delineate the theory and concepts that are guiding the implementations of the CHS programs, as well as the determinants that shape the practice of CHS. Both qualitative and quantitative research methods have been used, based on the needs of different research questions.

Emergence of research questions

The research questions emerged from my experiences in teaching and researching CHS. They address problems being faced by practitioners on the ground and uncertainties being faced by policy makers in the context of designing and implementing health sector reform in China.

Personal experiences

I graduated from a six-year degree program in the West China University of Medical Sciences (WCUMS) and got my medical degree in 1988. After a further three-year study in the same university, I was awarded the Master of Public Health.

In 1991, I was employed by the WCUMS. As a teacher and researcher in the Department of Social Medicine, I became extremely interested in the social approach to health, in particular, the policy and management issues associated with PHC. I was actively involved in a broad range of research projects including policy analysis, health insurance, regional planning, disease control and medical outcome studies. Since 1994, the inequitable access to health services by the urban population, especially the disadvantaged population, has attracted my attention. I participated in a gerontology

project aiming to develop a community based health care model for the elderly. The strategies to achieve the goal included the development of an educational network and a health care network for elderly people in Sichuan province. This project trained about 400 physicians and more than 150 nurses and expected the trainees to provide continuing and coordinated comprehensive health care for the elderly using a social approach. Later, however, the project members noticed that the training had not been very effective in changing the patterns of practice of the trainees because of the restraints of the organisational and cultural environments. Therefore, the project's attention began to shift to creating appropriate environments that could facilitate the community based social approach in aged care, rather than merely on training.

Since late 1996, developing CHS has come onto the government agenda (Central Committee of Communist Party and State Council, 1997). The WCUMS was invited to offer training courses for CHS managers and practitioners. I became a principal planner and teacher for these training programs.

In designing the curricula, the planners encountered considerable controversy. The main issues in dispute included:

- 1) What themes should be included in the training programs?
- 2) What curriculum content and teaching methods are appropriate for the different classes of managers from local health authorities, hospitals, and community health centres (CHCs)?
- 3) What is the proper balance between clinical components and public health components?
- 4) What are the most appropriate methods for upgrading clinical skills?
- 5) How can the training program encourage the social approach in organising CHS? and
- 6) How can the training program contribute to changing the practice patterns of trainees who have been used to working in hospitals?

Despite these uncertainties, the planners all agreed that it would be necessary to conduct a well-designed study for better understanding of the pattern and performance of CHS as an input to the planning of appropriate training programs. The planners also agreed that improved training should not only play an important role in improving the

delivery of services but also contribute to improving the wider social environment that interacts with CHS.

Health sector reform

According to the 2000 census, China has a population of 1.3 billion people, comprising about 21% of the world population (China Population Information Network, 2001). It is a great challenge to provide health care for such a large population, especially in the context of a relatively undeveloped industrial base and an increasing income gap between the highest and lowest income groups (Gao et al., 2001).

There are marked social and economic disparities between rural and urban populations and between eastern and western regions in China. Providing basic health care for the rural population has always been a priority in China health policy. In the 1950s and 1960s, China implemented a primary health approach, resulting in dramatic reductions in mortality and increasing life expectancy (Rao, Yin and Liu, 2000). Although some researchers have argued that social and economic development may have been the main determinant of these improved health indicators (Jewell, 1996), the Chinese PHC model was nevertheless regarded as a leading model around the world (Chetley, 1995, para. 1; Johnstone and McConnan, 1995; Bloom, 1997, p. 3; Chen, C. C., 1997; Dong, W. Z., 2001a; Pang, Wong and Ho, 2002; Taylor and Taylor, 2002; Wyon and Rohde, 2002; Hall and Taylor, 2003).

From 1978, China commenced a far-reaching program of economic reform. The rural collective production system was replaced by a household-based production system. Market and competition mechanisms were introduced to encourage the productivity of urban industrial enterprises (Bloom, 1997, p. 8; Pei, 1998, pp. 13-17). These measures led to a rapid economic increase and urbanisation process. The rural proportion of the population dropped from about 80% to 64% in two decades. In many large municipalities the mobile population (internal migrants, most coming from rural areas) comprise over 15-20% of the population (China Population Information Network, 2001).

However, in the mean time, the reform of the social insurance system fell behind. The state-owned enterprises (SOEs) had to continue to take the responsibility of providing housing, education, medical care, aged care, and other supports for employees and their dependents. These burdens placed them at a serious competitive disadvantage

in competing with businesses without such responsibilities. Because the private- and foreign-invested enterprises had no responsibility to provide such supports, they could offer higher salaries for their employees (Wong, V. C. and Chiu, 1998), which had the effect of attracting many experienced technicians and workers from the SOEs (Liu, C. J. et al., 1995a). Under these pressures, in combination with outdated production techniques and managerial methods, many SOEs struggled to survive. A lot of workers lost their jobs. A growing stratum of poor people emerged within the urban population (Wei, J.S., 2002).

Although the reform of the health industry lagged behind, similar reforms were being instituted within the health sector with a considerable degree of managerial responsibility devolved from governmental bureaux to hospital executives (Wong, V. C. and Chiu, 1998). The pace of economic liberalisation of public institutions was accelerated after the 15th Communist Party Congress in 1997, which endorsed an economic efficiency oriented program of reform (Gao et al., 2001). Budget funding was further reduced requiring hospitals to earn an increasing proportion of revenues through user charges. An increasingly competitive health care market was emerging, with a far-reaching privatisation process foreshadowed. The private sector comprised about 3.9% of the health professionals in the period up to 1999 (MOH, 1999b). The reform of health insurance was also implemented, in conjunction with other social insurance reforms with a view to reducing the economic burden being carried by the SOEs and controlling the rapid increase of medical expenditure (Hindle, 2000; Dong, W. Z., 2001a).

Meanwhile, the health delivery system was undergoing continuing restructuring as it adapted to the changing social and economic environment and disease pattern. Among the more prominent consequences of the health industry reforms of the 1980s and 1990s were the rapid development of hospitals and pharmaceutical companies. Hospitals were forced to compete for patients as budget funding was reduced. Hospital developments were increasingly driven by the revenue opportunities of pharmaceuticals and high technology investigations (which were less tightly regulated than basic medical services) and by community expectations regarding high technology investigations, intravenous fluids and the extensive use of pharmaceuticals (Hsiao, 1995). Under these conditions hospitals invested heavily in modern equipment in order to enhance their competitive position (Pei, 1998, p. 141). Pharmaceutical companies developed rapidly over the same period competing to produce and sell drugs that would yield greater revenues and profits.

During the late 1990s, expenditure on outpatient visits and in-patient services increased rapidly (average annual increases of 10.2% and 13.8%, respectively (Gao et al., 2001)); much more rapidly than average per capita income (6.5%). The maldistribution of health resources and increasing cost of medical services constituted an increasing barrier to access to health services for the poverty population. More and more people who reported illness sought self-treatment rather than attending doctors (Gao et al., 2001).

The demographic structure and disease patterns of the urban population were changing during the same period. Many urban areas were becoming aged communities. Leading causes of death were moving from infectious and communicable diseases to chronic conditions. Cancer, cerebrovascular disease and cardiovascular diseases became the top three leading causes of death. Infectious and communicable diseases have dropped out of the top ten leading causes of death (MOH, 2000b; 2001a). Policy makers were starting to wonder whether the traditional hospital-dominated health care system was still appropriate in this changing environment.

In late 1996, the central government decided on a raft of new policies to reshape the hospital system including the development of community based health services. The hospitals that were rated at the primary and secondary levels were encouraged to change roles and to reinvent themselves as CHCs. GPs emerged as new health professionals. There was a recognition of the substantial retraining that would be urgently needed to help the hospitals and staff to adapt to the new environment and approach. However, medical educational institutions were not well prepared to provide this sort of training. Studies on the training needs for CHS development were rare. Several studies used questionnaire surveys to investigate the knowledge and skills of community health practitioners and revealed a big gap between the perceived demands and academic expectations (Wu, X.Y., 1999b; Xie, J. and Chen, 2002). This coincided with my experience in a training needs assessment project. We used a questionnaire survey to assess perceived training needs in relation to preventive medicine among clinicians and found that many clinicians could not make judgments about the importance of some aspects of preventive medicine because they had no idea about what these aspects meant. It is necessary to interpret the perceived training needs in the context of the reality of practice and the theory and concepts that guide such practice.

Thus, I commenced the research described in this thesis with a concern about the performance problems in CHS in relation to the general theory and concepts that may

guide the practice of CHS, as well as the social, political, structural and cultural environments that shape the practice of CHS. The aim of my study was to provide the policy-makers and educators with information to initiate and improve training for CHS in China.

Overview of research design

Both qualitative and quantitative methods have been used in this research to answer different questions. In-depth interviews and observations were conducted to explore how the CHS were organised and delivered to meet the health needs of community residents. Government documents and other publications were also collected to assist in better understanding of the theory and concepts that guide the practice of CHS. A questionnaire survey of community residents was conducted to provide information about the performance of the CHS from the perspective of community residents, and to assess the health needs of community residents and the attitudes of community residents towards CHS.

Two municipalities in Sichuan province were chosen as the research settings. These were Chengdu, the capital city of Sichuan province and one of the large municipalities in China, and Panzhihua, typical in many ways of the medium-sized municipalities. Fourteen CHCs (six in Chengdu, eight in Panzhihua) were selected. The general operations of the centres were observed. Meanwhile, 23 GPs and administrators were interviewed. In Chengdu, a questionnaire survey was conducted among 1041 community residents. The respondents were randomly selected in three communities which were serviced by somewhat different CHS, in order to correlate the residents' perceptions with the styles of practice of the CHS.

The results of the qualitative and quantitative research were analysed with a view to identifying performance problems, in particular, problems which appeared to reflect lack of understanding, knowledge or skills and which therefore might be addressed through more appropriate educational programs. The performance problems of CHS were identified by comparing the current operations of the CHS and the practices of the GPs with the guidelines issued by the China Ministry of Health (MOH); and through reference to the experiences of other countries, especially Australia. I also compared what the community residents said they needed and wanted with what the community

health professionals thought they should provide and what they were providing to examine whether the CHS were oriented to meet the residents' health needs.

Structure of thesis

This thesis contains eight chapters.

Chapter Two is entitled "Primary health care in China". In this chapter, I introduce the concept of PHC and CHS. The history and structure of the PHC delivery system in China is reviewed. Some of the key issues concerning contemporary changes in PHC are discussed, in particular, the recent development of CHS and associated driving factors. I also discuss the CHS workforce development and relevant educational system for the training of PHC workers.

In Chapter Three, I describe in detail the objectives and methods of this research. This includes the development of the research strategy which has shaped the direction of the study and guided the collection and analysis of data; the purposive sampling steps; the implementation of the indepth interview and questionnaire surveys; the data entry and analysis methods, and the integration of qualitative and quantitative results. Some key issues related to the research design, such as the performance and quality assessment of PHC and CHS, and health needs and training needs assessment are also discussed.

The main findings are presented in Chapters Four to Seven. These chapters are structured around the key themes of this research (description, evaluation and analysis of the current operations of community health services), rather than different types of data (quantitative, qualitative) or different sources (GPs, community residents, etc). These chapters also include some reference to the literature and some preliminary discussion which lays the ground for Chapter Eight, in which the main findings from all of Chapters 4-7 are brought together. The key issues and policy implications are summarised and strategies to overcome the obstacles are explored.

In Chapter Four, the current situation of CHS programs in Chengdu and Panzhihua is described. A typical scenario describing the organisational arrangement of CHS and practice of CHS providers is given. A more systematic description of the procedures involved in delivering CHS, the managerial arrangement of CHS and the characteristics of CHS users follows.

Chapter Five tackles the performance issues of CHS. The attributes of the CHS programs around the themes population health, efficiency, quality and integration are discussed. The quality of CHS is analysed by comparing the services provided by different providers, and by documenting the patients' experiences. The organisational development of CHS is also addressed.

Chapter Six explores the determinants that shape the patterns and performance of CHS. I identify and discuss factors associated with consumers, providers, purchasers and policy makers which are shaping the operations and development of CHS.

In Chapter Seven, I present the training arrangements which presently support the CHS workforce and the perceived training needs of community health practitioners, including both administrators and medical practitioners. None of the interviewees had received systematic education in health service management or general practice. Their views reflect clearly the difficulties encountered in their practices. The relevant contexts of these perceived training needs are also presented to assist in understanding the meanings of the interviewees' views.

In Chapter Eight I present my conclusions. I consider all of the findings presented in the preceding chapters and discuss the implications of these findings for policy and training although it is difficult to define clearly the boundary between policy and training implications. Consideration of the interaction between policy, structure, culture, training, and behaviour can help us to identify approaches to training which may improve both the performance of individuals and organisations and contribute to the policy reform in the wider environment. It is clear that there is an urgent need to train community health practitioners. The training should include not only community medical practitioners but also policy makers, local authorities and other health professionals. Lack of qualified trainers is also an important barrier in developing community health services. Further studies needed to address these problems are suggested in this chapter.

Chapter Two

COMMUNITY HEALTH SERVICES IN CHINA

This chapter explains the concept of PHC and introduces the history of PHC reform in China. The managerial models and driving factors in the development of the current urban CHS programs are reviewed. The health sciences educational system in China is also outlined in this chapter to provide a context for the analysis of the data in the following chapters.

Primary health care and community health services

Primary health care: a global activity to achieve “Health For All”

The concept of PHC was inspired by a number of successful programs delivering basic and comprehensive health care services to poor rural populations. The Chinese experience provided one of these leading program models (Hall and Taylor, 2003). Based on those programs, the World Health Organisation (WHO) and the United Nations Children’s Emergency Fund (UNICEF) synthesised the concept of PHC at a conference held in Alma-Ata (in 1978) as:

...Essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community by means acceptable to them and at a cost that the community and the country can afford to maintain at every stage of their development in a spirit of self-reliance and self-determination. It forms an integral part of both the country’s health system of which it is the central function and the main focus of the overall social and economic development of the community with the national health system, bringing health care as close as possible to where people live and work and constitutes the first element of a continuing health care process. (WHO and UNICEF, 1978, Declaration VI)

This definition of PHC encompasses a broad range of principles to be embodied in both public health and medical services. The core components of PHC identified by the

Alma-Ata Declaration include health education; promotion of food security and proper nutrition; environmental sanitation; maternal and child health (MCH, including family planning); prevention of local endemic diseases; vaccination; appropriate treatment of common diseases and injuries; provision of essential drugs; and traditional medicine. At the thirtieth annual meeting of the World Health Assembly in 1977, PHC was enunciated as essential to achieve the goal of “Health for All by the Year 2000” (WHO and UNICEF, 1978).

Differences in social economic situation, disease patterns, institutional traditions, and historical and cultural contexts have led different countries to develop different models and different approaches to achieving “Health for All” through PHC. In developing countries where communicable diseases are leading threats to people’s health, PHC focuses more on the infrastructure development including environmental sanitation and providing resources for PHC and safe food and drinking water supply (Hall and Taylor, 2003).

By contrast, in the industrialised countries, the PHC sector was already well resourced. Most such industrialised countries could claim to have achieved what the developing countries were trying to develop (Starfield, 1998, p. 10). As a result, these countries paid more attention to the organisational arrangements (such as community involvement) and to the principles of practice (Legge, 1996, p. 1). Starfield (1998, p. 11) argued that the WHO concept of PHC is equally applicable as a goal in industrialised nations only when it is viewed as a strategy for integrating all aspects of health services.

It is clear that, in the industrialised nations, people are talking more about primary care rather than PHC (Starfield, 1979; 1986; 1991; Gorman et al., 1992; Barkun et al., 1993; Starfield, 1993; 1994a; b; c; Gerbert et al., 1996; Starfield, 1996; 1997; Milio, 1998; Starfield, 1998, p. 9; Cassady, C. et al., 2000a; Shi, L. et al., 2002). In this context, primary care refers to a narrower concept than PHC and is viewed as a level of care which is distinguished from short-term consultative care (secondary care) and long-term disease management (tertiary care) (Starfield, 1998, p. 9). The Institute of Medicine (IOM, 1996, p. 31) defines primary care as an “*integrated and accessible health care*” provided “*by clinicians who are accountable for addressing a large majority of personal health care needs, developing sustained partnership with patients, and practising in the context of community and family.*”

Many researchers believed that greater emphasis on primary care produces better outcomes of health with lower cost than health systems which focus on specialty services (Starfield, 1991; Starfield and Simpson, 1993a; Forrest and Starfield, 1996; Forrest et al., 1999a; Cassady, C. E. et al., 2000b; Shi, L. and Starfield, 2001).

The cardinal features of primary care have been affirmed by many professional committees and experts as: first contact, longitudinality, comprehensiveness, and coordination (Axelrod et al., 1994; Starfield, 1994a; Franks et al., 1997; Starfield, 1998, pp. 283-4; Cassady, C. E. et al., 2000b). GPs are often cited as the main primary care providers. But Starfield (1994a) has argued that primary care could be more usefully thought about as a model for organising health care rather than being defined by the type of providers or by specific services. The major task of primary care is to make a decision about the most appropriate diagnostic and management approach for a patient through elucidating all types of health problems, not just a specific disease over time. Primary care targets a wide range of conditions, along with coordination and integration of care provided elsewhere or by others (Starfield, 1998, p. 24).

Community health services: a cost effective way of providing health care services

Community indicates a group of people with common characteristics and interests within certain parameters. It may be defined by the geographic location, or by cultural, socioeconomic, religious, racial and political parameters (Yan, 2000). CHS refer to a field of practice *“encompassing and coordinating at the local level the overlapping aspects of both public health and personal health practices of individuals and families, with an aim of identifying and finding solutions to health problems of a specific community”* (Reagan and J., 1997, p. 5). Each community may have unique health problems and the solutions suitable to each specific community may be unique (Deuschle and Bosch, 1981). This definition embodies two essential elements. First, CHS focus on a goal of making communities, as entities, healthier; and second, CHS present a full range of activities within the communities, including the coordination and integration of institutional services.

In reality, CHS are often represented as an alternative to institutional services and an effective tool to contain medical costs. CHS development has been driven by several factors, including the logic of the PHC policy, rapidly increasing health care costs, changing patterns of illness, the demographic transition, and the availability of more

medical technologies in community settings (Kirk and Glendinning, 1998). They are used for providing primary care for poor and disadvantaged people (Singh, Haqq and Mustapha, 1999); in substituting for expensive hospital services (Kirk and Glendinning, 1998; Bao et al., 2000a); and in reducing the demand for nursing home beds (Stuart and Weinrich, 2001). In the past decades, some developed nations have attempted to shift their priority of funding from institutional services to community- and home-based services (Vertrees, Manton and Adler, 1989; Wiener and Cuellar, 1999; Stuart and Weinrich, 2001). It is also recognised that acute and chronic services need to be better integrated, with balance and coordination between institutional services and community-based services (Wholey, Burns and Lavizzo Mourey, 1998).

CHS may cover three stages of health care: first contact and primary care; hospitals at home; and post acute and long term care (Wiener and Cuellar, 1999). Such CHS programs deliver a wide range of services along the continuum of health care, from preventing illness, managing ongoing health problems, managing the use of hospital resources, rehabilitation, to terminal care. There is an international trend to increase community-based health services while holding down the institutional services for both efficiency and quality reasons (Wiener and Cuellar, 1999; Wiener, Tilly and Alexcxih, 2002).

Community oriented primary care: integrating public health and individual services

Public health addresses population health rather than individuals. It places emphasis on interventions to address health problems that affect populations ranging from identified groups to the entire society. *“Public health is what we, as a society, do collectively to assure the conditions in which people can be healthy” (IOM, 1988, p. 1).* The original concept of public health focused on environmental problems, such as sanitary conditions, food and drinking water safety, and occupational safety, but the modern concept of public health has expanded from prevention of disease to promotion of health (IOM, 1988, p. 40).

The WHO definition of PHC is strongly oriented around the concept of community. Starfield (1998, p285) saw community orientation as one of the derivative features of primary care. Community orientation implies the use of both epidemiological and clinical skills to identify community health problems and to guide, organise, and

coordinate practices in order to solve those problems. However, primary care services can address individual health needs without being necessarily oriented around the needs of the community (Starfield, 1998, pp. 315-7).

When primary care is presented as part of community health care, both are more likely to succeed (Chi, B. and Huang, 1999; Hai and Chuong, 1999; Inthirat and Thonglith, 1999; Mitchell, 1999; Zhuo, D. and Kun, 1999; Dong, Y., 2001b). Accordingly, community oriented primary care (COPC) is an important concept in developing CHS. As defined by Starfield (1998, pp. 315-6), COPC is “*an approach to primary care that uses epidemiological and clinical skills in a complementary fashion to tailor programs to meet the particular health needs of a defined population*”. The public health services and individual services are integrated through COPC, with a consistent aim of meeting the community needs.

History of primary health care in China

Development of public health

The first academic department of public health in China was set up in 1921 in the Peking Union Medical College (PUMC), a pioneer that provided the framework for educating the new elite of western medicine (Lee, L. M. et al., 2003). In 1929, Dr. C. C. Chen, a graduate from the PUMC, conducted a Rural Health Demonstration Program in Xiaozhuang. In mid 1930s, Grant, Yan and Chen developed the “Dingxian Model”. The “Dingxian Model” put strong emphasis on the involvement of community residents, lay workers and preventive measures to meet the residents’ health needs as assessed by epidemiological surveys (Taylor and Taylor, 2002; Wyon and Rohde, 2002). This model combined the public health approach and individual-based health services and was demonstrated to be a simple, inexpensive and effective approach in improving the health of rural residents in China (Chen, C. C., 1997).

Since 1949, and the founding of the People’s Republic of China, the Chinese government has introduced an organisational framework for the delivery of public

health services which was borrowed in large part from the Soviet Union¹. This included an independent public health system consisting of epidemic prevention stations (EPS) and maternal and child health (MCH) stations. Later, some agencies focusing on the control of specific diseases such as tuberculosis (TB), leprosy, and schistosomiasis were added to the system. Corresponding to these organisational structures, an educational system was developed in parallel with the medical education system to train public health workers (PHWs), involving a complete separation of public health services from medical services. Nonetheless, the breakthrough concept of the “Dingxian model” was eventually embraced throughout China in the barefoot doctor movement and the patriotic health campaigns (Wyon and Rohde, 2002; CMA, 2003). During this period communicable diseases were the greatest threats to the health of Chinese people, and the Chinese government adopted a strategy of “combining health work with mass movement” to try to improve the living environments and to cut the chain of transmission of pathogens. It is widely believed that the combination of mass campaigns and the rapid expansion of health services infrastructure provided the key to the control of epidemic and endemic diseases (Horn, 1969).

Three-tier health networks and insurance schemes

In the late 1950s, as a way of improving access to health care, a three-tier network for health delivery was developed (Pei, 1998, p. 27), which provided infrastructure for the integration of medical and public health services at the community level despite the parallel hierarchies of the public health and medical systems.

In rural areas, the three-tier network extended from the village, to the township, and then to the county level (Liu, X. Z. and Wang, 1991). This system emphasised accessible PHC provided by “barefoot” doctors or village doctors, who were supported by the collective agricultural commune and were offered up to two years of vocational training (Gong and Chao, 1982; Gong, Wilkes and Bloom, 1997; Wong, V. C. and Chiu, 1998). The Co-operative Medical Scheme (CMS) was developed in late 1950s to minimise the financial barriers to PHC in the countryside (Feng, X. et al., 1995; Tang,

¹ From 1938 to 1948, the development of public health stagnated because of the anti-Japanese war and the civil war.

1997a; Pei, 1998, p. 50; Lang and Li, 2002). The CMS was an integral part of the collective agricultural commune, where all commune members shared the working process and enjoyed an equitable distribution of wealth and access to health and welfare (Dong, Y., 2001b). Farmers could access very basic PHC services and programs through the village clinics (Yang, H., 2002). Although the organisations at the three levels were administratively separated from each other (Mu and Zhang, 2002; Xu, H. G., Xu and Wei, 2002; Anon, 1987), an effective referral mechanism was built into the system (Dong, Y., 2001b)². Furthermore, the county hospitals gave technical guidance to the township health centres, which in turn, supervised the village clinics. The three-tier network also formulated a channel for the delivery of public health services and preventive care.

The urban health network was also designed originally as a vertical structure but the links and roles of the three level organisations were not as clearly defined as the rural network. While the China Medical Association (CMA, 2003) identifies neighbourhood health stations, street health centres, and district hospitals to echo the parallel rural structure, many researchers view street, district and municipality as three levels of the urban network³ (Pei, 1998, p. 27; Dong, W. Z., 2001a). The establishment of hospitals and clinics in economic entities (enterprises) and governmental agencies added more complications to this system (Liu, D. P. et al., 2002b). In fact, primary care services were provided by all levels of health organisations. This was of particular importance for ensuring full coverage with respect to public health programs such as immunisations and MCH care management (Wang, M. et al., 2000b), since urban primary health organisations did not cover all communities.

From the early 1950s to the late 1990s, there existed two main insurance schemes in the urban areas. Both were employment-based and self-insured without horizontal

² The CMS focused mainly on village level services. Village clinics shared about 60-70% of the total rural outpatient encounters (Wong, V. C. and Chiu, S. W. 1998). Township health centres could be either collective-owned or state-owned while the county hospitals were generally state-owned.

³ The three-tier hospitals are defined by their administrative relationships with the governments (not by accreditation). A city hospital could be accredited as a secondary hospital while a work-unit hospital could be accredited as a tertiary hospital. Each level of government finances the health facilities of its own (Bloom, G. 1997). Health departments provide very little funding for health facilities at lower levels. As a result, village clinics get almost no money from the governments (Bloom, G. 1997).

risk pooling across enterprises or government work-units (Dong, W. Z., 2001a). Civil servants, college teachers and students, and workers in political parties and non-profit organisations (not including dependents) enjoyed free health services guaranteed by the Government Insurance Scheme (GIS, introduced in 1952), which was funded through state appropriations (Dong, W. Z., 2001a; Lee, P. N., 2002; CMA, 2003). Employees working in SOEs and some large collectively-owned enterprises were usually insured by the Labour Insurance Schemes (LIS, introduced in 1951), with the financial support of their employers (Pei, 1998, p. 49; Hindle, 2000; Dong, W. Z., 2001a). The LIS not only entitled the employees to free health services, but also offered partial coverage for dependents (Hindle, 2000). Many enterprises established their own clinics or hospitals to serve their employees. First contact care was restricted by the GIS and LIS to identified health institutions. However, those primary care providers were not necessarily primary tier institutions. Patients visiting the non-assigned health institutions had to get approval and be referred by staff working in the assigned health institutions (CMA, 2003).

From 1950 to 1978, all health institutions in China were owned either by governments or collective entities. The governments gave financial subsidies to help hospitals to balance their budgets (Pei, 1998, pp. 43-8; Hindle, 2000; Lee, P. N., 2002) and patients only paid nominal charges (Davis, D. and Chapman, 2002).

Primary health care in a time of economic reform

China's economic reform agenda was announced at the Third Plenum of Eleventh Central Committee Meeting of the Communist Party in 1978 (Pei, 1998, p. 12; Wong, V. C. and Chiu, 1998). It started with agricultural reform, shifting from a collective production system to a household responsibility system (Liu, Y. et al., 1995b; Pei, 1998, p. 12; Carrin et al., 1999; Xu, H. G., Xu and Wei, 2002).

In 1982, the Chinese government initiated the "Socialist Market Economy" reform (Hindle, 2000). The most salient changes to the health system associated with this reform included the devolution of public sector finance to various levels of governments, the decentralisation of administrative responsibilities to individual cost centres, and the increased role of private medical practice (Aldis, 1989; Bloom, 1997, p12; Pei, 1998, p.

36; CMA, 2003). Health organisations bear more financial responsibilities than ever before (Pei, 1998, p. 45; Liu, X. and Mills, 2002)⁴.

The unintended consequences of this reform have included the decline of accessibility of health care, the widening inequality between rural and urban areas, the bias of the health delivery system to more profitable services such as secondary and tertiary care, and the absence of any significant constraints on supply (Pei, 1998, p. 46; AusAID, 2000, p. 7; Hindle, 2000). China confronts complex challenges in seeking to resolve these issues.

Meanwhile, private medical practice has been growing rapidly. Before 1982 private practice was almost absent. It is now estimated that the private health organisations comprise around 44% of the total health organisations. Most of these are community-based clinics. Less than 1% of hospitals are privately owned, accounting for only 1.4% of the total number of hospital beds (Zhang, W. K., 2002).

Rural health reform

Although the rural economic reforms were very successful in stimulating agricultural production and improving efficiency (Liu, Y. et al., 1995b), the arrangements for health financing in the rural areas moved into a period of extreme difficulty. The decollectivisation of agricultural production resulted in the loss of basic financial support to the CMS (Bloom and Gu, 1997; Pei, 1998, p. 50; Zhu, L., 2002a) and CMS coverage levels were dramatically reduced (Gu, X. et al., 1993; Feng, X. et al., 1995; Liu, Y. et al., 1995b). Meanwhile, many village clinics were either closed or privatised (Dong, Y., 2001b; Xu, H. G. et al., 2002; CMA, 2003). The township health centres also faced great challenges associated with inadequate equipment and lack of resources (Tang, 1997b; Zhu, L., 2002a). In 1996, 520 township health centres were lost while 285 new hospitals at county or above levels were established (Liu, X. C. and Zhou, 1998). The disintegration of the three-tier network, the lack of resources, perverse incentives and dysfunctional managerial mechanisms constitute some of the central

⁴ A study in three poor counties showed that the share of governmental grants in hospital expenditure decreased from one half in 1981 to less than one quarter in 1992 (Bloom and Gu, 1997).

issues confronting rural health development in the present period (Mu and Zhang, 2002; Xu, H. G. et al., 2002).

In the 1980s, some PHC demonstration programs were developed in selected rural communities as part of China's response to the WHO Alma-Ata declaration. Given the background described above, most of the demonstration programs focused on financing and re-construction of the three-tier network (He, S. B., Wang and Yang, 2002; Mu and Zhang, 2002).

Re-development of the cooperative medical system

In the 1980s and 1990s, many attempts were made to re-establish the CMS, based on voluntary contributions by households with additional financial assistance from collective and government funds. However, without ongoing financial and policy support from the government, many of these attempts have failed to sustain. For example, the Rand Rural Health Insurance Experiment conducted in Sichuan province demonstrated the feasibility of developing CMS through levying a small amount of premiums on members (Cretin et al., 1990). But it was eventually forced to end in the mid 1990s because of the national policy of "alleviating financial burden of rural residents"⁵. One of the adverse consequences of the interruption of the CMS program was that many rural residents lost their confidence and trust in the CMS programs (Zhao, H., 1999; Cook, 2001, p. 25). Currently fewer than 10% of villages have a CMS⁶ (Dong, Y., 2001b; Zhang, W. K., 2002).

⁵ With the move to a market economy local government faced reduced revenue sources and a wide range of new fees and charges were levied by various authorities on farmers. This led to protests from the farmers and a national policy to the effect that total fees and charges could not exceed 5% of farmers' incomes. One of the consequences of this policy was that local health authorities were prevented from requiring contributions to the CMS. More recently, the central government has promulgated a policy that requires all of the fees and charges to be cancelled or be changed and regulated as tax (Chinese Central Television, 2001).

⁶ The 1998 National Health Survey showed that 2-22% of rural residents were covered by CMS depending on the economic situation of the regions (Health Information Centre, 1999).

Rural primary health care accreditation

In 1986, the MOH launched an accreditation project for rural PHC after summarising the experiences of several demonstration programs (MOH, 1986). The regions with different economic status (poor, sustainable, well-off, wealthy) were given different criteria for accreditation. This accreditation programs placed a strong emphasis on environmental sanitation, resource inputs, and the control of infectious and communicable diseases (MOH, 1986; Zhu, L., 2002a).

In 1989, a national conference on rural PHC was held in Tianjing by the MOH. The MOH decided to continue and extend the pilot studies and demonstration projects into more rural communities and to aim for 10% of counties achieving accreditation standards. Since 1991, all rural counties have been instructed to implement PHC programs, with a goal of 50% and 100% counties passing the accreditation by 1995 and 2000, respectively (Liu, C. J., 1997).

The achievements of the rural PHC programs have not been satisfactory, especially for the goals in relation to CMS. Consequently, the MOH adjusted some of its objectives for the plan for 2001 to 2010 (MOH, 2002e). The main changes included: (1) categorising the regions into eastern, central and western; (2) authorising provincial governments to determine some targets, for example the coverage rate of CMS; (3) providing for the evaluation of the quality of village clinics to be based on the registration of practitioners rather than the accreditation of the clinics; (4) adding some indicators associated with the use of traditional Chinese practice, the systematic management of chronic illness, and the control of TB; (5) updating some targets particularly with respect to outcome indicators such as maternal and child mortality rates⁷.

Strengthening three-tier health network

Many attempts have been made in recent years to rescue the three-tier health network and ease the financial difficulties of the township health centres and village

⁷ As mortality rates fall it becomes harder to achieve proportionate reductions (eg 20% reduction in maternal mortality). Accordingly the targets need to be updated in recognition of previous gains and the

clinics. Prominent among these attempts have been changes in ownership and innovations with respect to managerial arrangements⁸ (Xu, H. G. et al., 2002).

Like the urban hospitals, the township health centres are increasingly dependent on income generating activities. For example, in a district in Shandong province, the governmental budget⁹ covered only 22% of the salaries of township health workers (Mu and Zhang, 2002). As a response to this, the managerial responsibility for township health centres has in many regions been transferred from the county to the township governments or shared between the county health bureau and township governments. Some township health centres have been privatised, incorporated as either state-owned or share-holding entities, or contracted to private businesses (Mu and Zhang, 2002).

The integration of village clinics and township health centres is another strategy which has been widely used with a view to rebuilding the three-tier health care network. It is believed to be necessary for regaining control over the village medical practitioners and improving the quality of services (Ningbo Health Bureau, 1999; Qiu, R. M. and Lu, 1999; Xie, Y. J. and He, 1999; Chen, H. J., Xu and Zhang, 2001a; Mu and Zhang, 2002; Xu, H. G. et al., 2002). According to the “Guidelines for rural health reform and development (2001)” issued by the central government, the rural township health centres were encouraged to develop as CHCs (Li, L., 2002).

Urban health reform

There has been a long-standing problem of maldistribution of health resources. The urban areas have attracted more health care resources than the rural areas. Although the urban population comprises only 30% of the total population (20% before 1980), about 80% of health resources are allocated to urban areas (Chen, M. T., 2002; Zhang, W. K., 2002; Zhu, Q. S., 2002b). The urban population (one quarter of the total) consumes more than three quarters of the total health expenditures (Zhu, Q. S., 2002b). The rapid escalation of medical expenditures and unbalanced distribution of resources among

new baseline year.

⁸ There exist four main types of changes in ownership and management arrangement: share-holding cooperative; transferring by auction (privatised); managed by means of leasing; and state-owned but operated as a corporation.

⁹ The authors did not describe the source of budget.

primary, secondary and tertiary health sectors are major concerns in the urban health reform.

The reform of the GIS and LIS and the development of CHS were identified in 1997 as priorities in the National Government's health agenda. The main objectives were to address the issue of unbalanced resource allocation, to curb increasing medical expenditures, and to limit the role of hospitals to the diagnosis and treatment of acute, serious and difficult diseases (Central Committee of Communist Party and State Council, 1997; State Council, 1998; MOH et al., 1999; AusAID, 2000, p. 9).

Health insurance reform

Rapidly increasing medical expenditures caused considerable policy concern in the 1980s and 1990s. Various models for reforming the GIS and LIS system were explored, most of which included increasing the proportion of funds generated through user charges (Dong, W. Z., 2001a; Lee, P. N., 2002; CMA, 2003). The share of user-pay as a proportion of total health revenue increased from 23% to 54% between 1980 and 1996 (Hindle, 2000). Meanwhile, the proportion of urban population covered by the GIS and LIS declined from 52% in 1993 to 39% in 1998 (Gao et al., 2001). In 1994, the MOH, in collaboration with other three ministries: State Institutional Reform Committee, Ministry of Finance, and Ministry of Labor and Social Security (MOLSS), began a national pilot in Zhenjiang and Jiujiang to integrate the GIS and LIS into one unified scheme to address the issue of inadequate risk pooling and to facilitate labour flexibility through changing the self-insurance to a municipality-wide insurance and expanding coverage to all employees (Lee, P. N., 2002). The pilot trial provided a blueprint for the national medical insurance reform announced in December 1998 (Hindle, 2000; Dong, W. Z., 2001a; CMA, 2003).

The new insurance scheme is managed by the MOLSS. The essential elements of the design involve allocating the collected insurance premiums into two accounts: individual health saving account (IHSA) and social pooling fund (SPF). In principle, individual employees contribute 2% of salary into the IHSA, while the employers deposit an additional 1.8% of salary. The SPF is mainly financed by each employer by contributing 4.2% of its employees' salaries. The IHSA is supposed to cover expenditure on outpatient visits and community pharmacy services. Consumers can also use their IHSA to pay the front-end deductibles, proportional copayments for inpatient

services and fees in excess of capped benefit. The SPF usually covers inpatient services only, but some severe illnesses that involve frequent and expensive outpatient services are also included. The national government has suggested the level of front-end deductibles be set at 10% of the average annual salary (in that municipality) and the ceiling of total benefits payable per year be set at four times of the average annual salary. The proportional copayments are recommended to be set at 10% of the insurance liability (MOLSS, 1998).

Management responsibility for the new insurance schemes was assigned to the municipal government level. Prior to the new insurance schemes, only 16% of urban insurance arrangements covered CHS (Yang, H. et al., 1999b). Now, some municipal governments have begun to develop policies in favour of the CHS (Beijing Municipal Government, 2001; Chengdu Municipal Government, 2001; Shanghai Municipal Government, 2001). For example, the Shanghai insurance arrangements pay more attention to outpatient care and CHS, encouraging patients to seek medical help from primary care providers through lower copayment arrangements¹⁰. Hospital-in-the-home schemes are also covered by the SPF¹¹. In contrast, the insurance arrangements in Chengdu and Beijing put priority on the funding of inpatient services. Patients are encouraged to visit primary tier hospitals through designating lower front-end deductibles or lower proportional copayment rates. Outpatient services are less controlled, although the CHS are covered by the IHSA and the members in Beijing are limited to five designated providers (Table 2-1).

¹⁰ In settings where IHSA is used to cover outpatient services or CHS, it would not make sense to speak in terms of differential co-payment rates since the IHSA is used to cover both the standard benefit plus any gap payment. However, the Shanghai municipality also runs a supplementary insurance plan to cover spending when the IHSA is used up. Benefits payable under this scheme are subject to differential copayment rates to encourage use of PHC services (see Table 2-1).

¹¹ Hospitals or CHCs sent physicians and nurses to patients' homes to provide inpatients-alike services mostly are intravenous drips and other nursing services.

Insurance arrangement	Chengdu	Beijing	Shanghai
Employer's total contribution	7.5% of employee's salary	9% of employee's salary	10% and 2% of employee's salary for basic and supplementary insurance respectively
Employee contribution (to IHSA only)	2% of individual salary	2% of individual salary	2% of individual salary
Money allocated to IHSA from employer's contribution	0.02% (<50 years old) or 0.035% (≥ 50 years old) of each employee's salary multiplied by age	0.8%-4.8% of each employee's salary according to age	0.5%-4.5% of annual average salary according to age
Members' freedom in choosing providers	Any designated providers	Five designated (or contracted) providers	Any designated providers
Outpatient spending when IHSA is used up	No reimbursement	No reimbursement	45%-90% of reimbursements from supplementary insurance for those employed before 2001 (with front end deductibles of 2% (retired) to 10% of annual average salary).
Front-end deductibles for inpatient services	5% of annual average salary (in Chengdu) for primary hospitals, 8% for secondary hospitals and 12% for tertiary hospitals.	10% of annual average salary (in Beijing) for all hospitals	5-10% (according to age) of annual average (in Shanghai) for all hospitals
Reimbursement for inpatient charges beyond front-end deductible levels	$(75 + \text{age} \times 0.2) \%$ of insurance liability ¹²	The expenditure is divided into various segments and is required by different copayment rates (1.8-20%). For services in higher tiers hospitals, 2-3% more copayment rates are required.	85-92% of insurance liability according to age
Spending above capped benefit	No reimbursement	No reimbursement	80% of reimbursement from supplementary insurance

Table 2-1. Comparison of health insurance arrangement in Chengdu, Beijing and Shanghai

The data are based on the policy documents of the three municipalities (Beijing Municipal Government, 2001; Chengdu Municipal Government, 2001; Shanghai Municipal Government, 2001)

¹² The insurance liability is the total charges minus front-end deductibles and uncovered charges.

Development of community health services

Following the agricultural reform, the SOEs in the urban areas became the focus of economic reform. This reform involved changing the relationships between state and enterprise. The SOEs were granted many powers for their decision-making, with increasing market exposure and financial responsibilities (Pei, 1998, p. 36). Meanwhile, the development of private enterprise was encouraged. Influenced by the industrial reform, the MOH proposed similar strategies for the health sector reform, including returning the revenues to the hospitals and departments and concomitant withdrawal of budget funding. Since early 1980s, the governmental financial support for the recurrent costs of hospitals has been greatly reduced and for many hospitals virtually eliminated (Pei, 1998, p. 45). The continued reductions in government budget support appear to have been rationalised at the policy level on the grounds that many hospitals had demonstrated the scope for increasing their revenues significantly through a number of strategies, including: high volume low margin services (large outpatient departments); the selective development of more profitable services (high technology radiology); and the provision of high margin services to moderate and high income customers. During this time there was very significant growth in incomes at the upper end of the spectrum and the emergence of significant numbers of people in the cities with increasing discretionary expenditure. Increasing incomes and the expansion of the urban middle class provided the hospitals with new revenue opportunities including the provision of facilities with high levels of amenity (in VIP wards) and the provision of excessive and inappropriate services (including diagnostic tests), and the over-prescribing of medicines. The increasing pressure of competition during this period has resulted in an unbalanced distribution of health care resources and has weakened the provision of PHC as local PHC providers have been forced to compete with the large tertiary hospitals in the primary care market (Liu, X. C. and Zhou, 1998). It has been estimated that at least 65% of outpatient services provided by the tertiary hospitals can be provided by primary health institutions, and 77% of inpatients with chronic conditions in the tertiary hospitals can be taken care of in community-based facilities or at homes (Chinese Labourer Insurance Newspaper, 1999). Meanwhile, the rapid escalation of medical service prices and increasing of out-of-pocket payment create very significant barriers to lower income people's access to health care.

In early 1990s, some urban communities initiated PHC projects. For example, Tianjing began to implement a CHC system in 1993 (Dong, Y., 2001b). Panzhihua in Sichuan province began to develop PHC stations in 1995. In addition, several pilot organisations delivering community based mental health care and community based rehabilitation achieved particular success (Ran et al., 1992; Luo, K. and Yu, 1994; Wang, Q., Gong and Niu, 1994; Wang, X., 1994; Zhang, M., Yan and Phillips, 1994; Zhang, M., Ji and Yan, 1997; Chi, B. and Huang, 1999; Zhuo, D. and Kun, 1999). These projects emphasised strongly the roles of lay workers and the utilisation of the existing health infrastructure and human resources. However, these mental health and rehabilitation projects were developed in parallel with, not an outcome of, the CHC system. During the same period, there were many discussions and trials directed towards the development of a new CHS system; one in which GPs would take a leading role (Liu, Y. and Hao, 1999; Dong, Y., 2001b; Xue and Chen, 2002).

