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HEALTH POLICY AND SYSTEMS RESEARCH IN CHINA

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In partnership:



China Health
Economics
Institute



World Health
Organization, China



Alliance-HPSR

UNICEF/UNDP/World Bank/WHO
Special Programme for Research and
Training in Tropical Diseases (TDR)



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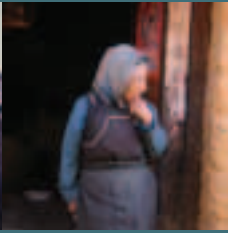
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Terms and abbreviations

AIDS	Acquired immunodeficiency syndrome
Alliance-HPSR	Alliance for Health Policy and Systems Research
CDC	Center for Disease Control, a public health institution with responsibility for disease prevention and control in China
CMS	Cooperative Medical System, a community financing scheme for health services in rural areas of China
COPD	Chronic obstructive pulmonary disease
CT	Computerized tomography
DFID	Department for International Development, UK
DOTS	Directly Observed Treatment Strategy for Tuberculosis
EPI	Expanded Programme of Immunization
EU	European Union
GDP	Gross domestic product
Gini coefficient	A measure of income inequality, is a number between 0 and 1, where 0 means perfect equality (everyone has the same income) and 1 means perfect inequality (one person has all the income, everyone else has nothing).
HIV	Human immunodeficiency virus
IDRC	International Development Research Centre, Ottawa, Canada
INCO	International Cooperation (EU)
MRI	Magnetic resonance imaging
NGOs	Nongovernmental organizations
PET	Positron emission tomography
R&D	Research and development
SARS	Severe acute respiratory syndrome
TB	Tuberculosis
TDR	UNICEF, UNDP, World Bank, WHO Special Programme for Training and Research in Tropical Diseases
UK	United Kingdom
UNICEF	The United Nations Children's Fund
UNDP	United Nations Development Programme
USA	United States of America
WHO	World Health Organization
WTO	World Trade Organization

Foreword

In 2003, the Chinese government proposed its strategy for achieving a Xiao Kang society, which is people centered and based on a comprehensive, coordinated, and sustainable development concept. A development plan based on five balances between urban and rural areas, regions, social and economic sectors, humans and nature, and domestic and global markets, is the main strategy of the new development concept. Health is an essential element of a Xiao Kang society – if the health of all people is not improved, it will not be a Xiao Kang society. Thus more attention must be paid to health due to its importance in social and economic development.

Over the past half century, China has, with very limited resources, made progress in improving the health status of its people, and this has been recognized throughout the world. China now provides widely accessible services to most of its 1.3 billion head of population. However, compared to the aims of a Xiao Kang society, still more needs to be done to improve the health system.

Health sector reform and improvement of the health system requires research to provide scientific evidence of the need to re-examine existing health policies and create more effective policies for the future. Over the past two decades, great progress has been made in health policy and systems research, and this has impacted positively on health reform and policies.

This document, prepared by the China Network for Health Economics, WHO, TDR, and the Alliance-HPSR, is a product of the Health Policy Forum held in May 2004 in Beijing, with the participation of high-level policy-makers from central and provincial levels as well as researchers. The document describes the social and economic context of the country, carefully considers the opportunities and challenges facing the government in public health, and systematically summarizes key research findings relevant to policy-making. More importantly, it identifies knowledge gaps and proposes a number of options for filling these gaps.

I believe that this document will be helpful for Chinese as well as international readers wishing to understand Chinese health policy-making and systems research, and for identifying areas of cooperation. I hope the document will be given the attention it deserves.

Renhua Cai
Professor and Executive Director
China Network for Health Economics
October 15, 2004

Executive summary

In the past three decades, along with rapid economic development in China, the overall living standards of the population have generally improved. However, disparities in social and economic development between urban and rural areas, between the eastern and western regions, and between the rich and the poor have increased. The health status of the population has improved, but the rate of improvement has reached a plateau. While non-communicable diseases have become the major disease burden, infectious diseases such as tuberculosis, hepatitis, and schistosomiasis are still the major health problems in poor rural areas. HIV/AIDS and other emerging diseases such as SARS have become new threats to public health. Wide disparities in health status exist, e.g. infant and maternal mortality are more than two times higher in rural than in urban areas and in the western compared to the eastern region.

The social and economic transitions experienced since the late 1970s have brought changes to the health sector including its partial marketization and privatization. Concerns have been raised by research related to financing, efficiency, regulation, equity, quality, and cost of health services. China faces a number of major challenges in the future, including: *increased globalization, population migration, and demographic and epidemiological transition. How these challenges are addressed will be critically important for the coming generations.*

Over the past decades, significant changes in Chinese society have affected the health sector in these ways:

- responsibilities have been rearranged between all five levels of government (national, provincial, prefecture, county (district), township) in the economic and social sectors;
- individual rather than collective arrangements now play a greater role in providing social services;
- market mechanisms and forces have been applied to a wide range of services and exchanges in the society;
- part of the public or collective sectors has been progressively privatized.

