

**HEALTH CARE SYSTEM IN CHINA**

by

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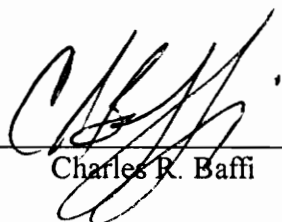
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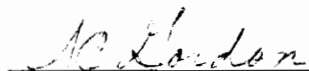
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Community Health Education

(ABSTRACT)

The Chinese health care system is presented in this thesis. In the past ten years, the Chinese health care system has drawn the attention of interested people. However, most studies explored the system in limited aspects. They do not take into account the Chinese health care system as a whole. This thesis aims at describing the health care system as a whole through examining its external and internal environments. The external environment includes the factors of history, culture, politics, economy and demography, which has influenced and shaped the development of the health care system in China. The internal environment is considered as the aspects which are directly related to the purposes of public health. Six selected aspects with regard to the internal environment of the health care system are discussed and analyzed. They are health care administration, medical education, health care delivery, health insurance, health costs and public health.

Through exploring and examining the system, this thesis seeks to answer the three main questions: how did the health care system work?, what were the effects of health care on the public?, and how did the health system use limited money to provide effective health care?. Many information data published by the Chinese government and other literatures are also presented to help answer these questions.

*"Health is a precious thing...the only thing indeed that deserves to be pursued at the expense not only of time, sweat, labor, worldly goods, but of life itself; since without health, life becomes a burden and an affliction."*

*Montaigne--a 16th century French essayist.*

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## CHAPTER I

### INTRODUCTION

The Chinese health care system is very unique because of a mixture of factors related to history, culture, politics and economy. China is a country with an ancient civilization and splendid cultural heritage. China is also a developing country with the largest population in the world, which resides in the third biggest geographic area on the earth. Politically, China is a socialist country in which private economic life is largely forbidden. Like industrial, agricultural, transportation, commercial, financial, and even religious organizations, almost all health care organizations are owned by different levels of government or community co-operatives. The Chinese system of health care has been shaped and developed within these specific external environments in the last four decades. The external environment refers to the factors of history, culture, politics, economy and demography. These factors are discussed in Chapter II.

Since the People's Republic of China was founded in 1949, the health care system has been dramatically shaped by a series of economic policies and political decisions. As a result, China has developed perhaps the world's largest national network of health care services (Yang, Lin & Lawson, 1991). As early as 1950, the Chinese government formulated a basic and important goal for the implementation of health care services. This normative health policy is still used for guidance and direction with today's health care system, which consists of the following four components: (a) serving the people, (b) putting prevention first, (c) integrating traditional Chinese medicine with Western medicine, and (d) advocating health work with mass movement (Sidel and Sidel, 1974). In addition, based on the changes of political and economic situations in different historical periods, there were different priorities made by government to fit the situations in the health care system.

Since the early 1980s, following economic reform and institution of open door policy, reform in the health care system has been taking place. The reform of economic policies brought a series of changes in the health care system, such as increase in health

quality, introduction of new diagnosis and treatment technology, restoration of formal medical education and training, an attempt at national health insurance, and improvement of public health status. In addition, privatization started to appear in some areas and was administered by certain government policies.

In the Chinese health care system, there is also an internal environment which is determined by the factors of external environment. The internal environment involves those health issues which are operated for the purpose of health. Six health related issues are selected as major topics and discussed in Chapter IV. They are health administration, medical education, health delivery system, health insurance, financing for the health care and public health. The issues of the internal environment is directly related to the public health status. In this thesis, the public health status is considered as the output of the health system model.

What is the population's health status, or output under the health care system? As we know, the most common criteria for evaluating health status are the infant death rate and life expectancy. In 1949, the Chinese mortality rate for infants under one year of age was 200 per 1,000 live births (Sha, 1991); that is, one baby in five died during the first year. In 1987, the rate had decreased by almost 6 times, to 35 per 1,000. With regard to life expectancy, in 1949, the life expectancy was 40 years; whereas in 1985, the life expectancy at birth had risen to 67 years for males and 71 for females (Ministry of Public Health, 1989). Without doubt, these indices are close to the indicators in many developed countries and exceed the average numbers in world range.

How much money was paid for the improvement of public health status? On the expenditure side, the health costs have remarkably been increased in the past 45 years, especially in past 10 years in China. The health expenditure was about 3.3 percent of 1988 Gross National Product (GNP) (Liu and Wang, 1991). However, the money that has been spent in health care was much lower than other industrialized nations because of the limited economic resources. In 1987, health care spending was 184 billion yuan or US\$50 billion (Hu, 1992), which was one-tenth of the health care expenditure of the

United States. The health expenditure was US\$500 billion in the United States in 1987 (Knickman & Thorpe, 1990).

The figures mentioned above indicate that the Chinese health care system used limited money to derive a considerable improvement in its public health status, an accomplishment which has drawn lots of attention. However, these quoted figures do not necessarily mean that health care for most Chinese is as good as that for people in developed countries. The reason is simple because figures alone do not reveal the total picture of health care system: what is the quality of health care, how is health care delivered, and how do people have access to it. In a word, figures do not clarify how the Chinese health care system serves the largest population in the world in a big developing country. In this thesis, the Chinese health care system is examined based on the external environment, internal environment and public health status to give some insights into the system.

### **Purpose**

The purpose of this thesis was to examine the health care system as a whole and provide a rationale regarding how the health care system functions in China. Furthermore, this study was intended to clarify the basic structure and operation of the Chinese health care system. An overview of the dynamic and development of the Chinese health care system is also provided. By describing, discussing and analyzing the elements in the health care system, this thesis attempts to present a whole picture about the Chinese health care system, which seems complex and hard to understand for most foreigners.

### **Significance**

To remain healthy is a goal of all humankind; to be unhealthy is a universal risk (Gesler, 1984). Therefore, health care is a very important issue which is not only interesting to experts, but also touches all people's lives. Since most of the research in health care area has been concentrated on Western or developed countries, information

about the Chinese health care system is rarely seen by Westerners. Therefore, introducing and analyzing the Chinese health care system has some reference value for western countries. It can help those people who study foreign health systems to understand how the Chinese health care system worked, what the particular political, economic and social factors that shaped the development of the China's health care system were, what the roles of the government, organizations, and individuals were in the system, and how public health status has been improved.

China has one-fifth of the whole population in the world, for which a large health care network has been established. However, due to political and economic reasons, the health care system has not allowed all people in China to enjoy high quality of health care and access to health care. Since 1980, following economic reform and the open door foreign policy, health care reform started in China. Privatization was allowed in some areas. Many advanced health care experiences of Westerners were introduced; a lot of advanced medical equipment was imported; and new medicine products were manufactured by foreign invested companies. Thus, presenting the Chinese health care system is important for the purpose of health, such as introducing new medical technology and effective administrative methods, in order to increase the health care quality and meet people's health demands.

Due to political and technical reasons, in past years, there was a lack of available systematic publications, valid and complete information data, and scientific communication in this field. This study attempts to fill the gap in knowledge regarding the Chinese health care system and let other parts of the world understand the details about the health care system.

### **Statement of Problems**

The questions which this thesis sought to answer were:

1. How does the health care system work?

2. What are the effects of health care on the public? (The effects include (a) access to health services, (b) health care quality, (c) health status results, and (d) improvement of health care resources.)

3. How does the health care system use limited money to provide effective health care for the largest population?

### **Definitions**

**Health:** Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity (Banta, 1990).

**Health care:** Health care is a combination of curative medicine, caring, and attention to social factors (Banta, 1990).

**Health care system:** The health care system in a society can be broadly defined as a set of ideas, practices and organizations which have been developed to deal with problems of health and illness in the society. It has a structure and dynamics that can be analyzed in an orderly way. Furthermore, the contents of health care systems vary from one society to another due to different political, historical, cultural, and economic situations (Lee, 1982).

In this introductory chapter, the background and significance of this study were described. Three main research questions regarding the Chinese health system were raised and designed to be answered in the following chapters.

## **CHAPTER II**

### **DYNAMICS AND DEVELOPMENT**

In this chapter, an overview of the dynamics and development of the Chinese health care system will be given. The overview will be organized around four Chinese socio-historical aspects which strongly influenced change and development of the Chinese health care system. These four socio-historical aspects are: (a) history and culture, (b) politics and the economy, (c) national administrative structure, and (d) demography. These socio-historical aspects can be considered as external environment in the health care system since these factors have greatly affected the development of health care.

#### **History and Culture**

##### **Traditional Chinese Medicine**

Chinese civilization has existed for more than 6000 thousand years. Traditional Chinese medicine and pharmacology have also been developed over several thousands of years. The traditional medicine is based on a solid and simple philosophy and can be traced back to as early as the Shang dynasties from 1500-1100 B.C. (Chen, 1989). At that time, superstitious practices were gradually replaced by remedies sought from nature. People tried grass, wood, stone and etc. to treat their diseases. Through numberless attempts, people gradually identified an array of herbs. In the Han dynasties (206 B.C.-A.D. 220), traditional Chinese medicine had a great development. During this period, the first government medical organization--Imperial Medical Bureau--was established, which consisted of famous traditional medical physicians (Chen, 1989). These physicians developed acupuncture and promoted traditional diagnosis techniques such as pulse feeling and palpation. In the latter thousands of years, the traditional Chinese medicine, as the only type of medicine, was gradually developed to serve the population.

According to the theories of the traditional medicine, all changes are considered as the results of interaction between Yin and Yang. The theory started from Eastern Zhou dynasty (771-221 B.C.). In this concept, Yin represents moon, earth, night, darkness,

moist, or feminine; Yang stands for sun, heaven, day, bright, dry, or masculine. All the events in life are thought to be influenced by the dynamic relationship between the two cosmic forces. In the human body, qi, or life energy, is continually influenced by the complementary forces of Ying and Yang (Sidel & Sidel, 1982). Whenever the balance of Yin and Yang is damaged in a human body, the illness will happen. Therefore, the concept of health in the traditional Chinese medicine is the balance of Yin and Yang. Traditional treatment and preventive methods mainly include herbs, acupuncture, diet, and exercise which are used to adjust the balance of Yin and Yang in a human body (Albrecht & Tang, 1990). The Yin and Yang interplay among five elements that are metal, wood, water, fire, and earth.

In addition, traditional medicine stresses the interaction of external and internal environments for human health. Seven factors were summarized as internal environment: joy, anger, worry, sense of loss, sorrow, fear, and a feeling of fright that occurs suddenly and sharply. In fact, the seven feelings are also psychological factors. On the other hand, the external environment involves six factors which were simplified into six words: wind, cold, hot, moist, dry, and fire (Jia, 1988). These factors refer to different kinds of natural weathers that can directly influence the internal environment or human body.

In traditional Chinese medicine, four methods of diagnosis are used for physical check-up, which are (a) observation of the patient's complexion, tongue, expression, and behavior, (b) auscultation and smelling, (c) interrogation, (d) pulse feeling and palpation.

The traditional Chinese medicine was the only type of medicine provided for health care for thousands of years. Before 1949, its practice and development usually were within individual families. There was no medical school for teaching traditional medicine. Medical knowledge were imparted from father to son or son-in-law and sometimes from master to apprentice. The practitioners in a family often treated one kind of special disease and engaged in their practice which they passed on to even more than ten generations (Chen & Shen, 1987).

## **Western Medicine**

Western medicine began to emerge in China in the early 19th century. Some Christian missionaries and colonial officers were considered as the first ones to introduce Western medicine (Chen, 1989). For instance, Canton Missionary Hospital was built in 1835 by an American missionary, Dr. Peter Parker, which was one of the earliest hospitals in China (Cheung & New, 1985). In addition, private foundations were also agents of Western medicine. The Christian missionaries and private foundations displayed quite different approaches to delivering Western medicine. The scope of medical work of missionaries was much broader than that of private foundations. They established medical schools, opened clinics and hospitals in both urban and rural areas, trained health workers, translated medical texts into the Chinese language, and launched public health campaigns. In one word, "health care and medical education provided by missionaries formed the backbone of China's modern medical infrastructure before 1949" (Cheung & New, 1985). The private foundations built medical schools and hospitals in coastal cities. For example, Beijing Union Medical College was established by Rockefeller Foundation in 1921 (Bullock, 1980).

After 1949, both the medical missionaries and private foundations left when the People's Republic of China was founded. All the medical facilities built by foreign organizations were then owned by the Chinese government. Although "the spreader of Western medicine" left, Western medicine was rooted in China, developed rapidly, and gradually occupied a dominant position in the medical care system.

## **Integration of Two Types of Medicine**

One of the most important health policies formulated in 1950 was to integrate the two types of medicine in medical care delivery. Today, the two types of medicine, traditional Chinese medicine and Western medicine, co-exist in the health care system and play important roles in medical treatment and prevention.

Western medicine is in the dominant position in medical care. Most hospitals and medical colleges are operating under Western medicine. For example, in 1991 there were

63,101 hospitals nationwide, among which 2,159, or only 3.4%, were traditional medicine hospitals. Out of 135 medical colleges, only 31 of them, or 23%, were traditional medicine colleges in 1991 (Ministry of Public Health, 1992).

On the other hand, the integration of the two types of medicine is also reflected in hospitals and medical education. For instance, each general hospital has a traditional medicine department which uses traditional methods to diagnose and treat patients. Traditional medicine hospitals also adopt some Western medicine methods as alternatives, such as performing operations, and using modern medical diagnosis technology. In the traditional medicine colleges, Western medicine theories and concepts are taught for students. In turn, traditional medicine principles are taught in the Western medicine colleges.

### **Politics and the Economy**

In 1949, the Chinese health care system began moving toward a socialist model. As a sector of the national economy, the health care system was conducted according to "planned economy." "Planned economy" refers to the fact that individuals have little control or influence over economic questions and issues, and the government makes most or all economic decisions. Most industrialized countries such as the United States have a "market economy" which refers to the fact that individuals and businesses have a great deal of economic freedom and can make economic decisions in a free marketplace (Deluxe Library, 1994).

After 1949, dramatic changes in the health care system can be divided into three stages based on political and economic changes.

#### **First Stage (1949-1965)**

When the People's Republic of China was established in 1949, a new socialist system started to operate. Many health policies were formulated by the central government. Therefore, the health care system became centralized. At that time, the Soviet Union was the leader of socialist countries so that its economic and health models

were adopted by the new Chinese government. Private practitioners continued their practices for some years, then moved into the public system (Lampton, 1977). For political reasons, the foreign missionaries and foundations had to terminate their work in China after 1949 (Cheung & New, 1985).

Early in this stage, the purposes of health care services were established. The purposes included serving the people, putting prevention first, integrating traditional Chinese medicine with Western medicine, and promoting health care work by encouraging public participation. In 1952, the health insurance policy which included free medical care plan for working people and cooperative medical care plan for farmers started to be implemented. The three-tier networks of health care delivery were established broadly in both rural and urban areas during this period. In addition, many hospitals were built and some new medical schools were opened. Actually, this stage was a period of rapid economic development.

### **Second Stage (1966-1976)**

The second stage was a period of the well-known Cultural Revolution. Because of a Mao Zedong dictum, "in health work, put stress on the rural areas," funds, personnel, and facilities were shifted from cities to countryside. Like other higher education, medical education was closed for 5 to 6 years in this period. After 1971, the schools opened again, but the education for physicians and nurses was shortened from 5 to 3 years and from 3 to 1 years, respectively. Medical research funds were cut (Henderson & Cohen, 1982). On the other hand, cooperative medical care (health insurance plan for farmers) was developed rapidly at that time. Barefoot doctors, as an innovation, appeared in each rural productive team to provide primary health care (New, 1986). These people were selected from farmers and did not have formal medical education.

This stage was a disastrous period for the whole country. The national economy did not have any major development.

### **Third Stage (1977-present)**

After the death of Mao Zedong in 1976, China underwent dramatic policy changes. Since 1978, Deng Xiaoping has presided over the administration for economic reforms. At that time, when Russia and Eastern Europe Communist countries were undergoing great political transformation, China's reform agenda focused on economic and institutional reform, starting with agriculture (Selden, 1988). The health care system experienced the reform at a pace comparable to the reform in other sectors of the economy and society. Privatization started to appear. For example, private clinics were allowed to open to the public. In addition, the old health insurance policies were reformed. Free medical care was no longer free of charge since co-payment was instituted. In countryside, cooperative medical care collapsed and "barefoot doctors" disappeared following the rural economic reform. On the other hand, a new health insurance scheme which was introduced from Western countries was attempted in some areas. Medical education was changed in content, process, and time. According to Smith (1993), dramatic changes in the health care field also occurred in the hospitals which have been restructured in the reform era. Some modern medical equipment and technology were introduced from industrialized countries. In short, this reform stage was and is a changing period in which the economy has developed rapidly.

### **Geographic Features and Administrative Divisions**

For better understanding of the Chinese health care system, a general introduction about China's position in the world and its administrative divisions is given.

China is located in Eastern Asia. Eastern China borders on the Pacific Ocean. The western part consists of mountains and desert. Therefore, most of population lives in the eastern part. Its area of 9.6 million square kilometers (about 3.7 million miles) is 7 percent of the total land mass of the earth and ranks third after Russia and Canada.

There are 22 provinces, three municipalities, and five autonomous regions (not including Taiwan) under the central government. (See Map of China in Appendix A.)

Among the divisions, there are three municipal cities: Beijing, Shanghai, and Tianjin. There are five autonomous regions: Inner Mongolia, Guangxi, Ningxia, Tibet, and Xinjiang. The other divisions are provinces. The Chinese governmental system is indicated in Figure 1.

The average population in each province, municipality and autonomous region is 35 million, ranging from 1.9 million (Tibet) to 100 million (Sichuan). There are 2137 counties, and each of them has an average population of 400,000 with a minimum number of 10,000 and maximum number of 1 million. The mean population in each township is 16,000, ranging from 1,000 to 50,000. The lowest level in the rank is villages where population varies from less than 100 to more than 3,000. A township consists of 14 villages on average (Liu & Wang, 1991).

### **Demographic Characteristics**

Quantitative analysis of data shown in the tables and figures in this section provides a means of describing and understanding the population served by the health care system. From Greek, the term demography means "describing the people." In this part, general demographic and health indicators and some comparisons with other countries are given.

#### **Number**

The fifth census for the country was taken in 1991. (The other four censuses were taken in 1952, 1957, 1985, and 1990.) The Chinese resident population as of July 1, 1991, was estimated to be 1,143,330,000 (China's Population Information and Research Center, 1992). The population is almost one-fifth of the estimated 5.3 billion world population. Compared with the United States, the Chinese population is 4 to 5 times larger. Yet the geographic area is virtually the same, only 2 percent more than the United States (Coale, 1984). In Table 1, the population dynamics from 1949 to 1991 are indicated.

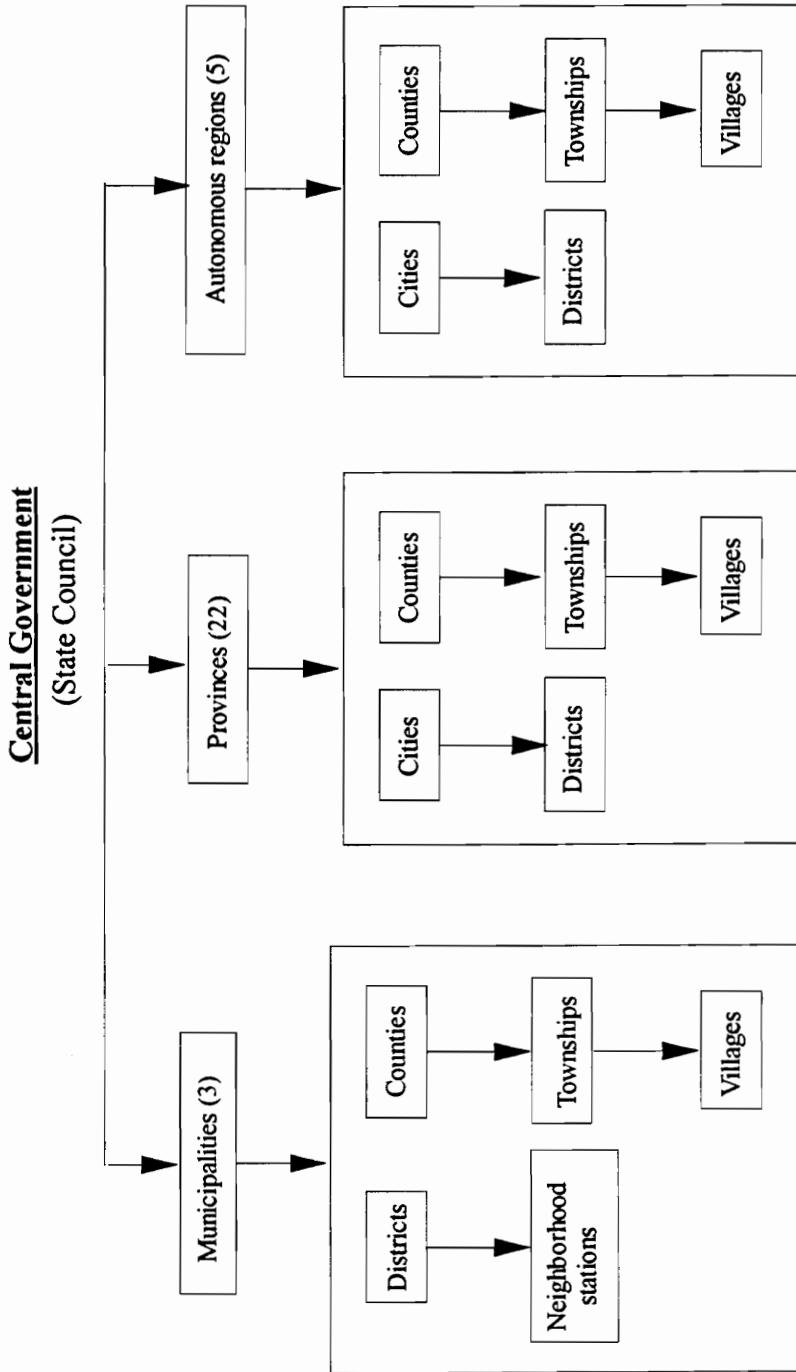


Figure 1. Structure of Chinese Government System

Table 1

China's Population in Selected Years (1949-1991)

Year	Number of people (100,000)			Percentage		Ratio (male/ female)
	Total	Male	Female	Male	Female	
1949	54167	28145	26022	52.0	48.0	108.2
1952	57482	29833	27649	51.9	48.1	107.9
1957	64653	33469	31184	51.8	48.2	107.3
1962	67295	34517	32778	51.3	48.7	105.3
1965	72538	37128	35410	51.2	48.8	104.9
1970	82992	42686	40306	51.4	48.6	105.9
1975	92420	47564	44856	51.5	49.5	106.0
1980	98705	50785	47920	51.5	48.5	106.2
1985	105851	54725	51126	51.7	48.3	107.0
1990	114333	58904	55429	51.5	48.5	106.3
1991	115823	...	...	...	...	...