The development of CHS was not a national policy until 1997 when the State Council issued “Resolution of health reform and development” (Central Committee of Communist Party and State Council, 1997). A set of new objectives and principles for health system development were articulated in this policy document, with a strong emphasis on PHC. Several policies relevant to CHS were promulgated, including “Developing community based health services in urban China” (MOH et al., 1999), “Developing basic medical insurance for employees in urban China”(State Council, 1998), “Developing the educational system for GPs”(MOH, 2000a), and “Enhancing the development of CHS in urban China” (MOH et al., 2002). The essential framework defined in those policies included:

- the reallocation of resources from hospital care into CHCs;
- new limits on the role of hospitals so as to restrict them to the diagnosis and treatment of acute, serious and difficult diseases (MOH et al., 1999; MOH et al., 2002);

- stipulation that CHCs are to provide comprehensive services, including six designated functions: prevention, care, disease treatment, rehabilitation, health education, and family planning¹³ (MOH et al., 1999);
- development of the GP role and transformation of some hospital specialists into GPs to provide the core staffing of CHCs and address community health issues through a long term relationship between GPs and communities (MOH et al., 1999; MOH, 2000a; MOH et al., 2002);
- encouragement for consumers to seek medical help in the CHCs, especially for the primary care (MOH et al., 1999; MOH et al., 2002); this provision included an indicative target of more than 50% of patients (all care contacts) visiting CHCs by 2005 (MOH, 2001c);

The CHS are supposed to provide a structural basis for implementing the new insurance policy of “wide coverage at the primary care level” (MOH et al., 1999). The MOH encourages competition in CHS in the expectation of improving efficiency of services and attracting non-government resources (MOH et al., 1999; MOH et al., 2002). The policy documents also indicate that support from the street administrative offices¹⁴ (SAOs) and strong consumer participation will be essential in developing CHS (MOH et al., 1999; MOH et al., 2002). Initially, only non-profit organisations were allowed to be involved in CHS. But this policy has been changed recently, with recognition of the role of for-profit organisations in providing CHS (MOH et al., 2002).

By the end of 2001, a total of 358 municipalities had developed CHS programs¹⁵, and there were 12,000 CHCs nationwide (Zhang, W. K., 2002; Ministry of Civil Affairs,

¹³ Prevention: preventing the occur of diseases (first tier prevention) and early detection and management of illness (secondary tier prevention); Care: MCH care and aged care; Disease treatment: diagnosis and treatment of acute diseases; Rehabilitation: improving functions and quality of life of disabled; Health Education: personal directives about health risk reductions and community education; Family Planning: medical technical services and advice about family planning issues.

¹⁴ China has five levels of governments: central, provincial, municipality, county (district), and township (street). In urban areas, SAOs are the first level governments, which also set outreach administrative offices in the communities (neighbourhood committees).

¹⁵ China had four municipalities at central level, 227 municipalities at prefectural level, and 437 cities at county levels by the end of 1998 (China Population Information Network, 2001).

2003). In Sichuan, 243 CHCs were established, covering an estimated 42% of urban populations (Wang, T. G. et al., 2002b).

Driving factors in the development of urban community health services

CHS are not new to China. Many hospitals have been engaged in community-based activities before the launch of the CHS initiatives (although not always including the core concepts of CHS such as comprehensiveness, continuity and coordination) (Wang, M. et al., 2000b). However, since the withdrawal of budget funding and the rise of user charges as the main revenue source for most health care institutions, hospitals began to depend more and more on the revenues produced by services including high volume low margin services such as primary care. The entire health care delivery system was moving away from the principles of PHC and towards one based heavily on secondary and tertiary care institutions. The re-birth of CHS may be attributed to the following factors.

Changing morbidity and mortality patterns and aging

Over the past 50 years, China has made great achievements in public health. The crude mortality rate decreased dramatically from around 2% in 1949 to 0.64% in 2000 (MOH, 2001a), resulting in unprecedented increase of population in this period. Despite the one-child policy launched in late 1970s (Hindle, 2000), the population continues to expand. Meanwhile, the rapid increase of life expectancy from 36 years in 1950 to 71 years in 1998 (MOH, 2001a), together with the effective control of the birth rate, has led to a rapid increase of the proportion of elderly people. Within only 20 years, China completed the transition from a “young adult” society to an “aged” one; a transition which in many western developed countries took between 40 and 150 years. The population over age 60 has reached 132 million and exceeds 10% of the total population¹⁶ (Chen, M. T., 2002). The care of the frail elderly and the management of chronic diseases associated with aging have become a big challenge. It is estimated that the population aged 60 and over will reach 15% of the total population by the year of

¹⁶ Over 60 years old is considered as aged in China (Zuo, H. C. 2001).

2015¹⁷. By 2026, one quarter of the elderly people in the world will live in China (Chen, M. T., 2002).

After decades of success in controlling communicable diseases, there has been a resurgence of some previously well-controlled communicable diseases in China including tuberculosis and sexually transmitted diseases. Meanwhile, new communicable diseases such as AIDS are emerging (UNAIDS, 2001). UNAIDS¹⁸ estimates that there were more than one million HIV-positive individuals in China by the end of 2000. If no effective interventions take place, the figure will reach 10 million by the year 2010 (UNAIDS, 2001). Those re-emerging and emerging diseases pose great threats to the health of Chinese people. The long term significance of severe acute respiratory syndrome (SARS) remains to be seen. However, at the time of writing it appears to be presenting a major challenge to the health care system, to public health and to the policy making structures.

While communicable diseases remain a continuing challenge, the burden of non-communicable diseases (NCDs) has been increasing continuously, leading to a situation where it now accounts for more deaths than any other causes. The deaths caused by cerebrovascular disease, heart disease, respiratory disease and cancer comprise more than 70% of total deaths (MOH, 2000b; Alberti, 2001; Chen, M. T., 2002). NCDs were estimated to account for about 60% of the burden of disease in China in the early 1990s (estimated in Disability Adjusted Life Years or DALYS) (Murray, C. L. and Lopez, 1996, p. 257; Rand's Labour & Population Program, 1999).

The prevention of the new communicable diseases and the rising tide of NCDs is more complex than simply relying on immunisation. Most of these diseases are associated with human behaviours (such as smoking, dietary choices and drug misuse) and changing environments (including air and water pollution and changing social environments). For example, China's cigarette production and consumption is the largest in the world. More than 63% of Chinese men are current smokers (Chinese Academy of Preventive Medicine, Ministry of Health and State Committee of Patriotic

¹⁷ In some developed regions of China such as Shanghai, elderly people (60 years and over) comprised nearly 20% of the total population (Yin, Z. Z., Zhang, Q. L., Ma, Y. P. et al., 1999).

¹⁸ UNAIDS refers to joint United Nations programmes on HIV/AIDS.

Health Movement, 1997, p. 22; Yang, G. et al., 1999a). Tobacco smoking accounted for 3.9% of the burden of disease in 1990 (AusAID, 2000, p. 6) and resulted in half a million premature deaths annually (Peto et al., 1996). Meanwhile, the dietary patterns of Chinese people have changed rapidly and malnutrition and obesity coexist due to the unbalanced economic development between different regions and between urban and rural communities (Lee, L. M. et al., 2003).

It is apparent that aged care, local level health promotion, rehabilitation, and management of chronic conditions do not fit easily into the existing fragmented health structures. These challenges call for collective and collaborative efforts from all stakeholders of the communities, taking into account differing social, cultural and economic circumstances (WHO, 1986).

Poverty and inequality in healthcare access

Poverty is the greatest threat to health (WHO, 1997). Poverty can be defined either as an absolute or a comparative concept¹⁹ (Wei, J.S., 2002). Absolute poverty in rural China has long been a priority in the government's poverty alleviation agenda. During the last decades, China has achieved great progress in reducing absolute poverty in the rural areas due to the success of rural economic reform. Rural residents living in absolute poverty has been decreased from 31% in 1978 to 6% in 1997 (Cook, 2001, p. 4; Wei, J.S., 2002).

However, the number of people living in poverty in urban areas has been increasing. In the planned economy (before 1978), almost every urban citizen could be assured of a job, which would be arranged by government. During this period residential movements from rural to urban areas were rigidly controlled through a residential permit system. Urban citizens could not only get a stable income through employment but also enjoy some social welfare including free medical services. The few urban people who had no income resources, no ability of working, and no family supports (the "Three Nos") would be supported by the Departments of Civil Affairs (DOCA). But since the 1980s,

¹⁹ There are three categories of poverty population: people who are not able to survive (absolute poverty); people whose basic needs can not be met (basic poverty); and people who live in a condition of relatively low income compared with the average of the whole community (comparative poverty).

especially since the 1990s, the economy, including employment have been regulated through market mechanisms in contrast to the earlier planned system. Under this regime, employment can no longer be guaranteed. In the mean time, many SOEs have encountered major difficulties in adapting to the market. These enterprises have been forced to improve efficiency and reduce costs, which have resulted in large numbers of people being “laid off” with the growing problem of urban unemployment. Unemployment has become the most common cause of poverty (Cook, 2001, pp. 5-6; Wei, J.S., 2002).

Estimates of the urban poverty rate range from 4% to 16% (Cook, 2001, p. 6; Wun, P. L. et al., 2001; Wei, J.S., 2002) although these figures do not include the large number of migrant workers coming from rural areas. The proportion of urban residents receiving welfare support through governments is very small (only 0.43% of people living in the urban areas and clearly a small proportion also of those living in poverty) (Wei, J.S., 2002). The fifth national census showed that more than 121 million people were currently on the move. About 74% of the total floating populations were moving from rural to urban areas (China Statistics Bureau, 2002)²⁰. Many of the floating population are living in very poor conditions and are exposed to higher health risks than the urban residents (Zhang, H. Q., 2001a) but are not entitled to the state benefits the urban residents enjoy (Wong, V. C. and Chiu, 1998; Dong, W. Z., 2001a). The delivery of public health services to the floating people is complicated by their limbo status in relation to the residential permit system (Jiang, X. P. et al., 1999; Zhang, B. Y. et al., 1999).

The escalation of medical expenditures and the reduction of insurance coverage has had a serious impact on the access of poor and disadvantaged people to health care (Chen, J. Y. et al., 2001b). People who can not afford medical care usually do not seek medical help. About 30% of destitute people are reported to become impoverished through costs incurred by serious illness (AusAID, 2000, p. 8).

²⁰ China is still maintaining a residential permit system, but people are quite free to move around. There are no restraints in purchasing consumable goods.

Great financial pressure on governments and insurance reform

Cost containment was one of the major concerns driving health reform in China. It was also the stated reason for the reduction in budgetary support and increased dependence on user charges (for both public health institutions (PHIs) and hospitals) (Liu, X. and Mills, 2002; Mu and Zhang, 2002). Despite the introduction of user charges, which clearly depressed the demands of low income consumers (with only half of help seeking episodes involving doctors) (MOH, 2000c), health expenditures were not as well controlled as had been hoped (Hsiao, 1995). During the 1990s, medical care costs escalated at around 11-12% per annum (Lee, L. M. et al., 2003). Average per capita health expenditure increased from 77 yuan in 1991 to 332 yuan in 1999 (MOH, 2000b). Resource development and patient care were concentrated in the large hospitals with intense competition in high margin services such as high-technology equipment and the sale of new drugs (Bloom, 1997, p. 14; Wong, V. C. and Chiu, 1998)²¹. These dynamics have made it much more difficult for governments to cut down or even just contain medical care expenditures (Chen, J. et al., 1998; Dong, H. J. et al., 1998; Qian and Lin, 1998; Zhao, H. Z., Li and Zhou, 2000). China is estimated to have about 4,500 computerised tomography (CT) scanners²² and 150 magnetic resonance image machines. By 1995, thirteen γ knives were allocated in China, comprising 23% of the international total (Chen, J. et al., 1998). Gross revenues from the sale of pharmaceuticals in hospitals corresponded to 50-70% of hospital revenues (Chen, J. et al., 1998; Liu, X. C. and Zhou, 1998; Wong, V. C. and Chiu, 1998). Part of the government's intention in introducing CHS was to reallocate resources away from these kinds of applications and to reshape patient flow (MOH et al., 1999).

Although the total health expenditures in China comprised only 5% of GDP in 1999 (MOH, 2000b), lower than many Western developed countries (Musgrove, Zeramardini and Carrin, 2002) and the government share of expenditure is also decreasing

²¹ As a consequence of decreased government share of health funding, health facilities have been allowed to compensate by producing and keeping profits from services such as selling drugs and offering high-technology investigations (Bloom, G. 1997).

²² More than 50% of hospitals at county level and above had a CT (Bloom, G., Lu, Y. and Chen, J. 2002).

continuously, the share of GIS payments (in premiums) as a proportion of total government expenditure has actually increased (Figure 2-1). Therefore, the control of GIS expenditure has also been a top priority in urban health reforms (Central Committee of Communist Party and State Council, 1997; State Council, 1998; Hindle, 2000). According to the government, China is trying to develop a universal health insurance scheme with wide coverage of basic services. CHS are supposed to provide part of the infrastructure to support this objective (MOH et al., 1999).

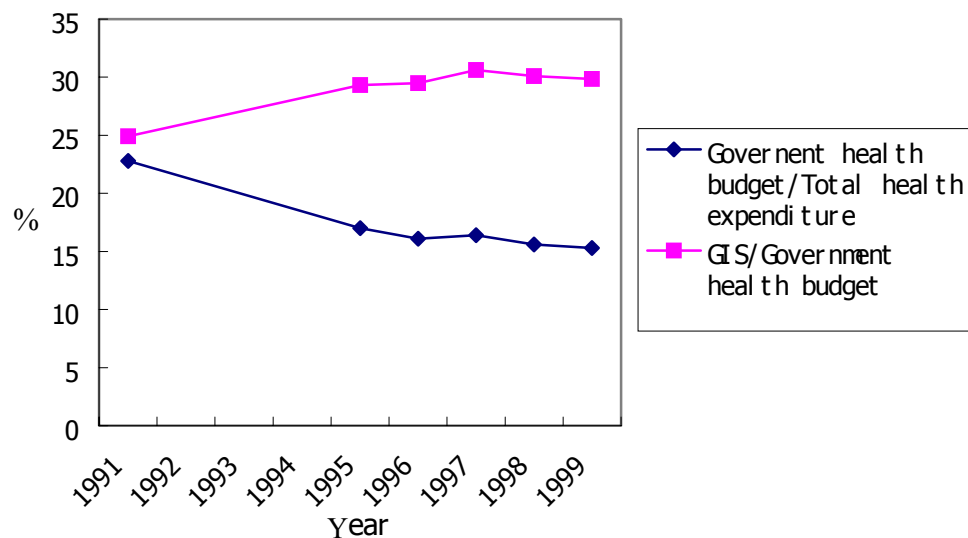


Figure 2-1. Government health budget in the 1990s²³ (MOH, 2001a)

Difficulties of primary health care institutions

The development of health care organisations over the past two decades in China has been uneven, with more rapid and steady development of hospitals at the county (district) level and above. Although the number of township/street health centres²⁴ increased abruptly in the 1960s and 1970s, the increasing trend suddenly levelled off and even dropped during the 1980s (Figure 2-2). In urban areas, some street health centres were upgraded and became district hospitals or amalgamated into hospital

²³ Government health expenditure comprised 28% and 37% of total health expenditure in 1978 and 1980 respectively (Bloom, G. 1997; Hindle, D. 2000).

²⁴ In English, township (or street) health centres are frequently translated as township (or street) hospitals or primary hospitals.

groups²⁵. By 2001, only 553 street health centres remained (MOH, 2001a). Meanwhile, the number of public clinics was also declining. The number of public outpatient clinics had grown to 102,262 in 1957 and reached a peak of 170,430 in 1965. But in 1995 and 2000, only 104,406 and 107,725 public clinics remained (MOH, 2000b). On the other hand, the number of private clinics increased rapidly during this period. According to the Chinese Health Statistical Digest 2000 (MOH, 2000b), there were 133,209 private clinics, comprising more than half (55%) of the total number of clinics. Notwithstanding the development of private clinics, China's medical system has become a hospital dominated one, with 59% of medical workers (54% of all health workers including PHWs) working in hospitals of county levels and above (MOH, 2000b).

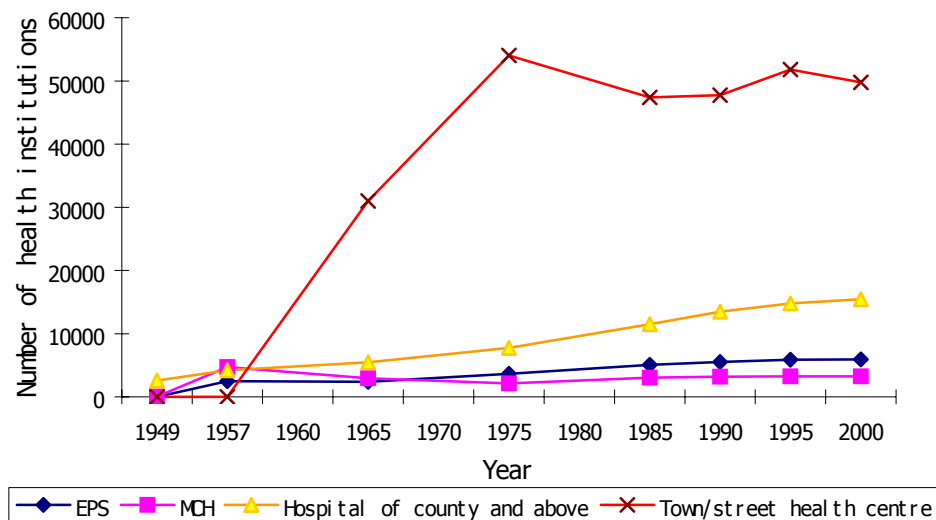


Figure 2-2. Increase in numbers of hospitals and public health institutions (MOH, 2000b)

With the rapid development of secondary and tertiary hospitals, patients are increasingly attending the secondary and tertiary hospitals to receive primary care, leaving many primary care resources underutilised (Bloom, 1997, p. 16; Wu, R. R., 1999a; Zhang, J. Q., 1999b; Zhu, H. M., 1999). For example, the number of outpatient visits in hospitals of county and above reached 1.24 billion in 2000, comprising 58% of the total outpatient visits in that year (MOH, 2000b). Seventy percent of medical services (measured in terms of contacts) are provided in urban large hospitals (Zhao, H.

²⁵ Based on my personal observation in Chengdu.

Z. et al., 2000). The intensive competition between the health organisations at different levels has become one of the major concerns of managers of primary level hospitals (Luo, L. et al., 1999a; Cui, G., 2000). A survey in 56 urban primary hospitals in Shanghai found that only 18% of the medical service programs of those hospitals were financially sustainable (Luo, L. et al., 1999a). More than half of the primary hospitals were also facing difficulties (or even collapse) in providing services such as prevention and control of communicable diseases, MCH care and family planning (Jiang, X. P. et al., 1999; Zhang, B. Y. et al., 1999). These are mandated services for the primary hospitals but the funding flows through the PHIs. However, in many cases, only a very small proportion of public health budgets and revenues generated from the payable services (eg. physical examination) went to the primary hospitals (Hao et al., 1999; Jiang, X. P. et al., 1999; Zhang, B. Y. et al., 1999).

Another aspect of the declining role of primary care organisations is the decline in the use of medical facilities sponsored by economic enterprises. Medical facilities sponsored by economic enterprises comprise about half of the medical resources (44% and 72% for hospitals and public outpatient clinics respectively) (MOH, 2000b). Those medical facilities were responsible for the primary care of employees despite the fact that some were categorised as secondary or tertiary hospitals. Before the new insurance scheme was introduced, some of them also played a primary care gatekeeping role. However, these medical organisations have not been exempt from the influences of the wide health policy environment. They have also faced the need to generate revenue from user charges to cover costs since the economic reforms because of the pressure that enterprises (SOEs in particular) have been under to reduce their role as welfare providers. As a consequence, most of these medical organisations have extended their services to the non-employees living around their communities, with the hope of attracting more patients. Despite these efforts, the volume of services delivered by these medical facilities are still declining. Compared to 1990, the outpatient visits to enterprise-owned medical facilities dropped by 28% (Chen, H. Y., 2000b). Enterprise-owned health facilities are facing great challenges to survive in the new health market. A sample survey in Sichuan showed that 75% of enterprise-owned health facilities were running at a deficit (Liu, D. P. et al., 2002b).

Restructuring of the preventive service structure

The pre-reform hierarchy of PHIs in China included four levels. At the top level, there was a national institution – the Academy of Preventive Medicine – which was responsible for research and technical support to the PHIs at lower administrative levels. The public health services were delivered mainly by three levels of local PHIs corresponding to each level of governments: provincial, municipal, and district (or county).

Although there are a large number of PHIs (for example in 2000 there were 5,904 EPS with a total of 283,868 staff), the delivery of many preventive services still depends on medical institutions, especially for those services delivered to individuals such as immunisation. Accordingly, many hospitals set up departments of preventive care to implement preventive services delegated from the PHIs of various types.

From the early 1980s the PHIs were no longer being seen as pure welfare entities in accordance with the ideological transformation of the Chinese government (Liu, X. and Mills, 2002). The government moved from full budget funding to fixed grant budget funding. The share of the total health budget allocated to public health services decreased from 12.4% in 1980 to 10.6% in 1995 (Liu, X. and Mills, 2002). However, this does not mean that individual hospitals got more government funding. Actually, both hospitals and PHIs complain about the declining level of government funding²⁶ (Liu, X. C. and Zhou, 1998; Liu, X. and Mills, 2002; Meng, Q. Y. et al., 2002, p. 4). The reason was obvious; the numbers of both PHIs and hospitals are increasing (with the hospitals and other medical institutions developing much more rapidly than PHIs), resulting in a reduction in government budget funding for all individual institutions. The gap between government budgets and actual operational expenditures has had to be filled by the institutions themselves. A study showed that the county EPS and MCH stations had to raise more than half of their budgets themselves (Shu and Yao, 1997). This situation encouraged the PHIs to focus on the delivery of services that could generate more revenue. Meanwhile, user charges had been introduced for public health

²⁶ The share of government budget allocated to hospitals dropped from 21% in 1980 to 8.7% in 2000 (Meng, Q. Y., Zheng, Z. Y., Bian, Y. et al., 2002).

services (Bloom, 1997, p.11) and staff income (through the bonus system) was increasingly determined by the revenue generated and therefore by the services performed (Liu, X. and Mills, 2002).

These policies thus increased the financial autonomy of PHIs; improved the productivity of PHIs with an expansion of services; and successfully reduced the government financial burden (Liu, X. and Mills, 2002). However, Liu (2002) has argued that the requirement to mobilise additional resources through user charges has distorted the provision of public health inspections. User charges have also reduced the demand by consumers for preventive services. This has caused serious consequences, such as increasing incidence rates of vaccine-preventable diseases; delay and failure of diagnosis and treatment of communicable diseases; and increase in infant mortality (Liu, X. and Mills, 2002).

Recently, the Chinese government has made further attempts to reform the public health system. The roles of public health inspection and service delivery have been completely separated by setting up two independent organisations. Public health inspection becomes a role of local governments while the EPS have been restructured as Centres of Disease Control and Prevention (CDCs) as part of adapting to the changing social and demographic environments and disease patterns and enhancing the capacity of PHIs to deal with emerging health problems (Chen, M. T., 2002). The functions of the new CDCs are defined as: carrying out epidemiological surveillance; providing public health information; developing policy and strategic plans for disease control and prevention; assisting and guiding local activities in dealing with serious infectious diseases and public health emergencies; conducting applied scientific research to support actions targeting various diseases; organising health promotion programs; and supporting the development of CHS (China CDC, 2002; Lee, L. M. et al., 2003). These documented functions pay particular attention to the emerging infectious diseases, NCDs, and injuries and accidents.

The principle underpinning the reform of PHIs is similar to that of the development of CHS, that is, “mobilising existing resources instead of introducing new resources” (MOH et al., 1999; Chen, M. T., 2002). Developing public health partnerships among various health organisations is thought to be critical in implementing public health strategies (Chen, M. T., 2002). Obviously, the Chinese government has been aware of the disadvantages of the separation of medical and public health services and is

attempting to integrate those two (Office of System Reform of State Council et al., 2000). The development of CHS was described as an important step in reforming the public health system as well as the hospital system. The CHCs were seen as not only primary care providers in the medical service network but also part of the public health system delivering prevention, care, health education and counselling (Office of System Reform of State Council et al., 2000). The CHCs were to be more prevention oriented than their former organisations (usually primary and secondary hospitals). Nevertheless, as Lee and colleagues (2003) have argued, the CDCs need to work out their roles in relation to CHS, which depend, in part, on adequate financing and appropriate accountability links. There is a need for a budgetary framework that supports a coordinated approach to public health activities.

Ownership and managerial models for urban community health programs

Outreach centres of hospitals

The setting up of CHCs (or stations) has been tightly controlled by local health authorities and has been required to be aligned with the re-invigorated regional health planning arrangements (MOH, 1998; Liu, S.N. et al., 1999b). According to the government's policy guidelines, appropriate numbers of CHCs should be allocated to geographic catchments, defined in terms of the jurisdictions of SAOs, with the objective of ensuring close geographic access to health care (MOH, 1998; 2001c). One CHC is supposed to cover a population of 30,000 – 50,000 (MOH, 2000d).

As part of the CHS policy most primary and some secondary and tertiary hospitals have been encouraged to establish outreach centres in the communities (Beijing Xi Cheng Qu, 1999; Changchun Health Bureau, 1999; Chongqing Health Bureau, 1999; Yang, H. et al., 1999b; Chen, S. X. et al., 2002a). Some additional investment in real estate would be required for such centres, which has formed an obstacle to the widespread adoption of this model (Zhong, Y.X. and Liu, 1999).

Community service team within hospitals

Some hospitals have chosen not to set up outreach CHCs. Instead, they have reorganised the structures of their hospitals to adapt to the change of functions. A

common strategy is to establish a department within the hospital with several full time staff with responsibility for coordinating CHS. Many of these departments are based on pre-existing home service programs or preventive care programs (Wu, X.Y., 1999b; Xin et al., 1999). One survey in Shandong showed that 15.8% and 7.9% of CHCs were originated from home service programs and preventive care programs respectively (Li, S. X., Dong and Wang, 1999a).

Although some hospitals are reported to have transformed as a whole into CHCs (in most cases previously designated as primary hospitals), they still maintain all of their existing services and programs, including inpatient services (Luo, L. et al., 1999a). Many of these hospitals are actually widening their range of community activities, some even including public health inspections (Xin et al., 1999).

Health care contract model

The CHCs and hospitals are encouraged to invite local consumers to enter into health care agreements (HCA) with the organisation involving assurance of free or discounted care in return for an annual per capita payment (members' fees). These agreements or contracts are either individual based or family based (Zhang, X.P., 1999c; Wang, W. J. et al., 2002c). Membership can be limited to or extend beyond the jurisdiction of SAOs. The benefits available to members usually include free health care services which do not consume materials such as consultations, health education, home visiting, and regular physical examinations, and discounted fees for other services (Wang, W. J. et al., 2002c). By 1999, about 60% of municipalities had developed the family or individual based HCA programs (Yang, H. et al., 1999b).

Community participation model

Some CHS programs are sponsored directly by the SAOs (a multi-purpose political facility representing the community at large) rather than through the formal health care system. Typically in such cases the SAOs organise retired medical practitioners and community volunteers or offer short-term vocational training for some community residents to deliver primary care for their residents (Wu, X.Y., 1999b; Dong, Y., 2001b). Elderly people are usually both the main providers and clients in this model. The community participation model is different from the above three models, which are owned and sponsored by the health care system, although the SAOs are also required to

play a role in coordinating the CHS (MOH et al., 1999; Yang, T., 1999a; MOH et al., 2002).

Community health service resources

Community health service organisations

The primary and secondary tier health organisations are assumed to be the main CHS providers (Changchun Health Bureau, 1999; Liu, S.N. et al., 1999b). But actually, many secondary and tertiary hospitals provide both primary care and non-primary specialised services.

After two decades of social and economic reform, the urban three-tier network has been seriously damaged. The primary tier health organisations are not well preserved, except for some municipalities such as Beijing, Shanghai, and Tianjing (Cao, B., 1999; Zhuo, K. X. et al., 2000; Dong, Y., 2001b; Lang and Li, 2002). In 1999, there were 1265 primary hospitals and 50,300 primary health centres²⁷ (urban 563; rural 49,700). By contrast, the secondary and tertiary hospitals had reached 15,413 (Health Information Centre, 2000).

Although there were 226,541 clinics all over China, only 12% of these clinics provided CHS. According to a national survey in 1999, 40% of primary hospitals delivered CHS. Meanwhile, 51% of secondary hospitals and 25% of tertiary hospitals had developed CHS programs (Yang, H. et al., 1999b). It does not appear that the policy objective of the primary hospitals taking principal responsibility for CHS is being realised.

Financial resources of community health services

The costs of CHS are supposed to be shared by governments, collectives and individuals (MOH, 1998; 1999a). By 1999, about 50% of provincial or municipal governments were providing financial support to CHS (Yang, H. et al., 1999b). The financing levels and approaches from the governments varied considerably, depending

²⁷ In Chinese, the primary health centres are called Wei Sheng Yuan.

generally on their “financial capacities”. The funding could be calculated according to the community populations (5.6%), the number of CHCs (16.7%), or the number of staff in CHS (11.1%) (Yang, H. et al., 1999b). The MOH (1998) has suggested that government funding be used to deliver public health services, to train health professionals, to develop information systems, to pay pensions for retired employees, to purchase necessary equipment, and to pay for medical insurance for employees.

Workforce development for community health services

The health workforce development in China has experienced three stages. The first stage occurred from 1950s to 1970s with a shortage of health manpower as the main issue. During this period, primary care workers and community practitioners (‘barefoot doctors’) played a core role in the three-tier health system. The development of medical specialties was impeded due to the Cultural Revolution (Gong et al., 1997; Pang et al., 2002). The second stage went from late 1970s to 1990s: with the end of the Cultural Revolution, the economic reform, and the opening up to the outside world, medical education in China grew unprecedentedly. The main focus of this period was to develop various medical specialties and subspecialties and to provide high quality hospital specialists. Hospitals dominated health service delivery. The third stage began from late 1990s, when the Chinese government decided to reorient the health service system, changing from being hospital-based to being community-based (Central Committee of Communist Party and State Council, 1997). At this stage, the medical workforce is believed to be oversupplied with an average of 2.5 doctors per 1000 urban residents, not low compared to many other developing countries (Gong, Wilkes and Bloom, 1997; Lu, Z. X. and Jin, 2001, p. 179). During this period the maldistribution of specialties and the quality of the health workforce became the major concerns (Gong et al., 1997) and GPs emerged as a new health professional stream. According to the 2001-2015 plan for workforce development, adjusting the specialty structure and enhancing degree education and postgraduate training were identified as key strategies for improving the quality of the health workforce (MOH, 2002d). Medical subspecialties have been reduced (Pang et al., 2002).

General practitioners: a new health professional stream

GPs play a leading role in CHS (MOH et al., 1999; Wu, X.Y., 1999b; Li, H. J., 2000; Wang, J. Y. et al., 2000a; Ye, X. P. and Zhao, 2000). A national survey showed that 29.5% of CHS workers were physicians, while nurses and PHWs comprised 22.8% and 16.6% of the total CHS workforce respectively (Yang, H. et al., 1999b). In recent years, China has begun a process of converting many of the existing primary care staff into GPs (Wun, Y. et al., 2000). The converting process includes restructuring the primary care system and re-training for the primary care physicians.

Health sciences educational system in China

Medical education

China has developed a multi-level medical educational system, characterised by different education providers producing physicians at different levels.

Higher medical education

The higher medical education produces two levels of physicians through degree programs (≥ 5 years) and diploma programs (3 years) offered by medical universities or colleges (Gong et al., 1997; Pang et al., 2002). The students graduating from the two programs are designated as doctors and assistant doctors respectively²⁸. There were 177 medical universities and colleges in 2000, providing medical education for 714,000 students each year (MOH, 2001b).

Secondary medical education

The secondary medical education is a certificate training program offered by secondary medical schools, which can be managed by the local governments, hospitals, or medical universities or colleges. It is usually a two-year program²⁹ (Gong et al., 1997).

²⁸ Doctors are called Yi Shi \bar{i} (医师); Assistant doctors are called Zhu Li Yi Shi \bar{i} (助理医师).

²⁹ Some schools offer three-year programs for enrollees graduating from junior high schools (Year 9).

The students graduating from those programs are titled doctor's assistants³⁰. There were 489 secondary medical schools in 2000 (MOH, 2001b).

Primary medical education

The primary medical education involves a less than two-year vocational training program offered by the secondary medical school, adult educational school and local health organisations. It is designed for medical technicians and PHC workers, which enrol both part time and full time students.

In 1999, the higher medical educational programs recruited 38% of the total medical students, while the secondary medical schools shared 62%. It is anticipated that the share of secondary medical education will be cut down to 40% by the year of 2005 and further down to 28% by 2015 (MOH, 2001b).

In recent years, residency training for doctors has attracted much attention. In 1993, the MOH promulgated a "provisional standardised requirement for residency training"³¹ (MOH, 1993a). GPs were included in the residency training programs in 1999 (MOH, 1999c). In 2002, a workshop was held in Beijing to discuss the strategies and planning for further research about the minimal requirements for 20 clinical specialties (MOH, 2002a; b).

Nursing education

Unlike the multi-level medical education system, nursing education has been mainly offered in the secondary medical schools as a two-year certificate program. The baccalaureate nursing program was introduced after 1983 and occupied a small proportion in nurse training. Until 1997, there were fewer than 20 universities providing baccalaureate nursing programs and involving much lower intake of students than medicine (Edwards et al., 1999). In recent years, baccalaureate nursing education has developed rapidly. By 2001, there were 67 baccalaureate nursing programs across China.

³⁰ Doctor's assistants are called Yi Sh ĭ (医士). They are not qualified doctors.

³¹ The requirement includes subjects, training settings and durations. There were no such training requirements previously. Doctors could commence practice immediately after graduation from the universities.

In 1999, three-year college programs for senior high school entrants commenced by upgrading secondary nursing school programs (Pang et al., 2002).

Allied health education

Allied health practice is still a new concept in China. There have been no systematic training programs available for physical therapy, occupational therapy, speech pathology, podiatry, optometry, dietician and social work as in Australia and other western countries (Duckett, 2000, pp. 52-6). Recently a few medical universities have begun trials in developing allied health training. One example is the allied health program in Sichuan University supported by the China Medical Board of New York Corporation, producing no more than 50 allied health workers each year.

Training for general practitioners

The development of general practice medicine in China began in the late 1980s. In 1989, the first training centre for GPs was set up in the Capital Medical University (CMU, 2001). At the same year, Beijing hosted the first international workshop on general practice. Professional associations for GPs were established in Beijing and Guangzhou. In 1993, a national professional association for GPs was developed (Feng, W. D. et al., 2000). In 1995, there were about 30 educational organisations providing diploma and certificate training programs for GPs (Li, W., Yin and Xie, 1999b). By 2000, about ten medical universities and colleges had developed degree programs for GPs (Feng, W. D. et al., 2000). By 2002, a national training centre and 16 provincial training centres for GPs had been established (MOH, 2002c).

The most urgent need is to provide in-service training, targeting the current shortfalls of the CHS workforces. There are active debates ongoing about the most appropriate arrangements of such training (Li, W. et al., 1999b; Beijing Health Bureau, 2000; Xian, 2000). Some trainers advocate a community approach. They believe that although the GP candidates need to upgrade their clinical knowledge and skills and that this is a continuing and long-term process. The initial stage of training should focus on the change of thinking and patterns of working of GPs and include a strong emphasis on a population and social approach to health (Shi, Y.X. and Pang, 1999; Xian, 2000). The opponents argued that primary care of individuals should be the most important component of CHS. Accordingly, the training programs should give priority to clinical

knowledge and skills (Beijing Health Bureau, 2000; Bao and Gong, 2001). They believe that this is the only way of attracting patients and ensuring the sustainable development of the CHS programs.

Conclusions

China is trying to develop a new urban CHS system characterised in particular by the emergence of GPs and the establishment of CHCs. The CHS initiative is expected to lead to a fundamental change to the existing hospital dominated health delivery system through reorganising the functions and roles of different levels of hospitals. The primary and secondary levels of hospitals are being urged to change functions, shifting from traditional hospital services to CHS, while large (or tertiary) hospitals are expected to concentrate on providing specialist care and services for referred patients. In-service training has been adopted as a main strategy for the CHS workforce development, aiming at transforming part of the hospital physicians into GPs.

Different models for managing and delivering CHS have been adopted throughout China. While a large number of community health centres have been established, the CHS workforce has not been well prepared. Although GPs are supposed to be a key player in CHS, their roles and functions in relation to a population based CHS approach have not been clearly defined.

This research seeks to examine how well the current CHS arrangements meet the original intention of the CHS initiative and to identify the best ways of using GPs in CHCs. It is also directed at elucidating the training needs for CHS and the appropriate strategies for CHS workforce development.

Chapter Three

OBJECTIVES AND METHODS

This chapter describes the objectives and research questions driving my study and explains the approach and procedures used in the study in addressing the research questions.

Both qualitative and quantitative methodologies were employed. The reasons for selecting the various methods are provided in this chapter. Details about the development of the research strategies and the implementation of the fieldwork as well as the data analysis are also described. The data collection instruments including theme lists for the interviews and the questionnaire can be found among the attachments at the end of this thesis.

Objectives

I introduced the emergence of my interest in training curricula for CHS in Chapter One. This interest is closely associated with my role as a trainer of CHS staff. During the period when I worked as a teacher of CHS staff in China, I had many discussions about this issue with my Chinese colleagues. Despite a thorough literature search and review, I have found that published research casts little light on the training needs of CHS practitioners and how a training program might be effective within the specific environments that these practitioners work. Although there is a general agreement in China that the training of CHS practitioners is extremely urgent and the demand for such training is huge, no training program has been designed which is properly tailored to the specific needs of these practitioners. The national curriculum for the training of GPs remains unimplemented despite, or perhaps because of, its comprehensiveness and (unrealistically) high standards. A few researchers have commented on the difficulties of implementing the national curriculum requirements and published the results of questionnaire surveys of the perceived training needs of CHS practitioners in the hope that a realistic training program could be developed. Most of these researchers have revealed contradictions between the perceived needs of practitioners and academic and government expectations but have failed to explain the reasons for this phenomenon (Li,

M. C. et al., 1997b; Wu, X.Y. et al., 2000a). In some cases researchers have argued that the training programs should continue to follow the academic and government standards disregarding the disagreement from the trainees (Beijing Health Bureau, 2000; Xian, 2000). It seems apparent that a clearer understanding of the contradictions between practitioners' experience and academic / government expectations should contribute to more realistic policy goals and more useful training programs.

In the research described in this thesis I have sought to:

- identify the performance problems in CHS;
- understand the determinants that shape the performance of CHS;
- explore the mechanisms of these determinants in influencing the attitudes, beliefs, and behaviours of both individual practitioners and organisations regarding CHS;
- and finally, identify the priority training needs for CHS practitioners.

My intention was to explore the gaps between the performance of health providers and the expectations of the academics, the community residents, and the policy makers and, based on an understanding of how the performance of health providers is shaped, to develop appropriate training plans to target these issues, so that our training could be more tailored towards needs and more cost effective.

Methodology

Training needs assessment

The general aim of my research was to identify the CHS related training needs. The concept of needs implies a judgement that there is a discrepancy between what is currently occurring and what is expected to happen (Moore, 1999; Desimone, Werner and Harris, 2002, p. 129). The identification of performance problems (or gaps) has been described by many researchers as a core element in training needs assessment (Chiu et al., 1999; Moore, 1999; Holton, Bates and Naquin, 2000) although clearly not all performance problems can be addressed through improved training. Some researchers have also argued that focusing only on deficiencies in performance is too

restrictive and reactive. Needs could also reflect employee preferences; or anticipate future problems and challenges (Delahaye, 2000, pp. 113-4; Brown, 2002; Desimone et al., 2002, p. 129). Although a comprehensive training needs assessment may consider various types of needs, it is important to be aware that training is not the “cure all” for organisational problems (Kaufman, 1997; Brown, 2002).

Training needs analysis can be conducted at three levels: organisational, operational and individual (Al-Khayyat, 1998; Smith, A., 1998, pp. 115-7; Moore, 1999; Holton et al., 2000; Brown, 2002; Desimone et al., 2002, p. 131). Organisational analysis identifies organisational goals, organisational resources, organisational climate and environmental constraints (Goldstein, 1993, p. 36). It can be used to determine where training is needed and under what conditions training can produce best outcomes (Brown, 2002; Desimone et al., 2002, p. 132-3). Operational analysis focuses on how tasks should be performed and what knowledge and skills employees need to meet appropriate standards of performance (Desimone et al., 2002, p. 137). Individual analysis targets individual employees, with a focus on how to improve the performance of individual employees in their jobs (Brown, 2002).

In recent years, macro-level (organisational) analysis has been increasingly incorporated into training needs assessment (Chiu et al., 1999). Desimone (2002, p. 130) has argued that training should be proactive and future oriented. Appropriate training can be and should be arranged with a view to facilitating future changes (Andersen, G., 1994; Winter, 1995). There has been a consensus among researchers that an effective training program could not be designed until the strategic direction and elements of the targeted practice of training have been clearly defined (Hicks and Hennessy, 1998; Potter et al., 2000). In my present research, this means that I have to bear in mind a clear idea for the future development of CHS and the roles and competencies required for different practitioners in CHS before I can work out appropriate approaches for training.

Given the above consideration, I began my research with a view to proposing a CHS model that would be suitable to the specific Chinese environment. I see CHS as a system reform that is transforming the hospital-dominated health delivery system into a community-based PHC-led one. I hypothesised that performance problems existed in CHS; that there were discrepancies between current performance and the expectations of academics, governments and community residents. I hypothesised that these problems

were shaped by policy, structure, culture, and educational environments and that appropriate training programs, in association with interventions directed towards other determinants of performance, could contribute to the resolution of these problems. Although training by itself will not remedy all of the shortfalls in CHS practice, more appropriate training programs could contribute to wider system change or at least make such changes easier to put in place. The quality of CHS could be improved through “organisational learning” (Durch, Bailey and Stoto, 1997, p. 16). Obviously, my analysis focused mainly on the organisational and operational levels.

Kubr (1991, pp. 59-74) has described three strategies for assessing training needs: problem analysis, comparison, and expert opinion.

For a newly emerging field such as CHS in China, many issues remain unknown and unpredictable. This situation precludes identifying the most appropriate training through comparison between different programs, because all of the CHS programs in China are still in their initial developing stages.

Many of the educational experts are also just beginning to understand the field and there are many debates and arguments among the experts with regard to the most appropriate curricula for CHS practitioners. Most of the current training programs introduced over recent years are simply imitations of those operating in other countries including the USA, UK, Canada and Australia³². The national government has announced a series of policies regarding the training of GPs, which assume a very high standard of professional preparation (MOH, 1999c; 2000a).

It seems more sensible to make the training program suitable to the specific conditions of the practitioners rather than to push them to reach an ideal goal without consideration of their realities. We need to understand whom we are trying to train, what their problems are and where they come from, and what standards we could reasonably expect of them before we can finalise a practical curriculum. Training programs will not be successful if we ignore the specificities of our training targets. Other countries’

³² Based on an analysis of literature and a personal collection of training curricula from three universities.

experience could only be useful if they are properly adapted to the new environment, appropriately contextualised in relation to the local culture, policies and structures (Holton et al., 2000; Brown, 2002).