The 11th Five-Year Plan will address the main shortcomings through the policy of five balances: *between rural and urban areas, between regions, between economic and social sectors, between economic development and the*

natural environment, and between the domestic and international markets. The five balance policy provides both opportunities and challenges for health sector policy-makers and practitioners.

The context of policy-making has significantly changed over the past years with increasing awareness among senior officials of the importance of evidence-based policy-making. This is primarily a result of greater openness in the society to constructive dialogue and critique, i.e. to learning from success and failure, including among the political leadership. The outbreak of SARS played an important role in opening eyes to the need for critical review of the sector.

The key research evidence relevant to the 11th Five-Year Plan can be grouped under eight headings:

- **Globalization and macroeconomic trends.** The development of the labour market might have far reaching health consequences; the changes in lifestyle will result in increase of noncommunicable diseases.
- **Population and health status trends.** There is evidence for higher prevalence of communicable diseases and relatively worse child and maternal health in poor and migrant populations; new health challenges are facing China with its social and economic development.
- **Economic reform and health care financing.** The introduction of financing through user-fees has significantly impacted equity in the society, and there is low efficiency in the allocation of public resources for health.
- **Organization and delivery of public health programmes.** Several changes in policy have had adverse effects on the performance of public health programmes and possibly on disease patterns.
- **Ownership and governance.** There is no conclusive scientific evidence that the new ownership models have had the intended impact; on the contrary, both the public and privately owned health services operate along the same lines and lack willingness to engage in e.g. preventive services.
- **Cost containment and regulation.** There has been very limited success, if any, in containing costs in the health sector because providers find ways to compensate the losses posed by the control attempts.



- **Provider performance management.** Several cases suggest that staff bonus systems have had detrimental effects on public health.
- **National policies – local implementation strategies.** Health policy-making in China is very complex and there is evidence of considerable discrepancy between the actual national policies and what happens on the ground, including non-compliance with official disease control policies.

In the past decade, health policy and systems research in China has made significant contributions to knowledge and understanding of the complex transition of the society, and there are concrete examples of research which has been translated into policy. However, many policies are still formulated on the basis of weak or no evidence, and health policy implementation is not systematically evaluated. There is a long way to go before health policy and systems research reaches its full potential. Improved communication and dialogue between researchers and policy-makers will be critical to achieving this. Several health policy and systems research needs can be identi-

fied for the 11th Five-Year Plan and beyond, e.g. in relation to:

- transformation of the health financing system in the context of the economic transition, urbanization, and globalization of China
- re-orientation and development of the public health system in the next 10-20 years based on situation analyses and projections of future health problems
- the opening and regulation of the health care market
- the pricing system reform, the tax waiver policy to private investors in the health sector, and the enforcement of regulation in the health care market
- transformation of the health care delivery system in accordance with regional health planning to promote improved allocative efficiency in the sector.
- the massive population movement from rural to urban areas.

However, there are shortcomings in current policy and systems research in China. These include:

- lack of a health policy and systems research agenda agreed by policy-makers and the research community
- lack of a bridging mechanism between policy-makers and researchers
- lack of incentives for researchers to participate in practical policy and systems studies
- weak capacity
- customary lack of critical independence
- unfeasibility of policy recommendations
- lack of funding opportunities for health policy and systems research projects.

Possible options for closing the gaps in research capacity could include improving research–policy dialogue by the contracting of existing institutions through rigorous competitive processes rather than through the creation of new institutions.



1. Background

Over the past two decades, China has experienced dramatic changes in both its social and economic structures. The market-oriented economic reform successfully sustained an average growth rate of 8.3% in gross domestic product (GDP) between 1980 and 2000 [Hu and Hu, 2003], and the per capita GDP reached US\$ 1090 in 2003. While the overall population growth rate has slowed due to effective family planning policies since the mid 1970s, the urban population has increased significantly due to migration. Along with economic development, the overall living standards of the population have generally improved. Monthly disposable income of urban and rural residents increased from 478 and 191 Yuan in 1980 to 1049 and 337 Yuan in 2002, respectively, after adjustment for inflation [National Bureau of Statistics, 2003].

Disparities in social and economic development between urban and rural areas, between the eastern and western regions, and between the rich and the poor have grown. There are, at present, 30 million people in rural areas living in poverty according to official reports, most of whom live in the western regions [Gong, 2004]. Using the US\$ 1 per day standard, it is estimated that 12.5% of the rural population, i.e. about 162 million people, live in absolute poverty [World Bank, 2003]. How to decrease the disparities has become one of the prime concerns for the government.