Source: Chinese Statistic Yearbook, 1991.

**Characteristics**

**Nationalities.** There are 56 nationalities in China, most of which are concentrated in eight provinces and autonomous regions. Ninety two percent of them are the Han nationality. The other nationalities usually are called minorities. Minority populations in China are not usually thought of as races. That is, most of them are not distinguished from each other on the basis of physical and anthropometric criteria. In order to identify the Chinese minority populations, one must observe cultural and linguistic differences

which distinguish the nationality populations from the Han nationality and from each other (Poston, 1991). With a long civilization history, these nationalities have not only their culture and languages but their own traditional medicine, as mentioned earlier.

**Urban and rural residents.** Seventy-four percent of the population, or more than 0.9 billion, are rural residents (China's Population Information and Research Center, 1992). The others live in urban areas. The difference of rural and urban residents is that the urban residents do not have farms, reside in the city, and receive the living supplies from the government such as food, meat, oil, etc.

**Age distribution.** According to the statistics of Ministry of Public Health (1991), there was 26.5 percent of the Chinese population in the group of 0-14 years; 67.7 percent in the group of 15-64 years; 5.8 percent of the population over 65 years old. As Table 2 shown, the Chinese population was younger than that of developed countries, and older than that of developing countries (see Table 2). Due to the tendency of a reduction of birth rate and an increase of life expectancy, China is facing the aging of the population in future.

Table 2

**Age Distribution of the Population of Selected Countries in 1990**

Country	Total population (1,000)	Distribution of age groups (%)		
		0-14	15-64	>65
China	1,139,060	26.5	67.7	5.8
Cuba	10,608	22.7	68.8	8.5
India	853,094	36.5	59.0	4.5
Iran	54,607	43.8	52.5	3.7
Iraq	18,920	46.5	50.8	2.7
Kuwait	2,039	35.5	63.2	1.3
North Korea	21,773	28.6	67.3	4.1
Thailand	55,702	32.6	63.5	3.9
Russia	288,595	25.5	65.0	9.5
Australia	16,873	22.1	67.0	10.9
Britain	57,237	19.0	65.6	15.4
Canada	26,521	20.9	67.7	11.4
France	56,138	20.1	66.1	13.8
Japan	123,460	18.5	69.8	11.7

Source: Ministry of Public Health, 1991.

**Health Indicators and Comparison**

Life expectancy and infant mortality have dramatically been changed in past years. According to the report of world children health status by United Nations Children Foundation (UNICEF) (1990), the birth rate was 21 per thousand; crude death rate was 7 percent; and the infant death rate was 35 percent. The comparison of health indicators with other countries is shown in Table 3.

Table 3

## Comparison of Health Indicators in Several Countries in 1988

Country	Crude birth rate (1/1000)	Crude death rate (1/1000)	Infant mortality (1/1000)	Life expectancy at birth (age)	Maternity death rate (1/100,000)
China	21	7	35	69	95
Brazil	28	8	62	68	120
Egypt	36	10	83	62	318
India	32	11	98	58	340
Thailand	22	7	149	67	-
Russia	18	11	25	74	48
Britain	13	12	9	78	9
France	14	10	8	79	14
Japan	11	7	5	81	16
USA	15	9	10	79	8

Source: The report of World Child Status, UNICEF, 1990.

Health indicators in developing and developed countries display quite different results. In Table 3, the position of China's population health status can be found. Compared with the United States, Japan, Britain, and France, China has a higher birth rate, infant mortality, and maternity death rate, as well as lower life expectancy. In contrast, China has a lower birth rate, infant mortality, and maternity death rate, and higher life expectancy than some developing countries, such as India, Egypt, Brazil, and Thailand.

## Summary

Four socio-historical aspects related to the Chinese health care system have been discussed in this chapter. These aspects have influenced the dynamics and development of the Chinese health care system.

As discussed in this chapter, two types of medicine, traditional Chinese medicine and Western medicine, exist in China, each with different origins and histories. Traditional Chinese medicine as a part of the Chinese culture has several thousand years of history; while Western medicine was introduced into China in the last century and developed rapidly. At present time modern Western medicine is playing a major role in health care delivery. However, integration of the two types of medicine is one of the national health policies, which is stressed repeatedly by the central government.

Change in the political and economic situation during the last four decades has influenced the development of health care system. In 1949, with the birth of the Peoples Republic of China, health care began moving toward a socialist model. A main feature was centralization . Beginning in 1966, during the Cultural Revolution period, emphasis in health care shifted from cities to countrysides. The third stage of political/economic influence discussed in this chapter began in 1977, after the death of Mao Zedong. Privatization in the health care system started to appear. along with health insurance plans and updating of medical equipment and technology.

In order to understand the Chinese health care system and health care demands and needs, some general characteristics of the Chinese administrative system were discussed in this chapter. In addition, statistical data regarding the population characteristics and health status were presented in the discussion of the demographic features.

In brief, the Chinese health care system has experienced dynamics and development along with the transformation and progress of the China's history, culture, politics, economy, and other environmental factors.

## **CHAPTER III**

### **METHODOLOGY**

In this study, a qualitative approach is used to analyze both independent and dependent variables in the health care system.

#### **Sources of Materials and Data**

Extensive reviews of relevant literature from both the United States and the People's Republic of China were the basis of the research. The materials used in this study were collected from public documents. The source of most data was Chinese government publications and periodicals. In addition, the author's personal experience in the Chinese health care system permeated the whole research effort.

#### **Interview**

An interview method was used to help evaluate the Chinese health care system. Ten people were interviewed for this study. The people chosen for the interview have used the Chinese health care services and were all familiar with the Chinese health care delivery system. All of them are Chinese citizens currently living in Blacksburg. Three of them were employees of Chinese health organizations. The interview was done through telephone interview and face to face interview. All participants responded to a questionnaire during the interview. The instrument was composed of seven questions. The result of the 10 interviews is presented as follows. (N=10).

**Question 1:** Have you seen a doctor in the United States in the last 5 years?

Four people have seen doctors in the United States in the last 5 years; the others answered "no".

**Question 2:** In China, what kind of health insurance program did you have?

All the people interviewed had health insurance involving free medical care. Nine of them had a "public medical services" plan and the other one had a "labor insurance" plan.

Question 3: What kind of experience of medical care did you have in China?

One person experienced only outpatient care. The other nine people had both inpatient and outpatient medical care.

Question 4: On average, how many times a year did you go to see doctors?

Six people had physician visits more than 10 times a year. The other four people had the physician visits less than 5 times.

Question 5: Do you think that China's health services are better, some better and some worse, or worse than that in the United States?

Three people thought that the Chinese medical services were better than American medical services; two people thought that the Chinese medical services were worse than American medical services; the others had no idea.

Question 6. Why do you think China's health services are better, some better and some worse, or worse than that in the United States?

The person who thought that Chinese medical services were better than American services ranked the reasons: (a) convenience, (b) quality of health services, and (c) cheap prices. Persons who believed that the Chinese health care was worse than American health care ranked the reasons: (a) quality of medical care, (b) equal right to access health care services for both rural and urban residents, and (c) convenience for access to quality of health care.

Question 7. When you suffer an acute disease, what kind of medicine do you prefer?

All people preferred the Western medicine when they have some acute diseases.

Question 8. If you have a chronic disease, what kind of medicine do you like to use?

All people believed that both traditional Chinese medicine and Western medicine should be used for a chronic disease.

Question 9. If you prefer traditional Chinese medicine or Western medicine, what reasons do you have?

All the people thought that the Western medicine is more effective, and convenient to be taken for curing a variety diseases than traditional medicine. However, they also believed that traditional medicine is more effective to treat some chronic diseases and has less side effect and lower prices than Western medicine.

### **Research Design**

This thesis was a descriptive study. The independent variables were the factors of the political, economic, cultural, and demographic influences. These factors were also considered as external features to the Chinese health care system, and were discussed and analyzed in Chapter II. The dependent variables were the contents of perspectives on the Chinese health care system which will be discussed in Chapter IV. The focusing areas of the perspectives of the Chinese health care system were the health care administration, medical education, health care delivery, health insurance, financing, and public health. Furthermore, some comparative analyses of the health care in different countries will be given whenever information is available.

## **CHAPTER IV**

### **PERSPECTIVES ON THE CHINESE HEALTH CARE SYSTEM**

In this chapter, six topics on the perspectives or internal environment of the Chinese health care system are discussed. They are (a) functions and structure of governance in health care, (b) medical education and training, (c) health care delivery, (d) health care insurance, (e) health costs, and (f) public health. As mentioned in Chapter I, an internal environment of the health care system refers to all the aspects operated for the purpose of health. The internal environment in China is strongly affected by the external environment or socio-historical factors. Through exploring the internal aspects of the health care system, how the health care system functions can be understood.

#### **Functions and Structure of Health Governance**

"Centralization" and "totalitarian" are words which characterize Chinese health care administration. Paralleling the different levels of governmental system, there are three levels of public health agencies. They are the Ministry of Public Health at the state council level, the Department of Public Health at the provincial government level, and the Bureau of Public Health belonging to county and city government. The Ministry of Public Health is at the top level. Each province, municipality, or autonomous region has a Department of Public Health which is at the second level. At the base level or the third level is the Health Bureau which exists in every county, city, and district of municipal cities. The implementation of policies is through the chain of these government agencies linked together down to the lowest level (Chen, 1989). The structure of health governance is shown in Figure 2.

These government health agencies play important roles in the formulation and implementation of government health policies, and in the administration of health care delivery organizations. At the different administrative levels, these health agencies have their own functions. In this section, the structures and functions of these public health agencies are presented.

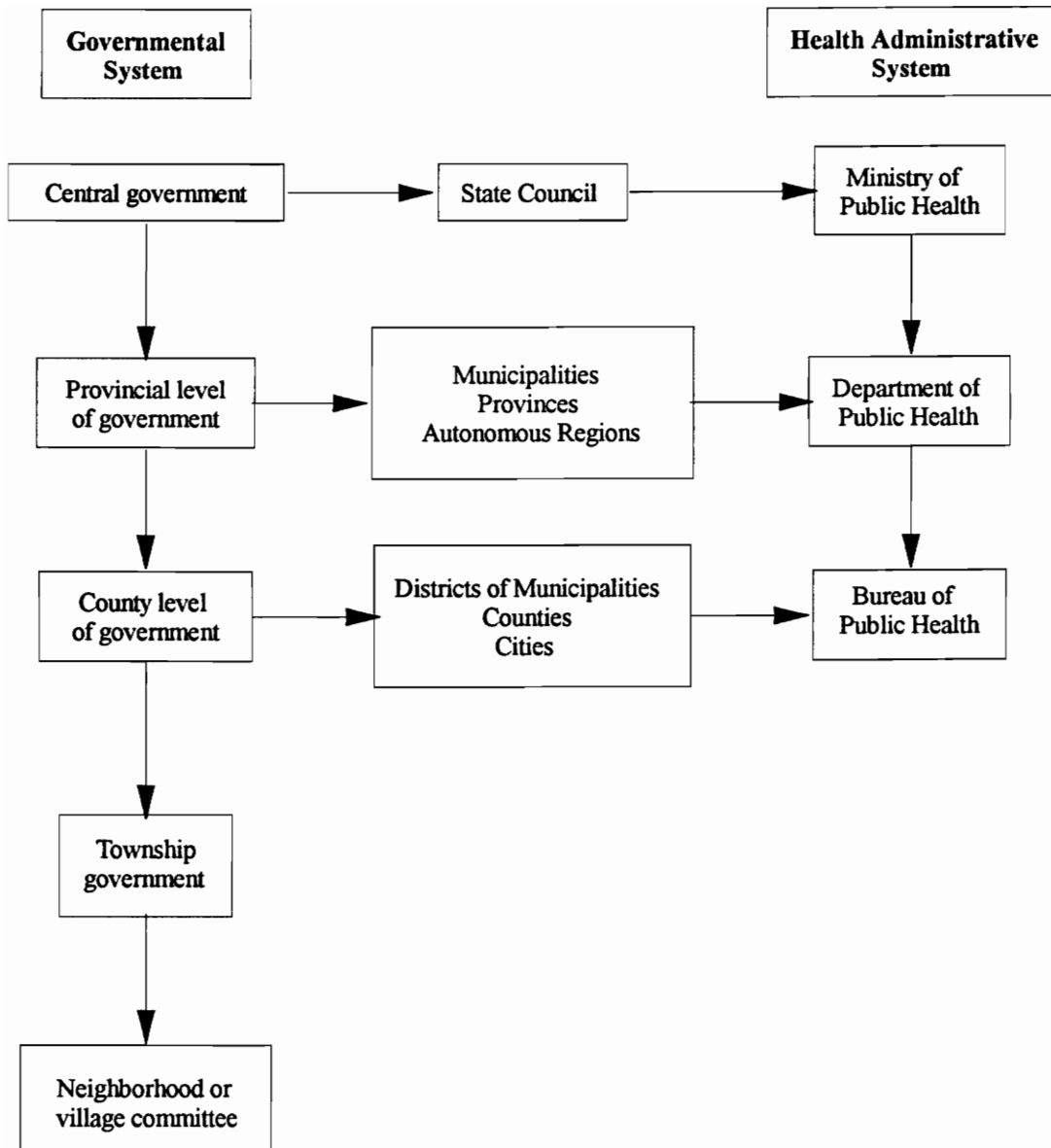


Figure 2. Structure of Governmental System and Health Administrative System in China

### **Functions and Structure of Ministry of Public Health**

Governance in the health care system is the direction, control, and exercise of authority (Kovner, 1990). In China, under the central government, the Ministry of Public Health is the agency to govern the entire health care system. The Ministry of Public Health is a bureaucratic organization which consists of at least a dozen bureaus in Beijing (Lampton, 1974). Each bureau is specialized in task. For example, the Bureau of Prevention focuses on the administration of disease prevention nationwide.

The Ministry of Public Health has the highest authority to make a variety of health policies, budget the medical care outlay, administer medical education and medical institutes, and provide supervision of technology and administration to the health departments and bureaus in the province and county government levels (Lampton, 1974). In addition, its predominant orientation was toward establishing the basic breakthroughs in sanitation, maternal and child health care and inoculation against and control of communicable diseases (Wegman, Lin, & Purcell, 1973). On the other hand, all policy decisions of the Ministry of Public Health must be consistent with the direction and control of the central government. The Minister of Public Health is a member of the National State Council.

### **Health Departments at the Second Administrative Level**

Nationwide, there are 30 Departments of Public Health which are located in the capital cities of 22 provinces and five autonomous regions, and three municipal cities. These government health agencies are similar to the national ministry in structure. However, the departments are smaller than the national Ministry of Public Health. The missions of health departments are to implement the policies formulated by the Ministry of Public Health. These departments are major agencies for administering health care delivery and health prevention and promotion. The administrative range of a Health Department involves hospitals, clinics, anti-epidemic stations, medical education and research, health education and promotion, children's and women's health, hygiene movements, and examinations for water supply and food services. The financial budgets

for the health care at the provincial level also need to be done by the health departments. It seems that the functions of a health department are more concrete than that of the Ministry of Public Health. The structures and functions of Department of Public Health are shown in Figure 3.

### **Health Bureaus at the Third Administrative Level**

Each county and city in provinces and autonomous regions, and each district in municipalities has a Bureau of Public Health. There are more than two thousand counties and cities in China; therefore, there are more than two thousand Health Bureaus.

The major tasks of a Health Bureaus are to further implement health policies from health departments. In addition to administering the primary health care at the level of townships and villages, the functions of those bureaus are to implement administrative policies and provide supervision to county and city hospitals, an intermediate level of medical and nursing education and training, disease prevention and health promotion, hygiene movement, sanitation monitoring for food services and drinking water, and so on. Actually, a great deal of medical prevention and health promotion has been emphasized at this administrative level. The structure and functions of the Health Bureaus are shown in Figure 4.

Moreover, it is important to focus on this administrative level because a variety of policies from central government are implemented from this level. For example, in a report by the Minister of Public Health at a national health meeting in 1992, he stressed that primary health care and disease prevention and health promotion in the county level were the main strategies to reach the goal of "health care for all by the year of 2000" made by World Health Organization in 1978.

### **Administration for Traditional Chinese Medicine**

Paralleling the Ministry of Public Health, there is a special government agency called the Department of Traditional Chinese Medicine. It was originally a bureau of the Ministry of Public Health, but it split from the Ministry in 1985. Although the two

## Department of Public Health

(In provinces, municipalities and autonomous regions)

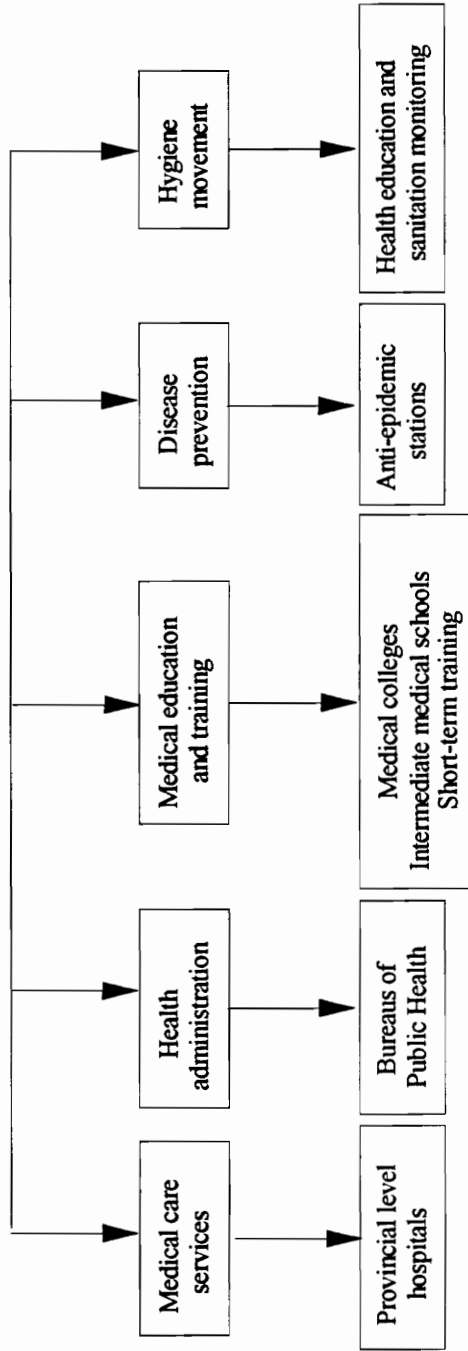


Figure 3. Functions of Department of Public Health

## Bureau of Public Health

(In counties, cities and districts of municipalities)

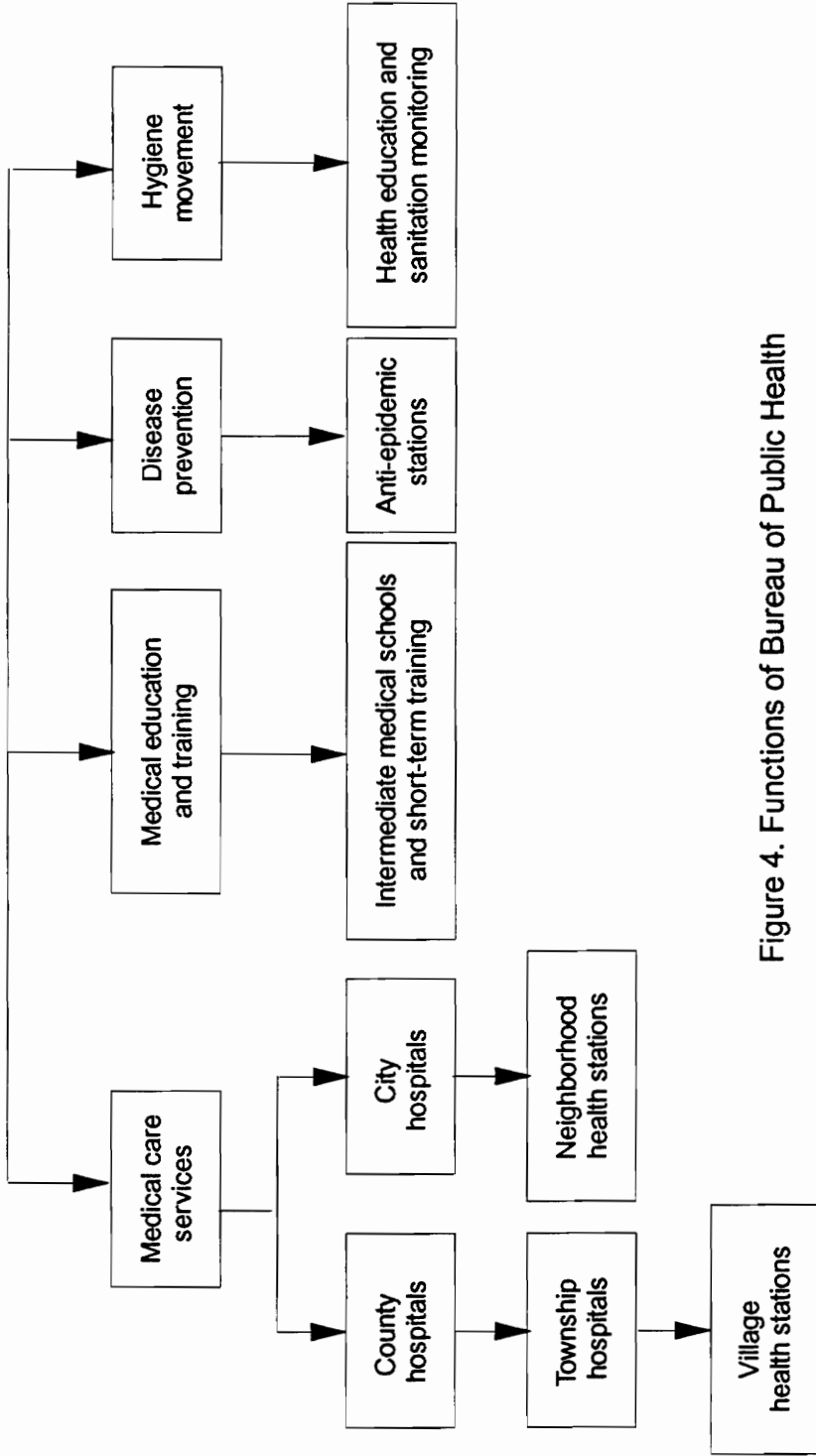


Figure 4. Functions of Bureau of Public Health

organizations have different functions, their structures are similar except that the Department is much smaller than the Ministry of Public Health.