I decided that the best way to assess the training needs of CHS in China was to make a clear and comprehensive description of the current situation with respect to CHS first, then to compare the situation so described with policy requirements, expert opinions, employee preferences for training and other countries' experiences, and finally draw conclusions based on the above analysis. This is not to say that the policy requirements and expert opinions are to be regarded as absolute standards (Andersen, G., 1994). Shortfalls might also exist in policies and expert opinions because of the lack of experience in the development of CHS in a new environment. In this sense, the identification of the performance problems and the understanding of the determinants of these problems is extremely important. It also provides a firmer basis for learning from other countries.

In summary, I planned to identify CHS performance problems at individual, organisation, and system levels (see later for further discussion); to investigate employee (managers and health practitioners) preferences for training; and to analyse policy, administrative, cultural, and educational environments that underpinned the performance problems. The CHS performance and appropriateness of the arrangement of services are examined according to whether and to what degree consumer's health needs were properly addressed. Training should serve for maintaining effective performance of the CHS programs that could maximise the health outcomes of community residents (Andersen, G., 1994).

Community health service performance assessment

A key research objective was to assess CHS performance. My intention was to identify performance problems and to examine whether the CHS programs were oriented to meeting the residents' health needs. This involved first, a comparison of the current situation of CHS and the practices of the GPs with the guidelines issued by the China MOH and with the norms and experiences of other countries, especially the experiences of Australia; and second, a comparison between what the community

residents needed and wanted and what the community health practitioners thought they should provide and what they were providing.

I adopted the WHO definition of performance as “the execution of activities and the attainment of results through them” (WHO District Health System Division of Strengthening of Health Services, 1994, p. 4). Performance assessment involves various principles, dimensions and indicators. A careful choice of the available elements in identifying the CHS performance problems was very important.

Quality was the core component of the performance assessment in my research, but I also paid attention to the balance of costs and benefits. Health service resources are limited and the quality issue had to be discussed with consideration of the constraints on available resources, especially for the community-based PHC.

Although the term “quality” is widely used in the literature, the definition of quality remains elusive (Kazandjian and Sternberg, 1995, p. 4). In the Merriam-Webster dictionary, quality is interpreted as “degree of excellence”. The “degree of excellence” of health care can be measured either by the indicators of outcomes of health care, such as mortality, function, satisfaction and cost, or by the indicators of the process of health services which have a known relationship with the outcomes of health care, such as appropriateness, accessibility, effectiveness and safety of services. However, most outcome indicators are not merely the results of health care; other factors, such as food, housing, economy and education also play profound roles in contributing to these outcomes. Therefore, in identifying professional training needs of health care providers, the outcome indicators are of limited use. In contrast, performance indicators which focus more on the activities of health care providers can directly probe activity problems related to the outcomes for consumers, which in turn, give hints regarding the needs for professional training.

The following criteria were used to determine appropriate elements and indicators in assessing CHS performance:

1. The indicators should be attributable to PHC (McColl et al., 1998);
2. The indicators should include a variety of dimensions of PHC (McColl et al., 1998), including biological, psychological, and social aspects and different

kinds of services: prevention, care, rehabilitation, disease treatment, family planning and health education (MOH et al., 1999; MOH, 2000a);

3. The indicators should reflect important clinical areas (Cox and White, 1982, p. 25; McColl et al., 1998) and be related to people's health needs;
4. The indicators should be sensitive to changes in determinants of quality (McColl et al., 1998) and should predict the future performance of the same task or function (Cox and White, 1982, p. 25);
5. The indicators (both quantitative and qualitative) should be reliable and valid (Cox and White, 1982, p. 25; McColl et al., 1998).

The WHO suggests that the assessment of performance can be considered at three levels: individual, health organisation (hospital or CHC), and community (WHO District Health System Division of Strengthening of Health Services, 1994, p. 4). Community-level performance is based on the performance of all of the hospitals and other organisations serving a particular community. Organisational-level performance (the performance of an individual organisation) is based on the performance of all of the professionals working in that organisation. Because my study focused on the training needs of CHS, and community-level performance is the aggregate result for the whole system, which does not necessarily reflect the performance of the PHC sectors, the research was directed mainly at assessing the performance of the CHCs (organisations) and GPs rather than community-level performance at large. However, according to the WHO framework, data about community health needs and the degree of satisfaction of community residents towards the health services in meeting these needs would be categorised primarily as community-level indicators. The analysis of the performance problems of GPs and CHCs was also undertaken within the context of the whole system constraints.

Primary health care related organisational performance

Various methods can be used to assess the PHC related organisational performance, such as record review or audit, interviews with health care providers, interviews and focus groups with patients, direct observation of the delivery of services, and retrospective review of adverse outcomes (Hermida, Nicholas and Blumenfeld, 1999). Unfortunately, the medical records in China for ambulatory services are usually

incomplete or even non-existent, which makes record review unavailable. Hermida (1999) compared the validity of three methods for assessment of the quality of PHC: checklist-based observation, interview with clients, and review of clinical record and found that direct observation showed the best overall balance of sensitivity and specificity. Client interview demonstrated good sensitivity and better specificity than record review. These findings pointed towards an appropriate strategy for assessing PHC related organisational performance in a situation where systematic direct observation of performance was not feasible (as in my research) due to lack of resources. Therefore, I decided to assess PHC related organisational performance by interviewing GPs and health administrators, complemented by the review of policy and administrative documents and the results of the community resident survey.

I reviewed the dimensions of PHC performance examined by various evaluation programs, both domestically and internationally, with particular attention to the WHO hospital performance review (WHO District Health System Division of Strengthening of Health Services, 1994), the Australian PHC accreditation program (Renhard and Dickens, 2000), the US performance monitoring program for improving health in the community (Durch et al., 1997, pp. 126-65), and the British NHS performance indicators (NHS Executive, 2000). The dimensions of PHC-related organisational performance usually cover: equity; appropriateness; accessibility; acceptability; efficiency; effectiveness; and continuity (Husein et al., 1993; WHO District Health System Division of Strengthening of Health Services, 1994, p. 5; Cleak et al., 2000;).

However, some of these dimensions go well beyond the organisational level, such as equity and appropriateness. We cannot usefully discuss the equity and appropriateness of the services provided by one particular organisation except in relation to the roles played by other similar and complementary organisations within the health industry and the wider system factors. It is the whole system that determines the equity of health care. Likewise, the appropriateness of services provided by the PHC sector can only be considered within the context of the whole health care system. The Chinese MOH defined six kinds of service that CHS should include (MOH et al., 1999; MOH, 2000a) and each of these needs to be properly considered in the context of the full range of services provided by various accountable entities (Durch, Bailey and Stoto, 1997, p. 2). Therefore, in this research I have considered the role of CHCs and the relationships

between CHCs and other accountable entities as essential elements of organisational performance in PHC, and have tried to use performance indicators which correspond to the most common and important tasks that the CHCs undertake.

There have been a number of reports of quality evaluation in community based PHC in China (Shi, Y.X. and Pang, 1999; Zhong, T.L., Huang and Fang, 1999). However, most indicators used seem to measure “quantity” rather than “quality” (see Table 4-1 in Chapter Four). Although the indicators are generally scored and ranked as “good”, “fairly” and “poor”, most of the scores and ranks are based on “rates”, which means that the “quality” of CHS was evaluated according to whether the CHCs conducted required services and the proportion of the target population that was covered. Outcome indicators were rarely included in the evaluation (Shi, Y.X. and Pang, 1999; Zhong, T.L. et al., 1999).

General practitioners’ practice performance

The quality of general practice can be evaluated at four levels (Cox and White, 1982, p. 12):

1. pre-requisite knowledge and skills including the personal attributes which underpin clinical abilities;
2. clinical abilities: the application of knowledge and skills to the various elements of the health care task;
3. composite clinical performance in the management of whole patients (and families);
4. competent clinical practice: the management of a series of patients in collaboration with other professionals.

The first level of performance can be evaluated through examinations with paper and pencil or oral presentation. In this research I have used GPs’ formal qualifications and training backgrounds as indicators of this level of performance³³. Assessment of the

³³ China has a multi-level medical training system (see Chapter Two) with different kinds of doctors being produced by courses of different lengths (2 years to 7 years) and by institutions of different levels of

next three levels of performance, however, involves assessing the actual behaviours of GPs, which requires the observation and evaluation of GPs' practice. As discussed earlier, I did not use direct observation or medical record audit to evaluate GPs' performance in these dimensions. Instead, I collected data regarding the kinds of services provided to community residents through the questionnaire survey of community residents and interviews with GPs and compared the practices of GPs with those of other health professionals such as hospital doctors and private physicians. I adopted a concept of "relative performance". I judged that it would be less useful to assess GPs' behaviour without consideration of the culture of the whole professional stream. Nonetheless, I still used the clinical practice guidelines and the governmental and academic requirements as a benchmark to evaluate the stories told by the GPs themselves about the services they provided and by the community residents about the services they received. I chose to draw upon data from both patients and GPs to assess the quality of health care because of the differences which exist between the perceptions of health care providers and consumers regarding quality (Kazandjian and Sternberg, 1995, p. 4). The satisfaction of consumers does not necessarily indicate technical effectiveness.

I realised that it would be impossible to assess all dimensions of GPs' performance in my study. Medical practice is very complex and difficult to assess. Physicians' behaviours are not only determined by their knowledge, skills and attitudes, but are also driven by the type, severity and complexity of the conditions of their patients. As a consequence, case mix adjustment is necessary to judge the appropriateness of physician practice. However, the conditions which might have allowed me to make such case mix adjusted comparisons were not there. The necessary information and systems were not available in China. Because of this, I used an alternate strategy to simplify the comparison of practice between different health providers. I defined a couple of specific conditions and some common procedures associated with these conditions as a basis for comparison, in the hope that these conditions and procedures could serve as indicators

status (from vocational school through college to university). Some currently practising 'doctors' do not have any formal qualifications. Clinical abilities can be, in some degree, inferred from training background.

of the wider patterns of GPs' activities. This strategy is also recommended by some experts (Majeed and Voss, 1995; Durch, Bailey and Stoto, 1997, p. 4).

GPs deal with both physical and mental problems. A recent survey in two cities in China showed that the most frequent problems that GPs deal with were mainly chronic illness in elderly, including hypertension-related problems, upper respiratory tract infection (URI) and dizziness (Wun, Y. et al., 2000). The help-seeking pattern of psychiatric outpatients was investigated in Shanghai. The patients were of relatively higher educational levels. The main problems included sleep disturbance, somatic symptoms and paranoid ideation (Boey, 1998). My assessment of the performance of GPs focused therefore on the health problems associated with hypertension, URI, and mental problems. The key elements which I sought to document, with a view to assessing GPs' practice, included consulting and communicating with patients, physical examination practice especially the measuring of blood pressure, and prescribing activities with a focus on the antibiotic prescribing.

Although I tried to identify the clinical performance problems of GPs, I realised that the knowledge and skills among the GPs varied considerably because of their different backgrounds and previous experiences. They might have been trained in the western medical tradition or as traditional Chinese medical practitioners. Some had been general internalists in hospitals; some had been specialists or even surgeons. Obviously, the training needs of practitioners with such different backgrounds and experience would also be different. However, my focus is not on the training needs of individuals. Rather my interest was in the roles and functions of GPs in managing cases and coordinating services and in improving the health of their communities. I was seeking to draw conclusions from the condition-specific activities which were the focus of my questions and observations regarding the performance of this professional stream as a whole. In identifying the case management problems, I followed the concept and principles of three levels of preventive services, primary, secondary and tertiary. Relevant practice guidelines were also employed to guide the assessment (Institute For Clinical Systems Improvement, 1999; VHA/DOD, 1999; AAFP, 2001).

Research tools

The appropriate choice of research tools depends on the nature of the research questions and the data to be collected. The questions determine the choice of research approaches (Strauss and Corbin, 1990, p. 19; Darlington and Scott., 2002, pp. 6-8) although the research setting will also limit the kinds of questions that can be asked.

I formed the view that the contribution of previous research to curriculum development for CHS staff had been limited by the methodologies employed. Quantitative methods, including close-ended question questionnaires, are particularly appropriate when the researcher has a clear understanding of the field and is seeking to quantify known concepts (Richardson, 1996, p. 27; Darlington and Scott., 2002, p. 6). However, in a field where the concepts and the realities are not so clearly defined there is a risk, with quantitative methodologies, of failing to reveal important features, including the underlying dynamics (McGrath and Johnson, 2003, p. 32). When results emerge which are not consistent with the assumptions underpinning the questionnaire, the lack of more complex and unstructured data may make it more difficult to understand what is going on (Brown, 2002). In contrast, the qualitative approach is more flexible (can be easily changed in the progress of study) and its ability to manage unstructured data enables the researcher to adjust research strategies following the emergence of new themes so that the dynamics of the situation can be described without being forced into predetermined categories (Maanen, 1998, p. xi; Minichiello, 1999, p. 39; Darlington and Scott., 2002, p. 49; Patton, Michael Quinn., 2002, p. 14).

I have used qualitative methods to draft a complex picture of CHS including the culture and administrative environments in which it operates. My questions were not only about the individual personal experiences of GPs but also about the organisations in which they worked. Information like this is unlikely to be provided by responses to a standard questionnaire (Andersen, G., 1994). By contrast, document analysis, interview and observation serve well for those purposes (Darlington and Scott., 2002, pp. 6-8). They have the advantage of yielding data in a complementary way to reveal “how humans arrange themselves and their settings” (Berg, 2001, p. 7). While interview is a good tool for gathering data in depth particularly with regard to attitudes and reflection, observation can generate real-life data (Delahaye, 2000, p. 123; Wengraf, 2001, p. 6; Brown, 2002; Mason, 2002, p. 86) and is particularly valuable for getting to know a

phenomenon and for validating interview data (Seale, 1999, p. 55; Denzin and Lincoln, 2000, p. 674; Darlington and Scott., 2002, p. 76). Interviewing is also good for identifying the context of phenomena where a questionnaire survey may be of more limited utility (Goldstein, 1993, p.48; Minichiello, 1999, p. 39; Moore, 1999; Delahaye, 2000, p. 123). In this research, data regarding the performance of CHS and GPs, policy and funding arrangements, organisational culture and managerial structure, incentive structures, and professional and management training related to CHS were obtained mainly through the above approaches.

I searched the CHS policy documents promulgated by the central government, Sichuan provincial government, and Chengdu and Panzhihua municipal governments. Curricula and subject guidelines of the CHS training programs implemented in Chengdu and Panzhihua were also collected to provide a context in understanding the interviewees comments and perceived training needs.

I interviewed both GPs and health administrators working in the health authorities and CHCs, with additional information derived from observation and government documents. Data regarding the performance of CHS and GPs, policy and funding arrangements, organisational culture and managerial structure, incentive structures, and professional and management training related to CHS were obtained mainly through this approach. I designed a set of open-ended questions to guide my inquiry. However, I tried to maintain an open mind at all times and the questions were continually modified to make them more suitable and relevant to the interviewees.

Besides drawing on the provider's perspective, I sought to hear about the experiences of community residents regarding the contents and quality of CHS and their attitudes towards CHS. I also asked them about their health needs. Because of the lack of comprehensive and reliable documents recording the experiences of CHS clients, I had to collect such data myself. In this case I chose to conduct a sample survey among the community residents associated with the CHS programs I studied. Although a qualitative approach could be useful in collecting information about the health needs and attitudes of community residents towards CHS, it could not provide exact data about the choice of health providers of the community residents, which was essential in determining the role and performance of CHS within the whole health system. The survey was also expected to provide me with the opportunity of comparing the attitudes,

beliefs and behaviours of the residents towards different health providers. I could also get a sense of the quality of CHS from the point of view of consumers through the survey.

In the course of analysing the data, the findings of the document analysis, and both the qualitative and quantitative data collected have been brought together with a view to shedding light on the priority training needs for CHS staff. The triangulation paradigm helps validate the data (Clifford, 1997, p. 36; Minichiello, 1999, p. 45; Seale, 1999, p. 54; Brown, 2002; Patton, 2002, p.66) and was recommended by Patton (2002) as the best approach to training needs assessment. Since every method involves tradeoffs between strengths and limitations (Darlington and Scott, 2002, p. 75), the weaknesses could be overcome by combining various data sources and methods of analysis (Kelle, 1995, p. 152; Berg, 2001, pp. 4-6).

Research questions

The research questions were derived from the objectives of the research and guided by the broad research strategy. I raised different questions for the community residents, the GPs, and the health administrators.

Community residents

1. What are the community health needs?
 - What are the main health problems (diseases, health risks)?
 - What are the determinants of health (social environment, physical environment, individual response, health care)?
 - What are the main services that community residents think GPs can provide?
 - Can GPs meet their PHC needs?
 - What is their experience of the services provided by the GPs?
2. What are the patterns of services received by community residents from the different tiers of health institutions?

- What kinds of PHC services have they received? Who provides each service?
 - Where are the health institutions that they contact first to meet their PHC needs? Why do they select these particular health institutions as their first contact providers?
 - Are they willing to receive PHC services from the GPs in their communities? If so why; if not why not?
 - What proportion of primary care patients go directly to the tertiary hospitals without referral from the physicians from the primary and secondary providers?
 - Do they think that they will change their providers of first contact if they are required to pay out of pocket contributions as provided for under the new insurance system?
3. What is the quality of PHC services?
- Performance of different PHC providers?
 - Satisfaction of community residents with the PHC received?

GPs

1. How do GPs deliver community based health services and why do they work in this way?
- What are the main services that GPs provide?
 - How do clients make contact with GPs (self request, referral, or others)?
 - What are their relationships with patients (one contact or continuing)?
 - How do they deal with patients' requests?
 - What are the determinants that shape their behaviour (GPs' opinion)?

- What are their perceptions regarding the appropriateness of the kinds of services being offered?
2. Do their ways of working and attitudes correspond to the health priorities of their communities?
 - What are their attitudes and beliefs regarding CHS?
 - What do they believe are the most pressing community health needs? How do they know?
 - What are the main issues that they worry about during the day and why?
 3. What is the financial and organisational context of community based health service delivery?
 - How are they selected to be GPs?
 - How are they encouraged to do community-based health care?
 - How do the hospitals manage their performance?
 - What are the working styles and clinical protocols required by their hospitals (ie. how to manage patients)?
 4. What are the GPs' perceptions of their own training needs?
 - What do GPs think of their competency in community based health services?
 - What kinds of knowledge and skills do they think most important for them to provide CHS?
 - How do they think that they can transfer what they learned into practice?

Health administrators

1. What are their attitudes toward the community health needs?

- What do they think that their hospitals can contribute in terms of the provision of CHS?
 - What are the priorities that they think their hospitals should address in CHS?
2. What are the organisational and incentive structures operating within the community health care system (institutional, district, and municipal level)?
 - How do they organise CHS?
 - How do they manage, analyse and use community health information?
 - What are the relationships between the CHS and other services delivered in the hospitals?
 - What are the influences of CHS on hospital performance?
 - What are the relationships between community hospitals and other health care providers?
 - How many patients see GPs or other health professionals as their first contact?
 - How many patients are referred to community health by the higher tier hospitals?
 3. How are the GPs selected? What are their judgments about GPs?
 - What are the criteria for selecting staff to serve as GPs in their institutions?
 - What do they think about the competence of GPs?
 - How do they assess GPs' performance?
 - How do they train their selected GPs?
 4. What are the policies related to CHS (both broad environment and hospital policy)?

- What is happening to the CHS?
- How do they encourage the CHS?
- How do they manage CHS?
- What are the models of delivering CHS?
- What are their expectations on CHS?

Research settings and sampling

Research settings

I chose Chengdu and Panzhihua as my research settings. Both of these two municipalities are located in Sichuan province, in the south west of China. Chengdu is the capital city of Sichuan province. As in most of the other provinces in China, the CHS programs initiated in the capital cities exert tremendous influence on the other parts of the provinces. They serve as both pilot projects and role models in shaping the delivery models for CHS in the rest of the province. Therefore, my research was mainly conducted in Chengdu, where I have worked for more than ten years as a teacher in a medical university. However, I was aware by the time I was ready to collect the data, that no enterprise-owned health institutions had been involved in the CHS programs in Chengdu. Enterprise-owned medical institutions had been delivering PHC for their staff for a long time in the past, and had faced great challenges since the CHS programs and the new insurance scheme were introduced. Given the important roles of these enterprise-owned medical institutions in PHC, I judged that it would be useful to investigate the changes happening to these institutions under the new environments. Following discussions with the provincial health authority and my Chinese colleagues, I decided to add Panzhihua as my second research setting, where a large number of hospitals were owned and managed by the industrial companies and had long been involved in PHC and CHS programs. However, owing to resource constraints, I only conducted qualitative research (indepth interviews) in Panzhihua while in Chengdu both indepth interviews and a questionnaire survey of community residents were conducted.

Sichuan

Sichuan occupies 485,000 square kilometres, comprising 5.1% of the total area of China. It is the third most populous province in China, with more than 84 million people. Like most parts of China, the majority of Sichuan people hold rural household registration (see discussion of the household registration system in Chapter Two). Less than 18% of the total population of Sichuan were permanent urban residents in 2000 (Sichuan Statistics Bureau, 2001). Sichuan has 21 municipalities and autonomous prefectures and a total of 179 counties (or districts) under the administration of these municipalities and autonomous prefectures.

Sichuan is situated in a basin, although 79% of its land is mountainous. Geographic conditions present serious challenges to the economic development of Sichuan. In 2000, the GDP of Sichuan reached 401 billion yuan, representing an increase of 9.0% compared to 1999 (Sichuan Statistics Bureau, 2001). Industry contributed to 48.4% of the total economic development. However, due to the large population, the average GDP per capita ranks fairly low in China, well behind the provinces located in the eastern coastal areas and the capital area. The average individual disposable income per person in Sichuan was ¥ 5,894 in 2000 (Sichuan Statistics Bureau, 2001). While most CHS research has focused on the relatively developed eastern parts of China, such as Beijing, Shanghai, Tianjin, Shandong and Guangdong, one of the significant features of my research is my focus on one of the relatively less developed parts of China. It may be that the lessons and experiences extracted from the less developed parts of China would apply more appropriately to the rest of China than those of the developed areas. As some interviewees in my research observed: “we can’t afford what the eastern coastal provinces invest in CHS, so we have to develop CHS with our own characteristics”.

Sichuan has a workforce of around 54 million, comprising 6.6% of the total number in China. Among them, 44.5 millions were employed in Sichuan (Sichuan Statistics Bureau, 2001). As in other parts of China, unemployment (or being laid off) has become a big challenge for government in recent years. In 2000, the number of employed people in urban areas of Sichuan declined by 5.0% compared to 1999, a total of 272,000 fewer

jobs. Registered unemployment in the urban areas reached 316,000.³⁴ Given this pressure, the provision of community services has moved up the agenda of government at various levels. By the end of 2000, 6,818 urban community service facilities had been developed, providing 44,872 staff positions. Meanwhile, 18,016 laid off workers were re-employed. In addition, volunteer community services to help neighbours are encouraged, with an estimated 48,003 volunteers involved in those activities (Sichuan Statistics Bureau, 2001).

Sichuan is the biggest source of the ‘floating population’ both provincially and nationally (China Statistics Bureau, 2002). A total of 16.4% (6.96 millions) of internal migrants living in the provinces other than their home provinces came from Sichuan (China Statistics Bureau, 2002). As estimated by the Chinese Statistics Bureau (2002), the majority (65%) of migrants move within their home province, mainly from the rural areas to the capital city. Based on this assumption, I estimate that at least 13 million rural people moved from the rural areas to Chengdu and other major cities, constituting one of the most important target populations for CHS. In terms of understanding the service delivery needs of unemployed and rural migrants, Sichuan is an appropriate research setting for CHS.

Sichuan had 33,351 health institutions in 2000 (Sichuan Statistics Bureau, 2001), with 2.03 hospital beds (MOH, 2000b) and 3.01 health professionals (physician 1.55, nurse 0.71) per thousand population (Table 3-1). For every 100 health professionals, 8.81 were traditional Chinese medical practitioners, 27.15 were Western doctors, 0.27 were practitioners of integrated western and traditional medicine, 14.59 were assistant doctors, 15.50 were nurses, 8.05 were assistant nurses, 4.68 were pharmacists, 2.63 were assistant pharmacists, 2.46 were laboratory technicians, 1.04 were assistant laboratory technicians, 1.12 were midwives, 7.62 were PHC workers. The remaining 6.08% either held lower certificates in the above listed professions or worked as other health professionals.

³⁴ The unemployment rate in reality is greater than this estimation because many are not registered.

Type of institution	Number of institutions	Hospital beds	People working in health institutions	Health professionals	Health Administrators
Public health	218	83	11,646	9,143	1,098
Drug administration	97		1,140	839	150
Research institute	19	458	1,749	931	453
Hospital	888	111,090	143,449	111,907	13,794
Specialised centre for disease control	64	948	2,170	1,724	195
Total (Sichuan)	33,351	191,025	310,035	253,331	25,470
China	324,771	3,170,000	5,591,000	4,490,800	Nil

Table 3-1. Health resources in Sichuan (Sichuan Statistics Bureau, 2001)

In terms of the adequacy of health resources, Sichuan province ranks in the middle (average) among the 34 provinces, municipalities and autonomous regions in China (Figure 3-1 and Figure 3-2).

Map not included

Figure 3-1. Distribution of hospital/medical centre beds per thousand population
(adapted from the Chinese Health Statistical Digest, 2000)(MOH, 2000b)

Map not included

Figure 3-2. Distribution of physicians per thousand population
(adapted from the Chinese Health Statistical Digest, 2000)(MOH, 2000b)

Chengdu

Chengdu is located in the centre of Sichuan province. It covers an area of 12,300 square kilometres, with a population of over 10 million (Sichuan Statistics Bureau, 2001). Chengdu comprises seven districts, four county-level cities, and eight counties.

Chengdu has long been an important centre of agricultural production. The gross output of agricultural production was valued at ¥ 19.77 billion in 2000, which contributed 13.3% of the total agricultural production in Sichuan province. Despite the importance of agriculture in Chengdu's economy, Chengdu is also a highly urbanised municipality. In the plains area, the central districts of Chengdu, the population density is over 1000 per square kilometre. About 53% of its total population lived in the urban areas in the year 2000 (Rural identification holders comprised approximately 20% of the total urban residents³⁵) (Chengdu Statistics Bureau, 2001). Meanwhile, industrial manufacturing and construction are becoming more and more important in Chengdu's economy. In 2000, the values of the industrial production and construction were 3.27

³⁵ The rural residents working in urban areas are referred as migrant workers. The proportion of the migrant workers is estimated based on the statistical data for the selected districts in my research.

and 1.73 times that of the agricultural production respectively (Chengdu Municipal Government, 2002).

As the capital city, Chengdu is one of the main political, economic, transport, trading and educational centres of Sichuan province. It is also one of the 16 municipalities that enjoy the status of associate provincial administration in China. The comprehensive capacity of Chengdu was ranked 11 (1992) among all of the municipalities in China, which was the top in the southwest and northwest parts of China (Chengdu Municipal Government, 2002).

Unbalanced distribution of health resources between urban and rural areas is a major problem in China and to redress this maldistribution is one of the main aims of the recent health reforms. The scarcity of health resources in the rural areas contrasts sharply with the relatively rich provision of health resources in the urban areas. The high utilisation of specialised medical services and of high technology in hospitals and the weakening of PHC are considered to be major contributors to the rapid increase of medical costs in the urban areas, which in turn, constitute barriers to access for many urban residents. For these reasons, the inappropriate arrangements in the structures, functions and distributions of health organisations and the low efficiency of health services has been one of the main targets of the current urban health reforms, in particular, the CHS initiatives (MOH et al., 1999). However, the development of CHS programs has usually begun in the more urbanised or industrialised districts, which were already rich in health resources. Like the other capital cities in China, Chengdu has a relatively high level of health resources (see Table 3-3). Not only are there many municipal and local level health institutions, but also health institutions and teaching hospitals of provincial level and above.

Panzhihua

Panzhihua is situated on the border of Sichuan and Yunnan, 749 kilometres away from Chengdu. It covers an area of 7,434 square kilometres, with a total population of just over one million (Sichuan Statistics Bureau, 2001). Panzhihua consists of three districts and two counties.

Panzhihua was established in 1965 as an industrial city. Most of its citizens were migrants coming from all parts of China for participating in the development of iron-

steel and vanadium-titanium industries. Panzhihua has now become an important industrial centre of Sichuan province. The industries account for ¥ 23.4 billions of fixed assets and ¥ 7,384 billions of gross output values (1996) (Panzhihua Municipal Government, 2002). Panzhihua Iron-Steel Complex is one of the super iron-steel combines in China. It not only contributes a lot to the economic development of Panzhihua, but also puts resources into public services, including the health care system.

Panzhihua is a high-urbanised municipality. The non-agricultural population in Panzhihua comprises as high as 53.3% of its total population. The total GDP in Panzhihua was ¥ 11.452 billions in 2000, which ranked 16 among the 21 municipalities and autonomous prefectures in Sichuan (Panzhihua Statistics Bureau, 2001). However, because of its higher urban population proportion and lower population density, the average GDP per capita was slightly less than that of Chengdu (Table 3-2).

Municipality	Population (million)	Non- agricultural population (million)	Average GDP per capita (Yuan)	Agricultural production (¥ billion)	Industrial production (¥ billion)	Construction (¥ billion)
Chengdu	10.13	3.46	13,020	19.77	64.59	34.20
Panzhihua	1.03	0.55	11,184	1.26	15.64	2.35
Sichuan	84.08	15.65	4,770 ³⁶	148.35	207.70	71.38

Table 3-2. Comparison of key economic indicators between Chengdu and Panzhihua

The data are extracted from the statistical report of 2000 of Sichuan (Sichuan Statistics Bureau, 2001).

Because of the high urbanisation and high level of industrialisation, Panzhihua has more health resources than many of the other municipalities which include vast rural areas (Table 3-3). It was also one of the reasons for its being chosen by the provincial authority as a pilot site for conducting the urban PHC trial in 1995.

³⁶ The total GDP per capita in Sichuan is markedly less than that of Chengdu and Panzhihua because of the vast rural population and the low GDP of some remote areas.

Municipality	Hospitals and medical centres	EPS	MCH station	Hospital beds per 1000 population	Doctors and assistant doctors per 1000 population	Nurses and assistant nurses per 1000 population
Chengdu	568	25	18	3.93	2.59	1.54
Panzhihua	108	10	9	5.36	2.96	2.20
Sichuan	7665	218	188	2.27	1.55	0.71
China (city)	16,732	4,065	2,598	3.49	2.31	1.64

Table 3-3. Comparison of health resources between Chengdu and Panzhihua

Data sources: Chinese Health Statistical Digest 2000 (MOH, 2000b), Sichuan Statistical Report 2000 (Sichuan Statistics Bureau, 2001) and Panzhihua Statistical Yearbook 2000 (Panzhihua Statistics Bureau, 2001).

Sampling

A multi-stage stratified sampling method was used to recruit the interviewees and the community residents for the questionnaire survey.

Stage one: selecting CHCs

First, I visited the provincial health authority to consult with the officials who were in charge of PHC about the appropriateness of choosing Chengdu and Panzhihua as my research settings. Once I had the recognition and support of the provincial officials, I visited the municipal health bureaux of Chengdu and Panzhihua and interviewed the directors who were responsible for the CHS programs. After collecting general information on the CHS programs, I asked the directors to classify the CHCs in their jurisdictions into three groups according to their perceived performance levels (good, fair, poor, Table 3-4). This classification was purely based on the officials' individual judgements and was only used to inform the sampling process. It was not used in evaluating the performance of my selected CHCs. Then, the CHCs with less than one year of history and far away from the central districts of the municipalities where transportations were difficult were excluded from my sampling. After balancing between the three performance groups, the geographic locations, the operation models and the relationship of the CHCs with hospitals, I selected 14 CHCs (six in Chengdu,

eight in Panzhihua) as my research targets, in consultation with the municipal officials. I expected that this sample would have sufficient diversity to provide a reasonably representative picture of CHS in Chengdu and Panzhihua.

	Chengdu	Panzhihua
Performance	Well: 3	Well: 3
	Fairly: 2	Fairly: 3
	Poor: 1	Poor: 2
Geographic location	Wuhou: 3	East: 4
	Jinjiang: 2	West: 4
	Chenghua: 1	
Ownership	Hospital: 5	Municipal hospital: 2
	District government: 1	MCH: 1
		Industrial company (hospitals): 5
Operation model	Attached to hospital: 2 (located in communities)	Attached to hospitals but geographically separated (including MCH): 8
	Department within hospital: 2	
	Independent: 2	

Table 3-4. Characteristics of community health centres included in my research

Stage two: Selecting interviewees of CHCs

I sought first to interview the director of each CHC. If the directors were not available, they were asked to arrange for their associates or assistants or senior staff to be interviewed to respond to the questions for the managers. All of the interviewees answering the management related questions were actively involved in the design, planning and construction of their CHCs. One person for each CHC was interviewed following the interview guidelines for managers. Among the management interviewees, four were governmental officials, nine were CHC directors, two were assistant directors, and three were senior GPs.

At the end of the interview with the CHC managers, I requested each of them to suggest one GP to respond to the questions for GPs. Because six of the interviewed managers identified themselves as GPs, they also responded to the questions designed for GPs. Afterwards, eight additional GPs who did not take the role of managers were selected and interviewed based on the suggestions from those managers (Table 3-5). No specific requirements were set for the choosing of GPs, except for their working history

in the CHCs. All of them had been involved in the CHS since the establishment of the CHCs.

Characteristics		Chengdu	Panzhihua	Total
Job:	Officer	2	2	4
	Manager	1	4	5
	GP	2	6	8
	Both manager and GP ³⁷	4	2	6
Sex:	Male	4	4	8
	Female	5	10	15
Age:	25-	2	2	4
	35-	5	6	11
	45-	2	5	7
	55-	0	1	1
Overall		9	14	23

Table 3-5. Characteristics of the interviewees

Stage 3: Selecting community residents for questionnaire survey

The questionnaire survey was only undertaken in Chengdu because of resource constraints.

Given the situation that most CHS programs in Chengdu were distributed around the central city area, I purposely selected three districts: Jinjiang, Wuhou, and Jinniu, as my sampling frame. Then, one residential area with a medium distance (within the service circles) to each district hospital was selected. Advice from the municipal health bureau regarding the appropriateness and representativeness of these communities was sought. In accordance with suggestions from the municipal health bureau, the three selected communities were deliberately chosen for their different characteristics. The community located in Wuhou district had been assigned to an independent CHC which had been transformed from a previous MCH station and where the CHC was thought to

³⁷ In China, managers are rarely full time based. Most of them maintain their professional activities. For this group of interviewees who are both managers and GPs, both the questions for managers and for GPs applied.

be a competitive rival of the district hospital. The municipal health officials rated the performance of this CHC as ‘good’³⁸. The community in Jinjiang district was located in an area within the catchment area of both the district hospital and one of its affiliated satellite CHCs, where the boundary was not clearly defined and the services overlapped. The CHS performance in this community was rated as ‘fair to poor’ by the municipal health officials. The community in Jinniu, in contrast, was not covered by any independent or hospital affiliated satellite CHCs. The three communities are about five kilometres apart from each other (Figure 3-3).

Map not included

Figure 3-3. Three residential areas in Chengdu for questionnaire survey

Because the CHS attendance rate was believed to be very low in the community of Jinjiang (the CHS was rated by the municipal health officials as ‘fair to poor’), and in view of the fact that the CHS were delivered by a hospital and its attached CHC, representing a very common arrangement and situation of the vast majority of CHS programs in Chengdu, I decided to double the sample size in the community of Jinjiang so that more patients attending the CHS program could be captured in my sample which would as a consequence be more representative of community health service users.

³⁸ The rating was based on the official’s individual judgment.

For each selected community, I randomly selected 80 households from the house records³⁹ of the neighbourhood residential committee, except the community of Jinjiang in which the sample size was doubled. Only the address details of these selected households were recorded (no personal information). All of the people living or working in the selected households were surveyed.

The sample was not designed to be representative of the whole population of Chengdu. Rather, the sampling frames were purposely chosen to reflect the current status of the existing CHS programs within their proximate communities; recognising that the CHS were still in the initial stages and not evenly distributed. Obviously, these sampling frames were biased in terms of the representativeness of the whole population. Firstly, there was no stratification in terms of demographic and socio-economic status although in China as elsewhere there is an uneven distribution of residents in terms of demographic and socio-economic status (Jiang, Y. M. and Qing, 2000). Selecting three communities from the hundreds of communities with various situations can hardly represent the average situation of the total population. Secondly, the CHS programs were still in the initial stages. In Chengdu, there were only about 30 community hospitals (primary hospitals excluding enterprise-owned hospitals) and 27 CHCs, while the number of communities based on the community government areas (SAOs) had reached 79 (data provided by Chengdu Health Bureau), with hundreds (or thousands) of residential committees. At this stage in Chengdu, the enterprise-owned hospitals were rarely involved in CHS programs, leaving their residential areas⁴⁰ scarcely provided with CHS programs. In contrast, the residential areas where CHS programs had been established were usually deliberately chosen to focus on communities with relatively more elderly populations and relatively higher incomes in order to provide a favorable commercial environment for the CHCs, which rely heavily on user charges. The community sample selected for this study was based upon existing CHS programs; it was not designed to represent the Chengdu community as a whole.

³⁹ a recording of houses and buildings and their locations without family details.

⁴⁰ There are two types of residential communities: Jia Wei Hui, residential area provided by some big workplace units for their staff, commonly including SOEs and government agencies; and Ju Wei Hui, a mixture of residents and managed by local government assigned community representatives.

My intention was to describe and evaluate existing CHS programs and it was more important to capture the opinions and attitudes of actual users of the CHS rather than the views of the overall Chengdu population with respect to CHS. Furthermore, since the CHS programs were developing rapidly, it was not very helpful to depend on quantitative figures about the overall average number of users of CHS programs because it was changing all the time as a new emerging thing. Therefore, the sample was deliberately structured to result in a higher proportion of CHC patrons than would be average for Chengdu. However, this bias was not an obstacle to achieving my goals, because the purposes of my survey in the selected communities were not to make accurate estimates of the CHS attending rate in Chengdu at large; I was more interested in the attitudes and help-seeking behaviours of the community residents living in different CHS related environments, which in turn reflected the situation and quality (in particular, patient satisfaction) of the CHS⁴¹. As a consequence, I would be in a position to draw general conclusions about the situation and performance problems of the CHS programs⁴².

I planned to include a total of 320 households and more than 1000 residents in the survey. The sample size was determined according to the “hypothesis tests for two population proportions” (Lemeshow et al., 1990; Lwanga and Lemeshow, 1991; Baumgartner and Strong, 1997), although the comparison between different groups of populations was not my main interest. The stratification of the survey population ensured that my survey would reflect the heterogeneity of the community residents. However, more than one topic was included in the questionnaire and the communities involved in the survey also exceeded two. Obviously the sample size estimation was only a rough guide.

I selected the CHC attendance rate as the principal index for the sample size calculation. The following parameters were used in the estimation of sample size: morbidity rate 20% (in two weeks); proportion of people who seek medical help among

⁴¹ As a matter of fact, the CHCs were growing rapidly. I was told by the municipal health officials that another 20 CHCs were going to be set up by the end of the year when I did my research (2002).

⁴² Although the broad sample frame was biased, it was still necessary to get a random household sample to estimate the share of medical market of the CHCs (in the CHS covered communities only).

those with morbidities 50% (MOH, 2000c); CHC attending ratio among those who seek medical help less than 5% in Jinjiang and Jinniu and 25% in Wuhou (estimated by the directors of the selected CHCs). Because of the limit of research resources, I extended the recall period of the survey to six months (rather than two weeks) and investigated the most recent contacts of the residents with the health system, with a hope that people with morbidities captured in the survey could be doubled. Based on this assumption, the patients attending the CHCs were estimated to constitute 1% (p_1) and 5% (p_2) of the total residents in the two communities respectively. Using the following expression:

$$n = \frac{(z_{1-\alpha}\sqrt{2p(1-p)} + z_{1-\beta}\sqrt{p_1(1-p_1) + p_2(1-p_2)})^2}{(p_1 - p_2)^2}$$

Where $p=(p_1+p_2)/2$, the symbol $z_{1-\alpha}/z_{1-\beta}$ represent the ($z_{1-\alpha}/z_{1-\beta}$)-th percentile of the standard normal distribution (Selvin, 1996).

To demonstrate a difference in the CHS attendance rates between the two populations, with a level of significance of 5% (α) and a power of test of 80% ($1-\beta$), I needed to survey at least 197 people in each group (Lemeshow et al., 1990; Lwanga and Lemeshow, 1991). Given the consideration of a response rate of 90%, 220 residents in each group should be pre-selected for the questionnaire survey. As mentioned previously, the sample size of one community would be doubled. That would lead to a total of 880 people in sample size. To ensure the reliabilities of other statistical analyses, especially for the multivariable regression analysis, I decided to increase my sample size to 1000. With an average household size of 3.2 people (China Population Information Network, 2001), it meant that 313 households should be involved for survey. Eventually, I decided to select 320 households.

Data collection

Development of data collection instruments

The data collection instruments were designed around the research questions and guided by the research strategy. This study employed a questionnaire and a semi-structured interview for health managers and a semi-structured interview with GPs (Table 3-6). The questionnaire was designed to collect data in relation to the health needs and help seeking behavior of community residents and their attitudes towards

CHS. The interview with managers was aimed at collecting data about the arrangement of CHS and the policy, administrative and cultural environments of CHS. The interviews with GPs focused mainly on their practice in CHS and their perceived challenges and training needs in CHS.

Data collection instruments	Target group	Dimensions being measured
Questionnaire	Community residents	Health needs, use of health services, attitudes towards CHS, perceived quality of PHC services
Interview guidelines for managers	Health officials, CHS managers	Training needs for managers and CHS staff, perceived clients needs, organisational and incentive structure, CHS policy and funding, managerial structure, recruit of GPs
Interview guidelines for GPs	GPs	Perceived training needs, GP's practice in CHS, attitudes towards CHS, financial and organisational context of CHS

Table 3-6. Data collection instruments

Development of questionnaire

The questionnaire was primarily developed in English so that I could discuss it with my Australian colleagues. Several well-developed questionnaires were consulted in the design of my questionnaire including the “National Health Service Survey” in both Australia and China (Castles, 1992; McLennan, 1996; MOH, 2000c). The recommendations and suggestions of my two Chinese colleagues who were studying in Australia were also taken into consideration. Nevertheless, the English language version of the questionnaire was not the final version. The appropriateness of this questionnaire to my Chinese respondents was the core focus in the design of the questionnaire. So, I translated the English questionnaire into Chinese at this stage and conducted a pilot study (20 respondents) in Chengdu before the fieldwork to make sure that all questions were relevant and non-vague and double-barrelled, ambiguous, obscure, biased and leading questions were avoided (Polgar and Thomas, 2000, p. 111). This pilot study was carried out by the ten trained interviewers simulating the real situation of the survey. Afterwards, I organised a group discussion with these interviewers to listen to their comments and experiences in the survey. The questionnaire was then carefully revised. The revisions targeted both design problems and translation problems. The attached

questionnaire in this thesis is actually a back translation of the final Chinese questionnaire (Appendix A).