The health status of China's population has greatly improved over the past five decades, especially between the early 1950s and the mid 1980s, starting from a low baseline and with an emphasis on provision of primary health care. Life expectancy reached 71.8 years in 2001. From 1990 to 2000, infant mortality decreased from 65 to 31 per thousand live births, and maternal mortality decreased by nearly 50 per cent [Yuan, 2004]. However, the rate of improvement in some health status indicators has reached a plateau. For example, the under-five mortality rate declined rapidly, from 202 to 51.1 per thousand between 1960 and 1985¹. Since then, the rate of decrease has slowed and the mortality rate of under-fives decreased from 51.1 to 35 per thousand in 1985-2002

[Ministry of Health, 2004a]. While noncommunicable diseases have become the major disease burden, infectious diseases are still prevalent and are the major health problems in poor rural areas. Tuberculosis, hepatitis, and schistosomiasis are the common public health problems, while HIV/AIDS and other emerging diseases such as SARS have become new threats to public health. In addition, the ageing population and the changes in lifestyle, including smoking and dietary habits, are resulting in changes in health service needs.

Wide disparities in health status exist, e.g. infant and maternal mortality are more than two times higher in rural than urban areas and in western compared to eastern regions.

China's health care system was developed in three tiers, i.e. village doctors and clinics, township health centres, and general hospitals in rural areas; and community health centres (stations), district hospitals, and tertiary hospitals in urban areas. In addition, there are specialized hospitals, disease control centres, and maternal and child health institutions. Significant improvement has been achieved in health care quality, access to health resources, and number of qualified health workers. However, the social and economic transition experienced since the late 1970s also brought changes to the health sector, including marketization and privatization of part it, and concerns have been raised that the system is no longer as effective as it used to be. The government might, therefore, need to rethink and adjust its strategies for health sector development. The main concerns raised by research are:

- **Financing.** Collection and allocation of resources for health care services are inequitable. In 2003, 79% of the rural population and 45% of the urban population was not covered by any health insurance [Ministry of Health, 2004b]. The uninsured are charged the same fees for a given health problem regardless of economic status. There is no price differential according to income in the premiums collected by rural health insurance schemes. Unemployed workers in urban

¹ www.yaolan.com/shiqi/Toddler/app/toddler_article.asp?article=1009,

areas face financial difficulties in paying for health care even though almost all of them are covered by the urban health insurance scheme. Very few people who migrate from rural to urban areas are covered by health insurance, as migrants are not included in the current urban social health insurance policies.

- **Efficiency.** The majority of health resources are allocated to urban services and tertiary hospitals. Public funding is not sufficient to ensure provision of basic primary health care in rural areas. Drugs and high technologies consume a large proportion of health resources, while unnecessary provision of services and irrational prescription of drugs result in wastage of resources.
- **Regulation.** The health regulations lack coordination between line sectors, e.g. the departments of health, public security, drug administration, and finance. Enforcement is not well undertaken due to insufficient financial resources and shortage of capable regulators, especially in rural areas.
- **Equity.** Inequities in health status and access to health care between geographical areas and social groups are growing [Gao et al., 2002; Zhan et al., 2004]. Disparities of health status are evident between regions and population groups.
- **Quality.** The quality of health care has improved, especially in cities and large hospitals. However, in rural areas, quality lags behind, as measured in terms of qualification of health workers and services provided.
- **Cost.** During the past two decades, medical costs have escalated by far in excess of income and inflation. Utilization of high technologies and expensive drugs, and the low occupancy rate of hospital beds are some of the critical factors contributing to this cost escalation.

China faces a number of major challenges. How these challenges are addressed will be critical for future generations. They include:

- **Increased globalization.** China is moving towards the centre of the world with all that this entails in terms of ideological and economic change, as well as of impact of global production and trade processes on epidemi-



ology of disease, lifestyle and health of the Chinese people.

- **Population migration.** Population movement from rural-agrarian to urban-industry/service environments has increased rapidly and may even increase faster in the coming years, constituting an unprecedented population move. How to address health care provision under such conditions will be a massive challenge.
- **Demographic and epidemiological transition.** The success of the 'one child' policy, combined with better health and living conditions, will compress the demographic transition and lead to a population with a high proportion of elderly people in China within one generation, as compared to two or three generations in Europe. While population ageing appeared in developed countries when per capita GDP reached US\$ 10 000, in China, ageing of the population began when per capita GDP was less than US\$ 1000 [Gong, 2004]. This poses significant challenges as the health system has to deal with the high prevalence of both communicable and noncommunicable diseases using limited resources.