In order to implement governmental policies about developing traditional medicine, at provincial and county levels there are also the Bureaus of Traditional Medicine. Their tasks are to strengthen the administration of and promote the development of traditional Chinese medicine.

The Chinese health care administrative system is a chain-shaped structure of government health agencies from central down to local governments. The formulation and implementation of health policies are the major functions of the health agencies at the three government levels. Indeed, the system has centralized control and decentralized execution (Gesler, 1984). It has been identified that the centralized, totalitarian administrative model is very effective in enforcing the implementation of government health policies (Huang, 1988).

### **Medical Education and Training**

Medical education or Western modern medical education in China started in the early 19th century. Although traditional Chinese medicine has several thousand years of history, modern medical education was largely influenced by foreign missionaries and foundations. Since 1949, a rapid development of higher medical education and other levels of medical training has occurred. Due to specific circumstances related to history, culture, politics, and economy, Chinese medical education experienced many changes and dynamic developments in the last four decades. Compared to Western countries, there are many differences in medical education. In this section, a variety of issues related to the medical education are discussed.

#### **Brief History**

Western medicine was introduced into China at the beginning of last century. Actually, pioneering efforts of foreign Christian missionaries, philanthropic organizations, and universities created modern medical education in China. For example, American

missionaries and foundations established Beijing Union Medical College in Beijing in 1921 (Chen, 1989), Hunan-Yale Medical College in Hunan in 1913, Saint John's Medical College in Shanghai in 1914 (Jewell, 1983). In addition, there were also some investments for Chinese medical education from other foreign organizations and governments, such as Germany, Britain, Japan, the Soviet Union, and France. For example, Germany founded Tongji Medical College in Shanghai in 1907; the French government started the Franco-Chinese Medical School in Guangzhou in 1914; Japan established the South Manchuria Medical College in Shenyang in 1911 (Jewell, 1983). In 1949, there were 22 medical colleges in China, most of which were founded by foreigners and all of them were teaching Western medicine. After the establishment of the People's Republic of China in 1949, the foreign missionaries and other founders of medical colleges left China, and all the 22 medical colleges were then controlled by the Chinese government.

The medical colleges which taught traditional Chinese medicine were opened in 1956. Before then, there were no formal medical colleges for training traditional medical doctors.

### **Medical Education at Different Levels**

After 1949, medical education was divided into three levels. The levels included higher-level medical colleges, intermediate-level medical schools, and lower-level medical short-term training programs.

**Higher-level medical colleges.** This level of medical colleges is to train both Western and traditional physicians, dentists, and other types of doctors.

**1. Time.** The time for training health professionals is different from that of American medical education. At present, most medical colleges and universities implement a five-year educational plan. Some programs may vary and three, four or six-years of training may be required. One exception is Beijing Union Medical University which was founded by the American Rockefeller Foundation in the early part of this century. Currently, this school implements an eight-year training program because it

involves a three year pre-medical education. Therefore, this medical college is very similar to the American medical schools in length of time.

2. Pre and post-medical education. There is no pre-medical education required in most of the medical colleges. Therefore, unlike the American medical professional education, a high school graduate can directly enter medical colleges or universities. However, all medical students are selected for admission on the basis of a national entrance examination. Holding an undergraduate degree from medical school enables a person to work in hospitals, clinics, or research institutes as a physician. Usually most of the graduates work in the city hospitals at the provincial level. Some of them work in the hospitals at the county level. Further education for pursuing master's and doctoral degrees was available only after the Cultural Revolution.

3. Curriculum. The curriculum of most Western type medical colleges is based on the European system (Cooper & Lin, 1987). In the first year, students take some basic courses such as physics, chemistry, biology, mathematics, anatomy, histology and embryology, and some social sciences. The main courses in the second year are physiology, biochemistry, parasitology and pathology. The third year, students will take pathophysiology, microbiology, pharmacology, laboratory diagnosis, physical diagnosis, radiology, traditional Chinese medicine, and public health. When students enter the fourth year, they will study all courses related to clinical fields. The internship is arranged in the fifth year in hospitals.

Since China is a centralized country, basically, there is no variation in medical education. All the medical colleges follow the same curriculum formulated by the Ministry of Public Health, using the same text books to train students.

4. Clinical teaching hospitals. There are three clinical teaching bases for medical students: (a) hospitals affiliated medical colleges, (b) teaching hospitals, and (c) hospitals for internship (Rui, 1991). Generally, the hospitals affiliated medical colleges have higher quality in clinical teaching, technology, and more advanced equipment than the others.

They are major places to have a clinical teaching program. The other two kinds of hospitals are important supplementary sources for the affiliated hospitals.

**Intermediate level of medical schools.** The intermediate level of medical schools is the place to train medical manpower such as physician's assistants, nurses, midwives, laboratory technicians, and pharmacists. The schools at this level include secondary medical schools and nursing schools. Based on the statistics of the Chinese Health Yearbook (Ministry of Public Health, 1992), there were 182 intermediate level medical schools in 1957 and 557 in 1991. The enrolled students in 1991 were 298,500. A two or three-year study plan is required. The model of the secondary medical school was introduced from the Soviet Union in the early 1950s (Hillier & Jewell, 1983). Most students in these medical schools are selected from middle school graduates and some are high school graduates. They also need to pass an admission examination.

Doctor's assistants play assisting roles in the city health organizations (The World Bank, 1983). Some of them work in the lower level of health facilities and play physician's roles, such as township and county hospitals of rural areas, and district hospitals and clinics of urban areas (Hillier, 1983).

**Lower-level medical training.** The training program is highly variable. Usually, short-term medical training is provided for the village doctors. Originally, these village doctors were farmers and graduated from middle school or high school. They were selected to study medical courses in certain classes sponsored by the township or county hospitals for three to six months (The World Bank, 1983), then they became village doctors. Today, they may have some continuing medical education on a short-term basis.

Village doctors came from the "barefoot doctors," a phenomenon which appeared in the Cultural Revolution. Based on the policy of central government, "barefoot doctors" were used in the vast rural areas. Since the early 1980s, "barefoot doctors" have been called village doctors. In addition to the change of the title, the national Ministry of Public Health regulated that the village doctors have to pass a certification test before they can provide medical services in their village health stations.

In 1992, 88.5% of all the villages in China established the village health stations. There were 1,269,000 village doctors and other village health workers working for the rural population (The Ministry of Public Health, 1993).

### **Dynamic Development in Medical Education**

As discussed in Chapter II, the Chinese health care system has undergone three main stages. Medical training programs also have experienced dynamic changes in the last four decades. Without doubt, both the Cultural Revolution and economic reform have led to great changes for Chinese modern medical education. Higher-level medical colleges increased six fold from 22 in 1949 to 135 in 1991, and enrolled students went up 13 fold from 15,234 in 1949 to 197,900 in 1991. Moreover, students enrolled in intermediate medical schools (including nursing schools) increased 19 fold with a three fold increase in the number of intermediate medical schools in the past decades (Ministry of Public Health, 1992).

**Statistical data.** The changing and development of the number of higher medical colleges and intermediate medical schools and the enrolled number of students are depicted in Figures 5 and 6, and in Tables 4 and 5.

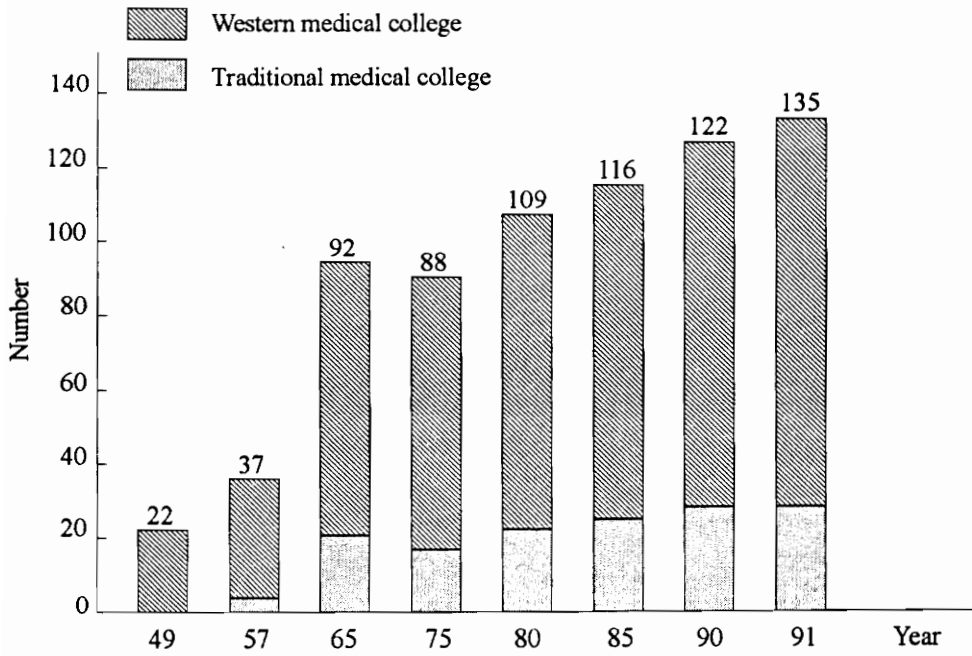


Figure 5. Number of Higher Medical Colleges (1949-1991)

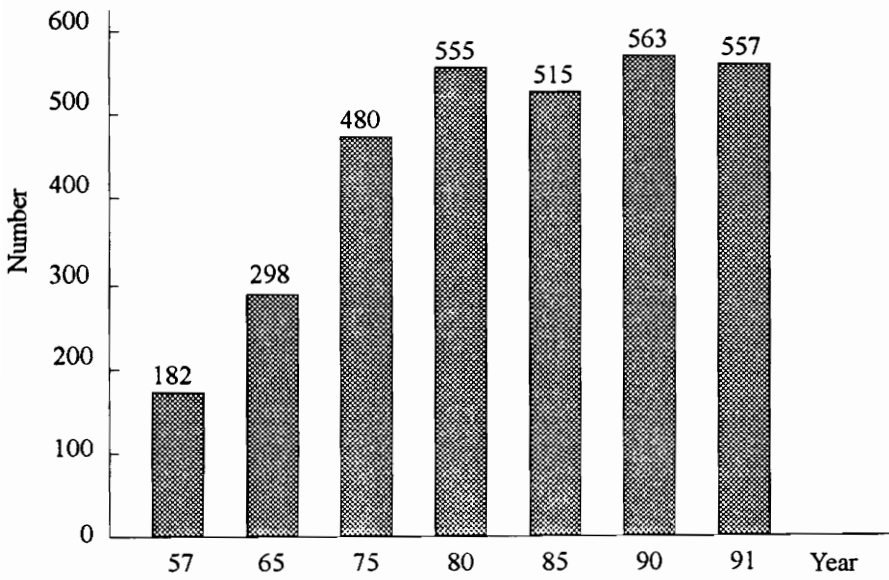


Figure 6. Number of Intermediate Medical Schools (1957-1991)

Source: Data from Chinese Health Yearbook by the Ministry of Public Health, 1992.

Table 4

Number of Enrolled Medical Students (1949-1991)

Year	Number of higher medical colleges	Number of intermediate medical schools
1949	15,234	15,387
1957	49,107	81,079
1965	82,861	88,972
1975	86,336	139,113
1980	139,569	224,695
1985	157,388	220,963
1990	201,789	308,394
1991	197,900	298,500

Source: Ministry of Public Health, 1992, Chinese Health Yearbook.

Table 5

Number of Medical Graduates (1949-1991)

Year	Number of higher medical colleges	Number of intermediate medical schools
1949	1,314	3,803
1950-1952	6,393	31,263
1953-1957	25,918	96,042
1958-1962	60,135	169,545
1963-1965	72,882	69,513
1966-1970	78,246	100,956
1971-1975	44,167	126,437
1976-1980	116,612	256,473
1981-1985	152,054	329,218
1986-1990	179,431	392,237
1991	44,300	103,500

Source: Ministry of Public Health, 1992, Chinese Health Yearbook.

**Dynamic development in the three stages.**

1. In the first stage (1949-1965), medical education underwent a period of adjustment and rapid development. The number of higher-level medical colleges was increased from 22 to 92, and the numbers of medical students went up to 82,861 in 1965 from 15,234 in 1949.

In the early 1950s, the Soviet Union health model was introduced into China. Chinese students were also sent to Soviet Union medical colleges to study medicine. From 1953 to 1957, more than 2,000 Chinese medical students had studied medicine abroad, with 1,400 of them in the Soviet Union and the others in Eastern Germany and other countries (Jewell, 1983).

2. A stagnated stage occurred during the period of 1965 to 1976. When the Culture Revolution started, all schools were closed. In 1971, medical training programs reopened again, but the educational time for the higher-level and intermediate-level medical education was shortened to three years and two years, respectively, because the government leaders thought that practice was more important than theory (Chen, 1989).

3. Since 1977, formal medical education began to be restored. The number of high-level medical colleges was increased from 88 in 1975 to 135 in 1991 with 197,900 medical students. Thirty-one of the 135 colleges were specialized in traditional Chinese medicine with 15.6% of all the enrolled medical students (Chen, 1992). Medical education was formalized with regard to time, teaching and curriculum arrangement. In addition, the administrative structure of medical colleges was changed along with the national economic reform. By the 1985, there were 14 medical colleges transformed into medical universities which were identified as key institutions and received special funding from the government (Cooper & Lin, 1987).

### **Administration and Budget of Medical Education**

All medical education and training institutions are administered by two governmental systems: the Ministry of Public Health and the National Educational Committee. In the provincial and county level, there are also relevant health departments and bureaus to direct and administer the medical education.

The budget of medical education is allocated by the central government. That is, all of the educational expenditure comes from national tax. No tuition is paid by students. The educational budget is arranged by the government. The money of higher level medical colleges comes from government outlay which is a part of total government health budget. In 1985, total expenditure for the higher-level medical education outlay was 315 million yuan (US\$105 million) which was 1.3 percent of all health expenditure (Shao, 1988).

Modern medical education has a much shorter history in China compared to traditional Chinese medicine which can be traced back for more than six thousand years.

In the last four decades, medical education has undergone dynamic change and development. Especially, after the Cultural Revolution, higher-level medical education has had a remarkable recovery and improvement. At present, in addition to higher-level medical education, there are also intermediate and lower-levels of medical education and training programs which serve as alternative medical education. These alternatives are suitable and economical for the rural areas of China.

### **Health Care Delivery**

In this section, first, the current structure and function of ambulatory care and hospitals are reviewed in order to clearly understand the delivery system. Then, there is a discussion of how health professionals provide health services through inpatient and outpatient care services, and how people access the health care delivery system. At the same time, the change and development of the health delivery system in the past four decades are also presented. In addition, important differences between the health care delivery system in rural and urban areas are discussed.

#### **Structure and Function**

As stated earlier, there is a functional health agency at each level of government except for the township government. The health care delivery system is also divided into different levels based on the geographic areas, technological capability and number of hospital beds. For example, hospitals are categorized into provincial, county and township hospitals. The government agencies of health administration direct and supervise the hospitals at the same levels. For instance, a county Bureau of Public Health can directly administer the county hospitals. Technically, the provincial hospitals can supervise the county hospitals. Some serious patients can be transferred from county hospitals to provincial hospitals.

Indeed, the Chinese health care delivery system has formed a three-tier network in both rural and urban areas. (See Figure 7.)

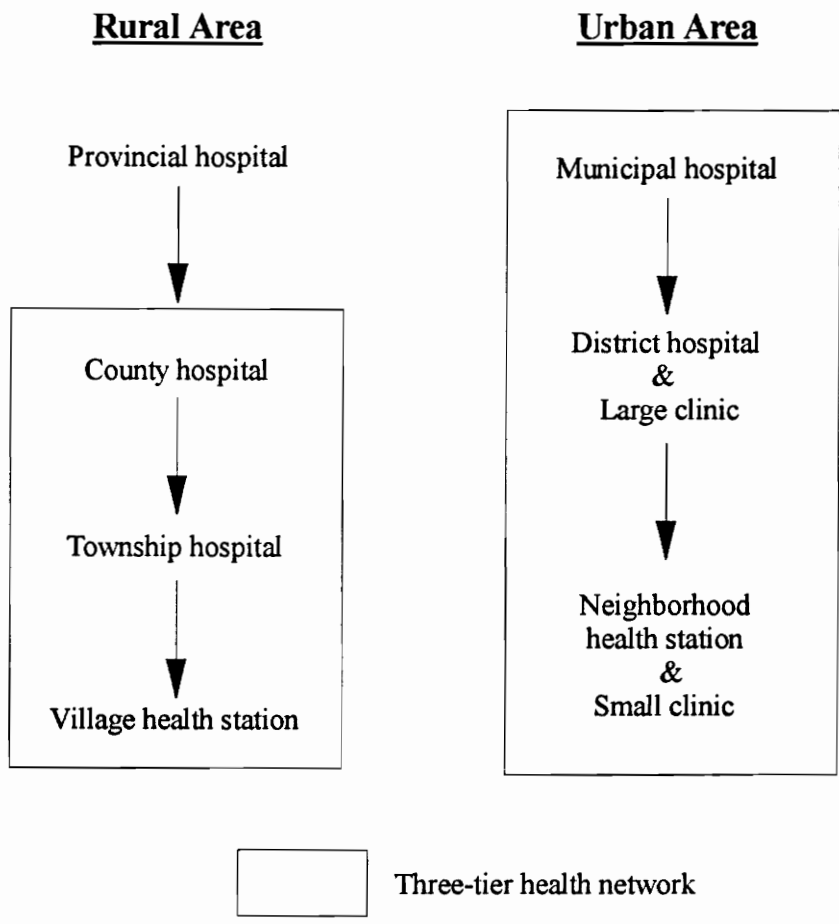


Figure 7. Structure of Health Care Delivery System

**Rural health care delivery system.** The provincial hospitals include teaching hospitals, general hospitals and some specialist hospitals with advanced medical technology and doctors graduating from higher-level medical colleges. These hospitals have about 500-600 beds. They serve a population of one million on average and provide in and out-patient medical care (Liu & Wang, 1991). These hospitals are often located in the capital cities of provinces and autonomous regions. The patients are from both urban and rural areas. However, most of the patients are city residents who live in the capital cities. Therefore, this level of the hospitals does not really belong to the rural health care network.

The next level of hospitals is the county hospitals in which there are 40-100 beds. Most doctors are trained by higher-level medical education. Some are graduated from the intermediate-level medical schools. These hospitals provide primary and secondary health care. The population served by a county hospital is about 200,000 people (Hillier & Jewell, 1983).

A township hospital is administered by township government and the County Bureau of Public Health. Technologically, these hospitals are directly supervised by county hospitals. They provide mainly primary health care with 15 beds and 16 health workers on average. Most practitioners have been trained in the intermediate medical schools. Some are trained only in a short-term class (Liu & Wang, 1991).

Village health stations are at the root level in rural health care delivery network. There are one to five village doctors who usually have short-term medical training working in a health station. A population of 200-500 are served by each township hospital (Liu & Wang, 1991). These health stations belong to their villages and are supervised by township hospitals and county hospitals. In the last ten years, some of the health stations were transformed into private clinics.

The rural three-tier health delivery network was established during the 1950s. The purpose of the health policy was to make health care available to all rural people. The three-tier health network connected county hospital, township hospital and village health

station. It is an important and effective strategy which has been stressed for more than 40 years. Currently, the three-tier health network is still considered as an ideal way to reach the goal "Health care for all by the year 2000," which was established by World Health Organization (WHO) in 1978 as a global goal.

**Urban health care delivery system.** Municipal hospitals have more advanced health resources than any other level of hospitals. The municipal hospitals include teaching hospitals, most specialized hospitals, and general hospitals with 100-700 beds (Hillier & Jewell, 1983). They serve the residents of the cities. Sometimes, the patients living in other parts of the country are also transferred to these municipal hospitals for the purpose of further diagnoses and treatment. Doctors working in these hospitals are usually graduated from higher medical colleges.

At the same level as county hospitals, there are district hospitals and clinics in big organizations such as companies, factories, and universities. On average, each district hospital serves the population of 200,000 who live in that district. The big clinics provide medical services to the people who work in the organizations. Most doctors in these hospitals and clinics have higher medical education. Some are trained in intermediate medical schools. There are 100-200 beds in a district hospital. The beds in a big clinic are varied, usually are less than 100. The health organizations at this level are directed and administered by the Bureau of Public Health and technically supervised by municipal hospitals. Several district hospitals are assigned to a municipal hospital which has the responsibility to provide clinical and technical assistance.

The root level of the health care network is the neighborhood health stations and clinics in some smaller organizations, which provide primary health care for the residents of the neighborhood and workers of the organizations. The doctors of neighborhood health stations are usually recruited from retired doctors or those who were trained in a short-term programs.

The three-tier health care network in cities is connected by municipal hospitals, district hospitals or big clinics, and neighborhood health stations or small clinics. This type of health care delivery network exists in every city in China.

### **Health Manpower**

In the United States, the field of health care is regarded as a labor-intensive industry. The education and use of health professionals are critical variables in determining the distribution, efficiency, economy, and cost of the industry and its products which characterizes the market economy (Kovner, 1990). In China, however, the government adopts the planned economy instead of the market economy. The health care system is conducted by the planned economic policy. That is, the education and use of health professionals are arranged by the government. For example, the government makes a plan on how many medical students should be recruited and where the medical graduates are allocated.

Since 1949, the health care field has experienced the expansion in the numbers of health workers and physician supply. From 1980, the development of health workers has grown rapidly.

**Numbers and types of doctors.** In 1991, there are 3,985,000 people working in the health care field. This excludes a large but unknown number of housekeeping, kitchen, and maintenance personnel who work primarily in institutions. It also excludes persons who work in health administrative organizations. They only include physicians, nurses, pharmacists and technicians. In 1990, among these people, there are 1,058,460 doctors including internists, surgeons, dentists, and other specialists. In Table 6, the numbers and percentages of a variety of doctors distributing health care in 1990 are provided.

Table 6

Types of Doctors in 1990

Types of doctors	Number	Percentage
Internist	387,730	36.6
Surgery	154,715	14.6
Gynecologist & obstetrician	92,359	8.7
Public health	63,236	6.0
Pediatrician	56,661	5.4
Radiative specialist	32,397	3.1
Dentist	23,725	2.2
Physician of infectious disease	22,954	2.2
Oculist	20,262	1.9
Otolaryngologist	17,619	1.7
Dermatologist	10,752	1.0
Psychiatrist	11,570	1.1
Physicians of TB	10,002	0.9
Physical therapist	8,093	0.8
Oncologist	6,950	0.7
Physician of Occupational disease	5,387	0.5
Radioisotope specialist	1,855	0.2
Others	132,193	12.4
Total	1,058,460	100

Source: Ministry of Public Health, 1992, Chinese Health Yearbook.