In arranging the questions in the questionnaire, I was aware that preventive services were assumed to be a very important part of the role of CHS and GPs. If I put the domain of “health problems” first in the questionnaire and followed by the “use of health services”, I would risk the loss of information regarding preventive services, because those who received preventive services did not necessarily have health problems, at least from the point of views of the service users. Therefore, I adopted the following sequence of questions. The use of all sorts of health services were inquired for first, regardless whether they thought they had health problems or not. It is customary for all health providers including physicians, public health providers, and even nurses in certain circumstances (eg. nurses who give examinations ahead of physicians) to be given the respectful title of “doctor”. That made the question design easier. Instead of asking the respondents “Have you ever received any kinds of health services”, which would have been unclear and jargon-sounding, I could directly ask the respondents “Have you ever visited a doctor”. The latter was much clearer, more direct, and easier to understand.

Development of theme lists and prompts for interviews

As with the questionnaire, the theme lists and prompts for the interviews were also primarily developed in English after intensive discussions with my colleagues in Australia. As I mentioned previously, these questions were also derived and shaped by the research questions and the research strategy. Two sets of open-ended questions were developed for the administrators and GPs respectively (Appendix B). However, some of these questions appeared in both guides. With the translated version of the interview guides, I interviewed two GPs and one manager coming from two CHCs in Chengdu. After this pilot study, I concluded that my interviews should be more flexible to encourage the interviewees to provide details about the issues they were familiar with. Therefore, I decided to begin my interview with a focus on questions in which the interviewees were likely to be particularly interested. The priority questions I asked during the interviews were thus carefully selected and virtually depended on the knowledge and backgrounds of the interviewees. However, the theme lists prepared for

the interviews were still used to make sure I could cover as many domains as possible in the interview.

Interviews and observations

All of the interviews were conducted by myself. I interviewed a total of 23 people, including eight GPs, six GPs who took the role of managers, and nine administrators. This figure included the three people involved in the pilot study who were all re-interviewed.

The interviews were undertaken in the offices of the interviewees so that I could observe the practices of the GPs and their working environments. I believed that these observations would help me interpret my interview results. To avoid intervening the routine work of the GPs, I was always ready to suspend my interviews when they were consulting⁴³. Some of my interviewees actively invited me to accompany them during their community practice; some showed me pictures regarding the CHS programs they offered. These materials and experiences enriched my data tremendously.

The duration of the interviews varied from two hours to one whole day depending on the availability of the interviewees to provide relevant information and the frequency and duration of interruptions occurring during the interviews.

With the consent of the interviewees, I tape recorded the interviews (the tape recorder was turned off when the interviewees were providing services or doing routine work). I did not take notes during the interviews so that I could focus on the interviews and achieve better communication with the interviewees. I was always prepared to raise questions pertaining to previous answers to ensure that the conversation flowed fluently. I also encouraged the interviewees to provide stories and vignettes from their experience during my interviews.

⁴³ Actually, there was not much interruption, because in most circumstances, the GPs were not busy and the patients could be referred to other GPs during my interview unless the patients nominated these particular providers.

Administration of questionnaire

The questionnaire survey was coordinated by the residential committees of the three selected communities⁴⁴. As described previously, my sample was selected from the household records provided by the committee. Although we had informed the selected households before the survey, it was still necessary to let the members of the residential committees to direct our interviewers to the selected households. Otherwise, many people would worry about the security issues. However, these committee members were not directly involved in the survey. In other words, they were not allowed to administer the questionnaires. Furthermore, they were not present during the interviews in order to make the respondents feel comfortable⁴⁵ and to maintain confidentiality of the collected data.

The questionnaire survey was conducted from 19 March to 26 April 2001 through face-to-face interviews, with more than one week for each selected community. I trained nine undergraduate students who were in their fifth year of bachelor program in public health to conduct the interviews headed by a master's level student in health service management. To avoid the influences between the members in the same households, the respondents were interviewed simultaneously and separately by different interviewers. The interviewers were divided into groups, with three members in each group to ensure that in most circumstances each respondent would have a matched interviewer.

People aged 18 and above who were working or living in the selected households were asked to respond to the questionnaire. For those who were younger than 18 and who were unable to answer questions such as some elderly with intellectual disabilities and some members whom the interviewers failed to catch during the survey period, family members who made the help-seeking decisions and knew details about the medical care of the relevant people were sought as proxy answerers.

⁴⁴ The residential committee is a group of representatives of the residents who are responsible for the security, environments and public services of their community. It would not be proper to undertake an interview survey such as this without the permission of the residential committee.

⁴⁵ Although these representatives are not governmental officials, they keep close contacts with the local governments.

The response rate was very high. Although we did not know exactly the total number of people working or living in the selected households, data from more than 90% (290/320) of the households were collected. In total, 71% of the returned questionnaires were answered by either the selected people themselves or their guardians or carers (in cases where the selected people were unable to respond on their own behalf). Among the returned questionnaires, 57% were self-respondents; 13% were completed by parents or grandparents or other carers on behalf of children under 18; and 1.0% were answered by the carers because of the inability of the selected people (elderly) to respond appropriately. The remaining 29% were answered by other than the nominal respondent mostly because of their physical absence but occasionally because they (the proxy answers) insisted on doing so (Table 3-7).

Answerer	Age			
	0~	18~	80~	Total
Self	1.6	52.5	2.9	57.0
Parent	7.7	14.2		21.9
Grandparent	4.7	0.2		4.9
Children		3.6	0.8	4.4
Wife		7.2	0.1	7.3
Husband		2.7		2.7
Others	0.7	1.0	0.1	1.8

Table 3-7. Distribution of proxy answerers

The data are expressed as a proportion of the total of 1041 respondents (%)

A total of 290 households with 1041 people were visited and interviewed. It was not surprising that more than 3.2 people per household (estimated number of people per family in Chengdu) were included and interviewed in the survey (3.59). We deliberately interviewed all people who had been living and working in the selected households for more than six months. Some of them were babysitters or care providers of elderly patients. Some were security staff⁴⁶. Some were workers working in households that

⁴⁶ The residential committee employs some rural migrants to provide round-clock security services and usually offers accommodations for their families at the entrance of the community.

were also used as grocery shops or as hairdressing saloons. Most of those people were rural migrants and are supposed to be important users of CHS.

Characteristics of the sample population included in the questionnaire survey

The three selected communities differed in their demographic characteristics in accordance with the comments of the participants in the interview study. As one CHC manager said, “We focus more on the care of the elderly, especially those with chronic conditions”, the residents of the communities covered by the CHS programs were currently older than others (see Table 3-8 below). It might be a result of the fact that the pilot CHS programs paid more attention to the aged populations during their initial stages.

Sex	Age	Community			Total
		With hospital attached CHC	With independent CHC	Without CHC	
Male		(%, n=237)	(%, n=108)	(%, n=121)	(%, n=466)
	0-14	12.7	13.9	12.5	12.9
	15-29	12.2	19.4	25.0	17.2
	30-44	30.0	20.4	25.0	26.5
	45-59	20.3	17.6	21.7	20.0
	60+	24.9	28.7	15.8	23.4
Female		(%, n=290)	(%, n=108)	(%, n=177)	(%, n=575)
	0-14	10.1	8.4	11.9	10.3
	15-29	14.2	16.8	38.1	22.1
	30-44	25.7	21.5	23.3	24.2
	45-59	16.7	27.1	15.3	18.2
	60+	33.3	26.2	11.4	25.2
Total number of respondents		527	216	298	1041

Table 3-8. Age and sex distribution of questionnaire respondents in the three communities

The age distribution of the three communities were different both for males ($\chi^2=15.71$, $p=0.047$) and for females ($\chi^2=58.02$, $p<0.001$).

As I have discussed previously, the sample selected for the questionnaire survey was deliberately biased in favour of including CHS users and at some cost in terms of its representativeness of the whole population in Chengdu. Nevertheless, I still present here some comparisons of the characteristics of the respondents of the questionnaire survey

with the average population of large cities. This information was useful in interpreting and understanding the results.

The sex distribution of the sample population was also biased, with more female respondents (Table 3-9, $\chi^2=11.41$, $p=0.001$). This could be explained by the inclusion of the rural migrant workers in this survey. Rural migrants who worked in the communities usually provided home services, personal care, child care, grocery retail or hair dressing. Most of these jobs were done by women. In contrast, the male rural migrants inclined to work in the construction industry, which was not included in my survey. When the rural migrants were excluded, the sex distribution of the respondents was the same as that of large cities generally ($\chi^2=1.719$, $p=0.190$).

Sex	Resident with urban identification		Resident with rural identification		Total	
	Number	%	Number	%	Number	%
Male	401	47.7	65	32.3	466	44.8
Female	439	52.3	136	67.7	575	55.2
Total	840	100	201	100	1041	100

Table 3-9. Sex distribution of respondents by residential identification

Similarly, when the rural migrants were excluded, the age distribution of the respondents was also more consistent with the national population structure of large cities (Table 3-10). The goodness-of-fit test showed that the age structure of Wuhou sample with urban identification fitted in with the previous data of this community ($\chi^2=7.35$, $p=0.29$) (Daniel, 1990; Chen, B. W., 2000a)⁴⁷.

⁴⁷ The demographic data of the other two communities were not available.

Age group	% of respondents			Large cities average (%)
	With urban identification (n=840)	With rural identification (n=201)	Overall (n=1041)	
0-4	2.7	4.0	3.0	2.98
5-14	10.4	.5	8.5	11.1
15-24	11.9	13.6	12.3	10.62
25-34	14.8	22.2	16.2	14.74
35-44	16.7	16.2	16.6	20.13
45-54	15.5	15.7	15.5	12.84
55-64	9.1	6.1	8.5	11.51
65+	18.9	21.7	19.4	16.07

Table 3-10. Age distribution of respondents with and without urban identification

Data analysis

The focus of the data analysis has been on the identification of, first, the determinants of performance of CHS and the ways in which the determinants interact to shape performance; and second, of key problems in the delivery of services and programs and the ways in which shortfalls in staff knowledge and skills shape those weaknesses and finally, the priority training needs for CHS staff.

Qualitative research

I transcribed all of the tape recordings of the interviews in Chinese, the language used in the interviewees. Although the transcribing involved tremendous workloads, I considered it as an initial step of data analysis, which helped me get an overall view of the CHS story and develop the coding structure (Wengraf, 2001, 208-30).

I used NUDIST⁴⁸ to code my interview data and report results (Kelle, 1995, p. 206). Fortunately, NUDIST can recognise the Chinese characters in text format. That made it

⁴⁸ NUDIST is a software program developed originally by academics associated with La Trobe University for the analysis of qualitative data.

feasible to code the raw data without translation, which avoided the loss of information and change of meaning of the raw data caused by the translation problems.

Five headings were used to categorise most of the data in an understandable and logical way to facilitate the presentation and writing of results. The first section of coding was descriptive with a heading “CHS practice”, followed by an evaluative section with heading “Performance problems”. Afterwards, an analytic section was generated with a heading “administrative structure”. All types of factors related to management issues that shaped the performance of CHS were put together under this heading, including funding, managerial structure and incentive mechanism. Two additional headings were arranged separately to reflect the cultural environment (namely attitudes) and the self-perceptions of training needs of the interviewees (training perception).

Further extensions of the coding tree (sub-headings) were derived from the emerging themes of the data under each heading (Wengraf, 2001, pp. 251-5). I always tried to keep my mind open to data which did not fit my preconceptions. New categories that could not fit into any of the above headings was placed as free coding categories (see attachment).

Data coded under the same themes (appearing as headings or sub-headings) were compared and summarised. If different ideas or perceptions expressed by the interviewees were found, cross-checking between headings (or sub-headings) was conducted to find the contexts of the differences (Denzin and Lincoln, 2000, p. 823; Mason, 2002, pp. 173-204), with particular attention to the interviewees’ backgrounds such as age, sex, training, previous specialty, job role and working environment.

The qualitative data were not translated into English until they were put into the thesis.

The coding was intensively reviewed several times during the data analysis, translation and writing processes, continually checking the story that was emerging from the texts against the theory, the purposes of the research and the constraints of method. When uncertainties were encountered in the analysis (including problems in the coding), discussions among the researchers were held to seek a final solution (change or stay). In fact, very few of the original codes were changed due to these reviews. It seemed that

most of the coding was quite obvious and straightforward because it followed the interview guidelines which were reflected in the transcripts. However, it is important to be aware that the review process is different from the concept of inter-rater and intra-rater reliability of coding, usually associated with a blind design (Pei, 1998, p. 99). In this study, most of the texts were intentionally coded around a fairly large block of text rather than sentence by sentence so that the entire story and underlined context could be easily recognised (overlap in coding was allowed), which made blind repeat of coding very difficult.

There have been important debates in the past 15 years with respect to what constitutes rigor in this kind of qualitative research. Despite the ongoing debates, a trend of moving away from a reliance on quantitative criteria for evaluating reliability is clear. While many researchers have agreed that the quantitative checking of reliability and validity are inappropriate for this kind of interpretive research, some have argued that the same foundational principles need to be translated in qualitative research but need to be treated in different ways (Emden and Sandelowski, 1998, 1999; Horsburgh, 2002). Triangulation is probably the most commonly recommended approach for verifying the “goodness” of qualitative research data. Triangulation (cross-checking by use of different sources, different methods, different investigators, or across times and instances) is generally considered to be a useful approach to validating the data (Clifford, 1997, p. 36; Minichiello, 1999, p. 45; Seale, 1999, p. 54; Brown, 2002; Patton, 2002, p.66). It has also been suggested by Clifford (1997, p. 36) as a way of testing reliability. In this study, the results of document analysis, observation, interview and questionnaire survey were pooled together to get a more ‘reliable’ picture of what was going on.

Questionnaire survey

SPSS⁴⁹ software was employed to analyse the data collected from the questionnaire survey. Since all of the dependent variables included in the analysis were nominal variables, they were described by indicators of rate or proportion and the Chi-square test was used to test differences in these indicators between various comparable groups (Norusis, 1988; Hinton, 1995). The independent variables (group categories) that

showed significant influences on the dependent variables at the statistical level of 0.05 in the Chi-square tests were entered into the multi-variable logistic regression (Agresti, 1996; Andersen, E. B., 1997) to detect potential confounding influences among these independent variables (Selvin, 1996)⁵⁰.

Dependent variables

- Choice of health provider

These variables were designed to reflect the pattern of use of CHS and other health services. The distribution of patients among different health providers was estimated. The reasons for these visits were analysed and compared. Assuming that a patient's choice of health providers is a discrete decision, which depends on the characteristics of alternative providers, the characteristics of patients themselves, and the influence of policy and insurance, I adopted the multinomial logistic regression method (Yip, Wang and Liu, 1998) to investigate the determinants of the choice of health providers (main effects model, no-interaction).

- Quality of health services

The services provided by different health providers were compared. Best practice guidelines were used as benchmarks to evaluate performance. Meanwhile, the degree of satisfaction of consumers in terms of the quality of services and service manners were evaluated and compared between different health providers.

- Accessibility of medical services and reason for not attending

The proportion of people with health problems who had not attended medical facilities was estimated. The reasons for non-attending were explored, based on the self-reports of the interviewees.

- Attitudes of respondents towards CHS

⁴⁹ SPSS indicates Statistical Package of Social Sciences.

⁵⁰ Due to sample size limitation, I did not include all dependent variables in the logistic regression.

I was concerned that the attitudes-related questions were likely to be biased by the proxy answerers. Therefore, I have analysed and presented the results of attitudes derived from the self respondents only.

The age structure of the respondents with proxy answerers (excluding the people who were appropriately responded for by proxy answerers due to low age or disabilities) showed that higher proportions of respondents fell into the age from 25 to 44 (Table 3-11). This phenomenon was not beyond my expectations. It could partly be explained by the relatively higher proportion of this group of people in the overall sample population. However, I could not exclude the possibility that the people aged from 25 to 44 were quite independent and active with fewer health problems. As a result, they were less interested in medical care issues and more likely to be absent when the interviewers paid home visits. Although the respondents with proxy answerers did not exceed 30% of the total respondents, the possibility of the proxy respondents holding attitudes towards CHS which were different from those of their principals could not be ignored.

Age	Men		Women		Total	
	Number	%	Number	%	Number	%
18-24	20	11.2	15	12.3	35	11.7
25-34	40	22.5	46	37.7	86	28.7
35-44	44	24.7	23	18.8	67	22.3
45-54	35	19.7	22	18.0	57	19.0
55-64	22	12.4	8	6.6	30	10.0
65+	17	9.6	8	6.6	25	8.3
Total	178	100	122	100	300	100

Table 3-11. Age and sex distribution of respondents with proxy answerers

- Contract making

A unique feature of the CHS programs in China is the existence of different forms of relationship between health providers and consumers, in particular, term contracts or episode based services. The CHCs were keen to develop contracts or HCAs with their community residents in order to maintain long-term continuing relationships. I presented the contract rate as one of the indicators to reflect the role of CHCs. Chi-square test and binary logistic regression were used to detect the determinants of contract making.

Independent variables

- Demographic characteristics

Community: Residents living or working in the three communities were randomly surveyed, with 527, 216, and 298 completed questionnaires being collected in Jinjiang, Wuhou, and Jinniu, respectively. Given the demographic and CHS performance differences of the three selected communities, most results were presented by communities. However, my main interest was not to compare the results between the three selected communities. Instead, this variable was considered as an important confounding variable in exploring the effects of other independent variables on the results.

Age and sex: Age and sex are common factors that could influence both people's health and their knowledge, attitudes, beliefs and behaviours with regard to health care. The age and sex structure of the sample population in my research is presented in Table 3-8. These variables were used to elucidate the responses of my research subjects to various questions, and help interpret the results, especially when trying to extrapolate the results of the survey to the whole population.

Employment and occupation: Occupation is an important indicator reflecting the social class of a particular person, which could have some impacts on all of the above dependent variables. The occupation classification used in my research was slightly different from the one that is commonly used by the Statistics Bureau. I was more concerned about the social classes rather than the occupation categorised by jobs. The questionnaire respondents were grouped into six categories: retired, laid off or unemployed, workers, rural migrant, cadre professional and manager, and children and students.

(1) Retired. This was a group of residents who retired at a defined age (usually 60). A certain amount of pension was provided by either the governments or the SOEs⁵¹, depending on the amount of salary and years of employment. Although retired people

⁵¹ Currently, the Chinese governments are trying to put the various pension schemes into a uniform social security pool.

were thought to be low income earners, they usually lived in a condition beyond the social aid criteria (Wei, J.S., 2002). (2) Laid off workers and unemployed. This was a rapidly increasing group of urban residents living in poverty, especially those who were lacking the knowledge and skills needed to find jobs. Among them, some were provided with very basic living succor by the governments or workplace units. (3) Workers. This was a group of employed residents with urban identification who fell into the “Blue-Collar” category. They usually did not have tertiary education, except for some vocational training. (4) Rural migrant. I separated this group of people from other occupations because they usually took the jobs that the residents with urban identification were not willing to do. They were actually a marginal population isolated from the main stream of the urban residents, occupying the jobs which were thought to be dirty and/or risky and of low skill and low respect. They were paid less than the residents with urban identification and were usually not covered by insurance schemes. (5) Cadre, professional and manager. This was a group of people with higher educational degrees. They usually worked for government agencies or other workplaces in jobs that needed specialised skills and knowledge. Their incomes were higher than the average. They also enjoyed greater social security benefits and social status. (6) Children and students. Although children and students were dependents of families, they attracted more attention from both medical institutions and family members than others, except for the elderly. Many CHS providers identified elderly and children as equally important target clients of CHS.

The impact of economic reform has included a widening of the differences between workplaces in terms of income, social security and welfares. Many large workplace units provide their employees not only with jobs but also accommodation, child care, school education and health care. They establish their own communities somewhat isolated from others. In Chengdu, they were not the primary targets of the CHS programs. Instead, the CHS programs paid more attention to the mixed residential communities. The workplace was classified into four categories in my research: ‘SOEs’, ‘non-state-owned enterprises’, ‘government agencies’, and ‘no employers’.

Educational degree: Education is likely to exert some influence on people’s health and their acceptance of changes in the ways health services are delivered. People were grouped into four levels of education in my research: children less than six years; people

who had received no more than primary school education; people who had received secondary education; and people who had received tertiary education.

Marital status: Marital status was also perceived as one of the key social determinants on health. I created a dummy variable to describe the marital status: single and married.

Medical insurance status: At the time I conducted my fieldwork, China had just launched a new insurance scheme for urban employees (2001), which amalgamated the two major existing insurance schemes: GIS and LIS. Since the 1980s, the Chinese government had sought through many strategies to cut the expenditures associated with these two insurance schemes. The major strategies included the introduction of copayment, assigning contract providers, and setting up floor and ceiling levels for reimbursement. These strategies exerted considerable impact on the choices of the insured consumers regarding which medical provider to visit. Although the new insurance scheme was believed to give more freedom to consumers in choosing medical providers (from among the health organisations recognised by the social insurance authorities) and was expected to benefit the CHCs, these impacts were still too early to be detected in my research. Meanwhile, commercial health insurance was being introduced during the same period and a small proportion of urban residents were buying private insurance. In my data analysis, I divided the respondents into two groups in terms of their medical insurance status: insured and uninsured.

Average income: Income reflects people's ability to pay. I collected data regarding average monthly income per capita at the family level. During the survey, I found that people inclined to underestimate their incomes. Consequently, I created dummy variables to indicate income bands. Under this circumstance, the underestimation, as a system information bias, would not affect the reliability of my results. In setting up the dividing criteria of income levels, I took the basic social security standard of Chengdu 150 yuan as my reference and classified people into low (≤ 150 yuan), middle (151-299 yuan), and high (≥ 300 yuan) income groups. However, because of the under-estimation issue not all people categorised in the low income group should be judged as living in poverty.

- Life style and behavioural health risk factors

Life style and behavioural risk factors are important causes of many chronic conditions but may have different influences on the medical help seeking behaviours. These factors were not used in cross tabulation and regression analysis. However, in view of the official role of CHS in addressing chronic conditions, I used these health risk data to examine the appropriateness of services provided by the CHCs with regard to the control and management of chronic conditions.

The life style and behavioural risk factors covered in this research included smoking, alcohol drinking, overweight and obesity, and physical activity. In determining the degree of these risk behaviours, the tools and definitions used in Australian behaviour and risk factor surveillance were referred to (McLennan, 1996). The Body Mass Index (BMI) was calculated ($\text{weight(kg)}/\text{height(m)}^2$) to estimate the degree of overweight and obesity. I used the most recent cut off points for Chinese in judging the overweight (BMI over 23) and obesity (BMI over 25) (Xing, 2001).

- Illness and disease pattern

Illness and disease are essential indicators of community health needs and also of health care outcomes. However, because the purpose of health needs assessment in this research was mainly to provide a context (a frame of reference) for judging the performance and quality of health services, I put this group of variable in the heading of independent variables. Both acute and chronic problems were identified based on the codes of International Classification of Disease (9th edition). Acute problems referred to the occurrence of any health problems that needed immediate treatment either by self or by health professionals. The respondents were not only requested to recall the diagnoses or symptoms of these acute problems but also to give a judgment about the severity of these problems. In terms of chronic conditions, I adopted the definition of the National Health Survey in China as “conditions diagnosed by physicians in the hospital of township level or above at least six months ago and the symptoms still exist or relevant medical treatments have been received during the recent six months” (Health Information Centre, 1999).

Table 3-12 describes the independent variables and their summary statistics for the three community samples.

Independent variables	Category	% of respondents in community			
		With hospital attached CHC	With independent CHC	Without CHC	Total
Age*	0-14	11.2	11.2	12.2	11.5
	15-59	59.2	61.4	74.7	64.1
	60+	29.5	27.4	13.2	24.4
Sex	Male	45.0	50.0	40.6	44.8
	Female	55.0	50.0	59.4	55.2
Occupation*	Retired	21.8	18.6	13.1	18.6
	Unemployed	9.8	7.4	2.0	7.0
	Worker	21.2	17.2	22.1	20.7
	Rural migrant	14.5	24.2	22.8	18.9
	Cadre/professional/manager	14.1	10.7	20.5	15.3
	Children and students	18.5	21.9	19.5	19.5
Workplace*	No employer	49.3	50.0	41.4	47.2
	State enterprises	28.1	26.9	19.5	25.4
	Governmental agency	5.7	9.3	6.1	6.5
	Non state enterprises	16.9	13.9	33.0	20.9
Education*	Children younger than six	3.2	5.6	3.7	3.8
	Primary	37.6	36.6	25.6	33.9
	Secondary	52.2	51.4	59.3	54.0
	Tertiary	7.0	6.5	11.4	8.2
Marital status*	Single	37.0	29.6	44.0	37.5
	Married	63.0	70.4	56.0	62.5
Insurance status	Uninsured	30.6	29.2	27.5	29.4
	Insured	69.4	70.8	72.5	70.6
Family average income*	<=150	26.9	31.9	13.8	24.2
	151-299	35.3	42.6	32.2	35.9
	>=300	37.8	25.5	54.0	39.9
Smoking**	No	67.6	69.4	77.2	70.7
	Yes	32.4	30.6	22.8	29.3
Alcohol drinking	No	73.2	76.9	79.9	75.9
	Yes	26.8	23.1	20.1	24.1
Physical exercise	No	61.5	56.9	53.9	58.4
	Yes	38.5	43.1	46.1	41.6
BMI	Normal	78.4	76.7	84.1	79.7
	Overweight	21.6	23.3	15.9	20.3
Acute problem**	No	61.5	54.4	70.4	62.5
	Yes	38.5	45.6	29.6	37.5
Chronic condition**	No	71.4	73.1	81.8	74.7
	Yes	28.6	26.9	18.2	25.3
Total Number of respondents		527	216	298	1041

Table 3-12. Description of independent variables

* $p < 0.01$; ** $p < 0.05$ by Chi-square test, indicating a difference of the three communities in the percentage distribution of relevant variables.

Overview of research approach

Both qualitative and quantitative research methods were employed in my research. I visited 14 CHCs and interviewed a total of 23 managers and GPs. A household survey in three selected communities was undertaken, with 1041 completed questionnaires collected. The procedure of the project is depicted as Figure 3-4. The qualitative and quantitative data were put together under the guidance of the research strategy to elaborate a description and evaluation of current CHS programs. Finally, based on the problems identified through the data analysis, suggestions and recommendations about policy development, program design and implementation, program management, and training were developed, with particular attention to the training needs and appropriate training components and approaches within the broader context.

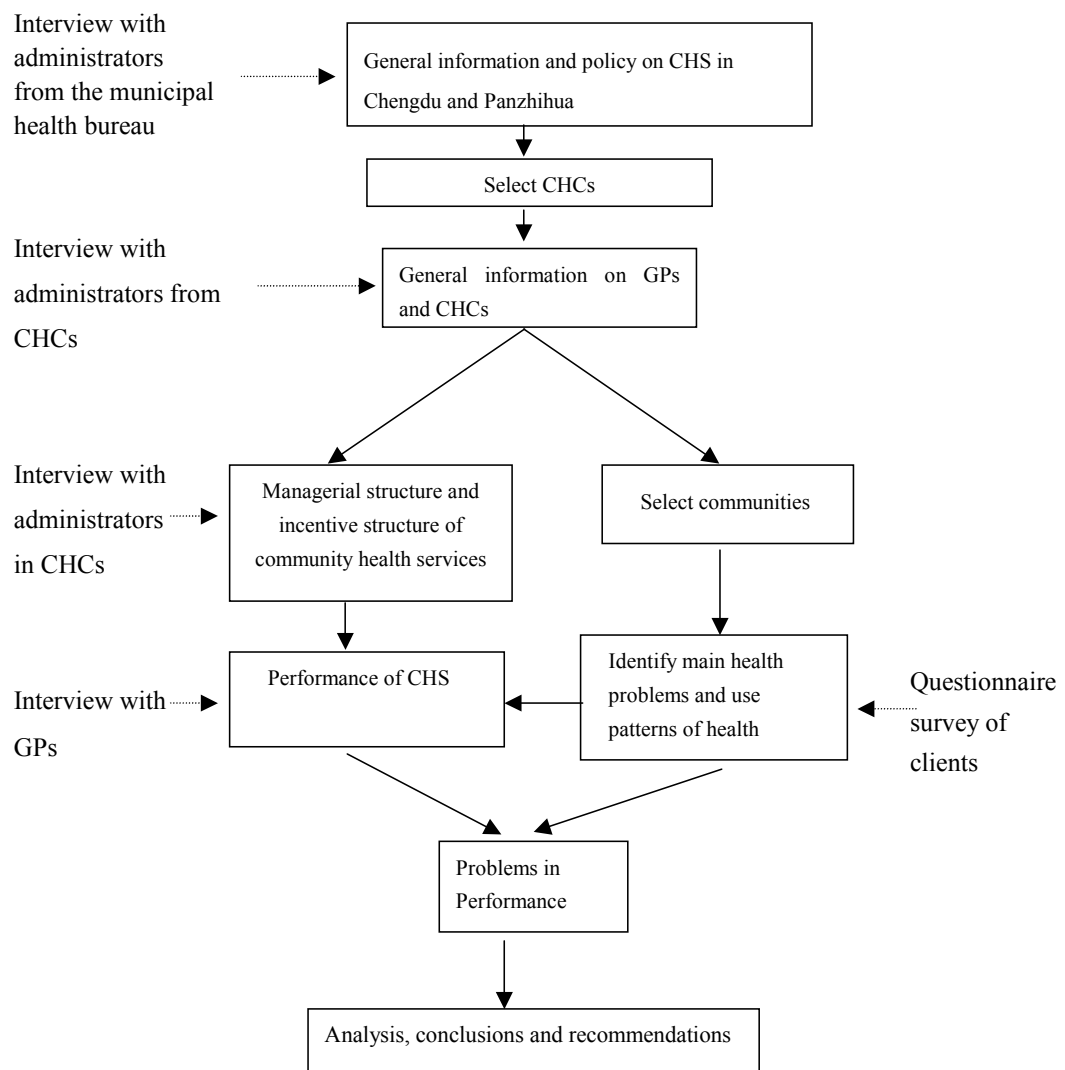


Figure 3-4. Project procedure

Chapter Four

SERVICES AND INSTITUTIONAL ARRANGEMENTS

This chapter gives an overview of the current situation of the CHS programs in Chengdu and Panzhihua with detailed descriptions of the institutional arrangements, workforce and financing; the delivery pattern of CHS and the utilisation of CHS by consumers. A typical scenario of a CHC and its GPs' activities is given to provide a broad framework within which the different characteristics of different CHS programs can be understood. These descriptions will provide the context for the evaluation of performance and the factors that shape performance.

Infrastructure development for community health services

In talking about CHS, the interviewees all mentioned the six functions, described the establishment of CHCs and the transformation of hospital doctors to GPs. Obviously, these three elements have been common and prominent features of the development of CHS in China, as might be predicted from the government policy documents (MOH, 1998; 1999c; MOH et al., 1999) and narrative descriptions in the literature (Changchun Health Bureau, 1999; Chongqing Health Bureau, 1999; Du, X. P., Zhang and Liu, 1999; Liu, S.N. et al., 1999b; Shi, Y.X. and Pang, 1999; Wang, L. D., 1999; Wu, X.Y., 1999b; Yang, T., 1999a; Chen, J. B. and Hong, 2000; Dong, Y., 2001b), representing three key strategies shaping the development of CHS programs in China.

Community health centre: a typical story

Along a busy street, many buildings are crowding in from both sides. Most of these buildings are less than seven stories. Between the buildings is a three metres high brick wall that isolates the busy street from a group of buildings. Residents living in these buildings can only access their houses through an entrance located at a driveway that connects two busy streets. Through the entrance, approximately 20 buildings are neatly aligned inside, each with four stairways to lead to the apartments.

Although serving mainly as residential apartments, the first and sometimes the second floors of those buildings facing the busy streets open directly to the streets and are rented out for use as shops. All sorts of businesses with all manner of striking signs proclaiming their business are located in these shops, including grocery, catering, office supplies and others. Several retail pharmacies and clinics run by either private doctors or public health institutions, as well as one community health centre are scattered among those shops.

The community health centre occupies two stories of one building, with a name indicating both the location and the host institution (Figure 4-1). At the corner of the building, a small bicycle parking area has been excised from the footpath.



Figure 4-1. Entrance of a community health centre

Early in the morning, when people are rushing to their workplaces, the doctors and nurses who work at the CHC are also immersed in the stream of bicycle riders and public transport riders on their way to work. There are a total of 20 employees working in the CHC, including eight doctors and eight nurses. After the new arrivals settle down in the office, the doctor and nurse who were on duty last night give a short handover on the important cases that need further attention from their colleagues and then go back home. Their community tasks are also passed on to their colleagues.

At 8:00 am, the “emergency service” is cancelled and turned into ordinary “outpatient service”. The only difference between the services under these two titles is the one yuan gap in the consulting fee. Patients come to see doctors at irregular intervals. The first staff the patients meet is the receptionist working behind a round

desk. One telephone sits on the desk, which is the only telephone that can receive consumers' calls. Beside the telephone is a box of business cards for offering to the consumers, with contact details and a description of services provided in the CHC. The receptionist asks some basic information of the patients first, and decides the rate of consulting fees depending on whether or not the patient has a contract with the CHC. Once the patients pay the consulting fee, a medical record file is generated with a sequential number⁵². Not all patients have come to see a doctor. There is a pharmaceutical store just beside the reception desk and patients can purchase medicines directly from the pharmacy with the help of the staff working in the store (Figure 4-2). All sorts of medicines can be purchased in this way without prescription, including antibiotics, except for a few under the control of the national legislation such as addictive drugs. None of the pharmacy staff has any training in pharmacy. They are nurses and laboratory technicians.



Figure 4-2. Pharmaceutical store in a community health centre

If the patient wants to see a doctor, he/she takes the medical record file and proceeds to the doctor's office directly. The doctor may be chosen by the patient or assigned by the receptionist. There is no waiting room in the CHC but there are some chairs in the corridor beside each doctor's office. The doctors' offices are all

⁵² A new record is generated each time, except where the patients bring in the one from their last visit (see details later and more in Chapter Five).

on the ground floor aligned in a row with numbers shown at the top of doors. There are five offices in total, named as “diagnostic rooms”. The door of doctor’s office is always open. Patients can easily see whether or not the office has already been occupied by another patient (Figure 4-3). No matter what the situation is, the patient can directly enter into the office.



Figure 4-3. Diagnostic rooms in a community health centre

There is one desk and one bed in each doctor’s office. However, the bed is rarely used. Patients usually sit on the opposite side of doctor’s desk. When necessary, the doctor can stand up and move to the side of patients to give them physical examinations. Occasionally, when the doctor feels it necessary for the privacy of the patient, he/she will close the door temporarily.

Seeing a patient coming into the office, the doctor says hello to the patient and takes over the medical record file from the patient. The demographic information about the patient is immediately copied to the working diary. Then the doctor asks the patient the reason of visit, the history of the condition, and about any kind of help already provided by a medical professional or self-care undertaken at home. After a quick judgment, the doctor decides the next step of the service for the patient, which might be either some form of imaging or laboratory test or both. The laboratory is actually a small office located behind the reception area, with one staff in charge undertaking common tests of blood, urine and faeces samples (Figure 4-4). Once the diagnosis is finally determined, the diagnosis will be added to the working diary and always followed by a prescription. Finally, the results of

clinical assessment and laboratory tests are briefly summarised in the medical record including the prescription. Usually, there are not many patients waiting for services, and the doctor has enough time to explain all details of patient's condition and answer questions. "Do you understand?" or "Do you have any more questions?" are frequently asked by the doctor at the end of the episode of service to encourage questions.



Figure 4-4. Laboratory in a community health centre

At the time when the doctor gives the patient the prescription, the medical record file is also handed back to the patient. The patient is asked to bring the medical record file next time when he/she visits the CHC, or else, the patient has to pay for another medical record file. This record is institution specific and is generally not recognised by other health institutions, although the patient may show this record to doctors working in other institutions for reference.

The patients may purchase the prescribed medicines from the pharmacy within the CHC although they are not required to and most do so, for reasons of convenience.

The patients warmly appreciate the existence of nursing services. The first room in the area of doctors' offices is arranged as a nursing station. Patients receive injections here. Blood samples are also taken in this station.

The second floor is a busy area with several patients receiving intravenous drips (Figure 4-5). Giving medicine via intravenous drips is common in China. Both doctors and consumers believe that it is a way of shortening the duration of illness.

It is quite common to see elderly patients walking upstairs for their infusions, often with great difficulties. There are 12 beds installed in four rooms, which are mainly used to give intravenous drips for patients. Each patient usually has one family member or other care giver sitting beside the bed to take care of the drip as instructed by the nurses. At the far end of the corridor is a toilet shared by both the staff and patients. The administrative office of the CHC is located at the other end of the corridor. Beside it are rooms for ultrasonic B and electrocardiogram, and a somewhat bigger room for conference and health education. The conference room is also used to give immunisations at particular times, designated by the EPS.



Figure 4-5. One patient received an intravenous infusion in a community health centre

This foregoing description is typical of many CHCs. The establishment of CHCs was an initial step in developing CHS. In Sichuan, most CHCs were developed by hospitals, as in other regions of China (Changchun Health Bureau, 1999; Chongqing Health Bureau, 1999; Liu, S.N. et al., 1999b; Shi, Y.X. and Pang, 1999; Wu, X.Y., 1999b; Yang, T., 1999a; Chen, J. B. and Hong, 2000). According to recent statistics, 30% of CHCs in Sichuan were outreach centres of hospitals, while 16% adopted the community service team model in hospitals and 33% were reported to be transformed from hospitals as a whole⁵³ (Wang, T. G. et al., 2002b).

⁵³ The CHS models are described in Chapter Two.

CHCs are categorised into two levels, one is called “centre”, which provides no less than 400 square metres of use space for practice; the other is called “station”, which provides at least 60 square metres of use space for practice (MOH, 2000d). The station may stand alone or be affiliated to a centre when the population can hardly be reached by the centre. All CHCs have to be registered with the health authorities as a medical facility.

As indicated by the story, CHCs tend to be established with a close regard to the needs of healthcare market. Geographic location is a top consideration among both hospital and CHC managers. In order to compete with other medical institutions for patients, most (13/14) CHCs were situated in the business streets. One hospital president expressed caution about setting up CHCs in their designated communities. The poor economic situation of the community residents was one of their main concerns. Another interviewee complained about the ignorance of consumers regarding the existence of the CHC and attributed the reason to their location in a community residential building.

Although we have a ten-year history, many people still don't know the existence of the outpatient clinic. It's impossible for them to know our services such as our gyn/obs. It's related to the environment. We are located in a residents' building. That may be one of the reasons. (GP, enterprise-sponsored CHC)

A minimum standard has been established for facilities and equipment by the Sichuan Provincial Health Bureau, which must be of a standard “*necessary for the purposes of physical examination, diagnosis, treatment and emergency services*”⁵⁴. However, this minimum requirement is not mandatory and was used only for the purpose of accreditation and evaluation, not for registration. Interestingly, one telephone and one pager were included along with other medical equipment in the requirement for judging the eligibility of a station (Sichuan Health Bureau, 2001).

In reality, however, the capabilities of CHCs to conduct pathology tests and imaging vary considerably. Many CHCs are able to undertake common tests on blood, urine and faecal samples and a few are able to test blood glucose and hepatic function. The most common medical equipment owned by the CHCs were electrocardiogram and

⁵⁴ There is no detailed list of the equipment.

ultrasound B. Relatively large equipment such as X-ray machines were rare. In Panzhihua, every CHC was offered a package of GP diagnostic instrument and a computer by the municipal health bureau.

Unlike the CHCs in many western industrial countries (Filinson, 1997; Quality Improvement Council, 1998), China allowed the CHCs to set up or retain hospital beds. *“The CHCs can set up appropriate types and numbers of beds according to the functioning of the CHS, consumer’s demands and available community resources”* (MOH, 2000d). Although the meaning of the above statement is open to interpretation, the majority of CHCs mainly used these beds to offer same day hospitalisation for curative services, in particular for intravenous drips. The hospital beds in the CHCs varied from several to seventeen, similar to CHCs in other provinces (Chen, S. X. et al., 2002a). Some interviewees perceived these beds as a substitute for hospital-in-the-home programs.

The beds are for the purpose of monitoring patients for change in their condition. We do not set up family beds to avoid medical risk, because family beds services usually include intravenous drips of anti-biotic. It’s dangerous if accidents occurred at home. So, we do not encourage family beds. (director, enterprise-sponsored CHC)

Pharmacy was another important component of CHC services. It was the responsibility of the health and pharmaceutical authorities at the provincial levels to set rules with regard to the pharmaceutical services (MOH, 2000d). In Sichuan, no less than 120 kinds of common and first-aid drugs were required to be ready for use in any of the CHCs (Sichuan Health Bureau, 2001), the same as in Shenzhen (Shenzhen Health Bureau, 1998), the most developed municipality in China. Actually, all CHCs were very enthusiastic in their dispensing and selling of drugs, since pharmaceutical services were very profitable.

In summary, the CHCs are arranged and regulated as a medical facility, similar to hospitals and clinics. Clinical and pharmaceutical services comprised the most important CHC activities. Patients followed the procedure illustrated in Figure 4-6 to get clinical services, which was identical to most community hospitals and outpatient clinics. The medical consultations, diagnostic services, pharmaceutical services and nursing services inter-related with each other to provide a holistic range of services for patients. Occasionally, the patients might bypass the doctors and go directly to the pharmacies to

purchase drugs or end a service without a prescription. Despite the strong medical orientation of the CHCs, additional functions had been added to their brief. As I will discuss later in this chapter, community planning represented a key feature of the new CHS programs. Changes in the environment, including more direct competition and less equipment reliance, also had led to changes in the behaviours of GPs and other providers. These will be elaborated later and further discussed in Chapter Five and Chapter Six.

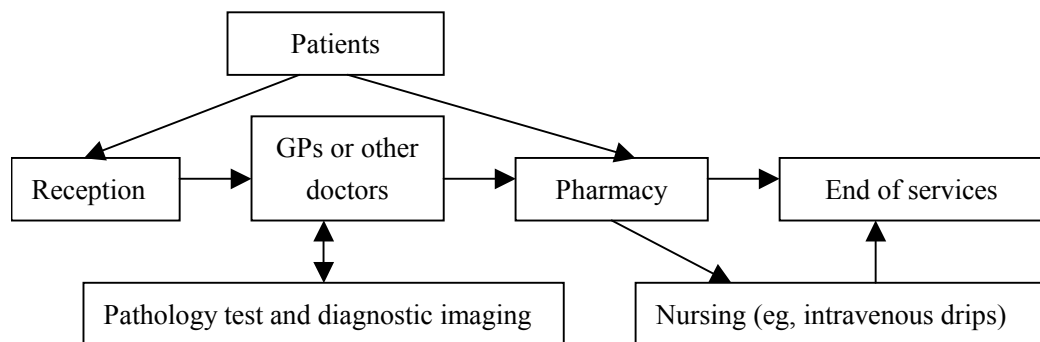


Figure 4-6. Procedure for clinical service delivery in CHCs

General practitioners: the backbone of the community health workforce

Dr X was around 35 years old. She had just been trained in a one-month full-time training program as a GP. Although she had ten years experience as a general internalist in a hospital, she had to pass the training program to be recognised as a GP and be eligible to work in the CHC.

Like every morning, she came to her office by bicycle before 8:00 am. The first thing she did was to put on her white “working suit” and check her schedule, with special focus on the arrangement of home visits or other community activities. This was an unusual busy day with several community jobs. She was supposed to visit an older woman who had had a stroke and to participate in a community lecture co-organised by the CHC and the residential committee. Furthermore, she had been told to share part of the responsibilities of another doctor who was participating in a MCH training program (some of the patients who wanted to see that doctor would be referred to her). After a short conversation with other doctors, she established that the doctor on duty last night had not left any unfinished work. Then she came back to her office and sat down to wait for patients. About 15 minutes later, the first

patient stepped in. She spent the whole morning sitting in her office and seeing patients. A total of ten patients visited her. Most of them were either elderly or children. At lunchtime, she went out and purchased a lunch box and finished her lunch quickly.