2. Policy context and challenges

2.1 The five balances

The economic transition that began in the late 1970s has led to profound changes in the social and production sectors of the country. These changes have directly or indirectly influenced health sector development, including policy formulation and implementation. At the macro level, these changes include:

- *Reduced role of all five levels of government (national, provincial, prefecture, county [district], township) in economic and social sectors.* In the health sector, this change implied reduced public financing of public hospitals and increased funding by user fees.
- *Increased reliance on individual rather than collective arrangements for social services.* In the health sector this has affected preventive as well as curative health care. Further, disestablishment of the collective economy in rural areas led to a collapse of the rural Cooperative Medical System.
- *Application of market mechanisms and forces to a wide range of services and exchanges in the society.* This has led, in the health sector, to focusing on revenue generation by both institutions and professionals, at times at the expense of public health interests.
- *Privatization of part of the public or collective sectors.* In the health sector this has included converting village level clinics from collective to private ownership, and, in some areas, converting township/county and referral hospitals from government to private ownership. This has led to fragmentation and relegation of public health services.

China has made significant progress in improving the general standard of living as a result of economic growth over the past 25 years. However, economic growth is not a panacea to all problems in society. On the contrary, this growth has created problems of its own, including: increasing the gaps in development between regions, resources and environmental problems, and increasing social conflict. All of this requires new thinking and new strategies. With this background, the government of China has embarked on a new paradigm for development, putting the people first, and aiming for coordinated and sustainable development. The goal is a balance between economic and social development as reflected

in the Five Balances Policy statement, which will guide the formulation and implementation of the 11th Five-Year Plan.

Balance 1: *Between rural and urban areas.* While it is recognized that the gaps cannot be filled in the short term, more efforts are proposed, including adopting fiscal and taxing policies to increase transfer payments and reduce tax burdens for the rural areas. Other measures, such as adjusting the rural labour structure and urbanizing the rural people, are also considered.

Balance 2: *Between regions.* Strategies to reduce the gap will include the National Strategy in Developing the Western Areas, and China's Guideline to Reduce Poverty in Rural Areas. The fiscal transfer payment system will be further developed and investment encouraged to gradually reduce the gap in social and economic development between the eastern and western parts of the country.

Balance 3: *Between economic and social sectors.* Measures proposed include: expanding the social insurance system to protect vulnerable groups, increasing the inputs in the public health care system, and adjusting the income distribution system towards greater equity.

Balance 4: *Between economic development and the natural environment.* This balance includes two points: saving natural resources for production, and protecting the environment. Regulation enforcement will be strengthened to control environmental pollution.

Balance 5: *Between domestic and international markets.* Growth of the economy through development of the domestic market will be given more attention.

Implementation of the Five Balances Policy will substantially impact all aspects of the social and economic sectors. The new development paradigm, as expressed through the Five Balances Policy, emphasizes improvement in quality of life rather than mere economic growth. This is directly related to development of the health sector. Social services units, including the health sector, are facing new opportunities and challenges to meet the requirements of the Five Balances development goal, especially in reducing the gaps between rural and urban areas and between regions.

2.2 Health policy-research dialogue

Adaptation of the health system to a market economy has involved a number of difficult policy decisions, while the changing economic and health profile has made many more policy options available. During the period of planned economy in China, policies and decisions were usually made without sufficient empirical evidence. This was mainly the result of three factors. First, policy-making was dominated by political processes and policy-makers were reluctant to use research evidence. Second, critique of official policy was not welcome. Third, the skills for conducting research and translating it into policy and action were lacking.

The context for policy-making has significantly changed over the past years with increasing awareness among senior officials of the importance of evidence-based policy-making. This is primarily a result of the greater openness in the society, including among the political leadership, to constructive dialogue and critique, including learning from successes and failures. The outbreak of SARS, further, has played an important role in opening the eyes of policy-makers to critical reviews of the sector. The ongoing health sector reforms have also called for more research evidence in proposal and project design and implementation. For example, evidence has been sought to improve the effectiveness of the regional health planning project, the urban health insurance reform, and the funding policy for public health services. Under this increased receptiveness by policy-makers, the challenge is how to organize research systems and devise mechanisms for translating evidence into policy and practice.

Interaction between research and policy has gradually increased since the mid-1980s. Departments of social medicine and health management have been established within medical universities, starting health policy and systems-related training and research on a larger scale. From the early 1990s, China's Network of Health Economics involving ten leading medical universities and institutions was set up with support from the World Bank and Ministry of Health. This programme has expanded health policy and systems research and



improved the capacity of academic institutions to conduct research. A number of international organizations including the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), TDR, the Alliance for Health Policy and Systems Research (Alliance-HPSR), the World Bank, the European Union (EU) under its International Cooperation (INCO) programme, and bilateral support programmes including the International Development Research Centre (IDRC) and the UK Department For International Development (DFID), have provided support for health policy and systems research through funding of research projects, policy seminars, workshops, publications, and formal and informal discussions between policy-makers and researchers.