The range of skills in the health care delivery field is vast. There are also many sites of employment: hospitals, clinics, anti-epidemic stations, health centers, schools and universities, research institutes, and manufacturing plants. These doctors work in the different departments of hospitals and other related facilities.

**Physicians of rural and urban areas.** A great difference exists in the economic situation between the rural and urban areas. As a result, there is also a large difference in the numbers of physicians between cities and countryside. Based on the statistics of the Ministry of Public Health (1992), 62.5% of all the doctors were concentrated in the urban health institutions, while the others practiced medical services in county and below county level health facilities. On the other hand, the rural residents make up 74% of all the population. Therefore, the lack of health manpower in the countryside is obvious.

**Health workers at different levels.** In the second section of this chapter, several kinds of medical education in China have been discussed. Medical education in China includes higher, intermediate, and short-term training. The doctors, nurses, pharmacists, and technicians are educated from these training programs. As a consequence of different medical education programs, three levels of health workers are produced. The structure and ratio in three selected years are shown in Table 7.

Table 7

**Structure of Health Workers at Different Levels**

Year	Senior level (numbers)	Middle level (numbers)	Lower level (numbers)	Ratio (senior/ middle/lower)
1979	436,029	1,108,488	737,466	1:2.54:1.69
1984	879,021	1,560,219	904,758	1:1.77:1.03
1989	1,965,611	1,317,641	525,845	1:0.67:0.27

Source: Ministry of Public Health, 1990.

According to the Chinese government policy which was formulated in the 1960s and amended in the early 1980s, the ratio of senior and intermediate health workers should be 1:2-2.5. It is clear that the ratio indicated in Table 7 is not comparable with government policy. This unbalanced relationship greatly wastes the health care resources (Lu et al., 1992). The Ministry of Public Health is making efforts to change this situation.

**Physician-to-nurses ratio.** In the hierarchy of medical manpower of the United States and other developed countries, doctors constitute the upper segment which has to be supplemented by a much larger number of auxiliary and supporting personnel at the intermediate levels. For instance, in America, the ratio of physicians to nurses was 1:3. However, the ratio in China is incredibly low compared to Western countries. According to the statistics from the Ministry of Public Health (1992), the average ratio of physicians to nurses was 1:1.13 in 1991. Government policy was formulated on the basis of the percentages of nursing personnel in 1978; that is, among all health workers (physicians, nurses, pharmacists, technicians, medical researchers, and so on), 50 % them should be nurses. However, this standard has not been reached. As the result, physicians may have to perform inappropriate tasks. This causes a tremendous waste of health resource (Liu et al., 1992).

**Physician-to-population and nurses-to-population ratios.** In 1991, there were 1,310,900 physicians in China. A rapid growth in the number of physicians happened after 1949, especially after 1985. In 1985, the ratios of physician- and nurse-to-population were only 70 and 61 per 100,000 population, respectively. In 1991, the physician-to-population ratio was 115 per 100,000 population, ranging from 78 (Anhui) to 426 (Beijing) per 100,000 people (Ministry of Public Health, 1992). In the United States, the ratio of physician-to-population was 232:100,000 in 1986 (Raffel & Raffel, 1989).

The ratio of nurse-to-population was 89 per 100,000 people in 1991. Beijing also has the maximum ratio of 342:100,000, while Henan has the minimum ratio of 56:100,000 (Ministry of Public Health, 1992).

### **Ambulatory Care**

Ambulatory care, defined by Lawrence and Jonas (1990), is "personal health care provided to an individual who is not a bed patient in a health care institution. It includes all health services, other than community or public health services provided to a patients." Ambulatory care covers a wide range of services which are provided by health workers in ambulatory settings. In China, there are three major categories of ambulatory care

settings: (a) clinics or health stations, (b) hospital outpatient departments, (c) emergency services including hospital based emergency rooms or departments and independent emergency centers or stations.

In 1991, nationally, there were 2.6 billion visits to hospitals and clinics (Ministry of Public Health, 1992). On average, each person made 2.3 visits to doctors. The hospitalization rate was 2%. That is, two patients were hospitalized per 100 visits to doctors on average.

In this section, the ambulatory settings or health facilities are discussed first. Then, the number of ways that ambulatory care was delivered in China are be given. Three-tier health care network is emphasized in this section since the network has played an important role in making health care available for most Chinese.

**Health facilities.** In this part, some statistical data about numbers and types of health organizations and hospital beds are demonstrated. To do so is for the purpose of helping people understand the infrastructure of health delivery and the distribution of health organizations. Therefore, quantitative analysis is used to clarify these questions.

In 1991, there were 209,036 health institutions with 2,991,859 hospital beds in China, an average of 2.35 beds for 1,000 people. Among these health institutions, there were 61,000 hospitals with 2,744,000 hospital beds (Ministry of Public Health, 1993). In addition to the hospitals, the health institutions contain other facilities (see Table 8).

Table 8

Number of Health Institutions and Beds in 1991

Health care institution	Number of institutions	Number of beds
Hospitals	63,101	2,688,600
Sanitaria	642	125,395
Clinics	128,665	91,875
Specialty institution	1,818	31,732
Anti-epidemic station	3,652	1,172
Maternal and child health care institution	2,854	14,873
Drug inspection institution	1,927	-
Medical research institutions	335	5,825
Others	6,042	32,428
Total	209,036	2,991,900

Source: Ministry of Public Health, 1992, Chinese Health Yearbook.

Since 1949, the number of health institutions has increased remarkably. From 1949 to 1992, health institutions increased as many as 56 times, from 3,670 up to 205,000. The health institutions reached their peak in 1965, then decreased in 1975. The reason is, many health institutions were cut during the period of Cultural Revolution (1966-1976). Since 1980, the number of health organizations started soaring again. However, in 1992, the number slightly declined compared with 1991 because of a merger of local governments (Health Statistical Center, 1993). For example, if two townships are merged into one, their hospitals also are combined into one.

**Access to health care in rural areas.** One of the demographic features is that 74% of the Chinese population resides in rural areas. There is quite a difference existing in the health care service utilization between rural and urban areas. For example, in 1991, the ratios of physician to population are 0.62 and 2.38 per 1,000 people in rural and urban

areas, respectively. The ratios of hospital beds to population is 1.55 per 1,000 rural residents, 4.21 per 1,000 city people.

According to a health service survey in nine provinces and cities in 1985 (Ministry of Public Health, 1992), the top ten ambulatory services used by both rural and urban populations are shown in order in Table 9.

Table 9

Top Ten Outpatient Visits by Urban and Rural Patients in 1986

Order	Urban areas		Rural areas	
	Department	Outpatient visit (%)	Department	Outpatient visits (%)
1	Internal medicine	45.14	Internal medicine	28.25
2	Traditional medicine	22.86	Traditional medicine	22.30
3	Pediatric	9.85	Surgery	9.83
4	Surgery	7.83	Pediatric	8.04
5	E.N.T.	2.97	Gyn. & OB	6.55
6	Gyn. & OB.	2.90	E.N.T.	3.95
7	Dentistry	2.22	Dentistry	3.14
8	Dermatology	1.73	Ophthalmology	2.82
9	Infectious disease	1.13	Dermatology	2.49
10	Psychiatry	0.40	Infectious disease	1.65
	Total	97.03	Total	89.02

Source: Ministry of Public Health, 1992, Chinese Health Yearbook.

In the early 1950s, the Chinese government started to stress the three-tier rural health care network. The three-tier health network consists of county hospitals, township health centers and village health stations. The county hospital acts as the apex of the

network. Patients can be transferred from village health stations and townships hospitals to county hospitals. In 1992, there were 2158 county hospitals. Due to the county hospital care usually being designated for the seriously ill patients, most of primary medical services are done by township hospitals and village health stations (Chen, 1989).

1. Township hospitals. Nationwide, in 1992, there were 46,000 township hospitals (Health Statistics Center, 1993). The ratio of county hospitals to township hospitals was 1:21.3. The township hospitals provide a wide variety of health services for the local residents, such as performing lots of disease prevention, maternal and child health care, and family planning (Chen, 1989). In 1991, there were about one billion visits to the outpatient departments and emergency rooms of township hospitals. On average, each rural resident has 1.3 visits to township hospitals for outpatient care in 1992.

2. Village health stations. Village health stations are the basis of the rural health network. In 1992, there were 735,000 villages in China. Eighty-five percent of them established village health stations (Health Statistics Center, 1993). Village stations provide primary health care and prevention. As a result, most of village residents, 64.4% of the rural population can access the health services from village health stations easily within a distance of one kilometer (see Figure 8), based on a rural health service survey in 1985 (Ministry of Public Health, 1992).

Outpatient health services for urban residents. In cities, there is also a three-tier health care network through which medical services are delivered. In the network, municipal hospitals are the apex of medical care services. The next tier is district hospitals or clinics of big organizations. The basis of the network is neighborhood health stations or clinics of small organizations.

1. Three-tier health network for employed people. Most urban residents are working in organizations such as factories, schools, companies, institutes, or government. Each of these organizations has its own clinic with a certain number of staff. The size of a clinic depends on how many employees are in the organization. The common ratio is about 1:100. For example, a company with 5,000 workers may have a 50 staff clinic. In

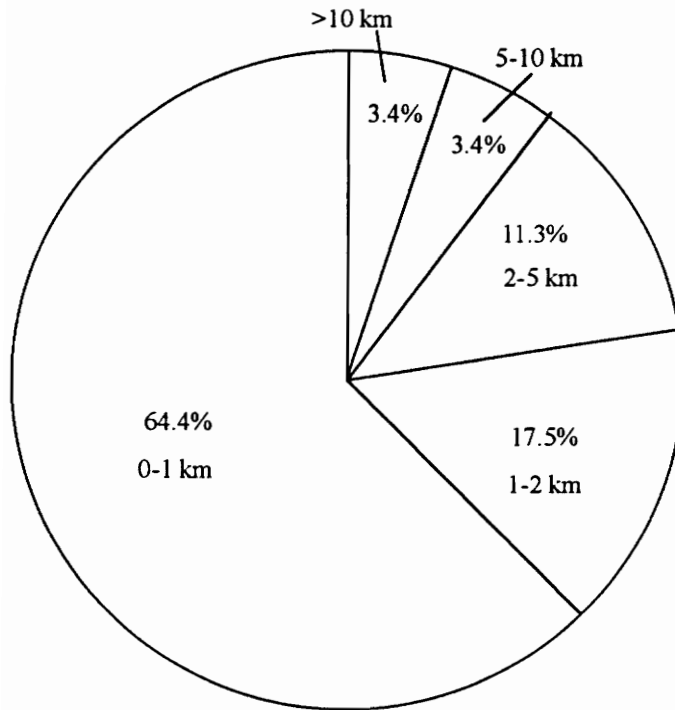


Figure 8. Medical Service Range in Rural Areas

1992, there were 130,000 clinics in China (Ministry of Public Health, 1993). These clinics provided ambulatory care and also performed lots of disease prevention and health promotion. Due to the government policy of free medical care for all employed people, the burden of providing primary medical care for those working people fell into the clinics. Any patients, except in an emergency situation, have to use clinics to get necessary diagnosis and treatment when they are ill. If a patient needs to be transferred to a hospital's outpatient department, an approval from clinic doctors is required. Otherwise, all payment charged cannot be covered. Therefore, in the city health delivery network, patients have little choice among health services.

2. Health services for unemployed people. Three-tier health network for unemployed people are neighborhood health stations, district hospitals, and municipal hospitals. Usually, unemployed people can directly go to district hospitals when they are sick. The neighborhood health stations mainly provide disease prevention such as immunization for children, family planning such as birth control, and some medical care with traditional Chinese medicine such as acupuncture.

Emergency services. Emergency care has developed rapidly in the last ten years. Since the early 1980s, some hospitals, especially those municipal hospitals, have changed emergency rooms into emergency departments headed by experts and equipped with advanced technology. At the same time, the requirement that doctors from every department were to take turn on emergency room duty was also changed.

All the hospitals and most clinics have emergency rooms or emergency departments which provide 24-hour emergency services. These services involve care for acutely ill and injured patients. Each of the hospitals and clinics have similar diagnosis standards for the patients who can use the emergency services. For example, a patient with an acute fever above 38.5c can be served in an emergency unit.

In addition to the hospital based emergency services, there are emergency centers and stations in most cities. The emergency centers are at the municipal level, while emergency stations are at the district level. These centers and stations form an emergency

care network to serve all types of emergency patients 24 hours a day. For example, Beijing Emergency Center is a modern emergency facility which is equipped with \$8 million worth of instruments donated by the Italian government. Under the Center, there are eight emergency stations at the district level. The emergency network has played an important role in reducing the mortality rate in cities (Wang, 1988).

### **Hospitals**

The hospital is the other major setting for delivery of medical services. In this section, the hospital origination, characteristics, and functional structure are discussed.

**Hospital origination.** The earliest hospitals were primarily of a religious and charitable nature, tending to provide care for the sick rather than providing for medical cure (Starr, 1982). Before Western medicine hospitals appeared in China, there was no hospital. Medical care at that time was provided by the means of family care. Following the introduction of Western medicine in China, hospitals started to be built by some foreign foundations and missionaries. In 1835, Dr. Peter Parker opened the Canton Missionary Hospital which was one of the earliest hospitals in China. After Parker's example, about 150 medical missionaries came to China and built hospitals (Jewell, 1983).

In 1949, there were 2,600 hospitals, some of them built by the Chinese government. After 1949, the number of new hospitals increased very fast. The increase of number of hospitals between 1949-1991 is displayed in Figure 9.

**Hospital structure.** In China, each hospital can be divided into several departments. Each department has two parts: inpatient and outpatient services. The organizational structure of a general hospital is indicated in Figure 10.

**Statistics and characteristics.** In 1991, there were 63,101 hospitals with 2,688,600 hospital beds (Ministry of Public Health, 1992). The hospitals include Western and traditional medicine hospitals at county and above county level, township hospitals, and other hospitals. Hospitals differ from one another with respect to size, mission, complexity and health administrative level. In Table 10, the number of different hospitals with certain numbers of hospital beds are shown.

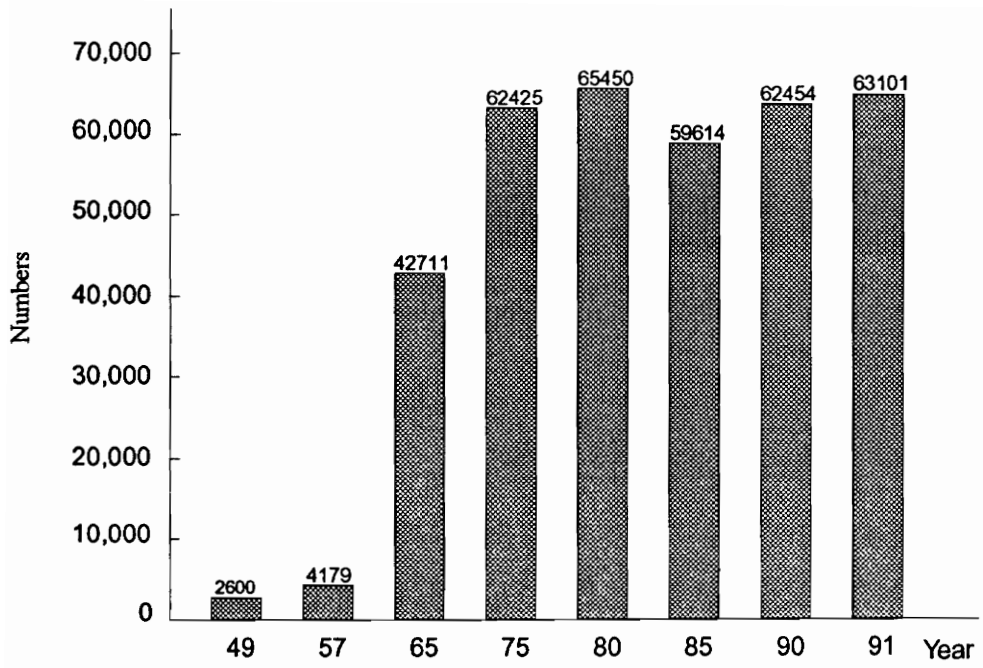


Figure 9. Number of Hospitals (1949-1991)

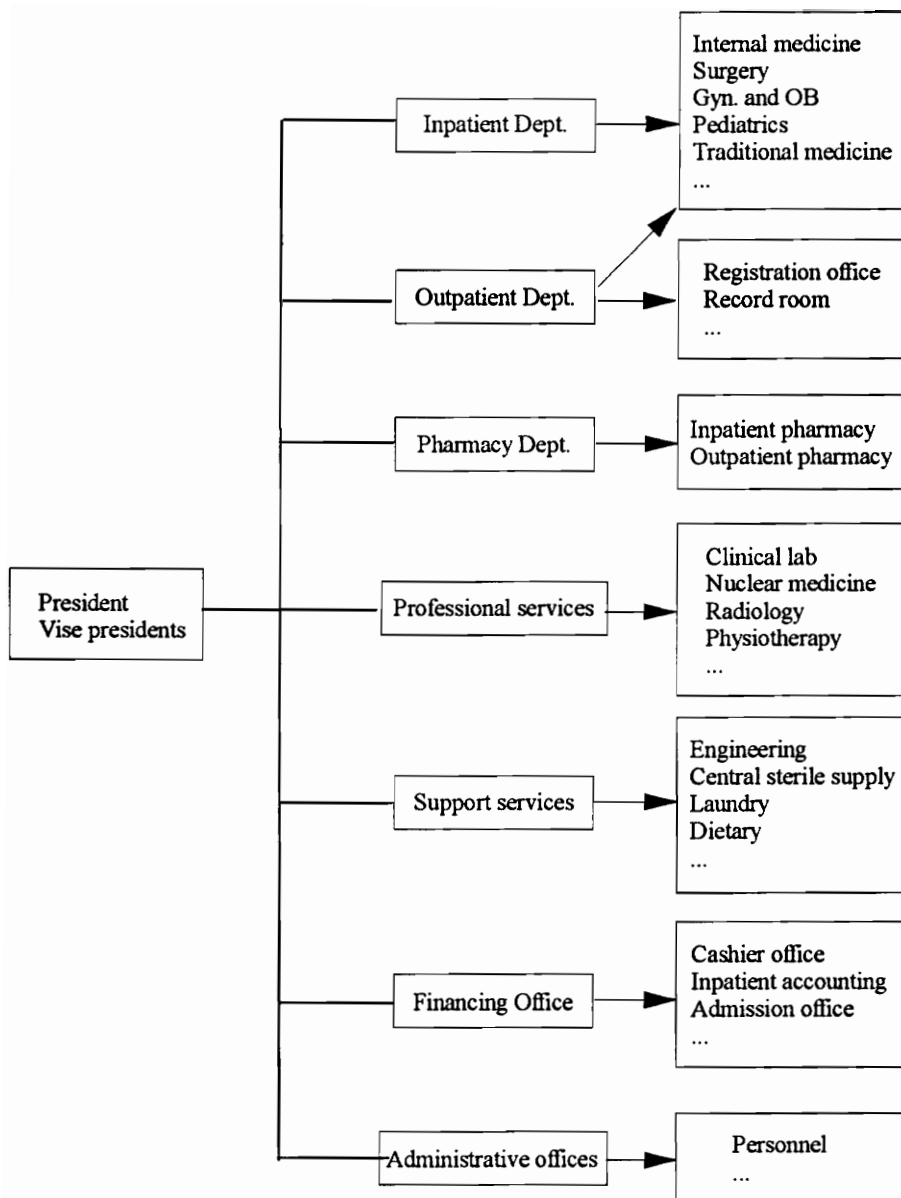


Figure 10. Structure of a Hospital in China

Table 10

Hospitals and Hospital Beds in Different Institutions in 1991

Hospitals	Number of hospitals	Number of hospital beds
General Western hospital	9,817	1,375,517
Traditional medicine hospital	2,108	171,885
Teaching hospital	194	102,604
(Traditional medicine hospital)	(36)	(14,261)
(Dental hospital)	(10)	(678)
(tumor hospital)	(4)	(1292)
Infectious disease hospital	138	27,269
Psychiatric hospital	449	87,762
TB hospital	110	28,322
Maternal hospital	333	33,325
Children hospital	34	8,813
Leprosy hospital	49	11,332
Occupational hospital	49	6,754
Tumor hospital	46	12,550
Rehabilitation hospital	64	7,259
Dental hospital	52	1,647
E.N.T. hospital	20	2,188
Orthopaedic hospital	49	4,926
Integrating hospital of traditional and Western medicine	27	6,985
Other specialized hospitals	99	11,541
Township hospital	48,140	729,152
Others (traditional medicine)	1,323 (51)	58,769
<b>Total</b>	<b>63,101</b>	<b>2,688,600</b>

Source: Ministry of Public Health, 1992, Chinese Health Yearbook.

**Statistics and services.** The hospital outpatient visits in 1991 were 2.4 billion, which includes both emergency and nonemergency services. The hospitals at county and above county levels serviced 50.5% of all the patient visits. Township hospitals handled 41.39% of the patient visits.

In 1991, the hospital admission was about 53 million patients. That is, per 100 patient visits, about two patients were hospitalized. The rate of using hospital beds for all hospitals was 81.4%. Different types of hospitals indicated different rates of bed usage. The six types of hospitals with higher rates of bed usage are shown in Table 11. Relatively, the township hospitals has lower rate (43.5%) of bed usage (Ministry of Public Health, 1992).

Table 11

**Rate of Using Hospital Beds in Six Types of Hospitals in 1991**

Types of hospital	Rate of using hospital beds (%)
General municipal hospitals	97.8
Teaching hospitals	97.5
Tumor hospitals	97.4
Psychiatric hospitals	96.0
General district hospitals	93.7
Children's hospitals	88.5

Source: Ministry of Public Health, 1992.

The average hospitalization stay of each patient was about 16 days in the hospitals at county and above county levels, and about five days in township hospitals. The hospitals having longer hospital staying days are psychiatric hospitals (79.1 days), TB hospitals (66.5 days), occupational hospitals (59.3 days), tumor hospitals (40 days), and infectious hospitals (35.2 days) (Ministry of Public Health, 1992).

In this section, the issues related to the health care delivery system have been reviewed. Some statistical data on the health manpower, ambulatory care and hospitals

are provided. These data can be used to explain how people accessed the health care services and how the health delivery system functioned. The three-tier health care network, as an important concept, is emphasized in this section, which characterizes the structure of the health care delivery system. This network is considered as a suitable way to make health care services available for most people, especially for the rural population. Currently, a pronounced difference between rural and urban areas in health care services still exists in terms of the distribution of health manpower, and the accessibility of health services. Actually, the Chinese health care delivery is shaped by the political and economic environment.