At 14:00 pm, she decided to visit the old woman with a stroke. Before departure, she called the woman to make sure that she was available. Then, she prescribed some medicine that needed to be given intravenously and gave the prescription to a nurse and told her to prepare necessary materials and equipment.

Making sure everything was ready, she carried a stand and walked along the footpath towards the woman's house accompanied by a nurse who carried a box of medicine and materials. After a ten minutes walk, they arrived in an entrance in which the patient's house was located.

Dr X said hello to the entrance security person of the residential community and then entered into a three-bedroom apartment. The house was not well decorated with only some old furniture. An 80-year-old woman (patient) was watching TV sitting in a corner. Another 60-year-old woman was working in the house to take care of the patient. Dr X briefly introduced herself and the accompanying nurse and then suggested to begin intravenous drips.

"Can I take the drips on the sofa?" asked the patient. "Yes", Dr X and the nurse answered.

The patient stood up silently and went to the toilet, with very slow movement.

A moment later, the patient came out and suggested, "I'm afraid that I can't stay too long on sofa, may we change to my bed?"

Dr X and the nurse agreed and the equipment was moved to the patient's bedroom. The bottle stand was removed when Dr X found there was a coat stand that was ideal for hanging the bottle of medicine.

"Do you want us to leave the needle in your vein to avoid re-inserting the needle every day?" asked Dr X.

Instead of answering this question, the patient asked “How many days shall I take the drips?”

Dr X: “Seven days for the first phase of treatment.”

Patient: “It’s too long, can we shorten the duration?”

GP: “I’m afraid not, if we want to achieve the ideal effectiveness.”

Without answer, the patient went to her bed.

Then Dr X asked again for her willingness to leave the needle in her vein and explained details about the purpose of the needle and the cost of 28 yuan.

The nurse added that the needle could be used for one week if looked after appropriately. Finally, the patient agreed to take the advice of the doctor and the nurse.

Before inserting the intravenous drips, Dr X explained to the patient: “The medicines we will use are Energic Mixture, Coenzyme A, and Dansheng⁵⁵; all are for the treatment of thrombosis.”

“It’s not thrombosis, it’s cerebrovascular occlusion. It’s diagnosed by the university hospital specialist”, the patient argued.

“All right, these medicines are also effective to treat the occlusion problem”, said Dr X.

Patient: “How much shall I pay for these medicines?”

Dr X: “Some medicines are borrowed, I don’t know exactly about the price. It’s approximately several tens of yuans.”

Patient: “Several?”

GP: “I can check it and call you later.”

The patient turned to the care giver: “bring my cordless phone here.”

⁵⁵ Name of a Chinese herb

A while later, the nurse began to give the intravenous drip to the patient. Seeing all had been done by the nurse, Dr X asked the nurse to explain to the patient how to control the drips.

“Keep the first bottle of medicine flowing until there is about ten ml left in the bottle, then put up the second bottle of medicine, and call me when there is 50 ml liquid left in the bottle. I will come to finish the rest”, explained the nurse.

There was no response from the patient or the care giver. Suddenly, the patient asked “What’s your number?”

Dr X: “555.....”

Patient: “I can’t remember.”

Dr X: “write it down”

Worrying about the possibility of misunderstanding by the caregiver, Dr X asked the nurse to stay in the patient’s home, but got no answer. After a short pause, Dr X turned to the caregiver and asked her repeat what the nurse had said. With a correct answer, Dr X and the nurse completed the home services and returned to the centre at 14:30.

Immediately after returning to the CHC, Dr X told the receptionist that she was ready to see patients again. However, the patient visits were fewer than there had been in the morning. Only a few patients came to the CHC.

At 15:30, Dr X went by bicycle to a residential community specifically designed for the senior officers of a SOE. As part of the requirements of the contract between the CHC and the community, she was coming to deliver a lecture regarding the self-care of diabetes, one of the common health problems in the community. After a 30 minute lecture, the GP answered some questions asked by those attending and ended her work for the day and headed back home by bicycle.

This story is obviously a very condensed one and not all activities happened every day. For example, the workload associated with home visits varied considerably from centre to centre, ranging from an average per doctor of less than one visit in one month to one visit every three or four days and outreach services every afternoon. However, the

GPs were organised in basically same way across all of the CHCs I visited. Outpatient clinics, home visits and community education represented three major services offered by GPs.

There was a strong feeling among the interviewees that GP was a new concept despite the fact that many of them had been working as non-specialists for many years. As stated by some CHC managers, *“All of our CHC doctors will be transformed into GPs sooner or later”*. The crucial difference was that the newly defined GPs were expected to organise CHS. They were bound to the CHCs, not hospitals. The GPs were seen as the most important component of the workforce in providing CHS. However, GP services were not seen as equivalent to CHS. One CHC manager explained, *“It's the CHC that carries the whole six functions, while the GPs play a core role and mainly focus on clinical issues”*. In other words, the CHS program of activities was seen as comprising the six functions through a team effort led by GPs. Despite the important role of GPs documented in the governmental policy, some GPs were not comfortable with this title. They worried about the possibility of people thinking GPs as “barefoot doctors” and the use of the title of GPs by private doctors. Some GPs preferred to be called family doctors and be seen as quality providers.

We prefer to be called family doctors rather than GPs. It sounds more friendly to the resident and also can possibly avoid confusion with bare foot doctors.
(assistant director, independent CHC)

Services and programs

The CHCs all adopted a similar framework in delivering CHS (Figure 4-7). Services and activities were initiated in three different ways as shown in the three boxes above the horizontal line in Figure 4-7 indicating the three main initiation points: individual-based clinical services initiated by clients; public health services arranged by the public health agencies; and planned community activities focusing on the local problems identified through community surveys.

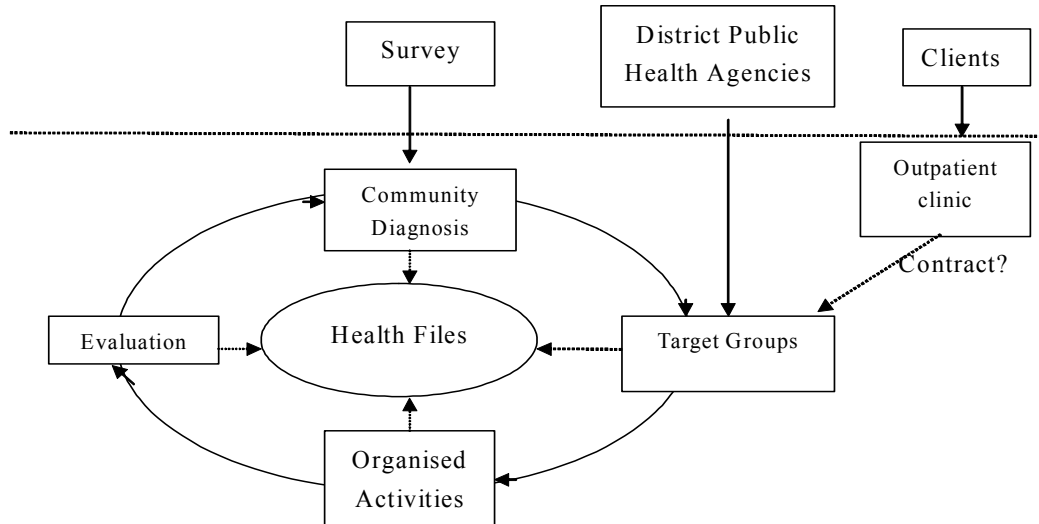


Figure 4-7 Initiation and progression of community health services and programs in urban China

Clinical services

Patients visiting the outpatient clinics comprised two groups: those covered by a contract and those not so covered. The contract patients were those who had signed HCAs with the CHCs. They were offered some special services such as continuous medical records, regular home visits and free consultation (see details later in this chapter) as well as discounts in user charges. In many cases contract patients and their families were also identified as one of the special target groups around which community level health programs were planned (the community health planning cycle is depicted as a circle in Figure 4-7). In contrast, the outpatient services provided for the non-contract patients were usually episode based, more expensive, and less likely to be integrated into the planned community level activities. If a patient had difficulties in attending the outpatient clinic, the CHC staff could deliver medical services at the patient's home when requested, with an extra fee being charged.

We usually pay home visits to patients who can not move, with severe diseases, such as fractures, cancer, some without much hope to recover, and paralysed. The services include intravenous drips, physical examination, urinary catheter, nursing, and sometimes prescription [.....]. The other group is the elderly who are too frail to move and who want our home services. (GP, hospital-sponsored CHC)

Clinical service programs comprised the major service program for almost all CHCs. As estimated by some interviewees, the clinical component comprised more than 60-70% of the entire CHS activities. The pattern of service delivery was almost identical to hospitals, except for more home visits.

Our activities focus on, firstly, outpatient clinics, which is currently our main activity. We also have some affiliated clinics distributed in factories and mines [.....]. Sometimes we also provide clinical services in patients' homes. In addition, we pay home visits to community residents, especially for women with newborn babies and the elderly. We visit them periodically. We also offer home nursing, which is relatively rare, but we do. Sometimes, we also do massage and acupuncture, and give intravenous drips to women with newborn babies at home. (director, enterprise-sponsored CHC)

In general, the majority of CHCs focused their activities on prescription, injection and intravenous drips, and the treatment of common diseases. The director of one CHC said, *"Frankly speaking, the CHC is a retail pharmacy plus a nurse who can give injections. Common diseases can be recognised. All the examinations and tests are done by the hospital, patients are referred to the hospital, of course our own hospital."* In some CHCs where one or more of the doctors had a surgical background, minor surgical procedures were also provided.

We have the capacity to deal with common diseases. We provide drugs, injections and intravenous drips in general. In terms of surgery, we can suture small wounds. (GP, enterprise-sponsored CHC)

We also do surgery, such as foreskin circumcision, the suturing of wounds, and removal of small tumours. Generally, the surgery is done by me. We undertake surgical procedures which do not involve entering body cavities, such as removal of small lipomas. (assistant director, independent CHC)

Some CHCs had set up hospital-in-the-home programs. But others were very cautious about providing this sort of service due to *"the high risk of medical accidents, since a large proportion of home bed patients received intravenous drips of antibiotics."* (Two GPs) Hospital-in-the-home programs were developed rapidly by hospitals in the 1980s and 1990s (Liu, X. N. and Chen, 1999; Bao, Gong and Ye, 2000b). There has

been a general trend of decline of hospital–in-the-home programs in recent years (Liu, X. N. and Chen, 1999).

It's much cheaper and more convenient to receive intravenous drips at home than in hospitals. Patients may feel more comfortable. Of course, we would assess the risk of conducting these activities. (GP, independent CHC)

Public health services

Most public health services carried out by the CHCs were part of wider projects conceived and directed by the PHIs. Common programs included immunisation and MCH care. Only a few CHCs were not commissioned to deliver those kinds of public health services in which case such services were delivered by the departments of preventive care within hospitals, by the local PHIs or by other institutions.

Planned community health programs and activities

Planned community health programs and activities represent the most salient feature which differentiates CHS from others. It was conceived as the major strategy for addressing local community health issues and was defined by the governments as a key component of CHS (Sichuan Health Bureau, 2001). Many interviewees identified it as the most difficult and frustrating component of CHS.

According to policy planned community health programs are expected to conform to the following sequence: step one, conduct a community survey and assessment; step two, identify the high-risk populations (target groups); step three, organise services targeting the identified problems and populations; step four, evaluate the outcomes of these activities; and then go back to the circle for the next wave of activities (Figure 4-7). Health files stand at the centre of this circle. Health files are supposed to record the health related problems of all (or most or at least some) of the people in the catchment area of the CHC (not to be confused with records of outpatient visits referred to as medical records) and are supposed to provide the information base for the planned community health programs.

Community survey

In Chengdu and Panzhihua, all CHCs were instructed by the health authorities to conduct a baseline survey in their designated communities. At least 30% of households had to be surveyed according to the provincial accreditation indicators (Sichuan Health Bureau, 2001). In Chengdu, 70% of the community population was required to be covered in the survey. There was no uniform requirement for the survey instruments. Although the provincial health bureau offered a recommended questionnaire format for the survey, most CHCs or their parent hospitals designed instruments of their owns.

The baseline survey covers demographic information, health related behaviour, the main health problems, and needs for health services. It can be a census or a sampling survey with more than 30% of families being involved. (Sichuan Health Bureau, 2001)

By the time I did my interviews almost all CHCs I visited had begun their baseline surveys. It was a substantial workload for the CHCs, with 20,000-40,000 people to be surveyed for each CHC if covering 70% of the population⁵⁶. In fact, most of the CHCs had not completed the baseline survey. In general they had collected only several hundreds or a few thousands returned questionnaires from a non-randomly selected population.

Community diagnosis

The requirement for community surveys to be undertaken was seen by the policy makers as a necessary basis for the next stage, community diagnosis. In China, the term ‘community diagnosis’ is commonly used to refer to a concept similar to community assessment or community needs assessment as they are used in the English literature (Aday et al., 1994; Billings and Cowley, 1995; Filinson, 1997; Baldwin, Marvin and Rodine, 1998). Although Liang (2000) has argued that there are theoretical differences between “situation diagnosis of community health” and “needs assessment of clients”, the practice of community diagnosis is generally taken as including both. Community

⁵⁶ One CHC is usually responsible for several communities. Population covered by the CHC may vary. The data presented here are from the CHCs I visited.

diagnosis has been promoted as a key strategy for changing a predominantly service-led health care system to a needs-led one (Billings and Cowley, 1995; Filinson, 1997). The results of the diagnostic process could be the determination of the priority problems in a community (Chongqing Health Bureau, 1999), the identification of the populations with particular health problems (Shi, Y.X. and Pang, 1999), the estimation of the prevalence rates of health problems (Aday et al., 1994), or the analysis of the difficulties of community residents in using a certain range of services. No matter how the results are presented, they are expected to serve as a means of determining the provision and extent of health care, including prevention (Li, L. M., 1999; Liang, W. N., 2000).

Based on the community survey and the analysis of the family files and the files of target populations, identify one or more community health problems, and work out a yearly plan addressing these problems (Sichuan Health Bureau, 2001)

As a matter of fact, almost none of the CHCs were capable of doing community diagnosis. Only a few interviewees stated that they analysed the data collected from the baseline surveys and provided evidence supporting their community diagnosis. The examples illustrated by these interviewees were usually accurate demographic information about the residents with various illness conditions predefined by the government policies. Some interviewees identified the most common problems they encountered in their clinical practices as the main community problems, such as URI (or common colds) and digestive disorders. Their estimation of the main community health problems was based largely on their own clinical experience. For example, one interviewee from a CHC located in a mine reported silicosis as a key community problem, while another interviewee thought that health education was the most urgent demand of their communities. However, all of these (and similar) estimations in other centres were either based on clinical experience, anecdotal information or simply filling in the blanks in forms designed by the health authorities. While they are all valuable and important sources of data, community diagnosis based solely on top down priority setting or individual clinical experience or circulating anecdotes of need run the risk of overestimating the significance of some problems and underestimating others that might be particularly prevalent amongst the locals.

One CHC employed qualitative methodologies such as focus group discussions to identify the community problems and to understand consumers' demands, a strategy encouraged by the western nursing educators (Edwards et al., 1999). This was the only

case in this study where consumers were actively involved in the processes of community diagnosis. Interestingly, the director of this CHC was a nurse (the other CHC directors were all doctors) who had just attended a training program about community nursing in Shanghai, with contributions by some western nursing educators.

We have sorted our baseline data by the chronic conditions of hypertension, diabetes and coronary heart diseases, and screened the elderly people. Then we organised workshops for the people aged 60 years and over. Because there are too many elderly in our community, we had to divide them into several groups and held several workshops. Our purpose was to enhance their understandings of our services and get feedback from them, although we had already introduced our centre during the baseline survey. We wanted to know their opinion, their understanding of the community, and their demands on community services, so that we could work out plans that took their comments into consideration. We focus on two target groups in community, one is the elderly and the other is the children. (director, hospital-sponsored CHC)

Health files

According to the intentions of the policy makers the health file would form the foundation for community diagnosis and program design and would provide an essential resource for program evaluation as well. It was also seen as an essential instrument to ensure the continuity of care. Two types of health files were required by the provincial health authority (Sichuan Health Bureau, 2001).

- Family health file

Family health files are supposed to document the demographic information of family members, relationships between family members, birth and disabilities, education and economic conditions, and health and illnesses of family members.

- Individual health file

Individual health files (IHF) are supposed to document basic demographic information, health problems and relevant risk factors, episode of care information, and follow-up services planned for and provided to members of various target populations including children, elderly, gravidas and maternity, and patients with chronic conditions

(eg. hypertension, cancer, diabetes, and psychiatric diseases) (Sichuan Health Bureau, 2001).

The health files must have the functions of searching, adding, modifying, and saving in order to manage the change of conditions and ensure the continuity of information. (Sichuan Health Bureau, 2001)

As stated by the interviewees, most health files were created during the baseline surveys. But in many cases the need for more information involving laboratory tests was identified during the baseline surveys according to the needs of each individual. Clearly, this information was not able to be collected during the baseline surveys. Many residents might need to attend at the clinic for particular tests which were judged to be necessary. Consequently, IHFs were usually created for only a certain defined target groups. It was also frequently offered as a benefit for the contract clients.

We have created several hundred of health files [.....]. Why did we go so slow last year? Because we need to include some information in the files about the laboratory tests and we were not able to do the tests during our home visits. We did the baseline survey in 1996. If we couldn't add the laboratory tests afterwards, the home visits would be worthless. So, we decided to create the health files during the outpatient visits. It's really slow. (director, enterprise-sponsored CHC)

As required by the provincial health authority, the IHFs should cover four target populations: the elderly, children, mothers, and patients with chronic illnesses (Sichuan Health Bureau, 2001). But in reality, the CHCs focused mainly on contract clients, with tens to hundreds IHFs being developed. Little attention was given to the non-contract consumers, except for the target populations (eg. mothers and children) of public health projects. The IHFs in relation to the public health projects were generally managed by PHWs, not GPs, focusing on special needs of some target populations across a certain period such as physical development of children. The information associated with clinical services provided by GPs or other clinical service providers was rarely integrated into these records. This is fundamentally different from a person centred (recognising multiple needs) and episode based record.

Organised activities oriented to the local problems

As mentioned earlier, the community residents were usually divided into groups, giving priorities to the elderly, children, maternity, people with mental disorders, patients with chronic conditions, and contract clients. These populations were referred to as target groups.

We intend to create health files and then classify the files into several groups according the category of diseases and age. We prepare to provide different sorts of services according to the groups classified. The healthy group will be coloured in red. The high-risk group will be coloured in blue. The patients will be coloured in yellow. (director, enterprise-sponsored CHC)

The provincial health bureau has developed some directives for the management of the target groups of populations (Sichuan Health Bureau, 2001). For example:

Children under seven years old: Developmental examinations have to be offered four times to infants within one year after birth, two times each year for children between one year old and two years old, and one time each year for children between three years old and six years old. Planned immunisation protocols for seven vaccine preventable diseases has to be followed⁵⁷.

Maternity group: Pay periodic visits to women from 12 weeks after pregnancy to six weeks after giving birth and offer necessary care and treatment according to the “National rules for ante- and post-natal care for urban areas”, with a total of eight physical examinations in the period of pregnancy and three home visits after giving birth.

Elderly: Classify the elderly into three groups. Provide health consulting services to the first group comprising the ordinary elderly, periodic physical examination and intervention to the second group comprising the elderly with chronic conditions, and the same services as the first and second groups as well as

⁵⁷ The seven vaccine preventable diseases are: tuberculosis, pertusis, diphtheria, tetanus, poliomyelitis, measles and hepatitis B.

nursing services to the third group comprising the elderly aged 85 and over or with disabilities.

Patients with mental disorders: Provide community rehabilitation services to the psychiatric patients; Set up home beds or organise home visit groups to offer care and curing services to psychiatric patients; Carry out community education programs for the retarded children; or Conduct health education to the psychiatric patients and their family members.

Patients with chronic conditions: Create records and health files for the patients with the prevalent chronic conditions; Give periodic physical examination and treatment; Offer counselling on control of specific conditions for the patients and family members; Carry out health education and community interventions focusing on specific risk behaviours.

Contract clients: Develop health files for contract individuals and families; Provide annual medical examinations including general physical examination, blood test for common items, and blood pressure. Test blood sugar, cholesterol, and triglyceride and give X-ray examination once every two years. Pay home visits periodically and distribute health education pamphlets.

In reality, the CHCs rarely organised planned community health programs addressing the local health problems identified as a result of their own community diagnosis, except for the contract clients. Most of the planned community activities were arranged either by the PHIs or by the health authorities, which aimed at a district or municipal level rather than being initiated locally. The population-based activity that was most frequently mentioned by the interviewees was health education. In most cases it meant posters displayed locally or lectures organised in the communities. Only one interviewee (director) stated (proudly) that their baseline data had been used to help plan their community activities. One interviewee (assistant director) showed me the baseline results and stated that priorities were being given to the most prominent health problems, such as hypertension (6.3% in the community). However, neither the results of the baseline survey nor the work plan targeting the population with hypertension was a production of the CHC, instead, both were worked out by a scientific researcher who was undertaking a separate pilot study in this community.

Evaluation

It is the responsibility of the provincial health authority to develop accreditation or evaluation standards. But the evaluation is usually implemented by the municipal health authorities. Although the indicators vary between different provinces, the philosophy and structures of these accreditation or evaluation programs follow a broadly similar framework. There was a strong emphasis on the infrastructure building and process of services (Table 4-1). Outcome indicators were rarely included in the evaluation (Shenzhen Health Bureau, 1998; Shi, Y.X. and Pang, 1999; Zhong, T.L. et al., 1999; Guo, Q. et al., 2002).

In 1999, the Sichuan Provincial Health Bureau promulgated quality standards for urban CHS programs (Table 4-1). It was intended to serve as a framework for quality assurance and program evaluation. However, the provincial government did not intend to evaluate the performance of each CHC against the criteria⁵⁸. Instead, they encouraged frequent self-monitoring and self-evaluation to assure the quality of CHS. Similar quality standards were also promulgated in other provinces in China (Bao and Gong, 1998; Dong, Y. M. et al., 2000b; Guo, Q. et al., 2002).

⁵⁸ These quality standards are designed for the evaluation of CHS programs at municipal or district level. However, the detailed requirements for CHCs and CHS practice can also be used by individual CHC to guide its management and delivery of services.

Category	Weight	Indicators
Structure		
Policy support	0.07	1. Well-developed administrative system (%) 2. CHS as part of governmental plan (%) 3. CHS as part of performance objectives of officials (%)
Financial Resources	0.08	1. Health investment in governmental financial output (%) 2. Community health funds per capita (Yuan)
Facility	0.07	1. Coverage of community stations (%) 2. Coverage of eligible community stations (%)
Human resources	0.06	1. Implementation of GP training plan (%) 2. Coverage of GP training for potential candidate (%)
Process		
Information management	0.10	1. Conduct baseline survey (%) 2. Conduct community diagnosis (%) 3. Coverage of family health files (%) 4. Coverage of health files for target population (%) 5. Scientific management of health files (%)
Health promotion	0.03	Conduct health education (%)
Maternal and child health	0.13	1. Coverage of systematic management for Children under seven years old (%) 2. Coverage of immunisation (%) 3. Coverage of systematic management of maternal population, including antenatal and postnatal care (%)
Aged care	0.05	Coverage of grouped care for elderly (%)
Chronic diseases	0.08	Coverage of systematic management of chronic diseases (%)
Psychiatric diseases	0.03	Coverage of systematic management of psychiatric diseases
Clinical services	0.05	Meet basic needs and develop two-way referral system
Communicable diseases	0.06	Rate of timely report of communicable diseases (%)
Contract	0.04	Coverage of health care agreements (%)
Outcomes		
Short term	0.03	1. Understanding of health related knowledge by community residents; 2. Coverage of health behaviour (%)
Long term	0.12	1. Improvement of Activity of Daily Life (ADL) of patients with chronic conditions; 2. Improvement of ADL of elderly 3. Mortality rate of children under five 4. Degree of satisfaction of residents 5. Degree of satisfaction of patients 6. Degree of satisfaction of governments

Table 4-1. Indicators for evaluating the quality of community health services in Sichuan

Referral

Developing a two-way referral system was identified by the government as a key step to enable the continuity and coordination of health care (MOH et al., 1999; Sichuan Health Bureau, 2001). Theoretically, referral could involve a transferring of patients to

other providers, or merely requesting consultation and advice without transferring ongoing responsibility for patient management (Franks and Clancy, 1997; Forrest et al., 1999a; Forrest et al., 2002). China adopted the former definition.

The most common referral channel was the transferring of patients from CHCs to hospitals or from hospitals at lower levels to hospitals at higher levels⁵⁹. In a sample survey of secondary and tertiary hospitals in Sichuan, we found that 83% of referring patients went to hospitals at higher levels, compared to 14% going downwards. Meanwhile, 91% of referred patients came from health organisations at lower levels while only 3% came from hospitals at higher levels (Liu, D. P., Li and Liu, 2001).

Our centre has signed a contract with W district hospital. We referred about 20 patients to W in the past, but none was referred back. Therefore, we have stopped referring patients to the district hospital. We are now looking for other contractors in expecting a real two-way referral system that may benefit both. (assistant director, independent CHC)

We have no contracts with other hospitals. If we encountered difficulties, we could refer our patients to the 1st city hospital or to others. We are considering the development of referral system. It's not well developed yet. The so-called "two-way" referral system is actually one-way referral. No patient is referred back. Many hospitals want our patients, including the city hospitals, provincial hospitals and the university hospitals, but they won't refer patients back to us. (president and CHC director, district hospital)

My questionnaire survey revealed that among the most recent encounters of the patients who saw doctors during the past six months, 4.1% (5.3% of those who attended public sector services at the district level and below) were advised by their doctors to seek help from other providers and 6.6% had been actually referred to other health providers for the visits. Excluding private clinics and pharmacies, where no patient was referred, the referred patients comprised 9.4% of the total patient visits. It seems that the referral rate reported here was comparable with that reported from primary care

⁵⁹ Referral activities within one organisation are not discussed here. For details about this type of referral, please see Chapter Six under the heading "Intra-organisational referral".

providers of other countries. In the USA, between two and five per cent of office visits to family physicians lead to referrals (Forrest et al., 1999a; Forrest et al., 1999b; Forrest et al., 2002). Forrest and colleagues (2003) found that the UK GPs are less likely to refer their patients to specialists than their counterparts in the US. In Africa, 0.7% to 3% of outpatients in primary care clinics are referred (Franks and Clancy, 1997; Franks, Mooney and Sorbero, 2000; Fisher, 2002; Chan and Austin, 2003; Macintyre, Lochigan and Letipila, 2003). However, the comparison and interpretation of the referral rates must be cautious. The definition and scope of referral activities and the calculation method (encounter based or per patient) employed in various studies were often different (Forrest et al., 1999a; Forrest et al., 1999b; Forrest et al., 2002). The demographic characteristics and pattern and severity of illnesses of the study population might also pose different referral needs (O'Donnell, 2000; Forrest and Reid, 2001).

Patterns of service utilisation

Of the 1041 questionnaire respondents, 18.9% (197) had ever seen doctors during the past six months. I investigated the details of their most recent episodes of care. The majority of these visits were first contacts of the episodes (91.8%) and without referral from other care providers (93.4%).

Distribution of clients⁶⁰ in health organisations

The most recent contacts of residents with health institutions were overwhelmingly with hospitals (64.5%), with the remainder shared by private clinics, pharmacies and CHCs. CHCs occupied only a small part of the 'health marketplace'. The CHCs accounted for 6.6% of the total contacts, even less than those visiting private clinics (17.2%) and pharmacies (12.2%). The actual share of client contacts by CHCs might be greater taking into consideration the patients who visited the hospital affiliated CHCs but who did not differentiate them from the hospitals. However, the share of the 'health marketplace' currently occupied by the CHCs was unlikely to exceed one quarter. Even in the community that was believed to be well served by an independent CHC, the share

⁶⁰ Here I use the term "clients", not patients, because some residents saw doctors for preventive purposes.

of client contacts by the CHC (20.3%) did not exceed those visiting private clinics (27.1%). The distribution of patient contacts across the health organisations showed that patients tended to use hospitals at the municipal and provincial levels or private clinics or pharmacies, although there were minor differences between communities (Table 4-2).

Communities	Number of respondents	Distribution of clients (%)			
		Public organisation at district and lower level	Public organisation at municipal level	Public organisation at provincial level	Private clinics and pharmacies
With hospital sponsored CHC	97	14.4	47.4	15.5	22.7
With independent CHC	59	25.4	20.3	16.9	37.3
Without CHC	41	24.4	22.0	19.5	34.1
Total	197	19.8	34.0	16.8	29.4

Table 4-2. Distribution of clients among different health institutions by communities⁶¹

The proportional distribution of clients (based on the most recent encounters of the patients who saw doctors during the past six months) of the three communities were different ($\chi^2=16.25$, $p=0.012$).

Characteristics of clients attending community health centres

In Chengdu, most clients attending CHCs were elderly and uninsured (according to the interviewees) but the characteristics of clients attending CHCs was significantly affected by the different circumstances of the different communities. The majority of CHCs in Chengdu did not cover the communities based on “work units”, since “*they had already developed agreements with other care providers or established their own health institutions*” (director, hospital sponsored CHC)⁶². But in Panzhihua, a highly industrialised city, most residential communities were managed by the industrial

⁶¹ Share of CHCs in patient contacts has been reported earlier. In this table, I do not report the CHCs separately from other health institutions because the vast majority of CHCs were attached to hospitals which could be at various administrative levels (although most or many may be at district and lower (eg. organisational) levels).

⁶² Work units (Gong Zuo Dan Wei) indicate the organisations for which people work, including factories, companies, governmental agencies, schools and others. They usually offer a range of welfare

companies and the majority of CHCs were also sponsored by company hospitals. Therefore, the company employees and dependents were the major clients of CHCs. As estimated by the interviewees, some 50% to 90% of clients attending these clinics were insured. But in the non-company based communities, uninsured clients still comprised a large proportion. In one CHC, for example, more than 90% of CHC clients were uninsured.

Managerial arrangements

Staffing and staff relationship

Staffing mix

The number of staff working in the CHCs involved in this study varied considerably, ranging from three to 40, with an average of 21. However, this was not an accurate estimation, since many CHCs were built into the hospitals, which made the identification of CHC staff very difficult.

An average of eight GPs (1-18) and eight nurses (2-18) were working in each CHC, accounting for 73% of the total CHC staff. This might be an overestimate because PHWs were not included in some CHCs. According to the provincial policy of Sichuan, GPs were required to be allocated in proportion to the populations covered by the CHCs, with one GP being responsible for 2,000 to 2,500 community residents (Sichuan Health Bureau, 2001). This represented a greater demand for GPs than the national policy norm (1:5000) (MOH, 2000d). There is a big debate regarding the role of nurses and appropriate ratio between doctors and nurses in CHS⁶³. Some experts recommended a ratio of as low as 1:8 to 1:12 (Lang and Li, 2002). But in reality the doctor nurse ratio was usually greater than 1:1. A survey in four municipalities found a doctor nurse ratio of 1:0.4. Lang and Li (2002) argued that given the current situation of human resources, keeping a ratio of 1:1 to 1:2 is appropriate and practicable.

benefits for their employees, covering accommodation, medical care, child education and superannuation.

⁶³ Nurses were required to be allocated in an appropriate ratio against GPs, usually ranging from 2:1 to 1:2 (Shenzhen Health Bureau, 1998; Sichuan Health Bureau, 2001).

PHWs⁶⁴ were the third biggest group of CHC staff. Managers held different attitudes towards the PHWs. Many managers saw PHWs as part of their CHC staff, because “prevention is the priority for CHS” (MOH et al., 1999). In contrast, a few hospitals retained an independent department to accommodate the PHWs, resulting in a separation of public health activities from CHC activities.

Other CHS staff usually included medical technicians and administrative staff. Among the interviewees, only one mentioned the employment of staff specialised in rehabilitation. In most CHCs, rehabilitation services and dietetic consulting, if ever provided, were offered by either nurses following the advice of doctors or directly by doctors. None of the CHCs employed social workers.

Staff relationships

GPs have been seen as the key staff responsible for CHS from the beginning of its appearance in China (MOH, 1998; MOH et al., 1999; MOH, 2000a). GPs were assumed to organise and coordinate a wide range of comprehensive services addressing the community health issues (Sichuan Health Bureau, 2001). However, in the CHS included in this study, GPs focused mainly on clinical services at an individual level. Most GPs adopted a pattern of working, similar to that in hospitals, putting a strong emphasis on physical diagnosis and prescription. My questionnaire survey revealed that about two thirds of consumers who had seen doctors in the last six months received services associated with the above activities, showing no difference between organisations except for the private settings.

Nevertheless, as reported by the interviewees, some GPs were working more actively in their communities than their hospital counterparts. For instance, some CHCs assigned community responsibilities to individual GPs, requiring them to organise and direct community activities. Some GPs advertised themselves in order to attract community residents to make contracts with them.

The communities are assigned to each GP. The GPs arrange community activities by themselves. We require them to work in clinics in the morning and go

⁶⁴ Public health workers include a whole range of full time workers engaged in public health activities. They can be public health doctors, nurses, or other health professionals.

to communities in the afternoon. For example, if I am in charge of the 10th residential committee, I will collect information about the community and record all sorts of clients, such as patients with hypertension, disabilities, diabetes, and mental illness, and women in pregnancy or with new born babies. Then, I will arrange home visits to them. (assistant director, independent CHC)

However, GPs did not always have the authority to organise and arrange necessary resources for planned community activities.

We do not organise activities in communities. The prevention and child care activities are independent from ours [.....]. We have to do surveys and pay home visits, including visiting mothers with new born babies. I think it's a waste of human resources. A lot of things can be done by nurses. I complained to the management committee. I said that I did not play a role in organising activities. I spent most of my time in details. The nurses actually can take the responsibilities of managing contracted communities [... ...]. The GP does not enjoy the position it deserves, in terms of incomes and roles. The GPs should play core roles in CHCs. They should plan and organise community activities. (GP, independent CHC)

Nurses played a similar role to that in hospitals, working with individual doctors. They followed doctor's advice and gave treatments to patients. However, the individual activities of nurses were administratively managed by the charge nurse. Doctors were not authorised to arrange nursing activities directly. Nurses worked as a group, sharing nursing responsibilities. One nurse might take advice from all doctors in relation to a particular activity, such as giving intravenous drips. In fact, the nurses were too busy in giving medicines (in particular managing intravenous drips) to pay attention to other activities. If a GP needed a nurse to accompany them for home visits or other community activities, they usually negotiated with the charge nurses. In this sense, the nurses were relatively independent in deciding their own activities, provided that they followed the GPs' advice.

If a doctor can not come to work, I may take his/her contract patients [.....]. Nurses are not completely involved in family management. They still focus on outpatient clinics. Sometimes, we will suggest some community activities to them. (GP, independent CHC)

PHWs usually did not rely on GPs' advice. They implemented tasks delegated from the PHIs. GPs rarely participated in the public health services.

Diagnostic and pharmacy services were important components of CHC operations. However, the CHCs rarely employed pharmacists. The dispensing of drugs was usually done by clerks, nurses, technicians or even GPs. In one CHC, for example, one staff member was appointed to be in charge of both laboratory tests and pharmacy services. With regard to the diagnostic services, as explained by some managers, because the demands for those services were not so high, some CHCs let the doctors or nurses to take over these jobs. This indicated that GPs were less reliant on medical equipment than their counterparts in hospitals.

Financing (paying) community health services

There were three main financing mechanisms through which the costs of the various CHS activities were covered:

1. Fee-for-service for clinical components: User payment was the main source covering clinical services. For the insured urban employed, the outpatient services were covered by the IHSA. Meanwhile several defined diseases⁶⁵ that needed regular and expensive outpatient services were covered by the SPF (or user payment for uninsured).
2. Project funding: The public health services were usually funded through the PHIs, depending on the populations serviced.
3. Mixed funding sources for planned community activities: Per capita government funding (eg. ¥ 0.5 yuan in Panzhihua and Tianjin (Yang, W. X., 1999b)) or fixed budget could be used to compensate the costs of planned community activities. Most CHCs also sought for financial supports from hospitals. Other sources included contract fees and sometimes user payments. Obviously, there was no single funding source to fully cover the planned community activities.

⁶⁵ The outpatient services covered by the SPF include: radiative or chemical therapy for cancers, dialysis for renal failure, anti-rejection therapy for renal transplant, chronic leukaemia, aplastic anaemia, Parkinson's disease, systemic lupus erythematosus, hepatocirrhosis, schizophrenia and other outpatient services for the diseases that may cost more than 15% of the annual average salary (in Chengdu) within three months (Chengdu Bureau of Labour and Social Insurance, 2001).

The CHS staff were usually salaried by hospitals or CHCs themselves with governmental subsidies or by the enterprises for enterprise-attached CHC staff. This arrangement was obviously a national wide model. A survey showed that in most cities (68.9%), hospitals provided salaries for their community health workers. About 16% of cities also paid salaries of the community health workers from governmental funding (Yang, H. et al., 1999b). Hospital investment accounted for a majority of financial resources. Even in Shanghai, where governments were believed to provide profound financial supports to CHS (eight yuan per capita), 63% of funding came from hospitals (Wu, G. Y. et al., 1999b).

In Panzhihua, the municipal health authority provided every CHC with a set of GP diagnostic instruments and a computer, as well as 0.5 yuan per capita budget funding to support the planned community activities. In Chengdu, a fixed amount of funding from three-levels of health authority was expected. A few CHCs had got 20,000 yuan budget support from the municipal health authority and co-investment of 10,000 and 10,000-20,000 yuan from the provincial and district health authorities, respectively. However, these were not regular yearly budgets, not every CHC being able to get the same supports.

Other less common financing sources included private investments and international funding projects. Private investment in CHS took various forms. For example, a real estate company provided a building for one CHC (perhaps as a way of marketing to attract purchasers). One community pharmacy spared three offices for a CHC (which would of course make it more likely that prescriptions from that CHC were dispensed in that pharmacy). There was also a private investor who put money directly in the development of CHC (apparently in the expectation that CHS could make profits). Some international funding resources also expressed interests in CHS. In Chengdu, a CHC got Canadian investment to purchase medical equipment, to decorate offices and patient wards, and to install computers (Dobie, 2001). The China Medical Board of New York Corporation supported two urban community based health projects in Sichuan and Heilongjiang respectively. In 2001, the UK Department For International Development initiated an urban poverty program focusing on improving the access by urban poverty residents to health care. AusAID was also involved in policy development for CHS at the provincial level.

A private boss invests some money in our centre. He is interested in the name of CHS. He is also a medical practitioner and he finds that we can balance our budget. (assistant director, hospital-sponsored CHC)

Our offices are provided by the pharmacy next door. After prescriptions, patients can buy drugs at the pharmaceutical retail in the next door. Sometimes, the patients may go to other retail pharmacies to buy drugs, such as the drug warehouse, at a cheaper price. We don't instruct the patients, however, most patients would prefer to buy drugs in the next door, because the drugs we prescribed are usually not expensive, the volumes are not big either. Furthermore, our priority is home based services. (GP, hospital-sponsored CHC)

Relationship with governments

There was a strong feeling among the interviewees that CHS were responsibilities of the governments. Although the central government had been aware of the complexity and difficulties of CHS, and hence included other governmental departments in developing relevant policies, CHS were still often seen as exclusive to the health authorities.

Community health, people think, we think, that it's a governmental behaviour [...]. However, the governments don't really take this seriously, except for the health and education authorities. It is a governmental behaviour. The governments know that CHS have no financial revenue. For the businesses with good financial revenue, they will pay extra attention. For the business without financial revenue, no one cares. (president and CHC director, district hospital)

There exist three parallel hierarchical structures within the health system in the delivery of services associated with CHS functions: hospitals, EPS (or CDC), and MCH. They are governed by the Department of Medical Affairs (DOMA), the Department of Disease Prevention and Controls (DODPC), and the Department of MCH (DOMCH) respectively. Due to the hospital origin of CHCs, the CHS had been governed by the DOMA until recently when the DOMCH took over the responsibility and was renamed as "Department of Basic Health Services and Maternal/Child Health" (I will maintain the abbreviation DOMCH to represent the new department). Besides the health system, the Family Planning Committee is responsible for birth control and the Ministry of Civil

Affairs takes charge of community development and social support and care for elderly, poor, and disabled.

While hospitals are increasingly dependent on user payments (MOH, 2000b), governments are paying more attention to ‘steering’ health service development rather than ‘rowing’ the activities. However, CHS were more tightly regulated by the governments than other hospital activities. For example, there was a CHC which was directly managed by the health authorities. A board of directors including members from the provincial health bureau, the municipal health bureau, the district health bureau and the SAOs was established, focusing on the issues of service delivery model, fiscal management, and preventing the CHCs from becoming small hospitals. As described before, the scope and procedures in delivering CHS were well defined by government. The health authorities were directly involved in financing and evaluating CHS and training the CHS workforce.

Relationship with hospitals

Hospitals (or independent CHCs) enjoyed considerable autonomy in deciding what CHS to deliver and how as long as they followed governmental regulations, including the defined range of services⁶⁶. This represents a general trend of devolution and decentralisation in the health delivery system. In the past two decades, hospitals have gained greatly increased autonomy in deciding professional activities (Pei, 1998, PP. 200-8).

In Panzhihua, all hospitals were encouraged to develop CHS including the tertiary hospitals. Although the tertiary hospitals in Chengdu were not encouraged to establish CHCs, some had already done so without explicit rejection from the health authorities⁶⁷.

⁶⁶ Sometimes, the governments could encounter struggles from the health organisations to demand more freedom in arranging services. For example, one CHC which had been originated from a MCH institution tried very hard to maintain the right to perform abortions (which was beyond the range of CHS activities defined by the municipal health authority) despite the fact that the nature of this institution had been changed.

⁶⁷ The new CHS policy allows all health providers to be involved in CHS (MOH, Office of System Reform of State Council, State Planning and Development Committee et al., 2002).

The hospitals invested, planned and directed CHS and ensured a certain standard and quality of CHS activities, such as uniform requirements for health contracts or baseline surveys. In most cases, the CHC was considered as one department of the hospital. Usually, one of the hospital presidents was appointed to be in charge of CHS. Some hospitals set up a CHS office to provide guidelines for the CHCs. Because of the close relationship and overlap of CHS functions with the Department of Preventive Care, a few hospitals put the CHCs under the supervision of the Department of Preventive Care. Occasionally, the CHC directors also took senior management positions in hospitals. For example, one CHC director was the head of the Hospital Administrative Office; another CHC director was the hospital president. Theoretically, the CHCs could arrange their own CHS activities given the condition that these activities fell into the scope defined by the local health authorities and hospitals. But actually the CHC development was constrained by the resources available through the hospital.

As owners and supervisors of CHCs, hospitals also played the roles of coordinators to facilitate collaborations between various departments within hospitals and to negotiate with other stakeholders outside the hospitals.

We adopt a strategy of teamwork in providing CHS. It's hard to tell who are community health staff and who are not. The hospital arranges the activities of all doctors and balances the hospital activities and community activities. The doctors pay home visits by turns. (president and CHC director, district hospital)

Relationship with communities: contracts

Each CHC was designated as servicing a certain geographic catchment. This designation applied only for public health projects and planned community activities. Consumers were not restrained in seeking medical help or first contact help from CHCs. The HCA was developed as a means of keeping long term relationships with consumers, supporting GPs' first contact role, and ensuring the continuity of care (Sichuan Health Bureau, 2001).