3. Research evidence for the 11th five-year plan

This section summarizes the major health policy and systems research findings in China from the past decade, grouped into eight themes: *Globalization and macroeconomic trends, population and health status trends, economic reform and health care financing, organization and delivery of public health programmes, ownership and governance reform, cost-containment, provider performance management, and national policies – local implementation*. One aim is to provide a digest of evidence from research on the particular situation of China's health care system which should be considered by policy-makers, in order to better appreciate the opportunities and challenges of the new development paradigm. Another aim is to provide a basis for the identification of key gaps in knowledge as well as health policy research capacity in the country, and to propose strategies to fill such gaps in the coming five-year period and beyond.

3.1 Globalization and macroeconomic trends

China has sustained a high GDP growth and improved living conditions for most people. Between 1980 and 2000, GDP values doubled. According to the national development goal for the next two decades, in 2020 GDP will be double that of 2000; household incomes will increase at the same rate as in the past two decades [Gong, 2004].

The most serious concern in economic development is the disparity between regions and population groups. The Gini coefficient² of income was 0.22, 0.39 and 0.45 in 1980, 1995, and 2002, respectively [Yuan, 2004]. The income ratio of urban residents over rural residents increased from 2.7 in 1995 to 3.1 in 2002 [National Bureau of Statistics, 2003]. A study indicated that if non-cash incomes were included, the income gap ratio between urban and rural residents would be 6 [Gong, 2004]. Besides disparities of income between urban and rural areas, gaps in income between the western and eastern

regions and between the poor and rich within the same region also widened. This all indicates a rapid growth of inequality in the society. Poverty related diseases such as TB are more prevalent in poor compared to rich areas [World Bank, 2002]. The widened income gaps constitute barriers for the poor in access to health care [Gao et al., 2002].

Over the past two decades, China has experienced dramatic changes in both social and economic sectors. During the economic transition, the public sector share of the total economy almost halved, i.e. decreased from 60% in 1980 to 33.9% in 2003 [Fulin 2004], and the private economy increased accordingly.

China has increasingly found a central place in the world economy and production processes. Labour intensive manufacturing and service processes have increasingly been either moved to China from elsewhere in the world or have developed as business areas in China in response to world market demand.

These global production processes include a wide range of permutations of wholly owned Chinese companies involved in primary production, joint ventures between domestic and foreign companies, contract production, support and infrastructure, etc.. Common to all is the need to establish market prices for both inputs and outputs, and to operate in a highly competitive environment. This is contrary to the situation during the period of planned economy and has greatly influenced both the labour market and the way the society as a whole functions.

The tough world market competition requires Chinese producers to keep their costs as low as possible, which, in turn can lead to the compromising of environmental and occupational safety and health standards.

With an almost inexhaustible supply in China of cheap labour, and with outdated labour and registration laws,

² The Gini coefficient, a measure of income inequality, is a number between 0 and 1, where 0 means perfect equality (everyone has the same income) and 1 means perfect inequality (one person has all the income, everyone else has nothing).

globalization has also meant an influx of labourers from rural to urban areas. These labourers accept very low wages and no or limited job security and health care coverage.

Globalization has impacted China not only in the economic sector, but in all aspects of the society, including ideology, technology, and lifestyle. China today is more open, and global thoughts and values have been adapted through international exchange. The lifestyle, especially smoking, diet and physical activity, is also being influenced through increased advertisement, communication, and development of trade and consumerism; these changes are likely to have an indirect impact on the prevalence of noncommunicable diseases such as cancer, diabetes and cardiovascular disease.

3.2 Population and health status trends

The population growth rate has been successfully controlled in China. During the past five years, the net annual increase in population was 9.2 million. It is predicted that the net annual increase of population will be 8.4 million during 2005 to 2010, and 8 million a year during 2010 to 2020 [Wu and Sun, 2003]. This will significantly change the population structure over the coming generation. Migration from rural to urban areas has increased over the past 25 years. In 2000, there were 121 million migrants, including 70 million moving from rural to urban areas and 20 million moving between cities [Gong, 2004]. In 2003, about 140 million people of rural origin were working or temporarily residing in cities [Gong, 2004]. In 2010, it is expected that about 160 million population will move from rural to urban areas³.

In addition to poorer health, the migrants also have serious problems with access to health services, leading to, for example, worse outcome of pregnancy in terms of premature births and deaths compared to non-migrant women [Zhan, Sun and Blas, 2002]. Changes in demo-

graphic structure and rapid migration from rural to urban areas leads to changes in health care needs and service utilization and, therefore, requires different arrangements for health services financing and provision.