### **Health Insurance**

At present, a nationwide health insurance system, as it is known in the Western world, has not been established in China. The current health insurance programs were established in the early 1950s. This health insurance system involves four main programs: (a) public medical service, (b) labor insurance, (c) cooperative medical service, and (d) private payment (Shao, 1988).

Since 1980, following economic reform, the issues of establishing national health insurance system and reforming the present insurance policy were discussed and analyzed by experts, policy makers, and government officials. By synthesizing foreign experiences and comparing them with China's present situation, tentative health insurance programs have emerged in some urban and rural areas. However, after more than ten years of effort, a new health insurance policy still has not yet been adopted.

The purpose of this section is to introduce the current Chinese health insurance system, and review its past and present. Three main issues discussed are: present health insurance policy, reform of the present policy, and a possible health insurance model in future.

**Present Health Insurance System**

The present health insurance system consists of the four main forms: (a) government insurance, or public medical service (free medical care plan), (b) employer insurance, or labor insurance (free medical care plan), (c) subsidized coverage, or cooperative medical service (with individual co-payment), and (d) private payment (individual fee for service) (Yang et al., 1991). In addition, there are some other health insurance plans, such as social health insurance and half-labor insurance programs. The proportion of the population receiving health care through each of these programs is indicated in Figure 11.

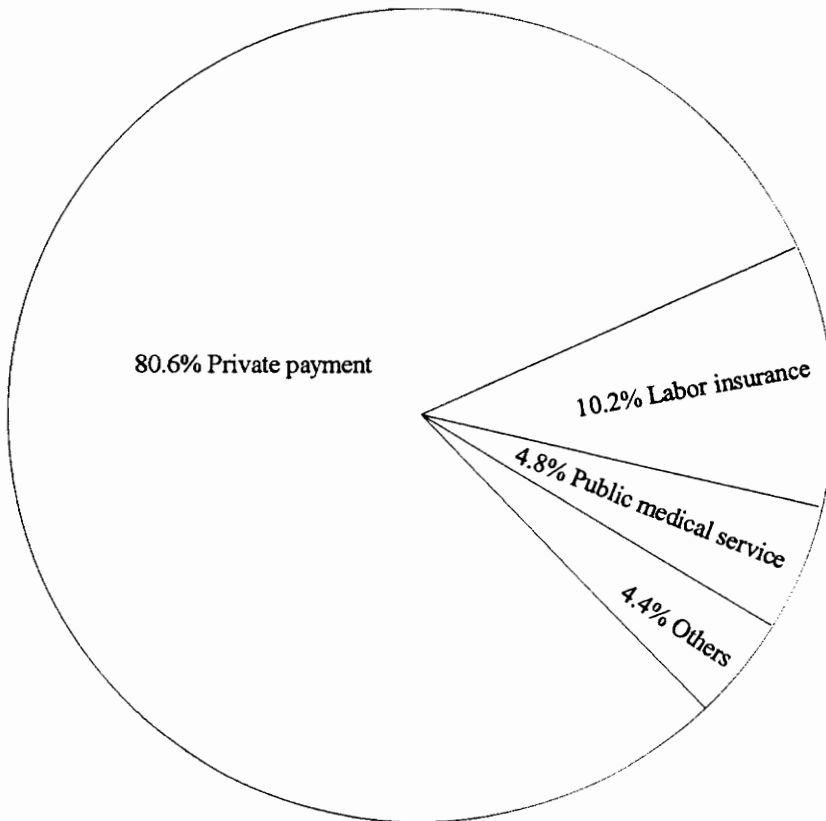


Figure 11. Percentage of Population on Health Insurance Plan

**Public medical service.** Public medical service is government insurance. This insurance policy was established by the government in 1952. People who are employed in governmental, academic, and military organizations are protected by this insurance scheme. Each retired person from these organizations has same right to get benefits. The beneficiaries have the right to enjoy free medical services including any inpatient and outpatient care, and dental care. The population involved in this program was about 4.8% in 1989 (Liu & Wang, 1991). All of the funds of public medical service are given by the government, which come from national tax. According to Zhou (1992), at the beginning of the plan, each person was allocated an average account of 18 yuan (about \$12), which was about 4 % of all payroll of an organization in one year. In 1952, just after the policy was implemented, there were more than four million people enjoying the free medical care. However, after 38 years, in 1990, the numbers of this population rose up to about 25 million. An average of 174 yuan (US\$35) was spent by each person a year, which was about 10% of all salaries in an organization in one year. Thus, it can be seen, free medical care has become a burden for the present national economic situation.

Public medical service was based on Marxism thought (Qiu, 1989). Although Marx did not design in detail any kinds of medical care system to be carried out after the proletarian revolution, he addressed the idea that health is the first right of the workers in his famous work "Capital Theory." In his "Critique of Gotha Program," he pointed out that before the social products were distributed to the individual, part of the money should be kept for the use of health protection for the public. Russia developed a national health system based on Marxism theory. At the beginning of the 1950s, Russia was the leader of all socialist countries. Therefore, the Russian models of economic development were also used by the new Chinese government. The model of public medical service also was imitated at that time, then implemented along with other economic models (Zhou, 1992).

**Labor insurance.** The labor insurance is employer insurance which is also a free medical care plan. In 1951, the government promulgated "Labor Insurance Regulations." The major benefits were to provide free medical care for those employees working in the

enterprises owned by state and local governments, such as industrial and commercial organizations. Like public medical service, all workers under the protection can enjoy free inpatient and outpatient medical services and dental care. Retired people also have the same right. Compared with public medical service, the fund for labor insurance is not directly from governmental budgets, but from welfare funds of each enterprise or employer, created by the enterprises' profits from their products (Gu, 1987). The welfare fund accounted for about 11% of salary outlay in a business, and 50% of the fund is used for labor insurance (Liu & Wang, 1991).

In China, about 10.2% of the whole population had the labor insurance in 1987 (Hospital Administration Department, 1987). At least, the people covered by labor insurance plan increased seven times from 1952 to 1990 (Zhou, 1992). Under this policy, different businesses can have a different amount of money used for the workers' medical care according to the profits of each organization.

Like the public medical service program, labor insurance was formulated based on Marxism theory. This method is a combination of both the labor protection of socialist countries and labor insurance of Western nations. Since 1949, the government has stressed repeatedly that the working class is the leading class and the most advanced and revolutionary class in the socialist society. Therefore, they should enjoy favored medical care and not worry about how much it costs (Qiu, 1989).

**Cooperative medical service.** Cooperative medical service is based on the principle of voluntary participation and relies on the strength of the collective economy (Shao, 1988). It is subsidized by township and local governments and needs the individual's co-payment. This health provision program was created by China itself at the early 1950s and was implemented in nationwide rural areas. Indeed, this program has been a major form of health insurance due to the fact that China is an agricultural country and most of the population resides in rural areas.

During the period of the 1960s and the early 1970s, this kind of insurance developed rapidly as the agricultural economy was collectivized. More than 90% of all

the villages adopted the cooperative medical service method (Xu, 1987). However, since 1978, economic reform brought a dramatic change for farmers. The economic structure of cooperative ownership was replaced by the household or private responsibility system. This change caused an increase of agricultural production and brought many profits for most farmers. However, the cooperative medical service program was no longer desired because of the reform of the collectivized agricultural economic system and deletion of People's Communes. Most of the cooperative medical programs collapsed. By the late 1980s, only 5% of rural residents were covered by this plan (Chen & Tuan, 1993). Therefore, the health insurance plan was altered from cooperative medical service to private payment. After several years of economic reform, although most farmers became richer than before, more and more people worried that sickness may bring them back to a poor life again. Therefore, in recent years, cooperative medical care is being recovered in some rural areas (Jiang, 1991). Jiang pointed out that the system of cooperative medical service was suitable for the Chinese rural situation.

**Private payment.** In the private payment system, people pay for their health care on a fee-for-service basis. In China, 0.9 billion people are farmers. Due to the fact that cooperative medical service collapsed, the majority of this population is not involved in any of the health insurance programs mentioned above (Gu et al., 1993). Some residents of urban areas who are unemployed also have to pay for medical care out of pocket. In 1985, it was estimated that 850 million people, or 81.7 percent of the whole population was covered by this health care plan (Shao, 1988).

According to Jiang (1991), in fact, the private payment system is a negative method. In the early stage of socialism, economics and scientific technology were very underdeveloped in the rural areas. The priority things which needed to be satisfied by farmers were food and shelter. Therefore, health care was considered as a privilege but not a right. At this time, even though most farmers have improved their income, the increase rate of income is lower than the increase rate of medical care expense. As a consequence, two situations may appear: (a) they do not have access to health services

when they suffer with some diseases; (2) they may become poor again when they contract some serious diseases which require hospitalization.

Therefore, this private payment is a passive and negative form which co-exists with other free medical service and cooperative medical service in China. As a result of inequalities between urban and rural areas in health provisions, it may lead to conflict between them and even affect the development and stability of social economics (Jiang, 1991).

### **Reform of Present Health Insurance Policy**

Since 1980, China's health care system has undergone reform at a pace comparable to reform in other sectors of the economy and society. According to Zhi (1991), the purpose of health insurance reform was to establish a new health insurance system which includes two different forms focusing on urban and rural areas.

**Reform of free medical care.** Actually, the programs of public medical service and labor insurance have given employed people many benefits and facilitated economic and social development. However, when something is free of charge, the demands usually exceed the supply. It is clear that free medical care has brought a heavy burden for the nation's economic condition. Some problems exist in the free medical care, such as the waste of health resources and over usage of health services (Shao, 1988). The triangle relationship between hospitals (health providers), individuals (consumers), and organizations (employers) is very loose. In addition, there is a lack of sound legal restrictions and an effective administrative system for free medical care. Therefore, the reform of free medical care is necessary.

1. **Reform of public medical service.** In a report of the central government (Jiang, 1984), it addressed that the expenditure of free medical care plan (public medical care and labor insurance) had to be paid by state or enterprises and individuals. The individual aspects should pay a minor part of whole health costs.

In 1984, the Ministry of Public Health and Ministry of Finance released a report in which methods for strengthening the administration of public medical services were

discussed in relation to insurance reform. From that time, the reform was further spread nationwide. The major measures were that employees paid certain health premium and deductions. For example, compared to free medical care in the past, now people need to pay about 10-15% of all medication of in and out-patient services, 5-10% of hospitalization, and 5-10% of diagnosis and treatment expenditure (Zhi, 1991).

Health reform in Sichuan is a typical example. Sichuan is located in the southwest of China. Its importance to China is just like California to the United States. It has the largest population (more than one hundred million) and industrial and agricultural outputs in the country.

The strategies of health insurance reform in Sichuan province are as follows. 1) An effective administration organization should be established; 2) public medical services should ensure service quality, and prevent waste of health resources, and 3) the funds should be raised in different channels. In addition to government budgets, the beneficiaries such as organizations and individuals should provide parts of the health funds. Based on the health reform experience in Sichuan province (Hu, 1991), the main principle of reform of the free medical care was to put the load of health expenditure on three entities which are state, organizations and individuals. The emphasis of the reform is put on the administrative policy. The major funds were still from the government budget. The focused question is on who administers the funds and how to use the money. Several different models were summarized. They were a) hospital (or provider) administration, b) organization (or employer) administration, and c) local government (or office of public medical services) administration. The administrative form may be one entity, or a combination of two or three entities. No matter which one is in charge of the administration of funds, the three entities should cooperate to reduce the medical cost. Its essential measure was that the administrator side can either keep the saved money by itself when profiting, or bear the additional cost by itself when the cost of care exceeds the fund.

2. Reform of labor insurance. Unlike public medical service, the funds of labor insurance are from enterprises. Each enterprise pays for medical care expenditure for its

employees. Because of the rapid increase of health costs, enterprises have to adopt some measures to control the problems of health costs. The quota system is a major method which has been widely attempted in cities, especially in big cities. The reasons for using quotas are to strengthen administration, reduce the waste of health resource, and contain health costs.

The reform of labor insurance in Shanghai was a successful example. Shanghai is a big industrial city. According to the Research Center of Health System of Shanghai (1992), the quota system approach has been used tentatively in most enterprises since the 1980s. There are three concrete quota approaches as follows.

(1) Joint administration. A payment quota is formulated through a contract between a factory and a hospital. That is, a factory pays in advance a health care quota to a hospital. The hospital has the responsibility to arrange and use the money for these insured people. The essential principle of the quota is that the hospital can keep saved money and is obligated to pay for excess services beyond the contract.

(2) Individual quotas. A quota is given to an individual. That is, each factory gives part of health funds to individuals. At the end of a year, if a person does not exceed the quota, the saved money will be given to the individual. On the other hand, if a person exceed the quota, the minor part of the excess money will be paid by the individual, and the major part paid by the factory.

(3) Retired employee quotas. A quota of 8-12% of the total payroll per year in a factory was used for the medical services of retired employees.

According to the reform policy of central government, almost all other cities in China have adopted similar methods to Shanghai in the reform of labor insurance system.

**Reform in rural areas.** Cooperative medical service has been the only protection form for medical expenditure in rural areas. Following the end of the Cultural Revolution and the beginning of the economic reform, this kind of insurance almost disappeared. Several years later, most farmers started to be aware of the importance and necessity of the health insurance. Therefore, in some rural areas, a number of local health insurance

programs were developed during the 1980s, particularly in the more prosperous regions (Gu et al., 1993).

There are some peculiar characteristics in this health insurance (Ron, Abel-Smith, & Tamburi, 1990). First, the source of funds for this health insurance is collective which means that it is derived from individual households, township, and local government. Second, primary health care is provided at village health stations. Some patients may go to hospitals when needed. The coverage of reimbursement varies, which cover part of inpatient and outpatient care, depending on different areas. Third, the township is the management unit of the local health insurance plan.

### **Health Insurance System in the Future**

What is the future health insurance model in China? This is a widely debated problem. According to Zhi of the Ministry of Public Health (1991), the goal of reform of health insurance is to establish a sound health insurance system with two kinds of forms based on the difference of rural and urban areas. The objectives are a) providing primary health care for the whole population, b) establishing an effective and efficient health insurance network and administration, c) containing health costs, and d) developing the research of health insurance policy and spreading the policy and knowledge to most people. During the 1980s, a number of local health insurance programs were developed (Gu et al., 1993).

Currently, there are some proposals which are debated by experts, decision makers, and other relative government officials. Some geographic regions are attempting new health insurance programs and some are reforming old insurance policies in order to meet a rapidly social and economic development.

**Cooperative health insurance.** This form of insurance applies a cooperative method to run health insurance, which needs the participation of state, enterprise and individual. Japan is a successful example of this kind of health insurance (Zhou, 1992). In urban areas, cooperative health insurance may replace the program of the public medical service and labor insurance to change the present policy of "no charge" services. In the

administrative aspect, the future direction of the free medical care is to strengthen, coordinate, and balance the relationship of three entities: health providers, beneficiaries, and enterprises. A basic characteristic is that the health funds must come from both individuals and state in public medical service program, or individuals and enterprise in labor insurance program. In rural areas, the cooperative health insurance will also indicate a cooperative relationship in the fund resources, which will be derived from individual households, township, and local government.

**Social health insurance.** This insurance is similar to the American health insurance system. Shenzhen, a modern city in China, is an example of implementing social health insurance. After three years of investigation and study, Shenzhen decided to institute the social health insurance in the scope of the whole city including all urban and rural population (Lin & Shen, 1992). At this time, Shenzhen has deleted all other traditional insurance methods, and is using the social health insurance.

What is the model of future health insurance in China? Up to now, there is no clear picture. The cooperative health insurance and social health insurance are two main proposals which have been attempted in some areas. However, based on Chinese politics and economic situations, the future health insurance may have two forms to be used by both rural and urban populations separately.

In this section, the past, present and near future of Chinese health insurance were discussed. Before the health reform, there were three main forms of health provision: free medical care, cooperative medical care, and private payment. Since the early 1980s, significant changes have been made on the three main forms of health provision. Free medical care is no longer free of charge; cooperative medical care is not cooperative at all in most rural areas and replaced by health insurance program in some areas; and the private payment scheme is still used and some altered into health insurance. As to the future health insurance model, there are two major proposals: cooperative health insurance and social health insurance. Tentative health insurance programs have been attempted in some areas.

Social development is a constant phenomenon. Like Western countries, the formation of the national health insurance system in China has to undergo a long developing process. Without doubt, sooner or later a sound health insurance system will be developed for all Chinese people.

### **Financing for Health Care**

Financing is one of the major factors which shapes the health care system. The types of medical services delivered are heavily influenced by financial resources. China conducts a planned economy. The financing of health care, as a sector of the national economy, is budgeted by the governments. Actually, the financing of health care in China has been a blend of public and private responsibilities during the past 45 years.

According to the Statistics of the World Bank (He & Du, 1988), the national health care expenditure accounted for 3.3% of the GNP in 1988. Another estimate made by Liu and Wang (1991) was that 3,272 million Yuan (US\$884 million) was spent for health purposes in 1988. The expenditure represented 31 yuan (\$8.4) per year for each person.

In this section, the following three questions are answered. (a) Where does the money come from? (b) How is the money spent? (c) What is the difference of the health cost between rural and urban people?

#### **Financial Resource: Where Does the Money Come From?**

Health care money comes from three major sources. The most important source is central and local government budgets. Funds from these budgets are allocated for the following four usages: (a) health care services (e.g. hospitals), (b) public medical services (a free health insurance program), (c) higher medical education, (d) hospital construction, (e) family planning, and (f) construction investment for health facilities. The second source of fund is the welfare fund of each business and enterprise. The size of the welfare fund is about 11% of salary outlay in a business. About 50% of the fund is used as medical service fund which covers labor insurance (a free health insurance program).

Construction spending for clinics and hospitals owned by businesses is also from this fund. Third source of financing for health care is private payment (Shao, 1988). In addition, after economic reform, some foreign loans were allocated for the usage of health care. The financing sources and how much money was allocated on health care in 1985 are shown in Table 12 (updated data are not available).

Table 12

Sources of Financing for Health Purposes in 1985

Resources	Account (million yuan)	Percentage
Government outlays:	10,311	42.1
*Health services fund	5,482	22.4
*Public medical service	1,544	6.3
High medical education	315	1.3
*Family planning	740	3.0
*Construction	1,830	7.5
Other health sectors	400	1.6
*Business welfare fund:	6,500	26.6
Labor insurance	NA	NA
Partial labor insurance	NA	NA
Construction	NA	NA
Private payment	7,600	31
#Foreign loans	75	0.3
Total	24,486	100

Note. 1 dollar=3.0 yuan.

Source: \*--Ministry of Health Ministry, 1986; #--National Statistic Bureau, 1986; Others--Du, L. X., 1987.

Based on Table 12, in 1985, the government financed 42% of the total health expenditure. Businesses financed 27%. The other 31% of personal health care expenditure was paid directly out-of-pocket by individuals

**Government outlays.**

1. National Health Service Fund (NHSF) The government budget for the health services is called the National Health Service Fund (NHSF) which was 22.4% of total national health funds in 1985. Each hospital, clinic, anti-epidemic station, and other health institution is supported by this fund (Liu & Wang, 1991). The distribution of the fund in 1985 is shown in Table 13. (Updated data is not available).

Table 13

Distribution of the National Health Service Fund in 1985 (million yuan)

	Amount	Percent
Total	5,482	100
Western hospitals	2,115	38.6
Traditional hospitals	288	5.2
Subsidy to township hospitals	898	16.4
Anti-epidemic stations	753	13.7
Medicine inspection	65	1.2
Maternity & child care	143	2.6
Medical research	163	3.0
Secondary medical schools	245	4.5
Health administration training	45	0.8
Subsidy to the cooperative medical services	25	0.4
Nursery	4	0.1
Unpaid medical bills	10	0.2
Others	728	13.3

Note. 1 dollar=3.0 yuan. Source: Ministry of Public Health, 1988.

During the period of 1978-1988, the NHSF was increased three times from 2,242 million Yuan (US\$1,245 million) in 1978 to 7,186 million yuan (US\$1,942 million) in 1988. The average annual increase rate was 12.4%. The proportion of NHSF in the national fiscal outlay increased from 2.0 to 2.7% (Ministry of Public Health, 1989).

2. Public medical service. As already mentioned in the last section, the public medical service is a kind of health insurance program provided for the persons who are employed in the governmental and academic organizations. The policy was inaugurated in 1952. According to Liu and Wang (1991), there were about 4.8% of total population covered by this scheme in 1989. Prior to 1980, these groups of people could enjoy medical care services totally free of charge. From 1980 to 1984, the annual increase rate of the expenditure of public medical service was 10.7% (He & Du, 1988). In order to curb the skyrocketing cost, since 1984, the government has made an effort to control the rapid increase of medical expenditure through the free program. The co-payment policy, as discussed in the previous section, was an effective measure which slowed down the rate of increase to 3.1% during the period of 1985 to 1989, even taking into account the inflation influence.

Business welfare fund. The fund accounts to 11% of all the employees' salary outlay in a business a year. Fifty percent of the fund is used as the fund of medical services. Part of the fund is used on the construction of a business' health facility. Most of the health service fund is used for the labor insurance and partial labor insurance. In the big picture, 26.6% of all health care expenditure in 1985 was from various types of business welfare funds. (See Table 12.)

1. Labor Insurance. The characteristics of the labor insurance program are similar to that of the public medical service program. There are two differences. First, funds of the two programs come from two channels. The labor insurance fund is from business welfare funds. Second, labor insurance is for the people who are employed in industrial and commercial organizations. The enterprises pay medical service fees by paying hospitals directly or by reimbursing the covered employees. Each enterprise puts a certain

amount of money from their net profit as a welfare fund. Nationwide, there are about 10.2% of the whole population were covered by labor insurance in 1987 (Hospital Administration Department, 1987). For purposes of constraining the increase of medical expense, the labor insurance policy was reformed during the 1980s as another health insurance program (public medical service). The co-payment measure was also a major strategy which was discussed in detail in the health insurance section.

2. Partial labor insurance. This insurance program is offered for a limited number of dependents of the people who are protected by labor insurance. Like labor insurance, the money of the partial labor insurance is also from the business welfare fund. The dependents include the employees' spouses, children, and parents. When the dependents use medical services, 50% of medicine and transfusion fees can be covered by the partial labor insurance scheme. The other medical spending is paid by their out-of-pocket.

#### **Private payment system.**

1. Co-operative medical service. This program began in 1955 and was widely developed in rural areas during the 1960s and 1970s. The cooperative medical service fund came from the members' co-payment and was subsidized by attending groups and township governments. Under the system, each village was a basic unit of cooperative medical service. Each member in a village paid a small amount of money per year to the collective as health insurance. Then these members could have free comprehensive health care and immunization at the village health stations and partial free inpatient care. The local government and villages provided some financial subsidies for the program.