My interview revealed three approaches and forms of HCA.

- Contracts with individuals or families

This was the biggest group of contracts. The HCAs could be based on individuals or families depending on the policy of each CHC. The negotiation was usually made

between GPs and consumers during the home visits in baseline surveys or outpatient services or health education lectures. Consumers were free to choose whether or not and with whom they would like to sign the contracts.

We assign several communities to each doctor so that the doctors can organise activities in their responsible communities. However, the patients do not necessarily sign contracts with the doctors who are in charge of their communities. It is the patients who choose whom they would like to sign contracts with. They can even change contracts to others if they are not satisfied with the current contract doctors. (assistant director, independent CHC)

Contracting community members could enjoy free consultation, free physical examinations, free home visits (or discounted fees), and discounts in the prices for materials and medical services. The frequency of these free services and the discount rates depended on the levels of the contract fee and the policy of each CHC. For example, in one centre, a 40 yuan contract covered the cost of monthly home visits, while the 60 yuan contract included additional free physical examinations in the clinics. For the 80 yuan contract, there was a promise of instant home delivery of services when requested. In another centre, the patients who had only signed a ten yuan HCA were only entitled to free consulting services. They had to pay full fees for the drugs, materials, equipment investigation and laboratory tests for which the 60 yuan HCA members could enjoy a discounted fee.

Most of our contract clients live nearby, except one who lives very far away. This is a man working nearby. He saw doctors in our centre for one or two times. He thought that we offered good quality services, and if he signed a contract with us, he could get telephone counselling to assist him keeping healthy. We had explained that it is impossible for us to pay home visit or deliver any services at his home, but he could enjoy other services as a contract client, including health education. I think he intended to make friends with us and wished us to help him in building self-care capacity. If he prepares some medicine at home, when his family member is ill at midnight, he will not necessarily visit any health institutions. Instead, he can call

us for suggestions. The problems may possibly be solved at home. (GP, independent CHC)⁶⁸

- Contract with communities

Occasionally, the HCAs were made between the CHCs and the communities, especially for the communities exclusively designed for the dwelling of elderly. Most of these communities were built by military authorities or industrial enterprises to provide accommodations for their retired senior officials or cadres, and were named as “gan xiu suo”.

We signed the contract with a gan xiu suo, it's a contract with a community. We provide outreach clinical services for the residents in that community. If they set up a clinic by themselves, that would cost a lot. Therefore, in January, when they were preparing to set up a clinic, we discussed the issue with them (expressing our intention to serve this community). They thought we gave a good idea, because of the low distance to our centre, good equipment in our centre, and moreover, our outreach services. At that time, there were a total of 80 families; all came from Mianyang Scientific Town, and were retired cadres. We visit the community twice a week. If required, we can pay home visits at any time. They can also pop up to our centre. (assistant director, independent CHC)

- Contract with SAOs

Some CHCs were contracted by the SAOs to take care of the old elderly (aged 80 and over) or the elderly living in poverty and without family supports who were eligible to enjoy the social welfare⁶⁹, which used to be the responsibilities of the DOCA.

⁶⁸ The story reflects: (1) unbalanced development of CHCs, in terms of both distribution and quality of services provided; (2) demands from residents not well met; (3) potential for further development of contracts.

⁶⁹ Those elderly who have no income resources, no ability of working, and no family supports (the three nos) are called “Wu Bao Hu” (Five Guarantee Households), which means that the DOCA provides supports to these elderly in five aspects: food, clothing, accommodation, medical care, and funeral. The regulations for assistance to rural “Wu Bao Hu” were revised in 1994 (State Council, 1994). Since 1999, the urban areas have adopted a minimal living allowance policy for the residents with the characteristics of “the three nos” (State Council, 1999).

For most CHCs, the contracts did not exceed 1000, which comprised less than 5% of the total community population. My questionnaire survey revealed that 3.5% of community residents made HCAs with health organisations (2.8% were signed with district hospitals and CHCs). The contract rates varied considerably between the three communities. As viewed by some interviewees, it was associated with the efforts of health providers. The χ^2 test showed that the elderly, retired, well educated, families with pre-school children, government employees and core families were more likely to sign HCAs. However, when I controlled the confounding factors using the binary logistic regression analysis, only families with pre-school children, people with tertiary education and core families remained as main factors that significantly impact the HCA rates (Table 4-3). Surprisingly, it seemed that the current health status such as chronic conditions and income levels did not correlate with the HCA rates.

Characteristic of respondents	Categories	Contract rates (%)	Binary logistic regression		
			β Coefficient	Odds Ratio	<i>p</i>
Community***	With independent CHC	15.3	4.08	59.35	.000
	Others	0.36	—	1.00	—
Family*	Core	4.7	1.17	3.21	.010
	Others	2.3	—	1.00	—
Occupation**	Retired	6.7	.62	1.85	.527
	Unemployed	2.7	.62	1.86	.559
	Worker	0.5	-1.28	.28	.370
	Rural immigrant	4.1	.11	1.11	.890
	Manager and cadre	1.9	-.68	.51	.560
	Children and student	4.5	—	1.00	—
	State-own enterprise	3.4	.45	1.57	.551
Employment**	Governmental agency	10.3	.98	2.66	.220
	Other enterprise	0.5	-.54	.59	.659
	No employer	3.9	—	1.00	—
	Children under age of six	18.4	2.64	13.97	.014
Education***	Primary or less	4.3	.90	2.46	.100
	Tertiary	7.1	1.77	5.89	.018
	Secondary	1.4	—	1.00	—
	0-14	7.7	.85	2.35	.419
Age***	60 and over	6.3	.47	1.61	.378
	15-59	1.6	—	1.00	—

Table 4-3. Respondent' characteristics associated with contract making behaviour (n=1041)

Chi-square analyses were performed first to determine which respondent characteristics were associated with differences in the contract rates (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$). Only those respondent characteristics that showed significant associations with contract rate

differences were included in the regression analysis. (Thus sex, marital status, insurance income and the presence of a chronic condition were all omitted at this point.). The overall predictive model was statistically significant (model $\chi^2=137.8$, $p<0.001$).

Obviously, the signing of the HCA was more likely to be associated with the awareness of consumers of their health. For example, children were usually top priority of the core family under the “one-child-per-family” policy. Well-educated people were more likely to care about their own health. Financial difficulties were at least not the only reason for the low HCA rate. Actually, most interviewees believed that the member fee for HCA was quite low compared to the binding services defined in the contracts and the average income of the community residents. Most CHCs charged 40 or 60 yuan for a one-year contract, with a few exceptions of lower (5 or 20 yuan) or higher (80 or 90 yuan) charges. According to the recent statistical report, the average annual income of urban residents in Sichuan was 5,894 yuan (Sichuan Statistics Bureau, 2001). The interviewees rarely saw the contract itself as a way of making profits; instead, it was considered as an important strategy to attract or keep patients and contribute to the revenue produced through clinical services.

We used to charge 60 yuan for one contract, but it's too low to meet the cost. We have so many works to do, such as home visits and instant home services required by phone call without extra charges. Therefore, we increased the charge to 90 now, with the same policy. Only the costs of medicine and treatment are charged. It's better than the 60 yuan contracts in some other centres, they will charge home visits. Actually, the patients pay more than our 90 contracts. Once they charge one more fee, it will over 90 yuan. We are based on the not-for-profit price policy, it's not expensive [.....]. We can't afford long term deficit financing. (president and CHC director, district hospital)

Relationship with public health institutions

Many MCH institutions had established CHCs. The philosophy and principles underpinning MCH care were similar to those of CHS (Xiong et al., 1996). Another reason for the MCH institutions to sponsor CHS was that they had appropriate clinical capacities. Actually, some MCH institutions have been categorised as hospitals in the national health statistics reports (MOH, 2000b). By contrast, the EPS (or CDC) rarely set up CHCs.

Most CHCs employed PHWs to deliver public health services⁷⁰. They implemented the tasks designed and planned by the PHIs. The PHIs organised and coordinated the public health services and were responsible for ensuring an appropriate coverage and quality of these preventive services.

In terms of connection with EPS, we have to report communicable cases to them and accept their examination on the reporting cards. (director, enterprise-sponsored CHC)

Conclusions

This chapter has examined the strategies and approaches adopted in Chengdu and Panzihua in developing CHS. These strategies have also been commonly used elsewhere in China, representing an attempt of changing the hospital-dominant health system into a PHC-led one (Wu, X.Y., 1999b).

Governments at different levels are trying to re-instate and strengthen the roles of primary (and secondary) hospitals in delivering community-based PHC and weaken their functions in delivering specialised services. Those hospitals are encouraged to establish CHCs, servicing certain designated communities.

The community health issues are supposed to be addressed through comprehensive CHS programs covering six functions including the planned community activities. Despite the comprehensiveness of CHS, a single hierarchical structure had been developed to manage the delivery of CHS. The DOMCH within the MOH is responsible for managing CHS. As I will discuss later in Chapter Five and Chapter Six, this has led to difficulties in coordinating services across different providers.

Since the CHS are heavily dependent on the highly autonomous hospitals, government authorities have been more directly involved in governing the CHS programs in order to steer the direction of CHS. Most of the governmental efforts have focused on the planned community activities. The common instruments used by the health authorities in guiding and directing the CHS activities have included funding

⁷⁰ Payment mechanism for the public health workers in hospitals is usually different from other hospital staff. They are generally fully paid by governments while the hospitals paid a large part of the

projects, CHC licensing, training and registration of GPs, and accreditation and evaluation.

Through the tight control by government, a universal mode of CHS (as shown in Figure 4-7), had been developed throughout China (Dong, Y., 2001b). This universal mode might reduce the variance of CHS practice and prevent the CHS programs from going into the undesirable orbits (such as small hospitals). However, it could be counter-productive. The local health issues might not be appropriately responded to (see details in Chapter Five).

The CHS are highly professionalised, with GPs playing a dominant role. From the very beginning, the CHS have put a very strong emphasis on clinical functions. The GPs were supposed to provide easy access and financially affordable medical services to the community residents. A two-way referral system was to be developed between CHCs and hospitals (Chinese People's Political Consultative Conference, 1998; MOH et al., 1999). Although the governments had realised that the comprehensive functions of CHS could only be completed through teamwork, only GPs and community nurses were cited as core CHS staff (MOH et al., 1999; Sichuan Health Bureau, 2001). Meanwhile, nurses and other CHC members (not including the PHWs) are heavily dependent on the GPs in determining their work.

CHS comprise a very small share of the primary health care market. My finding in this respect is consistent with the results of the national health surveys. The two surveys conducted in 1993 and 1998 showed that 62-63% of urban outpatient services were provided by hospitals at district (or county) level and above. Meanwhile, the share met by private clinics increased from 6.2% in 1992 to 10.1% in 1997. While the CHCs (street health centres) maintained an unchanged market share of outpatient services (6.4-6.5%) in large cities, the share of community based health stations dropped down from 11.0% to 8.4% (Health Information Centre, 2000; MOH, 2000c).

HCAAs have gained high appraisal from academia because of its encouragement of preventive services and continuity of medical care (Wu, G.Y. et al., 1999a; Wang, W. J. et al., 2002c). It was also thought to be a feasible channel for financing the planned community activities and a medium for encouraging medical practitioners to step out of

total remuneration of the others.

their offices and work in the communities (Wang, W. J. et al., 2002c). However, the development of HCAs has been impeded by the medical insurance policy, the quality (or perceived lack of quality) of community health practitioners, the lack of awareness of health of consumers, and the economic situation (Wang, W. J. et al., 2002c). Low HCA rates are common all over China. Even in the relatively developed areas, the contracts only covered 1.2-6.2% of families (Wu, G.Y. et al., 1999a; Wu, X. L. and Qiu, 1999) although occasionally, one CHC might have several thousand contract clients (eg. 2200 in a Zhejiang CHC) (Zhang, D., Jin and Zhao, 2000; Wang, W. J. et al., 2002c).

Chapter Five

PERFORMANCE OF COMMUNITY HEALTH SERVICES

The main goals of the CHS reforms are to re-emphasise PHC, to contain rapidly rising medical costs, to improve the efficiency and quality of health services, and eventually to improve the health of the community populations. In this chapter, I evaluate the performance of the CHS system against these goals. This includes both the performance of PHC services as local institutions and GPs' practice performance. My findings are organised under the following headings: orientation around population health needs; efficient use of resources; quality of individual medical services; integration of provision; and development performance.

Orientation around population health needs

Since population health status is determined by a broad range of factors, many of which lie beyond the immediate reach of the health system, most of the measures I have used to assess the contribution of CHS to population health are “structure” and “process” indicators. The former refers largely to the availability of services, while the latter includes the activities and programs organised and the actual use of services by consumers (Starfield, 1994a; Cassady, C. et al., 2000a).

Priorities were revenue-led rather than need-led

The hospitals and CHCs did not give attention to community-level activities that could not generate revenues. GPs were much more focused on individual clinical services than community activities and preventive components that would generate less or no profits. This finding is consistent with other studies conducted elsewhere (Xu, P. F. et al., 1997). Yang and colleagues (1999b) found in a national survey that the most frequently reported activities in CHS are outpatient services (87%), home based medical services (84.8%), and hospital-in-the-home services (87%).

We can only balance our budget by selling drugs and bringing in money by providing treatments to patients. We can also make profit from providing preventive

services. Child care is an example where we can charge 70 yuan to cover planned immunisation costs for the child up to three years old. We also charge material fees each time when the child receives the immunisation. Although the profit from each service is not high, the total amount is not a small number [... ...]. We are concerned about policy support in the future. We expect the classification of for-profit and non-for-profit institutions may be of benefit to us. If the policy put the commercial pharmacies in a disadvantaged position⁷¹, that will benefit to us. We can only think so. (assistant director, hospital-sponsored CHC)

Aging related health problems were cited by many interviewees as a great challenge to CHS, in particular, chronic conditions. While chronic conditions were seen as a priority, none of the interviewees identified behaviour and lifestyle problems as priority targets of their CHS programs, despite these being highlighted in the government documents (Sichuan Health Bureau, 2001). Lifestyle risk factors such as smoking, alcohol intake and lack of physical exercises are widely prevalent and contribute to many chronic diseases and could be reduced through health promotion and community participation at the primary care level, leading to improvement of the health outcomes (Berrios et al., 1997). My questionnaire survey showed that the lifestyle risk factors were common. Among the men of over 15 years old, more than 60% were smoking, while 22.6% reported drinking everyday, similar to other Chinese populations and more prevalent than the western countries (Berrios et al., 1997; Chinese Academy of Preventive Medicine et al., 1997, p. 22; Yang, G. et al., 1999a; Yang, Y. and Huang, 2000). Moreover, 32.6% of community residents did not participate in any exercises or vigorous activities at work or during household duties; 20.3% of community residents were over-weight according to the recent released criteria of body mass index ($\text{weight(kg)/height(m)}^2$) (Xing, 2001; Xie, Y. L. et al., 2002b), with about 3% obesity⁷², similar to the prevalence rate of other regions in China (Xie, Y. L. et al., 2002b) (Table 5-1).

⁷¹ Commercial community pharmacies are seen as main competitive rivals of CHCs because the major revenues of the CHCs come from selling pharmaceutical products.

⁷² The cut-off point used here is 24 for overweight and 28 for obesity (Chinese national criteria), which is different from the cut-off points of WHO's (30 for obesity) (Berrios, X., Koponen, T., Huiguang, T. et al., 1997) and other studies (25) (Aday, L. A., Youssef, A., Liu, S. W. et al., 1994).

Behaviour	Sex	Daily or often	Occasionally	Rarely	Never	Have quit
Smoking	Male	51.7	10.4		31.8	6.0
	Female	5.3	5.5		87.4	1.8
Drink alcohol	Male	27.0	7.4	12.7	51.6	1.2
	Female	4.5	0.2	4.1	91.1	0
Physical exercises or vigorous activities at work or household duties		25.1	13.2	28.7	33.0	

Table 5-1. Frequencies of health risk factors among community residents over 15 years (% , n=921)

Frequencies of drinking were classified as follows: less than once a week as “rarely”, “one or two days a week” as “occasionally” and “three or more days a week” as “daily or often”. Physical exercises or vigorous activities at work or household duties were not presented by sex, because there was no significant difference in the frequency of these behaviours between males and females.⁷³

The interviewees reported a corresponding disease pattern among CHC clients. The majority suffered from the common cold, digestive problems and chronic illnesses including hypertension, chronic obstructive pulmonary diseases (COPD), and diabetes. This reported pattern was slightly different from the pattern of problems that the community residents cited as needing help for. A baseline survey conducted in one of my selected communities revealed that the five most prevalent conditions were: common cold, COPD, dental diseases, stomach and digestive disorders, and musculoskeletal diseases. Moreover, the patients with dental problems and musculoskeletal diseases were most likely to see doctors (Chen, B. W., 2000a). Obviously, these two problems were not main targets of the CHS programs. Many newly established CHCs were not equipped with dentists or dental equipment. Even in hospitals or hospital-affiliated outpatient clinics where dental services had been provided before the implementation of the CHS programs, the dentists were rarely seen as a member of the CHS team.

Most of the patients attending our clinics are patients with common colds, URI, or acute periods of chronic bronchitis; then followed by cholecystitis and acute inflammation of digestive tract. These cases account for a large proportion of our patients. Others include gynaecological diseases and abortion [... ...]. URI

⁷³ See appendix A for more details about the questions asked in the questionnaire survey (Q1 to Q6).

comprises about 60-70% of all the cases in the outpatient clinics. We usually prescribe some drugs for the patients. If the symptoms are severe, with high white blood cell, we also give intravenous drips. The so-called URI includes patients with bronchitis, we have many patients with bronchitis in the outpatient clinics. If the patients have pneumonia, we will refer the patients to hospitals if they are willing to do so [.....]. We also have many COPD patients who come here for intravenous drips. We don't use steroids too much to improve symptoms. We have some criteria to use steroids. Generally, we will control the infection first, if the patients have asthma, we can use some steroids, but usually doesn't exceed three days. We don't use steroids for long periods (GP, independent CHC)

Local issues were not adequately addressed

Although the government provides guidelines for planned community activities (see Figure 4-7 in Chapter Four), the CHS were rarely directed by needs assessments. *"We do organise activities in the communities, including health education, but none is based on the evidence derived from the baseline surveys."* (assistant director, independent CHC). As described in Chapter Four, community surveys were conducted by most CHCs, but community diagnosis was rarely done. As a result, most community interventions were predefined rather than derived from the community assessment. Without consecutive actions targeting the local needs and demands identified through baseline surveys and community diagnosis, those activities became almost meaningless. Moreover, community residents felt unhappy to be surveyed because they did not see any real benefit from participating in the surveys. One manager commented that giving attention to local needs was an effective means of getting the acceptance of community residents.

Some communities did not support our surveys. But once we organised lectures focusing on their most prevalent problems, such as cerebrovascular diseases, we were welcome almost immediately. (director, hospital-sponsored CHC)

Vulnerable populations were not targeted

Clinical services were oriented to compete for paying consumers because the incomes of CHC staff were directly associated with the revenues generated from the

clinical services (see discussions in Chapter Six). Community activities were also quite commonly managed as marketing strategies for attracting paying clinical customers. Therefore, some vulnerable populations such as the uninsured people with low incomes and rural migrants were neglected. Meanwhile, the public health projects and planned community activities also rarely covered rural migrant workers due to the restrictions of the residential permit system. The per capita-based government funding usually did not include provision for rural migrants. Similar situations have been reported from elsewhere in China, impeding improvements in access to medical care (Gan et al., 1999b; Jiang, X. P. et al., 1999; Wu, Y. F. et al., 1999c; Zhang, B. Y. et al., 1999; Zhang, H. Q., 2001a).

We have surveyed more than 40,000 community residents. Almost all of the residents in the community were covered, except for the rural migrants. (director, enterprise-sponsored CHC)

Efficient use of resources

Additional investment in the already over-supplied urban health system

Despite the over-resourced situation in urban China, the advent of the CHS policy led to further investment in primary health care facilities for urban communities. Especially in the municipalities where primary tier hospitals had not been well preserved, such as in Chengdu, the hospitals or local health authorities had to invest on new venues and facilities (CHCs). Even in the few municipalities where primary tier hospitals had been well preserved, there were also some new investments being put in the communities. For example, a survey in Shanghai showed that 71% of primary hospitals had established more than two CHCs, among which many were new venues (Yang, H. Q., Mao and Ni, 2000).

Patients attended tertiary hospitals for primary care

Residents frequently sought medical help from the municipal or provincial hospitals, often not for the purpose of specialist services, but instead, for the purpose of accessing “high quality” primary care services. My questionnaire survey revealed that while more than 50% of the respondents who had seen doctors in the past six months

had attended hospitals at municipal and provincial levels, only 21% of them had sought specialist services (Table 5-2)⁷⁴. Obviously, a large proportion of consumers were attending tertiary hospitals for primary care, leading to overuse of tertiary resources and underutilisation of PHC resources. This finding is consistent with the studies conducted elsewhere. Dai (2000) estimated that only 50% of patients who visited tertiary hospitals needed specialist care. National health surveys have demonstrated that the proportion of outpatient attendances provided by district hospitals in large municipalities decreased from 21.7% in 1992 to 13.9% in 1997, while the proportion provided through tertiary hospitals increased from 43.3% to 47.9% (MOH, 1995; Health Information Centre, 2000). One study conducted in Beijing also demonstrated that among the elderly patients who sought medical help, more than 50% of the patients attended hospitals at municipal and higher levels; only 3.6% of the patients attended CHCs (Wang, H. Q., Zhang and Yang, 2002a).

Institutions	Number of respondents	Share of patients by different specialties (%)				Total
		General medicine	Internal medicine	General pediatrics	Sub-specialists	
Public organisation at district level and below	39	20.5	43.6	12.8	23.1	100
Public organisation at municipal and provincial level	100	7.0	65.0	7.0	21.0	100
Private organisation	58	72.4	17.2	0	10.3	100
Total	197	28.9	46.7	6.1	18.3	100

Table 5-2. Distribution of patients across different specialties by health institutions

The calculation of share of patients (%) by different specialties was based on the most recent encounters of those respondents who had attended doctors during the past six months.

Low work efficiency of community health practitioners

The small market share of the CHCs was not the consequence of the maldistribution of workforce. In fact, my survey sample was intentionally biased to the communities where the CHS programs had been well-developed. Moreover, the clinical workloads of GPs were generally much less than those doctors who were working in

⁷⁴ Self-report data from questionnaire survey (Q10: What's the specialty of the doctor?).

hospital outpatient clinics, especially in tertiary hospitals. As estimated by the interviewees, the average number of client encounter per GP ranged from several to 20 per day. This volume of services was quite low against the criteria recommended by some researchers and CHS experts, who have suggested an appropriate clinical workloads of 25-30 client encounters per day per CHS practitioner⁷⁵ (Li, M. C. et al., 2000b; Liu, L. H. et al., 2002e). Studies in Beijing showed that about 30% of CHS practitioners thought that they did not have enough work to do (Li, M. C. et al., 2000b; Wu, X. Y. et al., 2000b).

Inefficient use of CHS resources

Many interviewees referred to the inefficient use of resources in their CHCs. In Panzhihua, the municipal health bureau had provided a computer and a collection of diagnostic instruments for each CHC but this equipment was rarely used. One CHC in Chengdu used the equipment for the purpose of providing extended screening services as a benefit offered for their contract clients.

We charge only 20 yuan for one contract, which was five yuan before. We don't expect to make money from the contract because we have to provide a series of services for our contract residents, such as health education and one physical examination, laboratory test of three items, ECG, and Ultrasound B examination. We just use this equipment to keep our clients. It's better than letting the equipment remain unused [... ..]. Once they ask for other services, we can make profits. (assistant director, hospital-sponsored CHC)

As mentioned earlier, the CHCs made great efforts to collect baseline data and create health files, but these activities did not appear to contribute to any significant outputs or health outcomes. To the contrary, it formed a significant financial burden on the hospitals and other CHS sponsors. In Sichuan, the baseline survey had covered more than 1.75 million people, resulting in 717,000 health files for individuals and families (Wang, T. G. et al., 2002b). Similar activities were also reported as common in other provinces (Fu, C. Q., Zhou and Liu, 2000; Lu, J. L. and Fang, 2000; Zhao, R. J., 2000).

⁷⁵ The CHS practitioners include doctors, nurses, PHWs and allied health workers.

We cannot make money from our services. We have to depend on our company and the health authority. We used up all the funding from the health authority in CHS, but still cannot meet costs. The year before last year, we got only 10,000 yuan, but we spent 6,000 to 7,000 yuan in training ten staff members. The printing costed another two or three thousand yuan. So, the funding is much less than enough. We applied for an additional 2,000 yuan to cover the extra cost. If we implement the CHS according to the requirements from our company [under instruction from health authority], I would expect to lose more money. The more contracts we make, the more difficult it is for us to make money. It may be an opportunity to make money when the contracts reach a certain number, say 1,000. Then I can arrange staff to work full time in charge of the services for the contract residents [... ...]. Right now, we have signed only a few contracts. We have a total of 20,000 yuan contract fees, which are assumed to cover six home visits per year for each client and other costs, such as transportation and pagers. We have not offered transport for our staff. (director, enterprise-sponsored CHC)

It is clear that there is an oversupply of profitable services. For example, as reported by some interviewees, there were no criteria for home-based services. Even for a minor problem, such as common cold, the CHC workers would pay home visits if requested by the patients. From the point of view of consumers, although most thought that the services they had had were appropriate, those consumers who expressed dissatisfaction were more likely to report have been over-served (5.1%) than to be under-served (3.0%). Other overservicing activities included overprescription (see details later) and unnecessary intravenous drips. Although the data with regard to the inappropriate use of intravenous drips were not available, the CHC nursing services were obviously overwhelmed by giving intravenous drips. Giving intravenous drips was one of the most frequently mentioned services by the interviewees⁷⁶. Liang (2002) has estimated that only one third intravenous drips provided in one CHC in Shijiazhuang (capital of Hebei province) are clinically necessary.

⁷⁶ Forty-six text units were retrieved from the interview transcriptions (13 out of the 19 interviews for CHC staff) talking about services associated with intravenous drips.

People are not accustomed to home visits. If they can easily come to an institution, they'd prefer to come themselves rather than ask us to visit their homes. But sometimes, people demand home services with only minor problems such as cough. It seems not necessary. (GP, enterprise-sponsored CHC)

Limited achievement in ensuring accessibility of health care

Community health services provided convenience to consumers

The improvement of physical accessibility was identified by the interviewees as a marked achievement of CHS. The most frequently used word in describing the benefit gained by consumers was “convenient”⁷⁷. Consumers were thought to be able to get medical care within walking distance. Moreover, the outpatient procedures were greatly simplified compared to many hospitals. The CHCs were less crowded, so the waiting time could be reduced. In many hospitals, patients had to queue several times to complete a whole circle of services because of the detailed distinctions of functions between different departments and the crowded environment. By contrast, patients usually did not have to queue in the CHCs.

The advantage of our services is convenience and in time. It is definitely convenient to get services in our centre. In the past, patients have to queue for services (in hospitals). But now, patients can come directly to doctor's office, and do not need to queue and take a ticket. They can also purchase drugs, take intravenous drips or injection, all in a short period. It was impossible in the past, the procedure was quite time consuming. (GP, enterprise-sponsored CHC)

The most prominent achievement of our centre is that our services are convenient to the community and to the residents. If someone feels sick, such as catches a fever, he/she can come to the centre to solve the problem, even at the cost of only 0.5 yuan. If he/she goes to hospital, the consulting will cost one yuan, and he/she has to go to three different places to complete all services. In the centre,

⁷⁷ Fifty-three text units retrieved from the interview transcriptions (12 out of the 19 interviews for CHC staff) contain the words “convenient”.

however, all the services can be provided in doctor's office. We can give him/her drugs and injection immediately after the prescription. If people need this kind of pattern of service, OK, we can give them. (director, hospital-sponsored CHC)

We are indeed cheaper. It is also more convenient for our clients. When necessary, we can also pay home visit to give intravenous drips, although this activity is not encouraged because of the high risk, however, for patients with restricted mobility, we can provide this sort of service. (assistant director, hospital sponsored CHC)

They told us, from the feedback of our patients, that the procedure in hospitals is too complicated. You have to queue to get a ticket, queue to see a doctor, queue to be assessed for applicable fee charges, queue to pay money and queue to collect drugs. In addition, you have to pay for the doctor's consultation, but in our CHC, it's free. (director, hospital-sponsored CHC)

More health services facilities were located in communities

The CHS programs were clearly designed to enable the consumers to get primary care within their own communities. According to the government, 70% of community residents should be able to reach their CHCs within 15 minutes of walking by 2005 (MOH, 2001c). Although one CHC might cover 20 to 30 thousands residents, they usually lived within two kilometres around the CHCs, less than 20 minutes of walking distance. It was thought to be extremely important in the communities where hospitals were located far away. As explained by a few interviewees, under such circumstances, some consumers might even use the CHCs as a substitute for inpatient care, since hospitalisation was a big event, not only for the patients but also for the family members⁷⁸.

⁷⁸ Family members are usually required to assist in the care of patients living in hospitals, especially for catering and personal care. Although hospitals do provide catering, patients do not necessary accept it, except for special purposes. Moreover, the catering service is not covered by the insurance schemes and is commonly regarded as costly and not good for patients. Therefore, many families cook at hospitals or bring foods to hospitals.

Some patients don't want to stay in hospitals because of the long distance to go to hospitals. They prefer to stay here. In such cases, we can provide inpatient services. For example, a patient with severe asthma, I noticed that his symptoms were very severe. He could only lie on his bed without moving. It was even difficult for him to turn his body or put on his clothes. He breathed 40 or 50 times per minute, and showed lack of oxygen. I said to him: "why don't you go to hospital?" He answered: "It's so far away, I'd prefer to stay here." [.....]. You know, our centre is not well equipped compared to the hospital. The patient said that he knew that. But he insisted to stay here. Unfortunately, the patient died finally. (GP, enterprise-sponsored CHC)

Establishing affiliated health stations is one strategy that some hospitals have employed to improve geographic accessibility. However, it depended on the local policies and available resources and was not a common measure. Of the 14 CHCs I visited, two in Panzhihua had set up affiliated stations, because of geographic and transportation difficulties. By contrast, setting up affiliated stations was not allowed in Chengdu, a flat and well-resourced municipality. However, some CHCs in Chengdu offered regular outreach clinics, for example, once a week in the office of each covered residential committee.

We have six stations affiliated to this centre. We had to set up those stations to facilitate the services to residents. Otherwise they would have to come to the centre and that would be very inconvenient. (director, enterprise-sponsored CHC)

Home visits and hospital-in-the-home were further steps to remove the geographic obstacles to accessing medical care. Usually, it was not necessary for the CHCs to purchase automobiles to deliver home services. Most GPs used their own bicycles as transportations or went by foot to deliver home-based services. But there were exceptions. In Panzhihua, a mountainous and less populated city⁷⁹, one CHC expressed difficulties in delivering home services without automobiles.

⁷⁹ Panzhihua is a mountainous city. Bicycle is not as common a transportation tool as in Chengdu and many other cities in China.

In Panzhihua, transportation is quite inconvenient [... ...]. We used to have two ambulances. But they have been taken over by our hospital. Without appropriate transportation, it's too difficult to pay home visit in the residential area by foot [... ...]. Now, we have begun the telephone consulting services. (director, enterprise-sponsored CHC)

Time arrangements gave more responsiveness to consumers' demands

Of the 14 CHCs I visited, six stated that they served patients 24 hours a day, seven days a week. In some CHCs, consumers could also call the doctors on duty at night for advice, which was rare in hospital-based service programs⁸⁰.

There are doctors on duty 24 hours a day. If patients need consulting at night, they can also call us. The doctors on duty will be responsible for answering questions. (GP, enterprise-sponsored CHC)

However, the pattern of night work was identical to hospitals and was entitled as “emergency” services⁸¹, with a slightly higher consulting rate. Doctors, nurses, and other practitioners rotated to take responsibility for the “emergency services”.

Emergency services are usually not different from the ordinary outpatient services. The only difference is that the consulting rate is 0.5 yuan higher than the ordinal rate.⁸² (assistant director, independent CHC)

This rotation arrangement was appreciated by the GPs. As explained by one GP, the arrangement of “emergency services” could provide a release for most practitioners while still be able to meet the demands of after hours services of the community residents. *“Sometimes, my patients called me at night when I was at home, although it was rare. Because we had arranged doctors on duty in the centre at night, I would refer the patients to the doctors on duty in the centre. Honestly, GPs' works are already overloaded in terms of working time.” (GP, independent CHC)*

⁸⁰ In China, patients usually go directly to hospitals without appointments.

⁸¹ The so-called “emergency service” is virtually a kind of after-hours service which provides primary care for the community residents.

⁸² The standard rate for consultation ranges from 0.5 to 2.5 yuan. Sometimes it is free.

Another difference between the work hour services and “emergency services” was that the doctors and nurses with night duties seldom left their offices to deliver home services.

Another issue in providing after hours care was the fact that many doctors and nurses lived at some distance from the site of their clinic and the community they served. Under such circumstances the only option was to refer the patients to the doctors on night duties.

Ideally, the GPs would be better to live in the community which they serve. I do live in the community. However, some other doctors live quite far away [.....]. The centre has some houses inherited from the former MCH station which was located here before. Several doctors who worked for the MCH station in the past lived in those houses. That's a kind of welfare. Now, it's almost impossible. Our centre can not provide this kind of welfare any more. (GP, independent CHC)

The decision whether or not to set up an “emergency service” was generally based on the market needs and available resources. *“In case of emergency, we can be attended, however, it is rare for patients to request services at night, particularly rare for home visits.”* (assistant director, hospital-sponsored CHC) Some CHCs extended work hours. Others took a strategy of cooperating and coordinating with their parent hospitals, and shared night duties with hospital staff. Some hospitals thought CHC staff were appropriate for communicating with consumers, and thereby arranged them to be responsible for answering consumers' calls, including emergency requests.

We have noticed that there are three peaks in services at CHCs. One is from 9:00am to 11:00am, a small peak; the other is from 1:00pm to 3:00pm, a medium peak; the biggest peak appears from 6:40pm to 9:40pm. Those who are working and who can escape from their offices, will see doctors in the morning at working time and after seeing doctors, they will return to their offices. [.....]. In the midnoon, the students can come to take intravenous drips, and then have a nap. In the evening, a number of students may come to take intravenous drips. Those who can not escape from their offices during work time can attend to the CHCs by the way of walking after dinner. These form the biggest peak in the evening. After 11:00pm, clients are usually rare, quite rare. (director, hospital-sponsored CHC)

At night, we arrange for staff to be on duty in the inpatient department and outpatient department. For other departments, such as medical laboratory, staff are not rostered to work 24 hours per day. We tried to arrange such services for about one year, but sometimes, there were only one or two demands, sometimes three, sometimes none at all. That's a problem. We cannot afford to do so. However, there is a nurse in the department of CHS in charge of receiving telephone calls. We have disclosed this special phone number to every residential home in our community. (president and CHC director, district hospital)

Little improvement in service access

The arrangements put in place by particular agencies to ensure geographic accessibility and convenience with respect to time were primarily market driven and operated only in relation to those particular organisations. Coordination of service delivery across organisations was virtually non-existent. This could lead to unbalanced allocation of resources.

In fact convenience with respect to access was not always a competitive advantage of CHCs, especially in relation to hospitals which were no longer crowded themselves. Moreover, many hospitals were trying hard to cut down the waiting time of patients. For example, 21 hospitals in Chengdu promised publicly that no queues would exceed 15 people; otherwise patients were encouraged to lodge complaints with the health authorities (Chengdu Health Bureau, 2002).

Given the situation of over-supply of health resources in many localities, the establishment of new CHCs could not improve geographic accessibility except marginally. There were many agencies at various levels, CHCs, private clinics, hospitals and community pharmacies, all providing primary care. As a matter of fact, many CHCs were built around their parent hospitals. For instance, one hospital established four CHCs, all within two or three kilometres of the hospital. Some CHCs were even built within hospitals. Moreover, most CHCs were surrounded by private clinics, community pharmacies, and other outpatient clinics. The CHCs just simply added a new rival of the market, intensifying the competitions. The national health survey demonstrated that about 80% of urban residents lived within less than one kilometre of the nearest medical institution (MOH, 1995; Health Information Centre, 2000), indicating that distance was no longer an access barrier for most urban residents.

There are many private clinics around our centre, many. From the top to the bottom of the hill, there are seven or eight private clinics. Only in one market, there are three or four private clinics. All surround us, including both traditional Chinese medicine and western medicine, all sorts of clinics surround us. (director, enterprise-sponsored CHC)

Reducing the cost barrier

Most CHCs I visited stated that they had undertaken some measures to reduce user payments. Consulting services were usually free or only 0.5 to 2.5 yuan. The average cost per prescription was estimated to be 20 to 30 yuan and could be as low as several yuan. For a two or three days of intravenous drips, the cost was only 100 to 200 yuan. The charge for home delivery of services ranged from four yuan to 20 yuan. All these charges were believed to be lower than those of large hospitals. Contract clients could even enjoy more free services or discount packages. One CHC also provided special offers for laid off workers.

We are cheaper than other hospitals. The charges are lower than others. I think people can afford our rates. However, it's still difficult to make contracts with residents. (GP, MCH-sponsored CHC)

We haven't calculated and compared our prices with other hospitals. But in general, we are cheaper. In large hospitals, doctors prescribe imported drugs and expensive drugs, which makes the price expensive. In contrast, we prescribe cheap drugs. Some patients get their prescriptions in large hospitals and buy drugs in pharmacy retails, and then come here to take intravenous drips. We provide services in treatment. We charge less for treatments than hospitals. (GP, hospital-sponsored CHC)

Meanwhile, however, many interviewees acknowledged that clinical services offered by the CHCs cost more than those of private clinics. The reason was generally believed to be the tighter control of purchasing and dispensing of drugs and other consumables by hospitals.

Our charges are the same as for our hospital; this is a requirement of the hospital. The private clinics around us charge less than we do. If they are not cheaper than us, no patients will visit them. They are definitely cheaper than us,

including the drugs. Our drugs are distributed by our hospital. (director, enterprise-sponsored CHC)

Our charges are a bit higher than those of the private clinics. We are a little bit cheaper than hospitals, but not too much. We charge patient according to the government regulation promulgated in April 1995. (director, enterprise-sponsored CHC)

The patients are satisfied with our good manners and our medical skills. However, they think that the drugs are too expensive, because all of our drugs are provided by our hospital. (GP, enterprise-sponsored CHC)

The level of user charges of the CHS in Chengdu and Panzhihua was comparable with other regions after taking into account of income variations between regions (Beijing Hai Dian Qu, 2000). Some interviewees believed that their prices were reasonable.

More than 90% of our patients are satisfied with our services, in terms of our service manners, the extent of convenience, and our fee levels. Our fees are reasonable. (director, enterprise-sponsored CHC)

The patients can afford our charges. The fees charged in our centre are not high, really. For example, we only charge 20 yuan for services delivered at home. If the patients are contracted, we can also give them 20% discount, that is 16 yuan. Therefore, many patients order this sort of service. Some may do so because they don't want to go out of their homes, some may feel too weak to move. For the elderly, especially for those paralysed, they only have to make one call and doctors will come to deliver services. The price is not high. People can afford it. You know the patient with stroke we visited several days ago. I calculated the expenses for her. The cost of the first day was 70 yuan, because it included the cost of syringe installation in her vein. Without that cost in the following days, the total cost per day was only 50 yuan, including drugs, visiting and nursing fees. Of course, the drug we used in this case, such as heparin, Danshen and Energy Mixture (ATP), are all not expensive. However, for a patient with cerebral thrombosis in the late stage of rehabilitation, it's enough. (GP, independent CHC)

The patients feel that our price is more reasonable than our neighbour institutions, such as the city second hospital [.....]. Although they think our charges for drugs and treatments are quite high, they can afford the rates, because the majority of residents in this community are employed. (GP, enterprise-sponsored CHC)

Obviously, cost barriers still exist and there was a gap between the perceptions of providers and consumers with regard to the user charges for these services. While the providers emphasised the cheaper charges compared to hospitals, patients still did not accept these packages. It might be true that CHS cost less than hospital services. Ye (2002) has demonstrated that the charges of hospital-in-the-home services were only about 10% of that of similar services provided in primary and secondary hospitals⁸³. However, what the consumers are looking for is a cost effective service rather than just low prices. Although the Chinese consumers are very price consciousness, the choice of providers still involves a trade-off between prices and quality, depending on the severity and urgency of the condition. While the CHS providers stated that their services were cheaper than hospitals, consumers did not necessarily agree. Even if the price really was cheaper, some consumers still worried about the possibility of delays in commencing appropriate treatments and the possibility of deteriorations in health leading to more costly hospital services in the long run. We found in another study that less than 5% of elderly people believed that the CHS could save money while still offering quality services (Sun et al., 2002).

We are not required to charge a consulting fee. If we charged consulting fees, no one would come to visit us. If you charge one yuan, the patients would prefer to visit a hospital. You are not well equipped. Why should I pay for this service? We don't charge a consulting fee. It looks like cuddling children to try to keep them. If you charge a consulting fee, I will not let you provide services for me. The reason is quite simple, just like choosing hotels. For a hotel without stars near the airport and a hotel with stars in the city, which one do you prefer in the case where they both charge the same price? I'd prefer to take a taxi to stay in the hotel with stars.

⁸³ The author did not explain whether or not this comparison was risk-adjusted.

If the price is the same, I will choose to take taxi to live in the city. (director, hospital-sponsored CHC)

We will provide home visit each month for the 40 yuan contract, with additional free physical examination in outpatient clinics for 60 yuan contract, and instant access to health care at any time for the 80 yuan contract, including arrangement for inpatient services. However, people are reluctant to sign these contracts although they are quite cheap. (director, enterprise-sponsored CHC)

Chinese people are accustomed to seek help only when they are really sick. What's health promotion, counselling, and rehabilitation? They don't care about that [.....]. They don't understand us. Another problem is the equity of access to health care. The poorer a person is, the more grudging the person is to see a doctor when he/she is ill. They will not see doctors unless their illnesses are really severe. That's a very serious problem [... ..]. They will not see doctors for minor health problems. (director, hospital-sponsored CHC)

Overall access was not improved

Despite great efforts at marketing, CHC attendance rates have remained surprisingly low. Although the CHCs might have diverted some patients from hospitals and other clinics, the overall accessibility may well have remained unchanged. My community survey showed that the number of self-care patient was almost equal to the number of people attending doctors (189 vs 197). The non-attendance rate might be higher since the people who saw doctors included those doing so for preventive purposes without perceived health problems⁸⁴. The proportion of [self-care] / [those attending doctors] was similar to that reported from the national health survey, which found that 50% of people who reported illness (over the previous two weeks) did not see

⁸⁴ The number of people who seek medical help is calculated based on question seven: "Have you attended a doctor during the last six month?". Self-care patients refer to those who haven't attended a doctor during the last six months, but indicate "yes" in answering question 21: "Have you experienced any symptoms or health problems during the last six months?". This approach is different from many of the other studies (including the national health survey and the baseline survey with which I compare later), which usually ask the respondents whether they are suffering an illness first and then examine the process of medical treatment.

a doctor ($\chi^2=0.166, p=0.684$) (MOH, 2000c)⁸⁵. Moreover, no differences were detected for this proportion before and after the implementation of the CHS programs (Figure 5-1, $\chi^2=0.117, p=0.732$), although a marginal difference appeared between the three communities ($\chi^2=4.421, p=0.110$).