The infant mortality rate in wealthier provinces such as Beijing and Shanghai is now below 9 per 1000 live-births; in poorer provinces such as Qinghai, Guizhou, and Gansu, the infant mortality rate ranges from 30-44 per 1000 live-births [World Bank, 2002]. A similar pattern can be found for maternal mortality, which is more than 5-fold higher in poorer than wealthier provinces. There were 4.7 million pulmonary TB cases in China in 2000. The prevalence rate was 254 per 100 000 population in wealthier provinces and almost twice as high, i.e. 451 per 100 000 population, in poorer provinces [National TB Survey, 2002]. Congested and generally poor living conditions combined with problems of access to health care services are likely to lead to high TB prevalence also in sub-groups, such as migrant workers and their families.

The demographic and lifestyle changes are likely to result in a substantial increase in noncommunicable diseases in the next ten to twenty years. An estimated 350 million Chinese smoke, and it is predicted that about 1.2 million will die from smoking related diseases every year⁴. The population with hypertension is now more than 100 million, and with diabetes and chronic obstructive pulmonary disease (COPD) is 20 million [Kong, 2002]. Cardiovascular and COPD were the first reasons for death in cities and rural areas respectively [Kong, 2002]. The case rates of hypertension, diabetes and COPD were 26.2, 5.6, and 7.5 per thousand, respectively, in the third survey for health services. In urban areas, changes in lifestyle, including in diet and in physical inactivity, have rapidly resulted in increasing prevalence of chronic diseases such as diabetes and hypertension. Unintentional injuries have become the first reason of death among children in China. Traffic accidents and drowning are the leading causes of death among children in cities and rural areas respectively [Jiang and Ding, 2000]. Health

³ The challenges for the implementation of child development protocol and woman development protocol in China, 2004 <http://www.cinfo.org.cn/ljxg/zynr/014.htm>

⁴ www.tobaccocontrol.com.cn/view.asp?id=143



education towards changing the lifestyle, and cross-sectoral coordination between the departments of health and transportation, need to be given more attention.

3.3 Economic reform and health care financing

Sources of funding

The reduced role of the state has led to increased responsibility of individual health institutions and of other sectors. Public hospitals are financed through three sources: government subsidies, user fees, and drug mark-ups. Government subsidies mainly come from local governments. Provincial, county, and township governments are responsible for their own hospitals. The balance between the three sources of income has changed significantly over the past 25 years. In 1980, government subsidies and income from user fees and drug sales constituted, respectively, 21.4%, 18.9% and 37.7% of total income. By 2000, government subsidies had fallen to 8.7%, while income from user fee and drug sales had increased to 40.2% and 47.1% respectively [Ministry of Health, 1980 and 2000].

For public, collective and private village health clinics, user charges, especially drug mark-ups, were the dominant sources of financing. In township and county health institutions, only a proportion of staff salaries could be covered by the government budget so the remainder was generated from user charges. This form of financing has moved attention away from preventive, promotive, and other population based health interventions towards individual clinical care, which can be charged to the patient. The result has been a negative impact on the TB and schistosomiasis control programmes [Zhan et al., 2004; Bian et al., 2004].

It is a concern that, from the mid 1980s, user fees were also introduced in public health programmes. A report from 2000 indicates that about 50% of the operating costs of disease control institutions were covered by user charges [The United Nations Task Force on Health, 2000]. A study which included detailed analyses of income at ten schistosomiasis control stations in Hunan Province, found that user-fees constituted, on average, 62% of total income, ranging from about 30% to about 85% [Bian et al., 2004].

Allocative efficiency

Health resources are often inappropriately spent on high-technology equipment and drugs with low utilization and cost-effectiveness [Liu and Wei, 1996]. Public funding has not been appropriately allocated either to or within public health programmes. One case in point is the schistosomiasis control programme, where it was found that public funding had been diverted into discount prices for individual care of questionable cost-effectiveness in order to generate revenue for the control station [Bian et al., 2004].

The proportion of total health expenditure in rural areas covered by government sources has also decreased. In 1993, government funding accounted for 34.9% of total health expenditures; this had decreased to 24.9% in 1998 [Wang, Meng, and Bian, 2001].

The allocation of public funds for rural health is not commensurate with the health care needs and size of the

rural population. In 1998, only 39% of the total government health budget was allocated to rural areas where 70% of the total population resided [Zhao, Wan and Gao, 2003]. Because of disestablishment of the collective economy, rural health sector development relies much less on collective resources and, as a result, drug sales are the main source of income, accounting for 90% and 66% in village clinics and township health centres respectively [Wei, 1999].

Finally, the distribution of resources between preventive and curative care is not appropriate. Health expenditures on curative care accounted for 81.8% of total government health expenditure, while expenditures for public health programmes accounted for only 10.9% of total expenditure [Zhao, Wan and Gao, 2003]. The remaining 7.3% represents expenses for rehabilitative care, ancillary services to health care, health administration, and capital investment, which account for 0.6%, 2.0%, 1.6%, and 3.2% respectively [Ministry of Health, 2003].