More than 90% of the rural population adopted this plan in the 1970s (Sidel & Sidel, 1984). However, as mentioned in the last section, by the late 1980s, most of the cooperative medical service programs have collapsed, with only 5% of cooperative medical service programs left in rural areas (Xu, 1986).

2. Private payment. Following the collapsing of cooperative medical service, the major part, or 80.6% of the rural population had to pay for their health care on a

fee-for-service basis. In addition, 13.5% of the urban population paid for medical care out-of-pocket (Hospital Administration Department, 1987).

3. Health insurance. Since the first health insurance company was founded in 1982 (Peng & Gao, 1988), some types of social health insurance programs have been attempted in rural and urban areas. The basic characteristics were (a) third-party payment, (b) co-payment, (c) comprehensive coverage, and (d) voluntary participation (Liu & Wang, 1991). However, the social health insurance was not popular. According to the Hospital Administration Department (1987), the population protected by the health insurance was less than 1%. The updated statistical data are not available.

Foreign loans. After the 1980s, the Chinese government accepted some foreign loans for building new health facilities and providing health care programs. In 1985, 75 million yuan (US\$25 million) was from foreign countries and was used for health purposes.

### **Health Expenditure: How Is the Money Spent?**

Unlike the American health system, almost all the health institutions in China belong to the government. Physicians and other health workers are employees of hospitals, clinics, and other health organizations. Therefore, the health care money is paid in different ways to the health care organizations for the salaries of physicians and other health workers, as well as other expenses earmarked for administration of hospitals. Money from the NHSF is directly given to health organizations by the governments. Funds from the public medical service and labor insurance programs are paid indirectly by the government and businesses. In addition, private payment is made on the basis of fee-for-services. That is, the money is paid directly to hospitals, clinics and other health institutions.

Fees for health care services were regulated by the government so that the same kind of medicine and medical services should have the same charges in an area such as a province. Usually, fees charged for medical services were lower than their actual costs. Prior to 1980, fees were reduced several times by the government. In this situation,

hospitals could not balance the inputs and outlays. As a consequence, the governments have to give reimbursement to the health organizations. After health reform, a flexible fee structure was adopted by hospitals. That is, these health organizations could raise the cost of medical services under constraints set by the government. At the same time, in some hospitals, there were two kinds of charging systems: lower fees for the patients paying out of pocket; and higher fees for the people protected by an insurance plan.

**Health spending on ambulatory care.** On average, the medical care spending for outpatient service was 13.7 Yuan (US\$2.6) for each physician visit in 1991. About two-thirds of the amount, or 9.4 Yuan (US\$1.8) was spent on medicine. The other one-third is spent on diagnosis, treatment and other services. The medical spending varied at the different levels of hospitals. For example, the medical spending per patient in the hospitals at the provincial level has the largest amount of money. The county hospitals have the least charges for the medical costs (see Figure 12). There are two possible reasons for this phenomenon. First, the provincial level hospitals have advanced diagnosis and treatment equipment, such as Computerized Tomography (CT) and Magnetic Resonance Imaging (MRI). These advanced technologies are not available in the county hospitals. Second, usually the patients in provincial hospitals have more complex and serious problems than those who are treated at county hospitals. Therefore, the medical spending on the higher level of hospitals is relatively high.

**Health spending on hospitalization.** The average fee of hospitalization for each patient was 564.7 Yuan (US\$106.5) in 1991. The medicine spending occupied more than one half of the total inpatient charge, or 309.4 Yuan (US\$58.3). The fees for diagnosis, treatment and other inpatient services were 122.9 Yuan (US\$23.2), or slightly less than a quarter of the all hospitalization fees. The inpatient care spending was very different among the five different levels of hospitals. The higher the hospital's level, the larger the health costs (see Figure 13). Like the spending on ambulatory care, the higher levels of hospitals are equipped by more advanced technology and usually have more serious patients transferred from lower levels of hospitals (Ministry of Public Health, 1992).

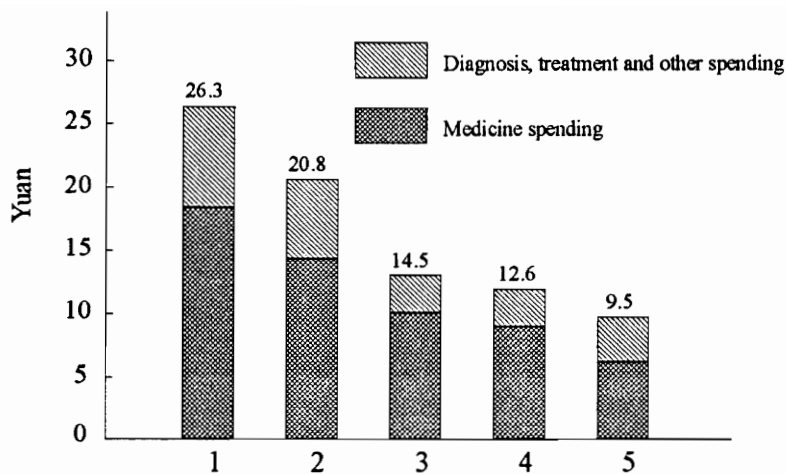


Figure 12. Outpatient Medical Spending Per Patient in Different Hospitals in 1991

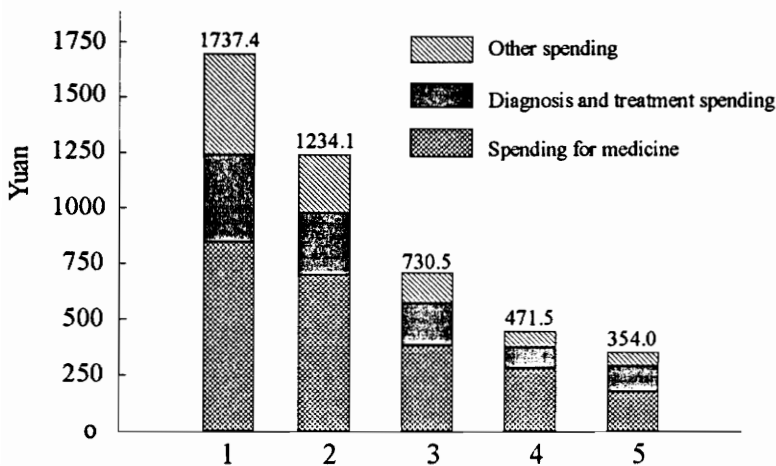


Figure 13. Inpatient Medical Spending Per Patient in Different Hospitals in 1991

Note.

- 1: Hospital of the Ministry of public Health
- 2: Provincial and municipal hospital
- 3: District hospital in municipalities and municipal hospital in province
- 3: District hospital in city of province
- 5: County hospital

Retrospective payment, or paying money after services is used by the hospital's financial system. Before patients are discharged, they pay all the inpatient medical costs. In addition, the private payment patients have to pay certain amount of the premium before they are admitted.

**Health spending on other sectors.** As shown in Table 13, the government provided 13.7% of the NHSF to anti-epidemic stations for the use of disease prevention, such as infectious disease control. In addition, 2.6% of the NHSF was used for the maternal and child care (Shao, 1988).

"Prevention first" is one of the major health policies which has been stressed for 45 years. Indeed, the public health status has been greatly improved. However, based on the data above, the preventive expense was about 16.3% of NHSF in 1985, which was smaller than curative financing allocation. The topic of other prevention efforts, in addition to the financial efforts, is discussed in the following section.

#### **Difference Between Rural and Urban Areas**

There is quite a difference between rural and urban populations in health care financing and spending. The NHSF is 4.34 times larger for the urban population than for the rural population (Liu & Wang, 1991). In addition, the medical payment methods are different. The majority of the urban population has the protection of health insurance programs, whereas more than 80% of rural residents have to pay for medical services.

According to the statistical data of the Ministry of Public Health (1993), each urban resident spent 25 Yuan (US\$5) on the average for health services in 1991 which was 1.7% of their total living expense. In contrast, each rural resident spent 15 yuan (US\$3) for the medical care a year, which was 2.4% of the total living outlay. Based on the data, the Chinese farmers spent less money for health services than city residents did. On the other hand, farmers had lower income than that of urban population. As a consequence, although farmers had no health insurance protection, lower income and lower medical outlay, the percentage of medical spending on the living outlay was higher

than that of urban population. Therefore, to improve rural health care services, financing support for the rural areas should be strengthened.

The health care system is funded through different routes including the government, businesses and patients to the health institutions. Some money is given by the government directly to health institutions. Other funds are from business welfare funds and from private payment. The money spent for medical services involves the salary paid for health workers and medical service expenses including ambulatory care, hospitalization and other medical expenditures, such as disease prevention and maternal and child care. In addition, the difference of health spending between rural and urban areas is also discussed.

Financing for the health services provided a basis for the health care system. Funding and spending are two variables which are determined by the national economic situation. They also affect the operation of health services.

### **Public Health**

The focus of public health activities in China is on the prevention of diseases, disability, and premature death through the efforts of the governments, organizations, and mass public.

As discussed in Chapter II, the Chinese health status has improved greatly in the last four decades. However, some questions exist, such as, how the health status has changed, what the government roles are in the public health administration, and what the distinctions of health status are between China and other developed countries. These questions are discussed and analyzed in the following six parts: administrative and functional organizations, vital statistics, the pattern of leading causes of death, prevention activities, health education, and the goals and strategies of future public health.

### **Administrative Organizations**

The major public health administrative units have all been directed to the areas of communicable disease control, maternal and child health services, environmental

sanitation, health education, laboratory services and vital statistics. There are three kinds of organizations which are responsible for the public health: government health agencies, anti-epidemic stations, and hospitals and clinics.

**Government health agencies.** Public health agencies exist at different levels of government. At the central government level, the Ministry of Public Health is the health administrative organization, which consists of several bureaus, such as the Prevention Bureau and the Maternity and Child Bureau. At the provincial and county level, there are also the same kinds of agencies which are responsible for public health in the provincial or local areas.

The functions of government health agencies are similar. The Ministry of Public Health makes policies and decisions, while lower levels of the health agencies implement the policy. For example, the nationwide "patriotic health and hygiene movement" was an important activity which has taken place twice a year (Shao, 1988). This policy was made by the Ministry of Public Health. The departments and bureaus of public health in the next two levels have to implement the policy so that they need to arrange relative activities to fulfill the campaign in the provincial and local areas. Another example is immunization. The central government formulated a series of strategies to reduce the incidence of infectious diseases. One of them is that the child immunization rate should reach 85% in each town by 1995 (Li, 1992). This objective is being implemented and supported by the health agencies in provincial and county levels.

**Anti-epidemic stations.** Anti-epidemic stations are specialized institutions. Their major function is to control infectious disease. These stations are operated by both provincial and county levels of health agencies. That is, each province, municipality, and autonomous region has an anti-epidemic station. Each county and city also has an anti-epidemic station which is supervised by higher levels of stations.

The anti-epidemic stations are supported and administered by the government health agencies at the same level. However, supervision is provided vertically from higher to lower levels.

At anti-epidemic stations, health workers engage in disease prevention and extensive research on infectious diseases. They also monitor the epidemic of infectious diseases and control the epidemiological information.

**Roles of hospitals and clinics.** Hospitals and clinics are the basic functional organizations where public health tasks are performed. Each hospital has a health department for the population in a certain area. The size of the public health department varies and depends on the level and size of the hospital. The departmental health workers provide child immunization, offer some maternal and infant care, control the information about infectious diseases, monitor environmental sanitation, inspect food and drinking water hygiene, and manage vital statistics for that area.

Clinics are operated much like hospital public health department, with a doctor or a group doctors and nurses assigned to do prevention tasks. Regarding prevention, general health education, regular physical examination and screening, immunization, control of infectious and chronic diseases, family planning, etc. are provided to employees. Technically, the clinics are supervised by the hospital's health department. The organization that a clinic belongs to, such as an enterprise or an institute, provides financial support. Public health services are free of charge for the employees because of the protection of free medical care mentioned in a previous discussion.

### **Vital Statistics**

**Data collection.** Vital statistics include births, deaths, mortality, and other health related indicators. In China, the primary responsibility for collecting these data lies with the provinces, municipalities, and autonomous regions. City and county health agencies also play important roles in collecting data and report them to provincial levels of health agencies. The Statistical Center of the Ministry of Public Health is in charge of national vital statistics. Every hospital, clinic, and other health organization has to report correct numbers of cases to health agencies. Therefore, the chain-shaped network of vital statistics functions in the health care system. Especially, since the start of the economic reform, vital statistics collection has been improved remarkably. Health related data

become available for the public and can be read in the national and international publications. Each year, statistical data related to the health care system are published in the Health Statistical Yearbook.

**Life expectancy.** This index is influenced by health care quality. Social and economic factors can also affect life expectancy. In 1988, life expectancy at birth reached 69 years which was close to the indicator of some developed countries (see Table 3 in page 17). Compared with selected developing countries, life expectancy was in the highest place (see Table 3 in page 17).

**Crude death rate.** Mortality data were reported by hospitals, clinics and neighborhood stations. In 1987, the crude death rate in China was 6.65 per 1,000 population (total death people per 1,000 population) (Ministry of Public Health, 1990). The reduction tendency of the crude death rate is obvious, as shown in Figure 14 by the data of the period from 1949 to 1990.

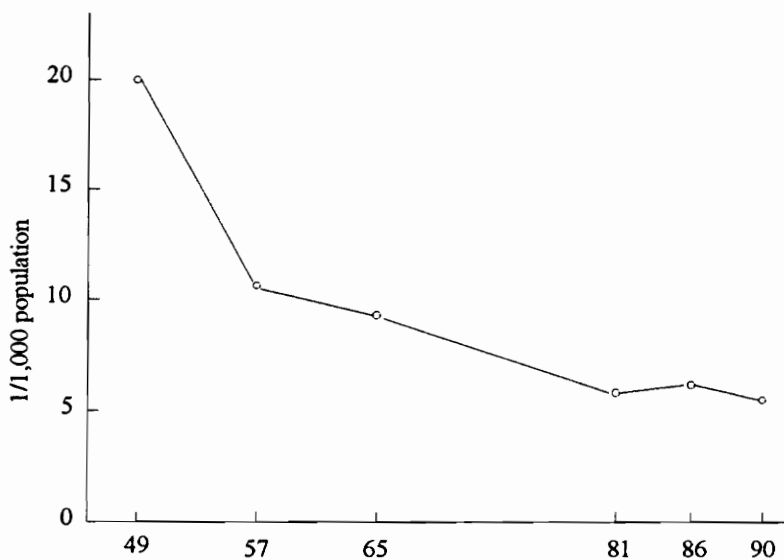


Figure 14: Crude Death Rate in Selected Years (1949-1990)

**Cause-specific mortality rate.** The first 10 leading causes of death were different between cities and counties. The 10 leading causes of death during 1991 in cities and counties are shown in Tables 14 and 15, respectively.

Table 14

**Cause-Specific Death Rate for the Top Ten Diseases in Cities (1991)**

Order	Cause of death	Cause-specific death rate (1/100,000)	Percentage of total number of deaths
1	Cancer	123.92	22.39
2	Cerebrovascular disease	116.48	21.05
3	Respiratory disease	84.18	15.21
4	Heart disease	82.36	14.88
5	Injury and intoxication	39.38	7.12
6	Gastrointestinal disease	22.52	4.07
7	Endocrine and metabolic disease	10.07	1.82
8	Kidney disease	8.71	1.57
9	Disease of newborn	866.31	1.35
10	Pulmonary tuberculosis	6.36	1.15
	Subtotal		90.61
	Other causes of death		9.39

Source: Statistical data from the Survey of Health Services in 40 cities in 1986, Chinese Health Yearbook by the Ministry of Public Health, 1992.

Table 15

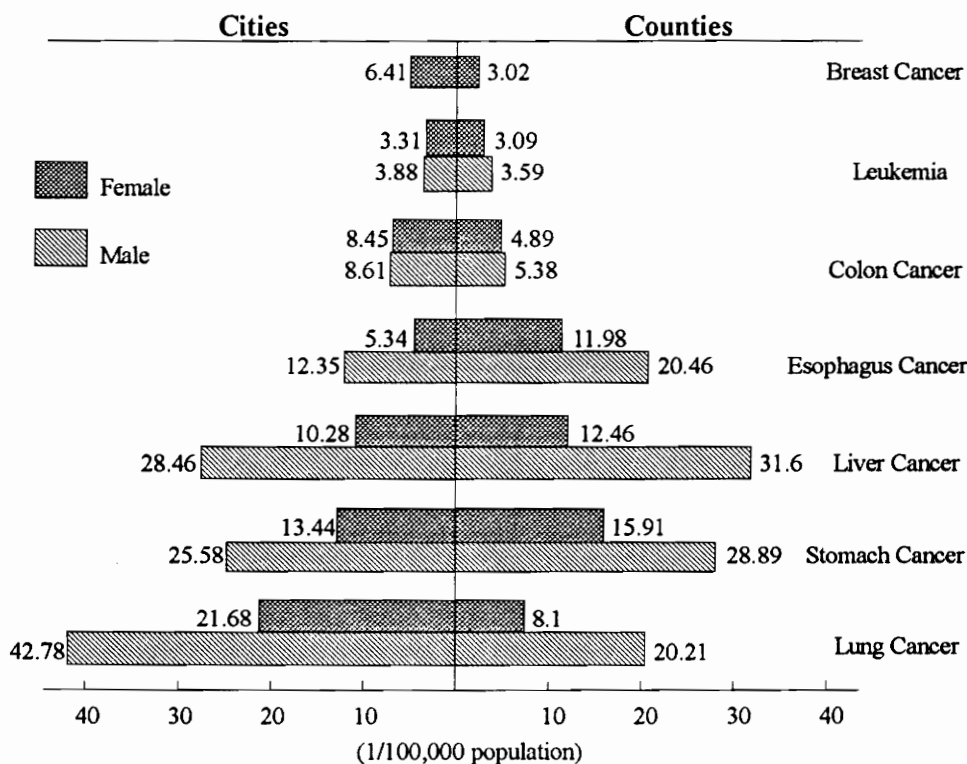
**Cause-Specific Death Rate for the Top Ten Diseases in Counties (1991)**

Order	Cause of death	Cause-specific death rate (1/100,000)	Percentage of total number of deaths
1	Respiratory disease	157.06	24.95
2	Cancer	101.39	16.11
3	Cerebrovascular disease	97.51	15.49
4	Injury and intoxication	75.81	12.04
5	Heart disease	67.45	10.71
6	Gastrointestinal disease	33.64	5.34
7	Pulmonary tuberculosis	14.19	2.25
8	Disease of newborn	917.14	2.10
9	Infectious disease (excluding TB)	11.23	1.78
10	Kidney disease	8.87	1.41
	Subtotal		92.18
	Other causes of death		7.82

Source: Statistical data from the Survey of Health Services in 88 counties in 1986, Chinese Health Yearbook by the Ministry of Public Health, 1992.

Data in Tables 14 and 15 clearly show that cancer is one of the major causes of death in both cities and counties. It is the leading cause of death in cities and in the second place for counties.

According to the survey of 40 cities and 80 counties, the death rate of cancer was 123.92 per 100 thousand population in cities (151.08 in males and 95.12 in females), and 101.39 per 100 thousand population in counties (125.79 in males and 75.85 in females). The cause-of-death rates of first seven leading cancers are shown in Figure 15.



Source: The data from Chinese Health Yearbook by the Ministry of Public Health, 1992.

Figure 15. Death Rate of Seven Leading Cancers in 1991

Lung, stomach, and liver cancers are the major causes of death in both cities and counties, as well as among either males and females (excluding lung cancer in county's females). Whether the behaviors of drinking and smoking have played important roles in causing the high incidence of cancers is not clear. However, the facts are that more than 70% of Chinese males are smokers and the majority of the population are drinkers. Therefore, further studies are needed for the purpose of health promotion.

**Infant mortality.** The infant mortality rate is defined as the number of deaths under the age of one year among children born alive, divided by the number of live births. This is a fairly sensitive indicator of the general health level in a population (Jonas, 1990). Infant mortality is influenced by a variety of factors, such as socioeconomic, environmental and health factors. In 1987, the infant mortality rate in China was 35 per 1,000 live birth (Ministry of Public Health, 1992). In fact, the infant mortality rate has been falling since 1949 in which the rate was 200 per 1,000 live births. Compared with developed and developing countries, infant mortality in China is positioned in the midst between some selected developed and developing countries. (See Table 3 in page 17.)

### **Pattern of Leading Causes of Death**

Social, economic, and health care changes usually influence the pattern of the leading causes of death.

**Infectious disease.** In the 1940s, the Japanese invasion and civil war disrupted the agricultural and industrial production and caused food shortages and turbulence in the society (Heller, 1973). Poverty and disease were "twin brothers". During that period of time, infectious and parasitic diseases were widely spread which greatly influenced the public health. Based on the survey conducted in 1950s, the epidemic of schistosomiasis appeared in 346 counties of 12 provinces. There were about 10 million patients and 40% of them lost the ability to work. In addition, a malaria epidemic occurred in 70% of the counties and cities (Qian, 1985). The prevalence of pulmonary tuberculosis (TB) was up to 3-9%, and the death rate of TB was 2.5% (Ministry of Public Health, 1990). After more than four decades, infectious disease has been reduced dramatically and types of infectious diseases have changed. In 1991, the first five infectious diseases with the highest incidence were: hepatitis (type A and B), bacillary dysentery, measles, typhoid, and malaria (Ministry of Public Health, 1992). In Figures 16, 17, and 18, the incidence, mortality and fatality rates of 24 infectious diseases (reported by legal requirement, see Appendix C) are shown for the time period from 1980 to 1991.