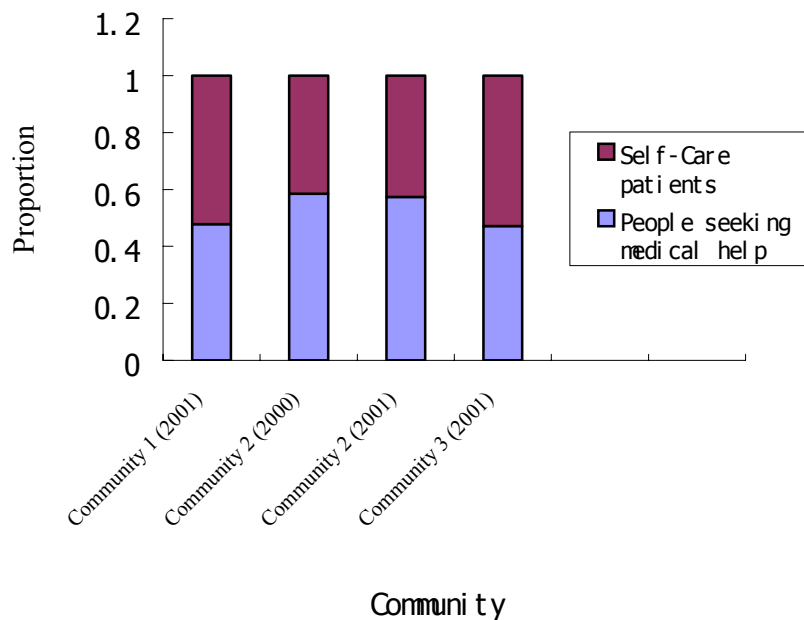


Figure 5-1. Proportion of self-care patients over people seeking medical help

Community one has hospital-sponsored CHCs; community two has an independent CHC; community three has no CHC. The data for 2000 (before the implementation of CHS in community two) are from the baseline survey. The baseline data are not available for the other two communities.

Although it would be difficult to determine a benchmark for the best achievable attendance rates, it is unlikely that all of these self-care cases represented the most appropriate arrangements. Despite the fact that the common cold comprised the largest proportion of the self-care cases, there were still more than 35% of self-care patients who reported other health problems, including some severe problems (32% of self-care patients perceived their problems severe). The reasons given for not seeking care indicated that barriers to accessing care still existed. Of those who sought self-care, about 40% reported that they could not manage the illness appropriately; 38% indicated that financial difficulty was an obstacle to seeking medical help from a doctor; 99.5%

⁸⁵ In large municipalities, 48.3% of those who reported illness did not see a doctor (MOH, 2000c).

believed that doctors could be competent in managing their illness. “Inconvenience” was clearly no longer a barrier for accessing care. Of those who sought self-care, only 2.2% and 2.7% reported ‘long distance to health facilities’ and ‘crowded environment in health services’ as a reason for not seeking medical help respectively.

Financial difficulties were one of the main obstacles of accessibility. The CHS could hardly improve the overall accessibility of medical care, unless focusing on the disadvantaged people such as those living on low incomes. Otherwise, the CHS could have just diverted some patients from hospitals and clinics without resulting in an improvement of the overall accessibility. In fact, during the 1990s the overall accessibility of medical care in urban China was declining. The proportion of the population who did not see a doctor while reporting illness rose from 42% in 1993 to 50% in 1998 (MOH, 2000c). Ongoing surveys are needed to monitor the long-term impact of CHS.

Quality of individual medical services

Improvement of provider-consumer relationships

There was a universal response from the interviewees in terms of provider-consumer relationships, all reporting improvements to some extents. The most commonly used words in describing the improvement included: kindness, friendliness, better, good service manner, and more conversations. The main reason contributing to this improvement was believed to be the change in the pattern of services delivery. The CHS were described as being more responsive to consumers’ demands. The CHS providers worked more actively in the communities.

As doctors in hospitals before, we intended to think that it’s the patients who asked for our help. But now, we are changed. We pay home visits quite often. The residents have good feedbacks. Even when we made mistakes, the patients could forgive us, because of our good service manners. (GP, enterprise-sponsored CHC)

Unlike in the hospitals, where doctors are too busy to spare time in communication with patients, doctors who work in CHCs usually spend much more time in communication with patients. (GP, independent CHC)

Some GPs spoke of having dual roles as both care providers and friends of community residents. They were very proud to be involved in helping community residents deal with difficult life events. The rate of medical dispute was believed to have been reduced through these improvements in provider-consumer relationships.

In the past, we sat in the office. Now, we are much more friendly with our patients than before. One of my patients visits me three times a day. We are very good friends [... ...]. Patients also show more friendly attitudes toward us. They like to tell us everything. (GP, enterprise-sponsored CHC)

We are friends of patients now, even more than that. Some patients tell us something that they don't even want to tell their relatives and friends. One patient had difficult episode with her kids. It was a big shock for her. She did not want to tell her relatives and friends, because she wanted to save face. However, she asked me to come to her home. I was able to give her some comfort. We talked for two hours. She lay on the bed, but got up later in the afternoon. I considered this activity as a form of emotional counselling. It's also something about public relations [... ...]. This morning, a patient came for a blood pressure check. She was very nervous about seeing doctors in white coats, until I told her that we are friends rather than bound in a formal doctor patient relationship. Is that right? Our relationships with patients are much improved. (GP, MCH-sponsored CHC)

There was a patient with heart failure. He was hospitalised four times from February to April. Each time he stayed in hospital for about 20 days, with only around 10 days break. He didn't make contract with me. However, he said that he'd like to die in the bed I managed. He was 70 years old, with a history of heart failure for 15 years [... ...]. There is tremendous change of physician-patient relationships, especially for the contract patients. Even if you made accidental errors in charges, they understood you. They would not think that you intended to fraud them [... ...]. Before we pay home visits, we usually make a call first. Our clients, especially the elderly will often prepare tea, even watermelon slices for us. We are in a harmonious relationship. In the national day, our patients, I mean the contract patients, sometimes send some flowers to the physicians. They had no specific intentions, they might bring some flowers just when they came for a check of blood pressure. (assistant director, independent CHC)

My questionnaire survey showed that patients were generally satisfied with the services provided by all providers. Only 5.1% and 3.6% of patients expressed dissatisfactions for the technical services and service manners respectively. Several of the interviewees commented that patients were more satisfied with the convenient service, less crowded and comfortable environments, as well as the good service manners of the CHC staff compared to their hospital counterparts.

Patients are satisfied with the manner and quality of our services, as well as our environment, especially for the environment and service manner. They may feel more satisfied with the environment than the quality. But our quality is not bad either; it could perhaps be scored 70 or 80 out of 100. (assistant director, independent CHC)

Patients are satisfied with the convenience of services and our good manners. Compared to the hospitals, our doctors in the CHCs have much better service manners. (director, enterprise-sponsored CHC)

Basically, more than 90% of our patients are satisfied with our services, in terms of, firstly, a good service manner, secondly, a relatively convenience, and in addition, a relatively reasonable charge rate. (director, enterprise-sponsored CHC)

The community residents are quite satisfied with our home services. What the patients need to do is just a call, we will go to their homes. We have recorded their conditions. People like this sort of services very much. (director, enterprise-sponsored CHC)

The patients feel that we are well regulated, our staff members have good manners, and our prescriptions are reasonable. (GP, enterprise-sponsored CHC)

Shortfalls in clinical performance

As discussed in Chapter Three, the evaluation of the quality of clinical services involved a comparison of the quality of primary care provided by different providers (based on the fact that health institutions at all levels provided primary care). Because of the difficulty of consumers in differentiating CHCs from hospitals as care providers, and the restrictions of sample size, as well as uncertainty in the identification of GPs in the questionnaire, I could not directly compare GPs with hospital doctors. Instead, I

compared the quality differences of the health institutions at district and lower levels with those at municipal and provincial levels and the private clinics and pharmacies.

Consumers' criticisms

A fairly large proportion of residents who had been patients criticised the quality of clinical services. Expensive costs, lack of communications, poor physical examinations, doctor's inexperience, and neglect of patient privacy were amongst the top five criticisms (Table 5-3).

Criticisms	Criticism rates by residents who have been patients (%)							
	Group 1: patients attending public organisations at district levels and lower (n=39)	Group 2: patients attending public organisations at municipal level and above (n=100)	Group 3: patients attending private organisations (n=58)	Total (n=197)	<i>p</i>			
					Overall	Group 1 vs 2	Group 1 vs 3	Group 2 vs 3
Long waiting time	24.3	28.6	3.7	20.6	0.001	0.442	0.017	0.002
Impatience of doctor	8.1	20.4	20.4	18.0	0.218	0.119	0.178	0.846
Not thoroughly examined	51.4	49.0	79.2	58.0	0.001	0.433	0.019	0.000
Inexperience of doctor	21.6	26.5	60.4	35.1	0.000	0.717	0.001	0.000
Suspect accuracy of diagnosis	13.5	16.5	1.9	11.8	0.028	0.511	0.099	0.034
Difficult in understanding doctors' explanations	10.8	22.7	3.8	15.0	0.006	0.060	0.371	0.012
Lack of respect from doctors	2.7	15.3	15.1	12.8	0.123	0.063	0.090	0.808
Neglect of privacy	27.0	43.3	54.7	43.3	0.033	0.127	0.015	0.159
Shortage of time in communication with doctors	45.9	64.9	77.4	64.7	0.009	0.054	0.008	0.229
Expensive costs	43.2	76.8	64.8	66.7	0.001	0.003	0.102	0.176

Table 5-3. Criticisms of services provided by doctors in different institutions

The data are from the survey of the most recent encounters of residents who attended doctors during the past six months⁸⁶. Chi-square analysis (or Fisher's exact test) was employed to test the overall differences of criticism rates for different providers. The comparison between two groups was based on the adjusted odds ratio produced by logistic regression analysis (adjusted by the presence of common cold and perceived severity of illness, see discussion later).

The criticism rates differed mainly between public and private providers. More criticisms were directed against the private providers regarding the poor physical examinations, lack of communications with patients, as well as doctor's inexperience

⁸⁶ See appendix A for more details about the questions asked in the survey (Q20).

and neglect of privacy. By contrast, the waiting time in private settings was less criticised. The private providers also gave more easily understood explanations to patients. Patients seemed less likely to suspect the accuracy of diagnosis given by private providers. However, this did not necessarily indicate a better quality of private providers. Rather it might reflect the different intentions of consumers in choosing providers. People were more likely to visit public sectors for the purpose of diagnosis. Therefore, private providers played little role in diagnosis, which in turn, led to fewer criticisms of the accuracy of diagnosis. In general, about 70% of those who had attended private facilities were satisfied with the service manner and technical quality of their doctors while 88% and 84% of those who had attended public facilities were satisfied with the service manner and technical quality of their doctors (χ^2 test, $p < 0.05$).

The contrasts between public sector doctors at different levels were most marked on the issues of medical cost and communication. Providers at district and lower levels attracted fewer criticisms in relation to the above issue than their counterparts at municipal level and above.

Services provided by doctors⁸⁷

In general, the pattern of services which had been provided to respondents by physicians at district and lower levels was similar to that at municipal and provincial levels. Both focused on recording problems, taking physical examinations, laboratory tests, equipment examinations, prescribing, and consultations. By contrast, the private physicians focused purely on prescribing and related services. Little attention was paid to other services (Table 5-4).

⁸⁷ Data of this section derive from question 15 “Did you receive any of the following services?”. The respondents are those who reported having ever seen doctors during the last six months.

Services	% of residents who have been patients who have received particular services							
	Group 1: Public organisation at district level and below (n=39)	Group 2: Public organisation at municipal level and above (n=100)	Group 3: Private organisation n (n=58)	Total (n=197)	<i>p</i>			
					Overall	Group 1 vs 2	Group 1 vs 3	Group 2 vs 3
Record problems	69.2	73.7	7.1	53.6	0.000	0.535	0.000	0.000
Take physical examination	61.5	69.7	16.1	52.6	0.000	0.398	0.000	0.000
Measure blood pressure	46.2	56.6	12.5	41.8	0.000	0.336	0.001	0.000
Order laboratory test	48.7	57.6	5.5	40.9	0.000	0.385	0.000	0.000
Order equipment examination	53.8	54.5	10.9	42.0	0.000	0.966	0.000	0.000
Prescribe antibiotics	66.7	58.6	42.9	55.7	0.050	0.404	0.022	0.049
Prescribe other medicine	71.8	82.8	87.5	82.0	0.140	0.238	0.096	0.436
Explain the causes of problems	48.7	38.4	12.5	33.0	0.000	0.470	0.001	0.001
Give advice about ways to avoid illness and stay healthy	43.6	37.4	19.6	33.5	0.026	0.447	0.011	0.023
Refer me to other medical specialist	5.1	4.0	3.6	4.1	0.930	0.890	0.885	0.975
Make appoint with me for the next visit	15.4	10.1	1.8	8.8	0.056	0.605	0.069	0.106
Give family planning service	2.6	1.0	1.8	1.5	0.789	0.594	0.873	0.497
Plan functional rehabilitation schedule	5.1	1.0	0	1.5	0.177	0.209	0.876	0.899
Give counselling to work, study, or family problems	0	3.0	5.4	3.1	0.405	0.845	0.834	0.497
Explain how to use the medicine	41.0	49.5	42.9	45.9	0.578	0.372	0.860	0.432
Explain the side effect of the medicine	17.9	22.2	5.4	16.5	0.024	0.412	0.099	0.013
Give vaccination	7.7	1.0	1.8	2.6	0.091	0.154	0.330	0.733
Others: physical therapy etc	4.8	3.8	2.7	3.6	1.000	0.981	0.926	0.934

Table 5-4. Comparison of services provided by doctors in different institutions

The data are from the survey of the most recent encounters of the patients who saw doctors during the past six months. Chi-square analysis (or Fisher's exact test) was employed to test the differences of proportions of services provided by different providers. The comparison between two groups was based on the adjusted odds ratio produced by logistic regression analysis (adjusted by the presence of common cold and perceived severity of illness, see discussion later).

From the patterns of service provision revealed in the survey we may form some tentative conclusions about the quality of services provided.

Only a small portion of clients received any kind of counselling, whether from public or private providers. Less than 5% of residents who had been patients reported discussing work, study, or family problems with their doctors. The prescribing rate, especially for antibiotics, was universally high across all types of providers. Patients were offered prescriptions, in 55.7% of cases antibiotics at 89.2% of most recent encounters. This result is consistent with the findings of other studies, which reported 41%-64% prescribing rates for antibiotics (Miao, Wang and He, 1999; Ma, Ren and Zhao, 2002). China appears to be among the nations with the highest rates of antibiotic prescriptions (Bosu and Ofori-Adjei, 1997; Huovinen et al., 2000). A study conducted in Australia found a total prescription rate of around 77%, but only 10% for antibiotics (This might be underestimated since those prescriptions within the deductible range of reimbursement were not captured) (O'Connell, Henry and Tomlins, 1999).

High rates of antibiotic prescribing have been widely used as an indicator of poor performance by medical practitioners, since it is associated with increasing antibiotic resistance (Magee et al., 1999; O'Connell et al., 1999; Colgan and Powers, 2001; Priest et al., 2001; McCaig, Besser and Hughes, 2002) and yields no or only marginal benefits for many of the infections for which it is used (Colgan and Powers, 2001). Various attempts had been made in western countries to reduce the prescription rate of antibiotics. The visit-based antibiotic prescribing rate for children and adolescents younger than 15 years decreased from 33% to 23% from 1989-1990 through 1999-2000 in the USA (McCaig et al., 2002). In the UK, the annual prescribing rate for antibiotics also fell from 963 prescriptions/1000 patients in 1993 to 807 prescriptions/1000 patients in 1997 (Frischer et al., 2001).

About half of the patients visiting public facilities were offered laboratory tests and equipment examinations, much more than in the private sector. It is also more than the investigation rate by GPs in Australia (O'Connell et al., 1999). Although I could not judge the appropriateness of these laboratory tests and equipment examinations, the inappropriate use of high technique equipment in China has been commented upon previously (Liu, C. J. et al., 1993a; b; Yin, L. and Liu, 1997; Pei, 1998, p. 142).

Only 41.8% of patients were checked for blood pressures by doctors. Physicians working in the higher tier institutions were more likely to check patients' blood

pressures than that in the lower tier. Clearly, this is unlikely to be due to lack of resources. Given the fact that hypertension is a prevalent health problem in China with a standardised rate of 11% (Liu, C. J., 1999), and patients usually depend on doctors to check their blood pressures (Dong, S. L. et al., 2000a; Du, Y. et al., 2002), it was likely that some doctors, especially grassroot practitioners, were not paying enough attention to the early detection of hypertension through regular and frequent checking of blood pressure. My questionnaire survey showed that only 6% of residents reported suffering from hypertension. This rate was much lower than the national average, indicating that some patients might have not been detected perhaps because of the less frequent checking of blood pressure. A community survey in Beijing revealed that a large proportion of community residents had never had their blood pressures checked. Among them, 6.4% were found to have systolic readings of 160 mm Hg or higher, 11.9% with diastolic reading of 95 mm or greater (Aday et al., 1994). It is estimated that about half of the people with hypertension do not know that they have the condition (Guo, Y. and Li, 1999). Increasing the frequency of blood pressure checking either in hospital clinics or in communities is recognised as an efficient and effective approach in detecting and control of hypertension (Dong, S. L. et al., 2000a; Han, Yang and Wang, 2000; Lin et al., 2000). Unfortunately, failure to check blood pressure appears to be quite common among primary care providers (Zhu, M. Y., Liu and Chen, 2002a).

The differences in clinical practice were greater between the private and public sectors than between public facilities at different levels. The main differences concerned: recording problems, undertaking physical examinations, measuring blood pressure, laboratory tests, equipment examinations, explaining to patients, and making appointments for follow-up services. It appears that the clinical performance of private doctors may be poorer than that of public providers⁸⁸.

Clearly the variations in the patterns of services provided in different sectors and at different levels could be due to the characteristics of patients and their illness (rather

⁸⁸ The private doctors include the doctors who work in private clinics and community pharmacies. Doctors who work in pharmacies all practice as private practitioners although some may also serve in public hospitals simultaneously. Those respondents who reported receiving pharmacy services without seeing a doctor in the pharmacies are referred as self-care and are not included in the comparisons of clinical performance between health institutions.

than the doctor) and did not necessarily reflect upon the quality of services. To enable the comparability between providers, risk adjustment is essential. Although there exist several casemix systems for ambulatory care (Starfield et al., 1991; Weiner, J. P. et al., 1991; Lagada and Stewart, 1992; Innes, Moss and Eagar, 1994; Weiner, J. P., 2000) and severity of illness measures (Fine et al., 1995; Iezzoni et al., 1996; Iezzoni, 1997), relevant data necessary for making these adjustments were not available. Furthermore, most severity of illness measures focus on hospital inpatients, and are not necessarily valid in ambulatory care. The few available severity of illness measures suitable for community settings are usually disease specific (eg. headache, asthma) rather than generic (Day, Rankin and Judson, 1993; Stewart et al., 1998; Stewart et al., 1999). Given these limitations, I used the distribution of types of illness and self-perception of severity of illness from consumers as alternative indicators of case mix. The results showed that there were no significant differences between public and private sectors and between facilities at different levels in terms of the distributions of illness and perceived severities. In all settings, common cold comprised about 25% of the total case of visits (Table 5-5).

Types of illness	Public organisations at district level and below (% , n=39)	Public organisations at municipal level and above (% , n=100)	Private organisations (% , n=58)	Total (% , n=197)	<i>p</i>
Common cold	23.1	24.5	29.8	25.8	0.687
Perceived severe illness	59.0	75.0	70.7	70.6	0.176

Table 5-5. Distribution of types of illness by health settings

The data are based on the most recent encounters of the patients who saw doctors during the past six months. The distribution of types and severity of illness of the three groups of health settings was not different.

Assuming the even distribution of types of illness and self-perception of severity of illness do reflect a general similarity of casemix, some conclusions about the quality of services can be drawn. The high rate of prescription of antibiotics was a common issue among all providers, despite a slightly lower rate amongst the private practitioners. If limited to the cases of common cold, the use of antibiotics reached a rate of as high as 85% and 75% for public and private providers respectively. The data also suggest that the doctors did not spend a great deal of time explaining how to use these prescribed

drugs or about the side effects of these drugs⁸⁹. The use of investigations was another prominent issue for the public providers. No matter what level of organisations for which the doctors worked, they all made extensive use of equipment-based and laboratory investigations. This might be attributable to the over-supply of hospital resources, defensive practice and revenue generating. Since private providers were usually poorly equipped, they were less likely to use high technology diagnostic equipment and laboratory tests. A third issue was common in all providers. Counselling, health education, and rehabilitation services were quite rare⁹⁰, reflecting a primary focus on curative services.

These problems were not exclusive to the primary care workers. Most of them were common across the entire health system. As said by a manager who was in charge of a third-tier hospital affiliated CHC: *“In terms of primary care, I can’t see any differences between our senior hospital staff and the primary care workers with only three year medical training.”* Starfield (1994a) comments that, “specialists are more efficient for some diseases, but by no means for all”. A study in the USA also demonstrated that there was no difference in quality of primary care overall between hospital clinics and office based practice, although more technical quality problems and more access problems appeared for office- and hospital-based practices respectively (Starfield et al., 1994).

The quality of services varies among different doctors, but generally speaking, the quality of our centre is equivalent to that of an outpatient clinic of a secondary hospital [.....]. We do have some guidelines for the management of specific chronic conditions. For example, we are required to measure the blood pressure of patients with hypertension at least once a month. The frequency of checking blood pressure differs from person to person [.....]. Many patients keep visiting us because they are satisfied with the services they receive [.....]. The services provided by large hospitals are not always of high quality. I had an experience in the first and second university hospitals. My kid coughed often, then I took him to the university hospital.

⁸⁹ It is usually doctors rather than pharmacists in China who are responsible for explaining how to use drugs.

⁹⁰ Unlike many western industrialised countries, “allied health services” are also managed and/or provided by doctors.

A 50 year old professor and two of his students served us. The students might be postgraduates of the professor, I thought. I was not sure. They put the stethoscope against my kid's chest like this, then moved away quite quickly. I wanted to ask them "Did you hear clearly?" But I didn't; I wanted to save their faces. The blood test showed that the white cell reached more than 18,000. The professor prescribed "Xishumei" for three days. He said that it should be OK in three days. You know, "Xishumei" is a bacterial suppression drug belonging to the "dahuanneizhi" family which costs more than 70 yuan per prescription. I suspected that they might be getting a kickback from prescribing this drug, which I did not buy. Later, I went to my own hospital to seek help from our own paediatric doctor [.....]. I think that our community doctors haven't been well recognised by the community yet, although, of course, we do have some shortfalls. (GP, independent CHC)

Continuity of care

Cassady (2000a) reports that people with a long-term relationship with a single health care provider have better health outcomes, as measured by such indicators as lower rate of hospitalisation for ambulatory care sensitive conditions⁹¹. This is particularly relevant to patients with chronic conditions (Dickinson, 2001). The original focus of the idea of continuity of care was indeed related to an ongoing relationship with a single health provider but more recently emphasis has been put on the sharing of information and service planning, not only because consumers demand and deserve more freedom of choice, but also because no single provider is capable of meeting by themselves the diverse needs of each consumer (WHO, 2001). Nevertheless, it is still widely believed that keeping most (not necessarily all) visits to one or one group of providers is essential in ensuring the continuity of care (Starfield, 1998, p. 24).

⁹¹ Ambulatory sensitive conditions are those conditions for which hospitalisations are preventable through improved ambulatory care (Bindman, A. B., Grumach, K. J., Osmond, D. et al., 1995; Stamp, K. M., Duckett, S. J. and Fisher, D. A. 1998).

Achievement in systematic management of public health issues

The concept of systematic management involves the deployment of a range of predefined services in the management of a particular health issue over a certain period of time. The original idea derives from the MCH care management. For example, a health card is created once a woman is confirmed to be pregnant. Then periodic physical examinations are offered (eight times from 12 weeks after pregnancy to six weeks after delivery). Meanwhile, at least three postpartum home visits are required. Afterwards, the physical development of the child is monitored periodically, with four examinations within one year old, twice a year from one year to three years old, and once a year from three years to seven years old (Sichuan Health Bureau, 2001). The whole package of services could be delivered by one institution or shared by several institutions through the negotiation and coordination of the MCH stations. The principles of systematic management appear similar to those of case management (Filinson, 1997), but it is fundamentally different in that it is not an individualised management and every activity is pre-scheduled and –defined. Therefore, case managers are not required. If two institutions share the package of services, all that continuity requires is to transfer the health card or send a copy of the card or just a name list from one institution to another.

In terms of systematic management of maternal and children's health, we keep cards for each client according to the requirements of the health authority. We must give physical examinations at least eight times to women from early pregnancy to after delivery, and monitor the physical development of children until the age of two and half. (director, enterprise-sponsored CHC)

The management of chronic illnesses was identified as one of the essential components of CHS and operationalised along the same lines as systematic management. As with MCH management, the core activities involved creating a card and delivering home visits, education and physical examinations. Usually, the services have been conceived as addressing preventive purposes, not curative. In Panzhihua, these activities began from a pilot PHC project before the CHS programs. The systematic management of cancer and tuberculosis were mandatory. The pre-defined services were usually delivered by doctors who worked in PHC stations or outpatient clinics of hospitals (now CHCs).

In recent years, this approach has been extended to other chronic illnesses, covering hypertension, diabetes, psychiatric diseases, pulmonary heart disease, and cerebrovascular diseases. Doctors either pay home visits to these patients or ask them to come to the CHCs to check their conditions regularly. In Chengdu, a few pilot studies have also been carried out targeting hypertension and COPD. One CHC was required to cover 80% of patients with hypertension.

We also pay home visits to chronic patients other than cancers [... ...]. For hypertension, diabetes, and pulmonary health disease, we usually ask the patients to come to our centre. If they fail to come for a long time, we will pay home visits. (GP, enterprise-sponsored CHC)

We created health files for patients with hypertension. We visited the patients twice a year in the past. Now, we measure blood pressure for the patients when we pay home visits. During the intervals between our visits, the patients can come to check their blood pressure for free. (GP, enterprise-sponsored CHC)

According to the requirements of the provincial health authority, a systematic management strategy was to be used in MCH care, aged care, in the care of patients with mental disorders, in the care of patients with chronic illnesses and for contract consumers (Sichuan Health Bureau, 2001). However, unlike the case of MCH care, there were no detailed uniform requirements stipulated for the management of these conditions or populations, perhaps because of the diverse nature of these conditions.

We do not charge one cent from the patient when we pay home visits to patients with chronic illnesses as part of the systematic management project, except for the contract patients whom we charge some for making the contracts. The systematic management of chronic conditions covers hypertension, diabetes, psychiatric diseases, and cerebrovascular diseases. (director, enterprise-sponsored CHC)

We don't charge the patients in the project of hypertension management [... ...]. It's difficult to meet the requirement of systematic management, but we should at least keep records of the management and measure blood pressures at least two or three times per month for each patient. That's all we can do [... ...]. We are required to pay home visits once every three months by contract [... ...], and

*measure blood pressure for hypertension patients more than once per month.
(director assistant, independent CHC)*

Poor continuity of clinical services

Non-shared health information

The health files were designed to enable continuity of care; they were an attempt to integrate all health related information into an individual based system. Having such a mechanism would be particularly important in terms of continuity and coordination of care since there are few strong mechanisms to ensure long-term relationships between providers and consumers (only a very small proportion of the population served was covered by HCAs). However, in reality, those files were rarely used by the medical practitioners. The medical records, containing the records of episodes of care were usually kept separately from the health files. Obviously, pooling all health information pertaining to one individual into a life-long file is an ambitious but challenging goal. It requires the collective effort of the entire health industry and coordination between all providers, which are currently unrealistic.

We planned for our doctors to make detailed records of the services provided to our community residents, especially for the elderly patients, and then, after analysis, we would try to merge these records into the relevant health files [.....]. It's too complicated. But we have no other choice [.....]. We don't have specific staff to manage the files. We can't require the doctors to retrieve the health files for each of their patients beforehand. That would increase doctors' workloads dramatically. (director, enterprise-sponsored CHC)

Most CHCs only kept a diary list for the outpatient services, without detailed medical records. Some CHCs used patient-held pocket books to record the service details but it was difficult to ensure that patients brought the records each time when they visited the CHCs. Consequently, in many cases, the CHCs had to use a new pocket book to record the new episode of services.

We are still using the medical record books which were used in the PHC station. The books are kept by patients. We can't keep all records here without computers. Therefore, the medical activities, excluding the records for contract

patients, are not continuously recorded. That's why I suggested the development of a computerised network. (director, hospital-sponsored CHC)

Usually, each health institution had its own pocket books. With the increasing complexity of diseases and needs of multi-discipline services, along with more freedoms for consumers' choices of providers, one patient could have many pocket medical records, even several for one provider. It was obviously unrealistic to expect the patients to bring all records with them each time when they saw a doctor.

Occasionally, the CHCs stored the medical records of outpatient services, especially when the CHCs were enterprise-owned and served a fixed population, the employees. Having a fixed population of consumers made the maintenance and retrieval of medical records easier. However, the more intensive competitive environment and new insurance policy have forced the enterprise-owned health institutions to free up to the market, making it much more difficult to maintain a proper set of medical records.

We use medical records for our outpatient services, which are kept in our centre. We can check the history of health problems and relevant medical activities related to the problems. I usually check the history of my patients when I work in the outpatient department. I can know, for example, whether my patient had a fever and what kinds of drugs were received via intravenous drips [...]. I don't know exactly how long the records will be kept in the centre, but at least several years, I think⁹². (GP, enterprise-sponsored CHC)

Even where medical records were kept electronically by the CHCs, they were not always retrieved at the point of patient visits. In one CHC, patients could pay ten yuan to create a medical record, which enabled the CHC to retrieve the record each time when the patient visited. The information about a new episode of care was also added to the record. But if the patient did not pay this charge, a different record was created. This record would not be retrieved at the next episode of care, although technically it was achievable. In fact, neither the patients nor the CHC gave a high priority to the electronic medical records. It was estimated that only 30-40% of clients in this centre created the electronic medical records.

⁹² The new insurance has not been implemented when I conducted this interview.

If the patient doesn't make contract with us, we can suggest him/her to buy a card, which costs ten yuan. With the card, we can create continuous records for the outpatient services in our centre. If the patient doesn't buy the card, we have no way to track down his/her records, unless he/she brings all the receipts with him/her. The records can be retrieved by searching the serial number of the receipts. Or else, there will not be a uniform record number for the same patient. (GP, independent CHC)

The share of information between practitioners was rare, even within the same hospitals. It was even rarer between different institutions.

The hospitals have never transferred any patients' documents to us. But the patients will bring their hospital documents to us when they visit us. We will add these data to the patient's file if the patient has a contract with us. (GP, independent CHC)

Lack of follow-up arrangements

As stated by the interviewees, follow up contacts would be organised for certain kinds of patients after their first contacts. These included contracted patients, defined patients in the systematic management groups (see details earlier), and patients with severe conditions. The pattern of follow-up services could be either home visits or telephone consultations. Sometimes, the patients would be asked to come to visit the doctors regularly.

We tell the patients with hypertension to visit us each week so that we can check their blood pressure. We also provide some information about the control of hypertension. (GP, MCH-sponsored CHC)

For the patient with hypertension, for example, who has a file kept in our centre, if he/she failed to visit us in one month, we will call him/her to enquire the reasons, and then determine whether to pay a home visit or not. (GP, enterprise-sponsored CHC)

We usually call the patients after their first visit to our centre [... ...]. But we don't keep telephone numbers of all our patients. Only some of our patients, those with certain severity, whom we think that we should follow up, we ask them to give

their phone numbers [... ...]. It's impossible for us to treat very difficult cases. But for some cases with certain severity, such as pulmonary heart disease we can give intravenous drips to the patient. We usually don't keep patients over night. So, we will keep the telephone number of this patient. When necessary, we will pay a home visit to give some more instructions. It is similar for some other cases, for example the patients with pneumonia, when the patients don't want to stay in hospitals and insist on being treated in our centre. We usually don't keep patients over night, except in particular circumstances. (GP, enterprise-sponsored CHC)

My questionnaire survey revealed that only 16% of the patients who had seen a doctor at the public institutions of district and lower levels⁹³ reported that follow-up services had been arranged. The follow-up service arrangement was even less common at the private facilities and public institutions at municipal levels and above (see Table 5-4 for details). The lack of appropriate information systems was identified by one interviewee as the main obstacle to organising follow-up services. But obviously, it was not the only reason (see discussions in Chapter Six).

I can't follow up my patient without the electronic medical records [... ..]. The patients can't keep their records appropriately. We can't spend much time in searching patient records either. We charge so little. It's not worth to do so. Furthermore, we have not so many staff. So, it's a problem of hardware. (CHC director)

The GPs played almost no role in the provision of hospital services. Even when the patients were admitted (or referred) to hospitals by the GPs, they rarely visited them in the hospitals. Only one interviewee mentioned community practitioners (rather than doctors who work in clinics) visiting their patients in hospitals. This appears to reflect the separation between the accountabilities of different practitioners, although there were no formal mechanisms prohibiting GPs from visiting patients in their parent hospitals.

⁹³ The public institutions at district and lower levels are supposed to be turned into CHCs. Data about the follow-up service arrangement in the CHCs are not presented (3/13) because of the small number of patients who reported to have attended the CHCs and the difficulties of the patients in differentiating the CHCs from hospitals when the CHCs remained at the same locations as hospitals.

Our GPs hardly play the roles of coordinating different services. For example, the stroke patient we visited several days ago saw a doctor in the university hospital, but there is no coordination between the services provided by our two institutions. It's necessary. For example, if we have two-way referral connection with the university hospital, our GPs should know relevant doctors like neurologists who can help them in managing their patients. It should be an individual based connection, rather than hospital mediated. (assistant director, independent CHC)

If our patients are admitted to our hospital, two or three days later, we will arrange the community practitioners, not the outpatient clinicians, we have full time community practitioners, to visit the patients in hospital. When the patients are discharged from hospital, we will expect to receive a phone call. Then we can call the patients and arrange home visits later [... ...]. When the patients are discharged from the hospital, either the patients or the doctors will call us. I think that our patients are quite active. After discharged from hospitals, they will inform us, and we can arrange home visits a couple of days later. (director, hospital-sponsored CHC)

Inappropriateness of referral

The dominant direction of referrals was from providers at lower levels to higher levels with a marked lack of communication from higher to lower levels. Some GPs held a very high expectation of the reverse referral, anticipating patients being sent back from the consulting hospitals, but were frustrated and disappointed by the fact that even a message documenting the care of the referred patients was seldom sent back. In fact, the hospital stays of patients were so long that many patients had been advised by the hospital specialists that they no longer needed any further professional care. Even if necessary, they were often offered by the referred providers. This suggests poor coordination of care and indicates the kinds of obstacles facing continuity of care.

We are considering the referral system. Right now, there is no well established referral mechanism. I am afraid that while we can refer patients to others, no one would be referred back. (president, district hospital)

The interviewees believed that there existed strong financial disincentives in the current system which discouraged referrals. But paradoxically, the doctor-advised

referrals seemed not rare (see details in Chapter Four), perhaps because of the frequent use of intra-organisational referrals. Further research is needed to investigate the nature of and reasons for these referral activities. The possible reasons of the inappropriate referral could include clinical incompetence, defensive practice, and potential financial benefits provided for the referring doctors by the referred consultants (Bloom, Han and Li, 2000, p. 1). All of these causes would become obstacles to continuity of care.

Because we are not well equipped, we have to refer severe patients to our general hospital. According to the hospital policy, cases where we can not make a clear diagnosis should also be referred. (director, enterprise-sponsored CHC)

Because we can not provide extensive services for patients, many patients have to be referred to hospitals. Our hospital does expect us to refer patients to our organisation. However, many patients prefer to go to specialised hospitals, such as the orthopaedic hospital, or to visit their favourite doctors. Under these circumstances, we also refer patients to other hospitals. Sometimes, one patient may seek help from several doctors simultaneously. (GP, hospital-sponsored CHC)

It's still difficult to develop a two-way referral system. The core problem is that the hospital resources in the cities exceed demands. If we ask the departments to balance their budget, no one will refer patients to others, even if the hospital orders them to do so. It's related to their own interests. How can you create a mechanism to solve this problem? Furthermore, there is also an administrative shortfall. We have read a lot of literature and found an approach in managing this problem. The social insurance scheme can regulate the flow of patients. Right now the GIS and LIS haven't been completely changed to social insurance scheme, we need some time. With the agreement of the authorities of health, social insurance and price, we could make contracts with the specialists which would provide for medical expenditure to be controlled by community practitioners. The expense of specialists would only be reimbursed after the approval from community practitioners. If the specialists don't refer patients back to the community after a rational period, the extra expenses will not be covered by the insurance scheme. (president, district hospital)

Lack of service coordination

Glouberman and Mintzberg (2001) identified three models in coordinating health care services: (1) Chain model: In this model, each practitioner is assumed to have been educated to follow a well designed protocol in delivering services. There is no need to place a practitioner to coordinate services; (2) Consultative hub model: In this model, the physician-in-charge stands at the centre and manages and coordinates the process of service provision by consulting with other providers; (3) Web model: In this model, all providers are assumed to sit together and make mutual adjustment with each other in the interests of patients. Obviously, the web model is an ideal one, but in most circumstances, it is unachievable. By contrast, the chain model is less likely to succeed in achieving coordination because of the rapid development of new procedures and techniques and the interest conflicts caused by the market forces. Consequently, most comment in the literature has focused on the consultative hub model (Starfield and Simpson, 1993a; Starfield, 1997; 1998; Forrest et al., 1999a; Forrest et al., 2000; Forrest et al., 2002).

Ability of GPs to coordinate care

The success of coordination efforts depends on the tasks that the coordinators and other providers perform (Forrest et al., 2000). Doctors are generally recognised as the most appropriate candidates for the coordination role because of the knowledge content of health care and therefore the coordination process. As Glouberman and Mintzberg (2001) point out, nurses can not substitute for the authority of physicians and sometimes don't have the technical knowledge and non-clinical managers have neither the knowledge nor the authority. While health care purchasers in managed care systems can administratively determine sequences of service provision and sometimes coordinate different types of services (Dworkin, 1997) they are unable to coordinate process involving more complex clinical decisions.

Among the doctors, the primary care doctors have the strongest claim to be the most appropriate coordinators because of the first contact role and long-term relationships with community residents (Starfield, 1998, p. 9). However, for GPs to successfully exercise this role depends, to a large extent, on the insurance arrangements,

consumers' attitudes and decisions, the cultural environment of the health industry and the commitment and preparation of GPs.

Some interviewees believed that GPs were clinically competent but acknowledged at the same time that it was true only within the context of the limited range of patients currently visiting the CHCs. Two CHCs that were believed to have employed relatively higher quality staff through an open recruitment process, expressed concerns about the discrepancy between the expectations for GPs (held by managers) and their actual performance. Some GPs commented on the changing profile of diseases they had to deal with and worried about their competency in the new environment. *"In the past, we dealt with only a limited range of specific diseases. It was relatively easy. But now, we have to deal with a wider range of diseases including problems we have never seen before."* (GP, independent CHC)

You know, we have medical backgrounds and 90% of the patients suffer from common diseases. However, we can not deal with severe medical conditions appropriately but many other health institutions are not able to solve those problems either. Patients know that. (director, hospital-sponsored CHC)

I don't think our doctors are competent in doing CHS. Why? As specialists in a big general hospital, the doctors are only good at their own specialty. Each specialty is clearly classified. But as a GP, the doctor should be one friend of the community residents. Treating a specific disease does not play a dominant role in GP's job. The GP should be able to give consultation of all sorts of health problems to the residents. The specialists are not competent in this role, unless we gather specialists in all specialties. Who is competent in this role? I think it's the doctors from the community hospitals, because they are not too specialised. (director, hospital-sponsored CHC)

In the current system, the linkage and coordination between different services were quite poor. GPs in China played neither the role of "gatekeeper" nor the role of "fund holder". The GPs were not thought good enough to undertake these roles. Only about 5% of GPs had full medical degrees⁹⁴ (Li, M. C. et al., 1997b; Li, W. et al., 1999b;

⁹⁴ China has developed three levels of medical education (see details in Chapter Two). Only those

Beijing Health Bureau, 2000; Wu, X.Y. et al., 2000a; Xie, J. and Chen, 2002)(see details in Chapter Six). Meanwhile, a few managers did not even think coordination of care was particularly important. In such an environment, it was very difficult for the GPs to coordinate different services.

We'd like to use the GPs as gatekeepers. However, the quality of the GPs is not good enough to allow us to do so. We couldn't risk people's interests. (director of health authority)

GPs' quality is not recognised by the society, and indeed, there are many problems for the quality of GPs. It is the biggest obstacle for GPs to play the role of coordinators. (GP, independent CHC)

I don't think it important for our GPs to coordinate the different services provided by different health providers, although sometimes we also feel that our work is not so efficient. As you have just mentioned, some responsibilities are shared by several institutions. (director, hospital-sponsored CHC)

Poor communications in referral activities

Self-referrals and patient-mediated coordination

Although I could not make an accurate estimation of the self-referral rate due to the ambiguity of the concept of self-referrals, it appears to be quite high. The concept of self-referral includes making a change of providers without notifying the first contact providers, or a decision to change providers with a request for transfer of information. For the latter case, patients did not necessarily inform their first contact providers of the referred providers. Clearly, the current insurance reforms have weakened the disincentives for self-referrals. The “gatekeeper” arrangements have been abandoned. More freedom in choosing providers was encouraged.

We used to refer patients to hospitals. But now, we do not. It is the patient who decides where to go and which hospital to visit [.....]. The patients usually visit

who graduate from the degree programs (five or more years) are awarded a full medical degree.

their appointed hospitals so that the expenses can be reimbursed by the insurance schemes⁹⁵. (director, enterprise-sponsored CHC)

We do not refer our patients to hospitals, because we do not have many patients and severe cases are even scarcer. (assistant director, hospital-sponsored CHC)

The direction of self-referral was two ways. Some patients might self refer themselves to hospitals for specialist services. Others might self-refer to CHCs for cheaper services.

Self-referrals present a significant barrier to continuity and coordination of care. Starfield (1994a) has argued that referral made by primary care providers could lead to better outcomes than self referrals, although the self-referred patients might be more satisfied with the specialty services they received compared to those referred by doctors (Forrest et al., 2001). The coordination of services linked by self-referral depends, to a large extent, on the patients (ie. patients might request communications between providers). Occasionally, patients might ask for comments or suggestions from the GPs to optimise the plans worked out in hospitals or maybe just to compensate for the lack of communications with hospital doctors. As explained by some interviewees, patients seeking such advice were acknowledging their greater experiences, the lack of consulting fees, and the GPs' consciousness of their patients' interests.