Insurance

Insurance to protect against potentially catastrophic payments for health care has been evolving in China following different schemes for rural and urban areas. Economic reform in rural areas from the late 1970s substantially changed the financial context for the health sector owing to collapse of the Rural Cooperative Medical System (CMS), mainly due to the disestablishment of the collective economy.

Reorganization of the CMS is the main strategy to improve the rural health care financing system and covered about 10% of the total rural population by the end of 2003 [Ministry of Health, 2004b]. For the poorer provinces, a central government subsidy of 10 Yuan per capita per year, matched by the provincial and county governments, is allocated to support revitalization of the CMS. Each individual covered should then contribute about 10 Yuan per year as an individual premium. This funding is only sufficient to cover major medical costs that threaten economic well-being. However, in some areas outpatient services are also covered. A pilot scheme has covered more than 300 counties in China, but there are some concerns for its design and implementation even if there is no hard evidence at present. First, reim-

bursement of the insured for only major medical costs does not guarantee freedom from economic hardship for less costly events. This might affect the willingness to subscribe. Second, local government in poor areas may not be able to provide matching funds, which would negatively affect the scheme's sustainability. Third, qualified personnel to manage the insurance fund are lacking in many places. Lastly, the catastrophic payments that are being averted by the scheme are not easy to define as they are often relative to the specific situation of a covered individual.

Health insurance in urban areas has, in turn, two modalities. By the end of 2003, about 54% of urban residents were covered by health insurance, including 27% by the Urban Social Health Insurance scheme [Ministry of Health, 2004b; Ministry of Labor and Social Security, 2003]. The rest of the population, including economic dependents of the insured, paid out of pocket for their medical care. However, the expansion of insurance coverage and increased ability of insurers to reimburse were found to increase health care utilization by the insured when experiencing health problems [Liu et al., 2002].

The urban health insurance system faces a number of challenges. First, how supplementary insurance can be set up for pooling the catastrophic risks is still a concern. In most cities, only a small portion of the population is covered by supplementary health insurance; the majority who are so covered are government employees [Chen et al, 2002]. Second, the expansion of urban health insurance to all urban residents is challenging, especially so for the poor who are not able to pay the insurance premium [Cai, 2000; Meng, 2002]. Lastly, the efficiency of operating existing insurance schemes should be improved, particularly to reduce administrative costs. Even though some success has been achieved, there is a need to further investigate how to sustain the balance between insurance income and expenditure through cost containment, among other measures.

Equity

While health institutions have gained considerable independence from political and bureaucratic control, costs have risen and barriers in access to health care have been created for vulnerable groups [Bloom, 1998; Bloom and

Tang, 2004]. Well intended fee exemption programmes for the poor have not been effectively implemented, mainly due to the absence of a dedicated public subsidy to compensate providers for loss of income resulting from providing the exemption [Meng, Sun and Hearst, 2002].

The current health financing mechanisms have deepened the inequalities in society. First, access to health care is more constrained for the poor than for the rich and for the uninsured than for the insured. The very large percentage of patients who require hospitalization but do not gain access to care due to financial constraints is as high as 75% in rural areas and 56% in urban areas [Ministry of Health, 1999]. Public health programmes, such as TB detection and observed treatment (DOTS), have not been effectively delivered to the communities in poor areas due to financial constraints [Meng et al., 2004a]. Coverage by Expanded Programme on Immunization (EPI) activities was different between poorer and richer areas by 10 to 25 per cent, especially for hepatitis B immunization [Sun and Meng, 2004]. In certain urban areas, only 40% of migrant women received pre-marital medical examination, 48% antenatal examination, and 13% postnatal examination, which was 20-40% lower than for permanent residents [Han, Shi and Liu, 2001]. Such differences have been shown to lead to worse outcome of pregnancy [Zhan, Sun and Blas, 2002]. Second, payment for health care is not equitable [Ministry of Health, 1999]. It was found that poorer households spent 8% of household income on health care compared to 5% for higher income households [Han, Shi and Liu, 2001]. Inequity has also been found in disease control programmes such as schistosomiasis control, where it was found that payment is extracted from patients to the limit of their ability to pay, something which is likely to hurt the poor more than the rich [Bian et al., 2004].

3.4 Organization and delivery of public health programmes

Public health programmes are organized to address the health of the whole population or of groups within the population. They operate at the population level to pre-

vent and control diseases through actions such as immunization, mass treatment, health education, regulation, etc. In the case of TB and sexually transmitted diseases, public health programmes encourage individuals to come forward for treatment in order to stop the spread of disease.

The 'three-tier' health care delivery system in both urban and rural areas forms the basic structure of health care organization in China. In rural areas, village clinics and township health centres provide primary health care, and county hospitals provide specialty medical services. In urban areas, community health units and district hospitals provide primary health care services. Municipal and provincial hospitals provide tertiary medical services to both urban and rural people.