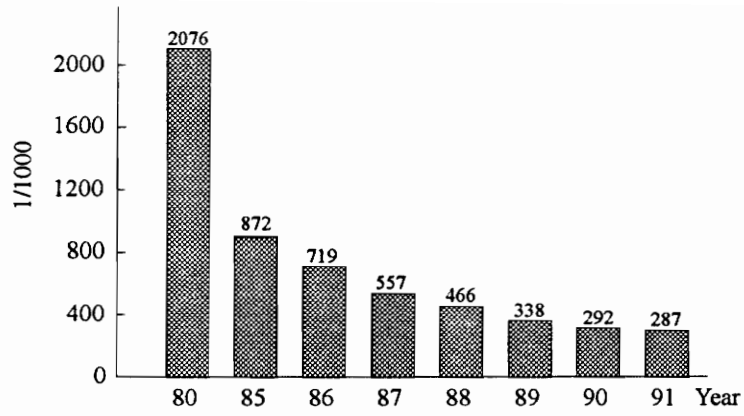


Figure 16. Incidence Rate of 24 Infectious Diseases

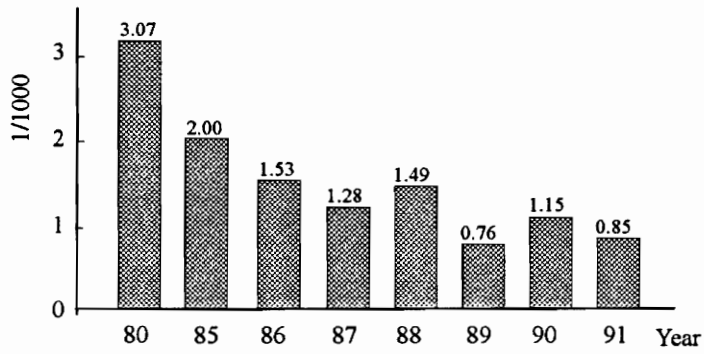


Figure 17. Cause-of-Death Rate of 24 Infectious Diseases

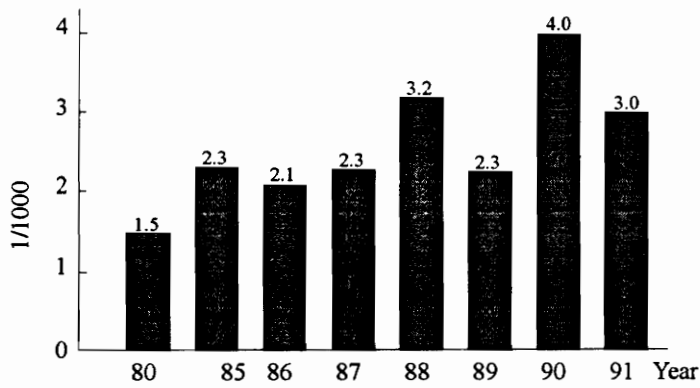


Figure 18. Fatality Rate of 24 Infectious Diseases

Source: Ministry of Public Health, 1992

With the nationwide planning immunization program which started in 1982, the incidence and mortality rate went down sharply during the period of 11 years. However, the fatality rate had a tendency to increase. It could be explained that the pathogenicity of these infectious diseases became stronger than before. On the other hand, some patients with acute infectious diseases may delay their physician visits because of economic reasons and a lack of medical services in some rural areas.

**Transition of disease pattern.** The change of the first four leading causes of death in the last 35 years is indicated in Table 16.

Table 16

Order of the First Four Leading Causes of Death in 1957 and 1991

Order	Year 1957 (country)	Year 1991 (city)	Year 1991 (county)
1	Respiratory disease	Cancer	Respiratory disease
2	Acute infectious disease	Stroke	Cancer
3	Pulmonary TB	Respiratory disease	Stroke
4	Gastroenteric disease	Heart disease	Injury and intoxication

Source: Ministry of Public Health, 1992.

In 1957, the first four leading causes of death in the entire country were, in order, (a) respiratory disease, (b) acute infectious disease, (c) pulmonary TB, and (d) gastroenteric disease (Ministry of Public Health, 1988). In 1991, the first four leading causes of death were changed as the following order: (a) cancer, (b) stroke, (c) respiratory disease, and (c) heart disease in cities, and (a) respiratory disease, (b) cancer, (c) stroke, and (d) injury and intoxication in counties (Ministry of Public Health, 1992). Respiratory disease still had the highest death rate in counties and in the third place of death rate in cities. Some infectious diseases also have higher incidence compared to the incidence in industrialized countries. This situation shows that "China is in the midst of an epidemiologic transition" (Albrecht & Tang, 1990). As a consequence of the transition,

the rapid growth of chronic diseases has become the leading cause of death. The pattern of chronic diseases raises new needs in the health care system, such as the need to increase health care quality, the need to improve a variety of diagnosis and treatment equipment, and the need to develop medical research and rehabilitation medicine.

**Venereal disease and AIDS.** In the transition period, infectious venereal diseases which had been eradicated in China for more than 30 years appeared again in the 1980s and were showing a tendency to increase. Among all the venereal diseases, gonorrhea accounted for 77.26% of such infections in 1991. The incidence of gonorrhea was 7.36 per 100,000 population. In addition, Acquired Immune Deficiency Syndrome (AIDS) appeared in China in the late of 1980s. By the end of 1991, a total of 667 HIV positive individuals were identified. Ninety-seven of the individuals testing positive were foreigners, the remainders were Chinese. There have been eight cases of AIDS, three of them were Chinese; the others were foreigners. Most of the HIV positive cases were drug users (Anderson, 1991; Sun, 1992).

In order to control the epidemic of AIDS and venereal diseases in China, the Chinese government involved not only a public health perspective, but also social control and legal restriction (Anderson, 1990). For example, the government has passed various regulations and laws to prevent the epidemic of AIDS.

### **Prevention Activities**

A commitment to prevention was one of the fundamental principles of health care declared in 1950. Since then, many preventive programs and activities have been carried out in China. Disease prevention involved several aspects of activities, such as a mass health movement, immunization, maternity and infant care, and environmental hygiene. Generally speaking, these activities were cost-effective in preventing diseases and improving the status of public health.

**Mass health movement.** The nationwide "patriotic health movement" was held twice a year (in spring and fall) (Shao, 1988). The movement was organized by the National Patriotic Health Committee of the Ministry of Public Health. Activities included:

(a) cleaning up all cities including public and private places both outside and inside buildings, (b) cleaning up train stations, airports, and harbors, and (c) sweeping away the "four pests"--mosquitoes, flies, rats and roaches. For the mass health movement, the government has established standard regulations to reward and punish some cities and organizations. For example, the committee selects a certain number of successful "clean city" or "clean airport" winners each year. The titles mean that these cities and public facilities were clean enough to reach national standards.

**Immunization.** Immunization was a major effective approach to the prevention of infectious disease. The effectiveness of immunization has been directly shown from the control of infectious and parasitic diseases and indirectly shown from the increase of life expectancy and reduction of infant mortality.

Since the 1950s, mass immunization programs were carried out for the children. Although the immunization rate among urban children was higher than the rural children, the overall immunization rate has been greatly increased. As a consequence, through the efforts in the last several decades, smallpox was eradicated; the incidence of TB, measles, poliomyelitis, whooping cough, and scarlet fever were reduced dramatically.

From 1982, the planning immunization program was implemented in the entire country for the children under 3 years old. This program was supported by UNICEF and WHO with respect to financing and technology for the purpose of reaching a universal goal of protecting children. In 1991, the Ministry of Public Health and the supporting organizations investigated the effect of the planning immunization among the population of 0-3 year olds. The result indicated a higher immunization rate compared to that in 1983 (Li, 1992). (See Table 17.)

Table 17

Immunization Rate in 1983 and 1990

Immunized diseases	Year 1983 (China) (%)	Year 1990 (China) (%)	Year 1990 (world) (%)
Tuberculosis	34	99.12	90
Poliomyelitis	79	97.80	85
Measles	78	97.70	80
DTP*	58	96.95	83

Note. DTP\*--Diphtheria, Tetanus and Pertussis.

Source: Li, 1992, Chinese Health Yearbook.

In addition, the immunization rate for the whole procedure of four kinds of vaccines was 94.93% nationwide in 1990, on average. In each county of the entire country, the rate reached 85% or above in 1990 (Li, 1992). It means that some places such as remote and mountain areas, the immunization rate was still about 10% lower than the national average.

In order to improve public health status, the government has put the child planning immunization in an important position. For example, the plan for the infectious disease control and prevention was put in the national economic planning (Li, 1992). The immunization rate in 1995 will reach at least 90% in each town of the whole country. Based on statistical data, after the planning immunization program was implemented in 1982, each year 3.23 million people were prevented from the six kinds of infectious diseases and 12,800 lives were saved between 1982 and 1990 compared to the years between 1973 to 1981 before the program was instituted (Yang, 1992).

However, some other infectious diseases still had a high incidence of occurrence. For example, virus hepatitis A and B had high morbidity rate. Ten percent of the whole population tested positive for hepatitis B virus. Therefore, the government has set the

goal to vaccinate newborn babies in the percentage of 85% and above nationwide by 1995 (Li, 1992).

Indeed, the immunization program has become an important part of public health, and has contributed to the improvement of public health quality, life expectancy, and reduced mortality rate.

**Maternity and infant health care.** A network of maternal and infant health care has been established in both rural and urban areas. In cities, each hospital or clinic has specialized professionals to take care of pregnant women, as well as new mothers and their babies. The same situation is true in rural areas. The doctors and other health workers in villages, towns and county hospitals have the responsibility for maternal and infant health care. In 1989, the maternal death rate was 94.7 per 100,000 population, city 49.9 and county 114.9 per 100,000 population. The rate of the United States and Japan was only 8 and 16 per 100,000 population in 1988 (UNICEF, 1990). (See Table 3 in page 17.)

Before 1949, the traditional delivery method used by untrained midwives was very popular in the rural areas, and was thought to cause some infectious diseases for the newborn babies such as tetanus. After the 1950s, the old method was forbidden by government regulation. By 1990, about 95.7% of the deliveries were operated by the modern methods. However, in some areas, especially remote areas, midwives still used the old methods to deliver babies. As a result, in 1991 tetanus was still one of the major causes of newborn deaths (Chen, 1992).

After the government policy of "one child for one couple" was established, maternal and infant care became more important ever than before. The demands of health care for children were increased.

In 1991, the Chinese government set goals for maternal and child health care for the next 10 years. By the year 2000, the two main goals are to reduce infant death rate to one-third of the current rate (35/1,000 in 1988), and reduce the maternity death rate to

one-half of current rate (95/100,000 in 1988). In addition, the government formulated some concrete policies and measures to reach the goals.

### **Health Education**

Health education as a science was recognized and developed in China in the 1980s. Before then, health education was commonly entitled "hygiene education." The development of health education can be divided into two major periods.

**1950s-late 1970s.** According to Jia (1988), during this period, health education was limited in hygiene education. The emphases in health education was on providing hygiene knowledge to the public in order to prevent infectious diseases and improve environmental sanitation. In the 1970s, family planning and occupational disease prevention were added to the content of health education. During this period, health education was provided mainly through the method of mass media, such as newspapers, magazines, posters, pictures, slides, movies, drama and so on. For example, in 1950, the prevalence of small pox was 13.6% in the public. The central government made a decision to vaccinate the whole population to prevent small pox. Mass media and communication were major methods to help the public overcome many barriers and participate in the immunization campaign. By 1952, 80% of the population was vaccinated. Small pox was largely controlled and finally eradicated in China.

The government administrative agencies of health education, the Hygiene Propagation Agency of the Ministry of Public Health, was established at the early 1950s, and was in charge of national health education. In some provinces, there were also health education offices to carry out the tasks of health education. However, during the period of the Cultural Revolution, these organizations were closed. The development of health education was stopped.

**After late 1970s.** After the Cultural Revolution, health education was restored and developed. After the 1980s, the major aims of health education were to prevent disease and promote health. At this time, the emphases of health education were the prevention of chronic disease, maternal and child care, health education for school children

and aging people, occupational disease education, environmental protection, and family planning. The form of health education was transformed from "propagation" to "education." In addition to mass media and communication measures, some other health education methods were aimed at different target populations.

The governmental administrative agencies of health education was restored. In addition, the National Health Education Institute was established in Beijing in 1986, which was as the center of health education research in China. During this period, some foreign experiences and theories of health education were introduced into China. After the mid-1980s, several medical colleges offered the major of health education to train health educators (Jia, 1988). In the past, the role of health educators were mostly done by physicians, nurses, and other health workers.

### **Goals and Strategies of Public Health**

"Health care for all by the year 2000" was the global goal formulated by WHO in 1978. The Chinese government has declared that the goal will be reached nationwide. "Health care for all" means that everybody has an equal right to have access to basic and affordable health care services. That is, health care should be a right in China, but not a privilege of a few people.

**Goals and objectives.** In 1987, the Ministry of Public Health gathered some experts and policy makers to begin the project of formulating the goals and strategies for health care in the next 13 years. This project was similar to the American "Healthy People 2000."

The goals were to further improve public health status and increase the life quality (Wang, 1992). Based on Wang, this project were divided into 15 sections and all together 311 objectives were established. These objectives include the following aspects: prevention policy and resources, prevention of infectious, parasitic, and non-infectious diseases, child immunization, control of environment, improvement of water supply, prevention of occupational diseases, nutrition, food sanitation, child and maternity health care, health for the aging, reduction of smoking, and school health education. Each

section has certain indicators which describe the existing situation, how to reduce the risk factors, how to provide preventive and curative services, and so on.

**Strategies.** To reach the goals, important strategies have been outlined by the government. The key strategies are (a) to continue implementing the policy of prevention first and (b) to strengthen the health care services for the rural population (Wang, 1992).

**1. Prevention first.** The prevention first policy has been implemented for 45 years and will be continued. The prevention of infectious, parasitic, endemic, and occupational diseases is the important emphasis stressed in the project of year 2000 health objectives. For example, by 2000, child immunization rate will reach 90% in each town; polio, filariasis, and leprosy will be eradicated; the morbidity of TB will be reduced to 350/100,000; the incidence of legal reported infectious diseases, such as the plague, cholera, and smallpox, will be reduced 30% based on the current rate (Li, 1992). In addition, the prevention of chronic and non-infectious diseases, health education, food service sanitation, as well as environmental protection and monitoring were also stressed by the Minister of Public Health in a meeting in 1992.

**2. Strengthening rural health care services.** According to the Minister of Public Health (1992), the strategy of strengthening rural health care services was closely related to the prevention strategy. The rural population in China constitutes 74% of the all population. Due to the lack of health care services in rural areas, many health indicators were poor compared to those in cities. For example, the infant mortality was 14.1% in cities and 21.8% in the countryside. The maternity death rate was 114.9/100,000 in rural areas and 49.9/100,000 among urban residents (Ministry of Public Health, 1990).

As a consequence, the government set the strategy for rural areas, which was develop a "primary level of health services." There are 13 tasks for the health care services. Prevention was the core of the health services. The others concentrated on strengthening the three-tier health care network, establishing a suitable health insurance system for rural populations, protecting the environment, and so forth. At the same time,

the central government required the provincial and local governments to allocate a certain amount of money for the implementation of the strategy (Chen, 1992).

In addition, the primary level of health care was also developed in cities. The focuses were put on the prevention of disease for target populations, such as maternity cases, children, and aging people, as well as public health education in schools and communities. The neighborhood stations, district hospitals and clinics were main settings to implement the tasks for reaching the purpose of "Health care for all by the year 2000" (Wang, 1992).

Six topics related to public health issue were discussed in this section. First, the roles of administrative organizations of public health were described. The role of organizations was to provide the basis to establish and fulfill the government's policies and regulations. Second, the indicators of public health status were presented through some vital statistics. Based on the presentation of these health indices, an overall public health status and its change and improvement was provided. Third, the change of the pattern of leading causes of death was shown. Due to the fact of social and economic development, infectious diseases have been controlled and gradually replaced by chronic diseases as the leading cause of death. Fourth, the improvement of the Chinese public health status largely depended on a variety of prevention activities and programs, such as immunization, health campaign and movement, as well as maternal and child care. These activities and programs played important role in improving the status of public health. An important feature of public health was the participation of the mass public in these preventive activities. Fifth, the development of health education was introduced. Last, the goals of public health in near future were discussed. For reaching the global goal of "Health care for all by the year 2000," the Chinese government has formulated its own goals and objectives. The two main goals are: (a) to improve public health status, and (b) to increase the life quality (Wang, 1992).

In brief, the efforts of the government contributed largely the improvement of the public health status. A variety of preventive programs organized by the government were

effective approaches to improve the health status, including child planning immunization, mass health movement, and maternal and child health care. In addition to these preventive activities, the Chinese government also established public health strategies for the purpose of attaining the universal goal.

## **CHAPTER V**

### **DISCUSSION AND CONCLUSION**

As a result of examining and dissecting the health care system in the earlier chapters, perceptual and rational knowledge was derived and applied to answer the questions raised in Chapter I. The three questions posed in Chapter I were (a) How does the health care system work?, (b) What are the effects of health care on the public?, and (c) How does the health care system provide effective health care for the largest population using limited money?. In the discussion section of this chapter, first, a summarized model of the Chinese health system is presented to address the first question. Then, the strengths and weaknesses of the health care system as well as the improvement of public health are discussed to explain the second question. After that, some issues are analyzed to give a solution for the third question. At the end of the discussion section, the changing tendencies of the health care system are discussed. Finally, in the conclusion section, the findings in this thesis are summarized.

#### **Discussion**

##### **Model of the Chinese Health Care System**

According to Weirnerman (1971), the health care system is as "all of the activities of society which are designed to protect or restore health, whether directed to the individual, the community, or the environment." As discussed in the previous chapters, the Chinese health care system is operating within a specific external environment with certain internal components. The system can be described in a visual model, or a framework. (See Figure 19.)

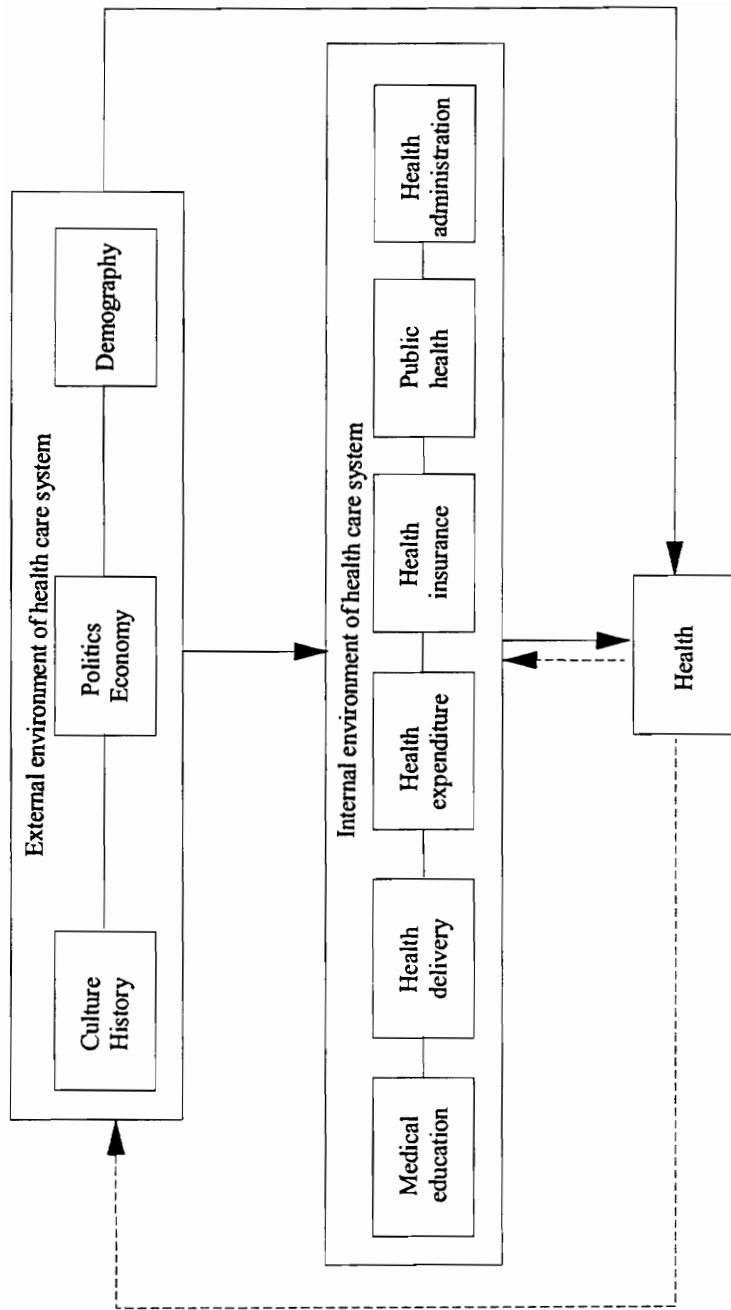


Figure 19. Model of Health Care System in China

In Figure 19, how the Chinese health care system works is illustrated within a framework. "Health," as a goal, embraces the well-being of citizens, physiologically, psychologically, and socially. Well-being is influenced by the inputs, external environment and internal environment of the health care system. The external environment involves culture and history, politics and the economy, as well as the demographic situation. The internal environment involves those health aspects which are operated for the purposes of health. Six health related issues are selected as internal environment. The factors of external environment are fundamental inputs which affect not only "well-being," but also the health-related components in the health system. On the other hand, the "well-being" also has the feedback effect to the internal and external environments in the health system.

### **Evaluation of the Health Care System**

In evaluating a health care system, it is necessary to look at the health care inputs and then measure the health system outputs, or health status indicators (Rodwin, 1989). In this part, the strengths and weaknesses of the health system are examined and evaluated. Then the outputs or some health-related indicators are provided. At the same time, the results of interviews are also presented.

#### **Strengths of the health care system.**

1. Implementation of prevention policy. Disease prevention is an important action to improve public health status in China. As early as 1950, the government formulated the "prevention first" policy which is still stressed in the 1990s. In the last four decades, the major programs and activities were hygiene and health movement and immunization campaigns which played important roles in reducing the morbidity and mortality from acute infectious and parasitic diseases as well as increasing life expectancy. Since the immunization programs supported by WHO and UNICEF were widely fulfilled in both rural and urban areas in 1982, there has been a remarkable reduction in infectious diseases as shown in Figure 16. It can be predicted that the incidence of infectious disease will be further controlled in the near future based on the improvement of the child immunization rate.

Rather than allocating more funds on the prevention programs, the government largely relied on mass public participation. Because of a lack of health resource, the public participation as an alternative approach achieved great success and also was cost-effective. For example, the annual "patriotic health movement" requires citizens to clean their environment and living places.

In the interviews conducted for this thesis, all ten people agreed that the policy of disease prevention has directly resulted in the improvement of Chinese health status.

2. Centralized health administration. Centralization is another main feature of the Chinese health care system. The government health administrative organizations are chain-shaped from the Ministry of Public Health--the highest level, to the county and city Public Health Bureaus--the lowest level. The implementation of health policies is effectively passed through the "chain" to the mass public.

The Chinese health care system is one of the sections in the national economic development plan. Unlike the United States' health system which is operated on the basis of market economy, planned economy is a major form in the present economic life. Under the planned economy, some health-related policies and activities are easily delivered to the mass public, such as the hygiene movement and immunization campaigns. On the other hand, the centralized health administration may limit the competition among health care services and slow the development of the health system.

3. Three-tier health care network. Accessing health care services is a very important issue which is of concern to both developing and developed countries. The Chinese government has made some efforts to improve access. The model of a three-tier health care network in rural and urban areas has succeeded in improving the accessibility to primary health care and raising the public health status. Although it is far from perfect in providing quality medical services in most rural areas (a lack of trained manpower and financial resources), it is a suitable model for the current rural situation.