Some patients have not been at ease after visiting hospitals. They would like to come to our centre to get more suggestions. (director, hospital-sponsored CHC)

As a GP, I may have thought more about the patient's interests, including how to improve the outcomes of their diseases, how to cut down the expenses and in the mean time optimise their prognosis [.....]. The most prominent achievement in the management of our centre, I think, is to require our GPs to change our attitudes towards patients, a change in sense of concept. In general, our GPs are more conscious of the patient's interests. This is not so easy. There were some retail

⁹⁵ In the new insurance scheme, patients are free to seek medical help in any of the health institutions recognised by the insurance authority.

pharmacies and pharmaceutical company representatives who came to promise us kickbacks for prescribing their products. We refused to do so. A woman representative of a pharmaceutical company told me that she had never encountered doctors and health institutions like us. I am very proud of it [....]. Some patients came to ask for our suggestions after visiting other health institutions. (GP, independent CHC)

GPs spent more time in communication with patients. In the hospital, doctors are too busy to explain details to patients. But in CHCs, in contrast, GPs have enough time to explain details to patients. (director, hospital-sponsored CHC)

Patient-mediated coordination depends on the expectations of consumers (patients) of CHCs. In fact, most patients did not expect GPs to organise or coordinate the health services for them. As viewed by the interviewees, patients knew what they could obtain from the CHS programs and would not hold a high expectation of the CHS.

If the patients visited the university hospital or the provincial hospital, and these hospitals had not managed to solve their problems they would not expect us to solve their problems. If we can improve their symptoms, such as easing their suffering from fever and cough they would have already been satisfied. (director, hospital-sponsored CHC)

Intra-organisational coordination

Where CHCs were attached to hospitals, the referral activities would usually occur within the hospital. Theoretically, this arrangement could facilitate the communication between GPs and hospital specialists. Two interviewees mentioned their harmonious relationships with specialists. The hospital specialists served naturally as consultants of the GPs who were working in the same organisations. As described by one interviewee, “We have no contact with other hospitals. Our hospital directs the centre. The hospital is our leader.” Because of the shared interests within the same organisations, a two-way referral channel could be easily developed.

Because we are part of this hospital, we don't refer patients to external hospitals [.....]. In general, we do not have too many patients to be referred to our hospital. The number is around 10 to 20 on average each month. Most of the referred cases are emergency and difficult cases. The patients either need to be

*admitted to hospital or to be investigated in more depth for a clear diagnosis.
(director, enterprise-sponsored CHC)*

We have communications with specialists in our hospital, if our patients are referred to the hospital. Sometimes the specialists call us to find out the condition of our patients, as well as the results of their medical examinations. We, of course, will tell them. Sometime, we even call them first. (GP, MCH-sponsored CHC)

We often communicate with specialists in our hospital to make joint diagnosis. We depend on our hospital. We have very good relationship with our hospital. We have never encountered any conflict [.....]. You can say, we look like one department of our hospital. If we have difficulties beyond our capacity, such as patients who may need surgery, we can either send the patients to our hospital, or ask the specialists to come here. What we need to do is just one call. (director, hospital-sponsored CHC)

There are some back referrals from our hospitals. Such as the chronic illnesses, once the acute symptoms are controlled, the patients will be referred to us for more intravenous drips or taking some more medicine here or for rehabilitation. (GP, enterprise-sponsored CHC)

Generally, we refer our patients to our hospital. If some patients need rehabilitation, they will be back referred to us. In our community, there are many families in poverty. We have once referred a patient to our hospital. After several days in the hospital, the patient asked to be back referred when the condition was steady. Our hospital did the referral. The costs here were much lower. (director, hospital-sponsored CHC)

However, GPs usually occupied relatively lower positions than hospital specialists. This formed an obstacle for GPs to take the roles of coordinators. Instead of seeking consultations from specialists, some GPs just followed the instructions of specialists. Actually, both GPs and hospital specialists expected the difficult cases to be transferred to hospitals. Many hospital specialists disdain to argue with GPs. In such circumstances there should be no expectation of hospital specialists informing GPs about referring patients.

In terms of professional relationship with our hospital, the activities include transferring patients to the hospital and asking specialists to come here [.....]. When we encounter difficulties, we would ask the specialists to come [.....]. Because we are directed by the specialists, the coming of specialists will not entail extra fees. We will definitely follow the medical orders of our specialists [.....]. We deal with common diseases. It's the hospital's responsibility to deal with difficult cases. (director, enterprise-sponsored CHC)

There is no activity to facilitate the communication between our GPs and specialists in our hospitals or in other hospitals [.....]. I have suggested to the medical association that they promote exchanges of knowledge between medical professionals, at least encourage communications between medical colleagues. However, there is still no such kind of activity [.....]. If the GPs need help from specialists, they can only find relevant doctors within the centre [.....]. We have tried to seek help from our hospital specialists. It happened only once during the past ten years. When the specialist came here, he just said "send to hospital immediately". That's all [... ..]. The general way for us to deal with difficult cases is to send the patient to our hospital. Our activities are limited by our hospital. (director, enterprise-sponsored CHC)

We have not much connection with the specialists in our hospital. They don't come to our centre either [... ..]. We usually refer our difficult patients to the hospital without any transfer of information, unless we prescribed drugs. (GP, enterprise-sponsored CHC)

We do not have much communication with hospital specialists. Sometimes when the hospital organises lectures, we will attend, that's all. (GP, enterprise-sponsored CHC)

Organisational constraints on the referral process could become a potential detriment to consumers when the organisation was not able to meet the needs and demands of consumers. Patients' choices were limited. It was sometimes difficult for GPs to suggest the most appropriate consultants in the interests of their patients if those consultants worked beyond the parent hospital.

Inter-organisational coordination

Inter-organisational relationships have been acknowledged as an important component of coordination of care activities (Bolland and Wilson, 1994). But in reality, GPs rarely talked to the health professionals outside their own organisations. Even when a GP decided to arrange a referral to external hospital specialists, he/she actually contacted the organisations rather than individual providers. Individual communications between GPs and specialists were uncommon.⁹⁶ Although some CHCs had contracted with external hospitals, there was no policy to encourage GPs to develop individual based communications with hospital specialists. The strong pattern of organisationally bound activity differs from many western countries. In the USA, for example, referring physicians commonly recommended a specific specialist to the patient (Forrest et al., 2002). In some managed care organisations, the primary care providers might contact the specialists to clarify the clinical problems at the same day when they made the referrals (Peabody and Luck, 1998). The referral to the subspecialties were more likely to be arranged as consultation (Forrest et al., 1999a).

We have no connection with specialists right now. Many hospitals, including the university hospital wish to make contracts with us, but this hasn't developed yet. We don't call the specialists who serve our patients. Because, firstly, they would not answer us; secondly, we have no such kind of contract. But anyway, we do hope to develop such patterns of contact. If so, my patients will be happier. We can attract more patients to make contracts with us. That's a very good pattern. But we haven't achieved it yet. (GP, independent CHC)

We make contract with the central hospital. We refer our patients to the central hospital if we feel they are too difficult for us to deal with. The hospital also referred several patients back to us last year. (GP, MCH-sponsored hospital)

W District Hospital wants us to be part of the hospital. But they don't care about the CHS. They just want our patients. We make two-way referral contract with them. But it's not well implemented. We referred 20 patients to them, none was

⁹⁶ Even within one hospital, referral activities are usually negotiated through departments rather than individual specialists.

referred back. They are pretty happy to see us refer patients to them. But they should also refer some back, let's say, like some patients with cystic stone or cystic inflammation. After operation, they should at least call us. We don't expect them to transfer medical documents. But they should at least inform us about such cases when the patients are discharged from hospital, so that we can arrange home visits. We can install the catheter and inspect the situation of the patient. But no call comes. (assistant director, independent CHC)

Lack of transfer of information for transferred responsibilities

Current referral activities are focused purely on the transfer of responsibilities, which might have constituted only a small proportion of the patients who needed referral services. A study in the USA demonstrated that about 40% of referrals arranged by the primary care providers were for the purpose of consultation, 35% for shared management, only 25% involved the transfer of responsibility (Forrest et al., 1999a).

The transfer of information for transferred responsibility is essential to enabling coordinated services. As described previously, the medical records in many CHCs were not well developed. In most referrals, the transfer of information depended, to a large extent, on the patients. Actually, the final decisions on whether and where to be referred were usually made by the patients even when it was recommended by doctors. The parent or contracted hospitals would always be the first choice of the GPs with respect to the referred provider. When referral to an external hospital was requested by patients due to barriers of cost, insurance, distance, and quality of services, the referral arrangements would generally be pass on to the patients. In fact, GPs rarely made appointments with referred providers on behalf of their patients, unless referring to the parent hospitals or/and where the patient had signed a HCA with the CHC. In a CHC affiliated to a university hospital, the availability of specialist services coordinated by the CHC staff were seen as a strategy of attracting consumers and one of the benefits that the contract clients could enjoy.

If we encountered difficult cases, such as pneumonia, we would suggest the patient be admitted to hospital. However, if the patient was not willing to go to hospital because of the inconvenience or the high expenses, we can also give treatment to him/her in the centre. We do accept this sort of patient. In terms of referral, honestly, we have no specific criteria. It's determined by each doctor. The

key consideration is the medical risk, the capacity of dealing with the cases appropriately. Yes, the medical risk. (GP, independent CHC)

We do refer patients to hospitals. If the patients were staff of Panzihua Steel Company, we would have referred the patients to our hospital, because they could get a discount in their expenses. Otherwise, the patients would be referred to Dukou Hospital, because that hospital is close to our centre. It's just down the hill. (GP, enterprise-sponsored CHC)

We have not developed a series of complicated referral networks. It's not so perfect in terms of the referring system. Sometimes, for example a cancer patient, we couldn't refer him to our hospital. The hospital said that all beds were occupied at that time. The patient was uninsured, he said he would like to be referred to the second city hospital, then we referred him to the second city hospital. It's few in referring activity. We have no close contacts with hospitals. (GP, enterprise-sponsored CHC)

We have no contract relationships with other hospitals. If we have difficult patients, we will refer the patients to the first municipal hospital (nearby) or others. (president, district hospital)

Crossreach arrangement in public health projects

The coordination of public health services was shaped by the hierarchical organisation of public health agencies. Some medical organisations were assigned responsibility for delivering defined public health services by the PHIs (or through the local health authorities). Those medical organisations (including CHCs) generally employed PHWs to implement the public health tasks. They kept close connections with the PHIs and spent part of their time in the PHIs. Some were even administratively managed by the PHIs. Usually, the components and schedules of the public health activities were designed and managed by the PHIs. A certain amount of money was allocated by the PHIs to the CHCs to cover the cost of these services.

We have specialised staff members in charge of MCH activities. They have some kinds of connections with MCH stations. Panzihua Steel Company has two hospitals, each with an affiliated MCH station. The MCH station supervises our

activities in MCH care. They give guidance. We provide services. We send our MCH staff members to the MCH station each Monday, Wednesday, and Friday to serve clients there. We also give physical examinations to pregnant women and women with new born babies and children, and pay home visits. (director, enterprise-sponsored CHC)

We manage the pregnant women. Each Friday, our doctors in gynaecology and obstetrics go to the MCH station and receive assignments of MCH activities. They also give us some subsidies to support our services, (which were around 30-40 yuan per capita)⁹⁷. About 30% of the subsidies will go to the pocket of the doctors who offer the services. The remaining will be kept by the centre. It's the MCH station that charges the clients. When we pay home visits, we will not charge the clients. (GP, enterprise-sponsored CHC)

The MCH station organises the MCH activities. They keep the information cards, we provide services, including physical examination of pregnant women, home visit to women with newborn babies, monitoring physical development of children, and inspecting the environments of kindergartens [.....]. Our hospital doesn't inform us when our patients are discharged from the hospital. The only exception is the patients with cancer or TB. They will send a note to us so that we can pay home visits to these patients. For other patients, if necessary, the hospital will tell the patients to come to our centre for further treatment or investigation. The hospital will not contact us directly. (director, enterprise-sponsored CHC)

In terms of family planning and preventive care, it's assigned by our hospital to Dadukou. We are not allowed to be involved in these activities, unless some cases that are not covered by Dadukou. We applied for permission to do these works but were rejected. (director, enterprise-sponsored CHC)

We were originally a PHC station. We did similar activities then but current activities are more individualised. For example, we focused more on population services, without too much attention on individuals. We conducted a survey in 1995,

⁹⁷ The MCH station allocated 30-40% of their user charges to the CHCs, supporting the physical examination and home visit services undertaken by the CHCs.

but it was virtually done by the work units. Our main contact was with the work units. Now however, we enter into residents' homes and we provide a wider range of services. (director, hospital-sponsored CHC)

We have no connection with EPS. We are independent from each other. However, there are several EPS staff working in our centre. They belong to the EPS. (director, enterprise-sponsored CHC)

Despite the crossreach arrangements, service coordination continues to follow the chain model. The PHIs, hospitals, and CHCs share responsibilities according to a predefined protocol. For example, babies are usually delivered in hospitals; within the hospitals, the babies might receive some vaccinations; the postpartum home visits are generally undertaken by the local MCH stations or CHCs (or community hospitals). The subsequent immunisations after discharging from hospitals were taken over by the local EPS or the CHCs (or community hospitals) supervised by the EPS. The physical development of children would be monitored by the MCH stations or CHCs (or community hospitals). There is some scope for overlaps and gaps in these arrangements which perhaps could be avoided through clearer case management arrangements.

Some activities are hard to coordinate; why? Let me give you an example. Last month, a staff member from the Television College called me. He said "My child is now ten days old, but still has yellow skin. You said you would make a home visit eight days after the delivery of the baby. Why haven't you come?". I called the department of obstetrics immediately and enquired about the home visit arrangement, and I was told it was the responsibility of MCH station. The records of the mother and her baby had been transferred to the MCH station. I explained the details of the problem of that baby and accused them of evading their responsibility. I said a lot and then I reported it to our president. I insisted that it really is a problem and then again, I queried the department of obstetrics: "Why don't you pay home visit if it's your responsibility?" The answer was: "It's not us who refuse to pay home visit. It is the MCH station who doesn't allow us to do so. They will not be happy if we pay home visit." Later, we suspected that our hospital did not transfer part of the money collected from the client for the purpose of post delivery care. [Money is collected by the hospitals in which the baby was born]. I asked the president. We still don't know whether our hospital transferred the money

[.....]. I thought it might be easier for the client to solve the problem. Therefore, I called the client [.....] and suggested that they come to the hospital or ask a paediatrician to answer their questions via phone [.....]. Later, I was told that they had visited the hospital. (director, hospital-sponsored CHC)

In the past, we paid a home visit if the child was born in our hospital. Sometimes, I found that the MCH station also visited the same home sequentially without communicating with us. (director, hospital-sponsored CHC)

Integration of provision

Six functions have been identified as a core principle of the CHS policies (MOH et al., 1999; Sichuan Health Bureau, 2001). The governments are seeking to encourage the integration of health services through assigning comprehensive functions to the CHS. Comprehensiveness is a measure of whether a primary care provider offers a range of services broad enough to meet all the common needs of a certain community (Starfield, 1994a). Although comprehensiveness in one agency may have the potential advantage of facilitating integration of services, it can also be achieved through linking the core elements of ‘comprehensiveness’ provided by each agency with similar fragmented services provided by others, including agencies of similar provider configuration and at different levels (WHO, 2001). If the CHS could play a complementary role in responding to the community needs, the integration of services would be improved without duplication. Otherwise, it could exacerbate the problems of allocative inefficiency. In this section, I examine the roles of CHS within the entire health industry.

Competing with hospitals for clinical services

As discussed earlier, medical providers at various levels provide primary care, including tertiary hospitals. One of the aims of the CHS reform was to divert as many primary care clients as possible from the tertiary hospitals. It was believed that more than 80% of health problems could be appropriately solved in community settings (Wu, G.Y. et al., 1999a; Dai and Wu, 2000). However, the mechanisms for achieving this goal would depend largely on market forces and competition. Only a few municipalities have designed financial incentives into their insurance arrangements which would

encourage members to seek medical assistance in the first instance from the health institutions at lower levels (Shanghai Municipal Government, 2001).

In reality, the pressure of competition operates mainly between CHCs and private clinics and community hospitals. As indicated by the following story, some CHCs have been able to force private clinics to move away and to divert some patients from other community hospitals. But the impact of CHS on tertiary hospitals has been quite limited.

Patients trust us, because we are well regulated as an institution supervised by health authority. (director, enterprise-sponsored CHC)

There is only one CHC in this community, but a lot of private clinics. At the time when we established the CHC, there were 61 private clinics, now, only 30 survive [.....]. We succeed in competing with the private clinics. Although we charge a similar rate, we have more services, and our quality is better. (assistant director, independent CHC)

If a CHS program is well accepted by community residents, it will definitely affect the hospital performance. In general, the hospital visits will be reduced. As I know, the number of outpatient visits at the H Hospital is even less than at our centre. Another example is the C Staff Hospital. I know the president of that hospital very well. Our CHS have had a big impact on that hospital. That hospital has a 500,000 yuan income from the services to their own staff per year. In the past, they had an additional income of 800,000 yuan income per year from the services to other community residents. But this year, this part of income dropped down to 500,000 yuan, with a 300,000 yuan loss of income. I have talked to many residents. They didn't think the MCH station (former institution of the location) had the capacity to provide clinical services. The MCH station had one million yuan incomes per year. But excluding the governmental input, they earned only 200,000 yuan from outpatient services. We aimed at 800,000 yuan at the beginning of this year. The aim has already been reached now. We made at least 600,000 extra, which came from the patients we attracted from the hospitals and the private clinics. This is the effect of the medical market. (assistant director, independent CHC)

There is no influence of the CHS on our hospital (tertiary hospital). We still have the same number of hospital visits. In financial respects the CHS hinders our hospital. (director, hospital-sponsored CHC)

Limited roles in complementing key services

While competing with hospitals for clinical services, other key services that the communities might have great needs for were not well developed in the CHCs.

Preventive services

As described earlier, public health services are arranged through a complex structure of parallel hierarchies with some cross reaching of staff and functions. The only difference compared to the original hospital based system (for public health program delivery) was that many CHCs took over these tasks from the other hospitals or other departments of the same hospitals. The range and scope of preventive services remained largely unchanged. There were few extensions of GPs' roles in preventive services. In my community survey only 42% of residents who had attended doctors at the district level or below received advice about ways of avoiding illness and staying healthy which was similar to those who saw doctors at municipal and provincial levels (37%) although somewhat better than those attending private doctors (21%) ($p=0.047$).

SL was classified as one of the communities of CH hospital, now, it's assigned to our community centre. We are in charge of the preventive care of this community. We have four specialised staff members to do preventive activities. They were clinicians before, but do not get involved in clinical activities any more. The clinical activities and preventive activities are separated. There are lots preventive activities, including survey and recording of new births and deaths. The preventive care staff also do a lot of health education, because they have already been familiar with the community residents, they should take this responsibility. (assistant director, hospital-sponsored CHC)

We are following orders from the health authority and intending to change our hospital into a CHC. We were in charge of two communities before, but three more are added now. In the mean time, the communities assigned to specialised hospitals, such as the orthopaedic hospital, are reduced from five to one, whereby the orthopaedic hospital takes the responsibility of family planning and children's immunisation. (president, district hospital)

The development of HCAs and systematic management approaches represented some progress in the integration of preventive care. But unfortunately, these services covered only a small portion of the populations around the CHCs. Furthermore, the clinical services were not integrated with these approaches. The vertical integration presented an obstacle for the horizontal integration.

In our CHCs, the MCH care is the responsibility of doctors in the division of gynaecology and obstetrics. By contrast, the immunisation division is in charge of the children's health. Our GPs do aged care, chronic illness management, and health education. (GP, enterprise-sponsored CHC)

Family planning

Family planning services are tightly controlled by the government as a national policy priority. The relevant policies and the marketing and distribution of contraceptives are usually controlled by the Family Planning Committees (FPCs). As with the public health system, the delivery of family planning services relies heavily on the primary health institutions, although the FPCs generally ran a few specialised institutions and hospitals to deliver reproductive services. The CHCs were subject to the authority of both the FPCs and health authorities. For example, some interviewees reported that they had to get approvals from the FPCs before terminating contraceptive measures for their clients. Meanwhile, some CHCs were not authorised to offer abortion services (by the health authority). In reality, however, the health authorities had lost controls over these services as a whole. Some interviewees commented that tight governmental control over the CHS provided the private clinics with opportunities to occupy the market. In recent years, family planning services have been evolved into the promotion of reproductive health (Wong, G. C. et al., 1995). But obviously, the CHCs were still focusing on clinical family planning services. Other aspects of reproductive health have not attracted their attention.

We are not allowed to do family planning surgery, because of the risk and policy issues. Furthermore we have no relevant equipment. (GP, hospital-sponsored CHC)

We are providing some services related to family planning. But these activities such as installing or taking out IUDs (intra-uterine devices) or undertaking

abortion are virtually controlled by the Office of Family Planning. The woman who wants to take out of the IUD has to get our diagnosis first to state the condition and reason to do so, then get approval from the Office of Family Planning, and finally take the operation. (director, enterprise-sponsored CHC)

Rehabilitation

Rehabilitation was quite a new concept to many health institutions. Although an explicit definition of rehabilitation in the CHS policy documents could not be found, some of the outcome indicators included in the accreditation programs (eg. Activity of Daily Life and Social Ability) expressed clearly the acceptance of the international definition: “Rehabilitation is a process which assists people with disabilities to optimise the use of their physical, mental, and social abilities.” (Mitchell, 1999).

Rehabilitation services were sparse in CHCs, which reflected the national picture (Wu, Y. F. et al., 1999c). Post acute treatment, physical therapy, exercises, massage and acupuncture were cited as the main rehabilitation services offered by the CHCs. Many interviewees attributed the lack of rehabilitation services to the poor training and equipment. However, rehabilitation services had been neglected by the entire health system. My questionnaire survey showed that only 1.5% of the residents who saw doctors were assisted by their doctors to plan for further rehabilitation programs, comprising 0.28% of the total population, far less than the potential demands if postulated according to the estimated disability rate of 1.15% (Zhuo, D. and Kun, 1999).

Health education

Most interviewees saw health education as propaganda or mass education through posters and lectures. Many CHCs had organised lectures in their communities. These lectures were usually given by doctors rather than nurses, sometimes even by hospital specialists. It was rare to see any printed materials for health education in the reception and waiting areas of CHCs.

I think that we do very well in health education. Since last year, we have done a lot in health education. Health education is directed by doctors with the help of nurses [.....]. Because of the limitations of their knowledge nurses cannot explain clearly about relevant problems. That's why we ask doctors to give lectures to

community residents, even specialists from hospitals. The only exception is that we let nurses give lectures in the kindergartens. (director, hospital-sponsored CHC)

We give lectures to community residents twice a month either in the centre or in the community. The attendees are organised by the residential committees. (GP, independent CHC)

We open four lectures per year in the community, which are done by doctors. (director, enterprise-sponsored CHC)

Although a few GPs were aware of their roles in helping to reduce the prevalence of risk behaviours among their patients, no interviewees talked about any health promotion projects targeting the local health issues.

We are doing health education, which includes two sorts of activities. One focuses on individual patients in the outpatient clinics. We educate them according to their specific condition. The other is the community based education. We go to the community health school each month and give lectures to the residents periodically. It's not as ideal as we expected [.....]. As required by the project, the resident committee should play a role of bridge to connect our centre with community residents. It should be the resident committee that organises the activities in the community, and we give lectures [.....]. I think that the individual based health education may be more useful [.....]. Our GPs have done well in individual based education for both contract patients and other outpatient visitors. We spend a lot time talking with our patients in order to change their life habits and help them relax. We emphasise the benefit of low fat, low salt diet repeatedly. We do the education to all hypertension patients, including the patients who come for free check of blood pressure. (GP, independent CHC)

Aged care and palliative care

Aged care and palliative care were identified as important components of the full range of CHCs services (MOH et al., 1999; MOH et al., 2002) but in reality, the programs designed specifically for the elderly were rare. One interviewee introduced his hospital's efforts in developing an entire range of care for the elderly covering community, institutional, and hospital care. But the institutional care actually enrolled

elderly people from other communities, while no connections with these community institutions were developed yet. Clearly, these services were still fragmented.

The elderly couldn't always stay in hospitals. We have to meet the demands of residents. We set up a nursing home. In the mean time, we try hard to develop community-based services. We want to develop and improve our capacities in preventive, care, and rehabilitation. We can't be a success if we compete with other hospitals only in the clinical components. (president, district hospital)

Palliative care was new in China. Most CHCs did not provide such services. However, there were some demands from the community residents. A survey in Chengdu showed that more than 90% of elderly over 80 years old would like to live in the communities (Sun et al., 2002). A few CHCs had tried to manage terminal cases. It seemed that CHS could possibly become an alternative choice for the dying patients to seek palliative care with relatively lower prices.

There were some elderly patients whose condition was too far advanced to be cured. They found hospital services were too expensive and came to us and asked for home services. Actually, the results were quite good. They didn't spend too much money. Both the elderly patients and family members were satisfied although we didn't cure the diseases. They didn't feel sorry. I think we can do a lot of work in this aspect to meet people's demands. (GP, independent CHC)

There was an aged patient who had been a department director in the labour bureau. He was diagnosed as stroke, with failure in heart, lung, and kidney, by Huaxi University Hospital. The hospital suggested that he came back home instead of wasting money in hospital. They had spent 10,000 yuan in the hospital. It seemed that he was dying. After coming back home, his family members had been ready for the funeral, until one day, they came across the CHC. They enquired about the possibility of home service. We accepted their request. After one month home based services, he was becoming better, which costed only several thousand yuan. (director, hospital-sponsored CHC)

Pattern of service integration

The fragmentation of services in China is widely recognised (Central Committee of Communist Party and State Council, 1997). The CHS are trying to integrate the services

to communities through their comprehensive functions and the complementary roles of CHCs. But they have not achieved great success. The top to down arrangements working through hierarchical structures has facilitated selective programs but impeded the coordination of other important services. Although the debate between the strategies of selective PHC and comprehensive PHC is still going on (Warren, 1988), the continuing fragmentation of services runs counter to the aims of the CHS reforms.

It's difficult to integrate all the six components of CHS. There is no clear direction for us. There exists separate hierarchical structures for preventive care and family planning. We are not well recognised in the practice of these activities. For example, the planned immunisation for children is done by our hospital, they don't let us do it. We only conduct survey for them. (director, hospital-sponsored CHC)

Development performance of community health services

An important aspect of organisational performance concerns how it steers its own development, strategic planning, capacity building and related practices. In this final section, I reflect upon organisational development as part of evaluating CHS performance.

Try to stay alive

Simple survival was an important motivation for many hospitals in sponsoring local CHS programs. Some CHC managers believed that it was very hard for the primary and secondary hospitals to survive the intensifying competition in the healthcare marketplace. Accordingly, CHS provided those hospitals with an alternative approach. Since CHS were frequently used as a marketing strategy to attract patients, these managers strongly opposed large hospitals (or tertiary hospitals) being involved in CHS. But in reality, one fourth of tertiary hospitals have been involved in CHS (Yang, H. et al., 1999b). Recent policy changes (MOH et al., 2002) will encourage more tertiary hospitals to participate in CHS.

Right now, the CHS has no impact on hospitals. But they will in the future if the development of CHS follows the pathway which has been laid out. (director, hospital-sponsored CHC)

There is nothing special in CHS. The main aim is to occupy the communities [.....]. It may be an alternative approach for our hospital when the hospital is difficult to maintain. (GP, hospital-sponsored CHC)

Our hospital intends to introduce a mechanism of integration of preventive care and rehabilitation. This hospital is too small to compete with others in clinical components. We cannot deal with severe health problems. So, we can only develop according to this strategy. (president, district hospital)

Before March 2000, we charged only five yuan for one health contract. It's increased to 20 yuan since 1 March 2000. Actually we do not expect to make money from this charge. We intend to let more residents know our centre and the range of services we provide, no matter whether they sign contracts with us or not, because many residents still don't know the centre. Our director said that the five yuan charges can not meet the cost definitely, but if the patient is glad to sign contract with us, when he/she is ill, he/she will visit our centre, and then, we will make profit. (assistant director, hospital-sponsored CHC)

While many primary and secondary hospitals were struggling to survive (Hao et al., 1999) in the face of the competitive pressures imposed by the tertiary hospitals, the top priority for most CHCs was also to try to stay alive. *"The most important thing is to keep patients. We have to satisfy the patients in order to keep the patients. We will then have the financial resources we need."* (director, enterprise-sponsored CHC)

Large hospitals also deliver home-based services. You have to find something special to survive from the competition. It's pretty hard. No one has a clear view. (GP, hospital-sponsored CHC)

Our hospital heads do give attention to CHS, but they care more about the financial revenue, it's a problem of surviving. How can our heads support the CHS while the CHCs can not produce profits? They have no money to support the CHCs at all. They can only focus on financial benefit to support our staff. (GP, hospital-sponsored CHC)

Lack of opportunities for self-development

Their heavy dependence on hospitals made many CHC managers feel powerless. They were very concerned about the future separation of the CHCs from their parent hospitals because of the little chance left for the self-development of CHCs. Some interviewees expressed confusions and uncertainties about the future development of their organisations.

We can't make decisions by ourselves. Everything has to be approved by the president of our hospital and reported to the president in advance. All drugs and materials, including cotton sticks come from hospital [... ...]. The investment from the health authorities goes to the hospital. I still have not received the 35,000 yuan yet. It should be given to us according to the policy of 0.5 yuan per capita in the community. (director, hospital-sponsored CHC)

Infrastructure development

Infrastructure development was amongst the top priorities of the CHC managers. The CHC staff rarely saw hospital resources as their own, whether or not they were attached to a hospital. It was very common for the interviewees to complain about the lack of resources. Some even associated the lack of resources directly with the poor outcomes.

We can't compete with hospitals. We are not well equipped. We can't do many examinations and tests. If the patients need these tests to clarify diagnosis the only way is to go to hospitals. (director, enterprise-sponsored CHC)

There was a patient with diabetes. Because we had no appropriate instrument to detect his condition, we could hardly give him any advice. The patient was finally diagnosed as diabetes in a big hospital and we then lost his trust. He has never come back to us. We feel so sorry about that [... ...]. Diabetes is the most prevalent health problem in our community. Patients expected that we would be equipped with appropriate instruments with which we can detect diabetes at the early stage without blood test. They also hope that we could use traditional Chinese medicine in controlling diabetes in conjunction with diet control and exercises. (GP, MCH-sponsored CHC)

Given this belief, most CHCs tried very hard to equip themselves. Many CHC managers hoped that these facilities and equipments could attract patients and bring profits to the CHCs, and more importantly, keep a sustainable ability for future development in case that they would become independent from their parent hospitals.

We were well equipped last year, including X-ray machine, Ultrasound B, ECG, and laboratory tests. It's equivalent to a small hospital. Because I have been trained in CHS, I am trying to build up our capacity in dealing with common health problems, in case of fully changing from a hospital outpatient department to a CHC. We have already been well equipped, I think [.....]. I am now contacting the eastern health authority and our SAOs for supporting us in rehabilitation activities. We have no any rehabilitation facilities. I hope they can support us. (director, enterprise-sponsored CHC)

For the patients with hypertension, our role is to monitor their blood pressure and prescribe anti-hypertension drugs [.....]. For the URI patients, we can give intravenous drips to patients to control infection. We also prepare to do ultrasound mist drug giving to patients. We have been equipped with oxygen suppliers, but still have no ultrasound mist equipment because of the lack of money. We did apply for this item as well as many others, such as laboratory tests, including blood glucose and blood lipid and so on, but we just have no money to do these items. (GP, hospital-sponsored CHC)

For most CHCs, as one department attached to hospitals, they could only beg investments from their parent hospitals. But given their beliefs that CHS were less profitable or even a financial burden, hospitals were not keen to invest in CHCs. As said by some interviewees “we can only do our works with our two hands”. However, a few hospitals did put the infrastructure development of CHCs into the entire strategic plan of hospitals. In these cases the allocation and balance of resources between CHCs and hospitals were carefully designed. The CHS programs were considered as one of the integrated parts of hospital services.

If necessary, we can collect samples and send to our hospital to do tests, such as blood lipids and so on. (GP, enterprise-sponsored CHC)

I applied for setting up of laboratory to do blood, urine, and faeces ordinary items tests, but our location is not good. This building will be demolished. It is said

that it's the turn of this building after the rebuilding of the street. Therefore, director Gao was worrying about the possibility of frequent moving of equipment, although he intended to move part of the laboratory from hospital to here [... ...]. Right now, we have nothing except for an ECG. (director, hospital-sponsored CHC)

Workforce capacity

Many managers did not see workforce development as important as the infrastructure development. They believed that high quality health professionals could be attracted, provided that they were well equipped and more importantly had the autonomy in recruiting staff. Nevertheless, there are strong pressures from governments for further investment in training for GPs. Clearly, GPs are focus of the workforce development in this sector. In Chengdu and Panzhihua, training was a pre-requisite for the title of GPs. The local, municipal, and provincial health authorities were all involved in the training.

Only one doctor and two nurses work in the centre. However, employing staff members is not difficult if we have appropriate financial supports. (GP, hospital-sponsored CHC)

Some interviewees believed that the low quality of workforces constituted obstacles for the future development of CHS. The emerging demands of services such as mental health counselling, diet consulting and rehabilitation were not available in many CHCs. But unfortunately, the transformation of hospital specialists into GPs has been the main focus of the workforce development policy. Perhaps because of perceived workforce problems within the hospital sector many politicians and researchers have emphasised as one of the principal tasks the transformation of doctors working in tertiary hospitals into GPs (Chinese People's Political Consultative Conference, 1998; Yu, X. H., Zhu and Wang, 1999; Xie, J., 2000). The roles of nurses and allied health professionals and the non-medical and paramedical workers have not received the same attention.

Patients come to our centre, because they trust our skills [.....]. I am good at paediatrics. So, many patients visit me for this purpose. (GP, MCH-sponsored CHC)

We have no real GPs. All of the doctors working in our centre are specialists. (director, hospital-sponsored CHC)

Professional capacity is one of the most important factors that affect the performance of CHS. I came from the department of internal medicine. Although I also have some experiences in hospital at homes, I still feel that our knowledge structure is inappropriate. This is a key point. (director, hospital-sponsored CHC)

We can meet the demands of our community residents, in terms of disease treatment and maternal and child health. The only problem from the feedback of residents is the lack of physical therapy. We will set up one soon, which should be able to meet the demands. (GP, enterprise-sponsored CHC)

Each CHC should be able to do some laboratory tests. But we have no money to purchase the equipment. I think that we should at least be equipped with ECG, Ultrasound B, and biochemical test machine. Our GPs should be able to do these tests, unless we have specialised staff members to do the job. We have no such kinds of staff members now [.....]. I need to be trained in laboratory skills. Our GPs should have these skills, such as ECG, Ultrasound B, and biochemical tests. (GP, hospital-sponsored CHC)

Conclusions

Institutional development has not been linked with population health

Despite the policy intentions the expansion of CHS programs have not resulted in an overall improvement of accessibility to medical care. Indeed, the CHCs are less likely to offer high-technology services to consumers due to the less technology-intense environment of CHCs and the policy goal of reducing the cost of CHS. Unfortunately the strategy of encouraging consumers to access CHS by reducing costs may have been compromised by a perception of lower quality of services (Luo, L. et al., 1999a). People are worried about the possibility of incurring increasing costs as a consequence of more visits per episode of illness because of delay in appropriate diagnosis and commencement of treatment (see details in Chapter Six). Obviously, the medical accessibility and cost saving effect are unlikely to be achieved by entirely depending on the institutional arrangements without appropriate financial arrangements (Starfield, 1994a; Wholey et al., 1998).

The current CHS reforms have focused mainly on the provision of personal health care and have not given enough attention to population health. Although new resources have been put into communities, the number of patients seeking medical help does not appear to have increased. The financial barriers facing low income families and rural immigrants have not been removed. Meanwhile, the incentives to encourage consumers to seek medical help from these community resources (as opposed to the big hospitals) are almost absent. In terms of the insurance arrangements, the IHSAs are not structured so as to encourage CHS. People are unlikely to take CHCs or GPs as their first contacts. It appears that market pressure and competition have driven CHCs to concentrate on the financially secure clients and the delivery of profitable services. (These issues will be further discussed in Chapter Six).

The health issues of vulnerable populations have not been appropriately addressed. Some researchers have recommended a means-test pricing system to solve this problem (Meng, Q. Y. et al., 2002, p. 35). But it may be more important to ensure that the needs of these vulnerable populations (eg. rural migrants) are addressed in the public health projects. CHS should include these populations in their target groups.

Low efficiency of community health services creates barriers to cutting down medical expenditures

The government wishes to hold down medical expenditures by increasing CHS utilisation (and decreasing utilisation of tertiary health care facilities). A few studies have confirmed that the CHS attendance rates have been incrementally increasing in some municipalities (Du, X. P. et al., 1999). However, the shifting of medical costs from hospitals to CHS has been constrained by the limited capacity of the CHCs. One study in Tianjing declared that the CHS programs contributed to the levelling off of the increasing trend of medical expenditures (Dong, Y., 2001b). But the author failed to exclude the confounding effects of the concurrent impact of health insurance reforms. The dramatic increase in user payments (co-payments) might have exerted more downwards pressure on utilisation rates, but perhaps at the cost of decreasing the accessibility of medical care. My study suggests that many of the patients diverted to the CHCs have come from private clinics and primary hospitals. This could compromise the cost saving effects of CHS. Further research is needed to monitor the changes in patient flows and the shifts of costs.

The low efficiency of resource use in CHS obviously runs counter to the cost saving objectives. Although restructuring the health system around community-based is an international trend it is by no means a straightforward task, even in the most developed countries (Bentley et al., 1994). Motivating the existing community resources may be more important than establishing new institutions. Hospitals, private clinics, community pharmacies are all important elements of the PHC sector and the CHS workforce. Preventive services and the social approach to health are critical elements of the comprehensive PHC approach (WHO, 1986). The CHS need to be integrated with generic community services. Hospitals should not be encouraged to run several CHCs. Restructuring the existing primary and secondary hospitals and changing their functions fundamentally should be a higher priority. While emphasising comprehensiveness of services more attention should be paid to local needs and demands. Sometimes, specialist services could also be appropriate in responding to the most urgent medical needs of communities (Gan et al., 1999a). Recently, the principle of comprehensiveness of CHS has been challenged by some officials who advocate clinically focused primary care (Dong, Y., 2001b; Li, L., 2002). Whatever strategies are adopted, the integration of services has to be addressed. Otherwise, the allocative efficiency will suffer (WHO, 2001).

Poor quality of services has blocked consumers' acceptance of community health services

Patients' satisfaction is one useful indicator of quality of services. A high degree of satisfaction with CHS has been commonly reported (Dong, Y., 2001b). However, the interpretation of consumer satisfaction data should be cautious, because it could be associated with the free choice of providers. In other words, consumers who are more likely to be dissatisfied with the CHS are less likely to visit CHCs. The low acceptance of the CHS among consumers may reflect a general dissatisfaction on the part of consumers for the CHS. In one survey of hospital outpatient visitors, we found that only 25% expressed satisfaction with CHS (Ying et al., 2001).

Several quality issues are worthy of policy and educational attention, for example, the overprescribing, particularly for antibiotics, the frequent use of intravenous drips, and the neglect of blood pressure measuring. Obviously, the oversupply of high margin services and the undersupply of low margin services has coexisted. This finding is

consistent with other studies. A statistical report from a Tianjing CHC showed that medical and nursing services accounted for 78% of the total volume of CHC activities. Preventive care, rehabilitation, family planning, and health education comprised only 20.6%, 0.01%, 0.05%, and 1.5% of CHC activities, respectively (Liu, L. H. et al., 2002e). While pharmacy services account for about half (40% in Panzhihua) of the total revenues (Liu, H. S. et al., 2002c; Liu, H. S. et al., 2002d; Wang, T. G. et al., 2002b), no one could anticipate CHCs actively working to overcome the “problem” of over prescribing. In some respects the gap in performance between practitioners at different levels and the significant discrepancies between private and public providers suggests that the practitioners’ performance are not purely determined by their competencies. System and organisational factors also play a very important role. Education itself can hardly bring about improvement in the quality of services unless it is combined with policy and organisational changes.

Lack of an appropriate referral system results in poor continuity, coordination and integration of care

CHS provide GPs with an opportunity to develop long-term relationships with community residents through HCAs, community education and systematic management of health problems. However, both providers and consumers need to improve their understandings of this relationship. The continuity, coordination and integration of care should be built on the basis of easy access to care and sharing of information regardless of providers (Forrest and Starfield, 1998; Wholey et al., 1998). It is of particular importance in the management of chronic illness (Wholey et al., 1998).

Maintaining continuity, coordination and integration of care across the intra-organisational (hospital-CHC) connection was clearly jeopardised when consumers were given complete freedom in choosing their providers (MOH, 2000). Obviously, in this intensely competitive environment, continuity of care has been broken down by the frequent change of providers and lack of information sharing between providers; comprehensiveness has been incomplete because of the restrictions of capacities of the CHCs and GPs and limitations on referrals and collaborations; coordination has been thwarted by the conflicts of interest and poor communications between providers. Accordingly, building a better coordinated, better integrated hospital-community interface is important for all hospitals and CHCs, since their work is so complementary

(Slater and Cornforth, 1996). A mutual referral system needs to be developed between different tiers of hospitals (Liu, S.N. et al., 1999c; Shi, Y.X. and Pang, 1999). In the UK, a proper arrangement for patients discharged from hospitals is required by the 1990 NHS and Community Care Act (Slater and Cornforth, 1996). In some managed care organizations in the USA, primary care providers are required to be consulted during the hospitalisation of a patient (Peabody and Luck, 1998) although, the communication at the community-hospital interface was still poor (Slater and Cornforth, 1996).

The current referral system has been built on the basis of organisational relationships, not individuals (Liu, S.N. et al., 1999c; Xu, Z.M., Qiu and Jiang, 1999). The lack of individual communication pathways between GPs and specialists constitutes a major obstacle to effective coordination. Referral is a process that requires tremendous efforts from the primary care providers to coordinate services across settings, multiple providers, and time (Forrest et al., 2000). Lack of linkage and coordination of services is obviously an international problem (Filinson, 1997). Glouberman and Mintzberg (2001) have pointed out that coordination could be achieved by mutual adjustment, direct supervision, or standardisation. Forrest and colleagues (2000) argue that optimal coordination requires the documentation of all care activities of a patient, the inter-provider communication, and the integration of service delivery.

Control over referrals by the primary care providers has been used to enable and encourage the coordinative roles of primary care providers in many western countries (Starfield and Simpson, 1993a; Forrest et al., 1999b; Duckett, 2000, p. 108; Lu, Z. X. and Jin, 2001, p. 14; Forrest et al., 2002). The managed referral is believed to reduce both unnecessary care and adverse events by reducing the overall use of specialist services (Starfield, 1994a). This can be achieved through referral authorisations, financial disincentives for self-referrals, performance assessment of referral patterns and referral guidelines (Barkun et al., 1993; Forrest et al., 2002). However, GP's control over referral does not necessarily improve the coordination of care. A study conducted in the USA showed that patients in a gatekeeping plan were more likely to be referred by the "gatekeepers" (decrease of self-referrals) but less likely to be scheduled an appointment or opportunity to talk with the specialists compared to the indemnity plan (Forrest et al., 1999b). The referral process is essential in enabling coordination of care and should include communications between referring providers and consultants regardless of the forms of communication (Shanit and Greenbaum, 1997). The referring

providers play a role in determining the completion of the referrals (Forrest et al., 2000). Obviously, the reform of referral mechanisms in China needs joint efforts of insurance arrangement, medical education and policy incentives.

Poor capacities in self-development of community health institutions

Most CHCs identified infrastructure development as the main priority for development and were heavily reliant on their parent hospitals or other sponsors. However, the difficult financial situation and larger workforce issues will present those CHCs with significant barriers to their future development. The sustainability of CHS programs should become an important governmental agenda item. International experience has demonstrated that re-developing a dysfunctional program can be even more difficult than initiating a new one (Shediac-Rizkallah and Bone, 1998).