All of the people interviewed for this thesis were employed by the Chinese government and other institutions and protected by "free medical care" programs.

Therefore, most of them thought that they had better access to medical services and could gain quality health services in China more easily than in the United States. They admitted that the medical equipment, technology and quality of medical services are advanced in the United States. However, some barriers prevent them from using the American medical services, such as high medical costs.

4. Two types of medicine. Although there are only about 150 years of history since Western medicine entered China, Western medicine has developed more rapidly than traditional medicine during the period. More and more people preferred Western medicine. Among the ten interviewed Chinese, all of them would choose Western medicine when they have common diseases. This choice is a popular opinion in today's China and is a natural result of social and modern medical science development. In fact, the two kinds of medicine have their different merits and shortcomings.

All of the people interviewed agreed that Western medicine is more effective than traditional medicine to treat acute disease. On the other hand, traditional medicine is more effective for health rehabilitation compared to the Western medicine. Therefore, the combination of the two medicines may be an optimum approach, in the opinion of the interviewees.

#### **Weaknesses of the health care system.**

1. Health manpower. Currently, not all the doctors have received higher medical education. The village doctors have only short-term training. Some doctors were educated in the intermediate medical schools. Most of these doctors are working in the basis of the three-tier health care delivery network and provide primary health care. Therefore, the quality of health care services is relatively low. The government has made certain policies to train and certify the village doctors and to assign graduates of medical colleges and schools to work in the county and township hospitals. However, due to economic reasons, it is a slow process to raise the quality of health care.

One person in the 10 interviewed people, who used to work in a township hospital, said that there were only a few formally trained doctors in her hospital. She thought that

the quality of medical care services in the village and township health facilities was poor. However, the primary medical services provided by these organizations could be easily accessed because of short travel distance and low prices.

2. Access to health care. The important link in a health care delivery system is that which exists between patients and health providers (Gesler, 1984). However, one weakness of the Chinese health care system is the accessibility of quality health care. There are two common factors preventing people from accessing health care: economic and geographic factors. For the urban population, the two factors are not barriers. They have the protection of "free medical care" and can easily access different levels of health facilities which are equipped with high quality equipment and technology. However, the majority of the rural population does not have health insurance. They have very low income and much longer travel distances from county hospitals which have more advanced medical diagnosis and treatment technology than village health stations and township hospitals. These barriers make it very hard for most farmers to get effective, available and affordable medical services. Therefore, this situation may cause the health indicators in rural areas to be worse than those in urban areas.

A three-tier health care network can greatly improve the accessibility to health care for the rural population. Three-fourths of the rural population can access the village health stations within five kilometers (see Figure 8 in page 49). However, three negative factors directly affected the implementation of the three-tier health network policy: lack of health insurance, lack of trained professionals, and lack of advanced equipment in the basis of rural health network,

3. Inequalities of health service and health status between urban and rural areas. In China, the inequality of health care is a serious problem. To show the inequality, some health indicators from the previous chapters are summarized and illustrated in Table 18.

Table 18

Inequality of Health Care between Rural and Urban Areas

	Rural areas	Urban areas
Population	74%	26%
Physician-to-patient	0.62/1000	2.38/1000
Hospital beds	1.55/1000	4.21/1000
Infant death rate *	25.1/1000	14.0/1000
Maternal death rate	114.9/100,000	49.9/100,000
Leading causes of death	1. Respiratory disease 2. Cancer 3. Stroke 4. Injury 5. Heart disease	1. Cancer 2. Stroke 3. Heart disease 4. Respiratory disease 5. Injury
Types of health insurance	Private payment (>80%)	Free medical care (>80%)
Health spending per person per year	15 yuan (\$3)	25 yuan (\$5)
Per 100 handicapped children #	Village (81.65%)	City (4.9%) Town (13.45%)

Source: \*--Data from the Survey of Infant Mortality in 41 Cities and 86 Counties, 1989; #--Data from the Survey of Handicapped People, 1987; Other data drawn from previous tables and figures.

As shown in Table 18, compared with the urban population, the rural population is the majority in China and has lower physician-to-patient ratio and less hospital beds per capita. Most of farmers have no health insurance and pay for their medical services on an out-of-pocket basis. Although most urban residents have "free medical care," they still spent more on health care per person than the rural residents did in 1990 (25 vs. 15 yuan

or US\$5 vs. \$3). Rural residents had higher infant mortality rate and maternal death rate than city people. Based on a national survey in 1987, there were 8.17 million handicapped children, or 2.66% of all the children at the age of 0-14 years. A percentage of 81.65 of the handicapped children lived in villages. There was also a high incidence rate of infectious diseases. Respiratory disease was the leading cause of death in the countryside.

**Improvement of public health status.**

1. Health indicators. In the last four decades, public health status, as the output of the Chinese health system, had improved. Some indicators shown in Table 19 identify the changes of health indices.

Table 19

**Health Indicators in 1949 and 1991**

	Year 1949	Year 1991
Population	541,670,000	1,158,230,000
Crude death rate (per 1,000)	20	6.7
Infant mortality (per 1,000)	200	35
Life expectancy at birth (age)	39	69

Source: Data from Chinese Family Planning Yearbook, 1992; Yan & Chen, 1991; and UNICEF, 1990.

The social and economic conditions are input factors of the health system. The comparison of some economic and health indicators in several developed and developing countries is displayed in Table 20.

Table 20

Health Expenditures and Two Health Indicators in China and Other Countries

	Health expenditures as % of GNP (1990)	Life expectancy at birth (age) (1988)	Infant mortality (per 1000) (1988)
<b><u>Developing countries</u></b>			
China	3.3 (1988)	69	35
India	1.9	56	90
Bangladesh	NA	50	124
Indonesia	NA	55	97
Brazil	NA	68	62
Egypt	NA	62	83
<b><u>Developed countries</u></b>			
Germany	9.1	79	7.6
Canada	9.2	79	7.2
Britain	6.2	78	9.0
United States	12.1	79	10.0
Japan	6.5	81	4.8

Sources: Data from the World Bank and UNICEF.

As shown in the Table 20, Chinese health indicators were in the best position among the developing countries. However, the difference of health indices between China and industrialized nations was still very large. Based on the change in the past, there is a large potential that the Chinese public health indicators will be further improved. The input factors of the health care system will play important roles in influencing "well-being" of the society. The reason is, without a stable economic environment and strong economy, there will be no physical, psychological, and social "health." Moreover, a lack

of high quality medical services and accessibility to health care would slow the improvement of public health status.

With regard to health resources, there has been an increase in health care facilities, medical schools, hospital beds and doctors per thousand population over the past four decades. (See Table 21.)

Table 21

Comparison of Some Health Resources in 1949 and 1991

Health resources	Year 1949	Year 1991
Hospitals	2,600	63,101
Medical colleges	22	122
Physician-to-patient ratio (per 1,000)	0.67	1.15
Nurses-to-patient ratio (per 1,000)	0.06	0.89
Hospital beds (per 1,000)	0.15	2.35

2. Transition of disease pattern. The pattern of leading causes of death has been changed from infectious diseases to chronic diseases. In 1991, the mortality rate of cancer, stroke and heart disease accounted for 60% in cities and 43% in countryside among all deaths. The increase of chronic diseases raised a significant challenge for the health care services to improve rehabilitation and emergency medicine.

However, infectious disease still had considerable incidence in the rural areas. The infectious diseases with the leading incidence were bacillary dysentery, viral hepatitis, measles, and malaria. These infectious diseases imply that there are some problems with the sanitation conditions, such as pollution of water sources and environment, and polluted food services.

**Financial Limitation and Multiple Efforts**

A common saying is "One gets what one pays for." Although there was a limit to money available for health care, the Chinese people and government have made great efforts to improve public health status. Efforts were multiple, such as the implementation

of the prevention policy, establishment of the three-tier health care network, mass public participation, and centralized health administration.

**Financial structure and limitation.** The prevailing image of the Chinese health system is a public financed and public organized system. In fact, among the medical expenditures, government shared 42%, industrial organizations 27%, and individual 31%. All together, the public shared about 69% (42% plus 27%) because industrial organizations are owned by the government. The total national health care expenditure was 3.3% of the GNP in 1988, which was 31 yuan (US\$8.3) per capita (Liu & Wang, 1991). Although the increase of health expenditures in the last 10 years was dramatic, it still could not fit the demands of health care. Specifically, one-third of the health care expenditure came from private payment. Most money from the private payment was paid by farmers.

The financing limitation was determined by the national economic condition. The limitation caused a lack of health resource and reduced quality health care. As a result, this situation greatly influenced the development of the health care system.

**Efforts from other aspects.** With the financial limitation on health care, how have the public health indicators still been improved greatly in the last four decades? As discussed earlier, other aspects besides economic support may have played important roles in promoting the development of the health care system and the improvement of public health status. These efforts are as follows.

1. **The implementation of the policy of "prevention first."** Rather than depending on financial support, the government put more attention on disease prevention through a variety of activities and programs.

2. **The establishment of a three-tier health care network.** This network made health care affordable and available. Although there is a lack of quality of health care at the base of rural health network, this three-tier health network is suitable to the Chinese economic situation.

3. The involvement of the mass public in public health. The public participation in a variety of health movements and campaigns was a major way to prevent diseases and save money.

4. Centralized health administration. Centralization is a main feature of the Chinese health care system. The government health administrative organizations are chain-shaped from the Ministry of Public Health to the county and city Public Health Bureaus. The implementation of health policies is effectively passed through the "chain" to the mass public. Under the centralized health administration, the health-related policies and activities are easily delivered to the mass public, such as the hygiene movement and immunization campaigns. On the other hand, the administrative system may limit the competition among health care services and slow the development of the health system.

5. Investment and help from foreign countries. Adopting the "open door" foreign policy in the early 1980s, the Chinese government accepted some foreign investment and voluntary financial support. This aid helped to provide some health programs, build health care facilities, update drug supplies, and modernize equipment. For example, UNICEF has provided US\$23 million for the child immunization program.

### **Changing Tendency in the Health Care System**

Rapid change characterized the Chinese health care system in the past decades. It can be expected that the change will continue and will be accelerated by two main forces: economic reform and the change of population structure.

**Economic reform.** Economic reform started in the early 1980's. The health care system, as a sector of the national economy, was also reformed, such as the reform of health insurance programs. Following the reform, privatization was tried as an experiment in China within the socialist health system.

1. Private practice. Private clinics and hospitals emerged in the mid-1980s. By 1989, there were 164,000 private health workers, who were 3.4% of all the health workers in China. Those private health organizations must accept certain administrative direction from local government. Most of the private health workers are retired

professionals from public health institutions. The others were individuals who quit from public institutions because they could earn more in the private health sector. Although private medical practice was limited by some social, economic and political factors, the appearance of privatization increased the competition in the health care system.

2. Health insurance programs. As mentioned in Chapter IV, the social and cooperative health insurance programs were two models of health insurance reform which were attempted in some areas. The reform of health insurance is an urgent issue of concern to everyone. In the city, reform involved changing from totally free medical services to co-pay plans in order to contain the health expenditure. In rural areas, health insurance was planned to provide the health care protection for farmers and increase the people's access to health care services.

3. Problems brought from economic reform. Economic development is desirable and brings about a reduction in the poverty level. At the same time, economic development also brings about environmental pollution and an increase in urbanization. These latter two factors will change the life style and behavior of some people. For example, the incidence and mortality of chronic diseases such as cancer, stroke, and heart diseases will increase due to the increased industrial pollution and socially competitive stress. Therefore, public health and health care delivery are facing challenge by the problems.

Population structure change for the future. Due to the factor of the improvement of health status and restriction of births, the population structure has and will be changed. The trend is toward an increase in the older population and a reduction in children. The working age population will have slight changes. (See Table 22.)

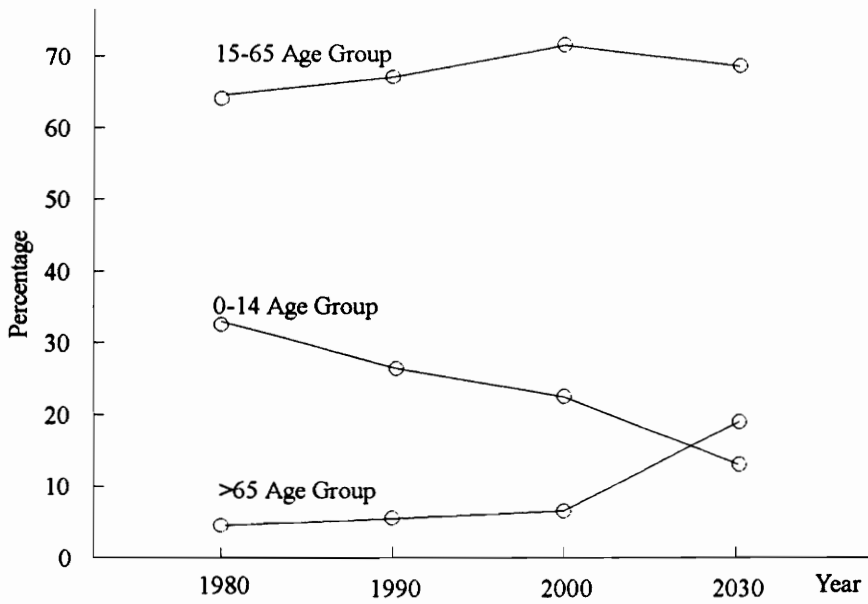
Table 22

Population Age Structure in Selected Years

Age group in years	Percentage in 1980	Percentage in 1990	Percentage in 2000	Percentage in 2030
0-14	32.26	26.50	21.91	12.11
15-65	63.66	67.70	70.89	68.46
>65	4.08	5.80	7.20	19.43

Source: World Bank, 1983 (Data of 1980, 2000, and 2030).

Based on the estimate of the World Bank (1983), by the years of 2000 and 2030, the number of aging population (above 65) will account for 7.20% and 19.43% in the whole population. The percentage of children will drop to 22.91% and 12.11%, compared to 26.5% in 1990. The changing trend of population structure is also shown in Figure 20. Since the demography is dynamic, the health care system is facing a new challenge. The growth of aging people will increase the demands of health care, such as long-term care, rehabilitation care and emergency medical care. Quality health care will be greatly needed.



Source: The World Bank, 1983 (Data of 1980, 2000, & 2030); World Health Statistics Annual, 1990 (Data of 1990).

Figure 20. Population Age Structure In Selected Years

## **Conclusion**

The Chinese health care system has been examined in this thesis. Generally speaking, this system consists of three major components: external environment, internal environment, and well-being of physiology, psychology and sociology. (In this thesis, the well-being of physiology was focused on). Furthermore, this model clarifies how the Chinese health care system has been changed and developed, as well as how the public health status has been improved in the last four decades.

### **External Environment**

The factors of external environment in the health care system include the factors of history, culture, politics, economy and demography, which were discussed in Chapter II. These factors determined the "uniqueness" of the Chinese health care system. Political and economic factors strongly influenced and shaped the health care system. Historically, the traditional Chinese medicine, as part of the cultural heritage, co-exists with the modern Western medicine. More than 1.1 billion people reside in China. This huge number of people produced a large demand for health care.

### **Internal Environment**

The contents of the internal environment in the health care system are discussed in Chapter IV. Six aspects of contents were drawn to display how the health care system was running in China. First, the structure and function of health administration was described, which characterized the centralized health administrative form in a socialist country. Second, the education and training of health manpower was discussed. Third, the health delivery was emphasized with respect to how health care was provided and how people accessed medical services. Fourth, the specific health insurance system was analyzed based on its past, present and near future. Fifth, the topic of financing of health care was discussed. Last, focusing on the issue of public health, the preventive activities, the transformation of disease pattern, and the administration of public health were presented. The selected six aspects of contents were used to indicate what internal

environment is in the model of the health care system. Through the discussion and analyses of Chapter V, the reader can gain the insight to the following facts: how the health delivery system was shaped, what quality of health care was provided, and how people access the health care system.

### **Health As the Goal**

The goal of health care is the health of the citizens, physiologically, psychologically, and sociologically. In this thesis, the focus was on physical health. The evaluation of health indicators was presented, in which some dynamic comparison with the statistical data in earlier years and with some data of developing and developed countries were also shown to further explain the change, development and improvement of the Chinese health care system.

### **Future Research**

**Collection of data.** Collecting statistical data on health care is vital to improve the system. In the past ten years, official data collection and publication has become available. However, the data collection system is still far from completion and preciseness to meet the development of modern medicine and science. Further research in this direction is definitely needed.

**Privatization of health system.** Some private health institutions have been operated in China since the 1980s. Whether these private health organizations can stimulate the development of the whole health care system and promote the improvement of health care quality are not clear and need further research.

**Health promotion.** The chronic diseases have become the major pattern of leading causes of death. Extensive medical research has been conducted for the purpose of improving public health. However, how to use the theories and methods of health education to promote public health is a considerable question. Further research regarding how to use health education to change people's behavior and attitudes are needed for the purpose of prevention.

Health is the ideal all people strive for. Health care is a right everybody should enjoy. A health care system is the reality which is determined by multiple factors and differs from country to country. The global goal of "Health care for all by the year 2000" should certainly be attainable in China in the years ahead.

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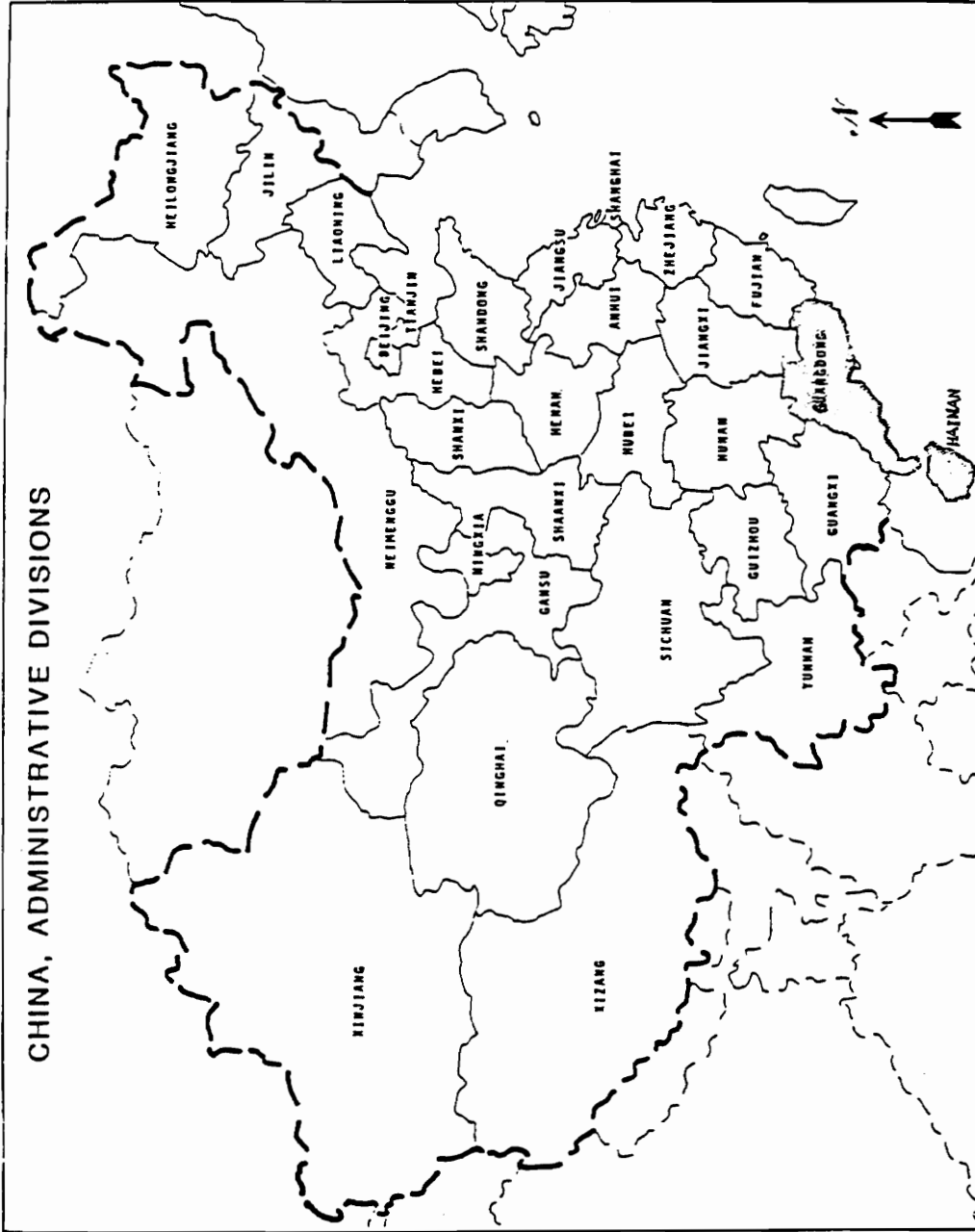
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APPENDIX A



CHINA, ADMINISTRATIVE DIVISIONS

Map of the People's Republic of China

**APPENDIX B**

**Currency Exchange Rate (Chinese Yuan Per American Dollar)**

Year	Chinese yuan per dollar
1982	*1.8-**1.9
1983	1.9-2.0
1984	2.0-2.8
1985	2.8-3.2
1986	3.2-3.7
1987	3.7-3.7
1988	3.7-3.7
1989	3.7-4.7
1990	4.7-5.2
1991	5.2-5.4
1992	5.4-5.8
1993	5.8-5.8
1994	8.7

Note. \*--Rate in January; \*\*--Rate in December.

Source: Selected Interest and Exchange Rate, 1982-1994.

## **APPENDIX C**

### **Twenty-four Infectious Diseases Reported in the Requirement**

1. Acquired Immune Deficiency Syndrome (AIDS)
2. Anthrax
3. Bacillary dysentery
4. Brucellosis
5. Cholera
6. Dengue fever
7. Diphtheria
8. Epidemic encephalitis B
9. Epidemic encephal meningitis
10. Epidemic hemorrhagic fever
11. Gonorrhoea
12. Kala-azar
13. Leptospirosis
14. Malaria
15. Measles
16. Pertussis
17. Poliomyelitis
18. Rabies
19. Scarlet fever
20. Syphilis
21. The Plague
22. Typhoid and paratyphoid fever
23. Typhus
24. Viral hepatitis

## VITA

Yanzhen Zhang was born on May 28, 1956, in China. She received her undergraduate degree in Medicine from Guangyuan Medical College, Sichuan, China, in 1982. Since 1982, she had worked at the clinic of Electronic Power Company of Beijing, China. In 1990, she came to the United States joining her family. She started her master's program in community health education at Virginia Tech in the fall of 1992.

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