Over the past five decades, the size of the health care delivery system has continued to expand in terms of number of health institutions and workforce. By the end of 2003, there were close to 806 000 health institutions, including 515 000 village clinics, 17 800 general hospitals, 44 300 township health centres, 3600 centres for disease control (CDCs, which provide public health programmes addressing infectious diseases, health education, food security, environmental health, etc.), 3000 maternal and child care institutions, and 1700 disease specific treatment institutions. There were 0.87 million village health workers and 4.3 million health workers in township and higher level health institutions [Ministry of Health, 2004a]. Expansion of the health care delivery system has not been even in distribution; qualified health workers and advanced equipment are concentrated in urban areas and at tertiary hospitals [Liu and Wei, 1996].

The private health sector has grown, as shown by the fact that, at village level, about 50% of clinics now operate as private enterprises. In urban areas, the number of private hospitals has increased rapidly especially in some southern provinces. One of the challenges in rural areas, with the increased number of private clinics, is how public health programmes can be effectively delivered. It was found that neither private nor public village clinics were willing to provide preventive care without reimbursement. This was mainly because the operation of public

village clinics was also largely reliant on user fees [Meng, Liu and Shi, 2000].

Enforcement of regulations is needed for both rural and urban health providers because the increased competition, complexity and size of the medical market is not currently matched by the capacity and qualifications of the regulators [Qu and Meng, 2004].

China's public health care system has suffered in the process of economic transition due to increased reliance on user payments and greater attention being given to hospitals rather than to primary health care. The problems can be summarized as follows:

- *Insufficient financial support from the government.* Government support for public health programmes has been reduced in the past years. Most public funding goes to individual clinical care. The share of the health budget in total government expenditure decreased from 4.2% in 1980 to 3.9% in 2002 [Ministry of Health, 2003]. The government budget for CDC and maternal and child health institutions is not sufficient to cover all the salaries of health workers, and most of the operating costs of public health programmes are covered through user charges. However, a few public health programmes, such as the immunization programme, depend less on user fees. Most public resources go either to services with low cost-effectiveness, e.g. tertiary care, or are directed by primary care providers into subsidizing individual and clinical care in order to generate income through user charges [Bian et al, 2004]. Implementation of essential public health programmes, including control of TB and schistosomiasis, has been negatively affected [Bian et al, 2004; Meng et al., 2004].
- *Skewed distribution of resources.* The public health care system is more crucial in rural areas where infectious diseases such as TB, hepatitis, and schistosomiasis, and maternal and child health problems, are more prevalent and severe. In rural areas, besides the limitations due to financial resources, there is also shortage of qualified health workers. More than 75% of the doctors working in village clinics are 'barefoot doctors' who have received very little medical training for their operations [Wang, 2003]; while only 18.7% of township



health workers are educated at medical university compared to 41% in cities [Ministry of Health, 2004a].

- *Ineffective coordination between preventive and curative service.* The current organization of the health services leads to separation of curative and preventive health care institutions. There is a lack of coordination in delivering preventive services between preventive and curative health institutions. Hospitals could take a crucial role in providing preventive services, including immunization and health education, but are reluctant to do so because these services do not generate revenue. Furthermore, the responsibilities of hospitals in delivering preventive care have not been clearly defined [Xu et al., 2001]. The problem is made more severe as public health institutions are changing their services from preventive to curative care in pursuit of revenue. Following this trend, some leprosy and TB control stations have expanded their services to sexually transmitted diseases [Meng et al, 1997].
- *Regulation.* Regulation in public health programmes, including in food safety, pollution control, infectious diseases control, and maternal and child health, is progressing. However, the overall effectiveness of these regulations is not satisfactory. Factors which influence

implementation include unqualified staff, insufficient funding, and inadequate coordination between line departments such as the departments of health, public security, and business administration. It has been found that about 47% of health regulators at county level perceive their skills and knowledge to be in need of strengthening in order to fulfill their functions properly. It has been estimated that the government budget covers only 40-60% of the costs of implementing the Law of Infectious Disease Control, while the rest of the costs are to be covered by cross-subsidies including revenues from fees [Sun et al., 2003]. Regulations for improving the performance of health providers have also been enforced by both central and provincial governments, including The Regulation for Managing Hospitals and The Law for Doctors. No studies have assessed the impact of these regulations on unnecessary prescription of drugs, use of high technology equipment, and quality of care, among other topics.

3.5 Ownership and governance

Cost escalation and inefficiency have been the major concerns in the health sector. A number of strategies including ownership and governance reform have been pursued to remedy this situation.

Ownership reform is a controversial topic in China. Privatization was thought to be a magic wand for increasing efficiency, as had been the experience in the industrial sector. The main forms of ownership and governance reform included outright hospital privatization, introduction of market incentives into publicly run services, and the introduction of shareholding of public hospitals. While in theory these reforms are likely to have a positive impact on health care quality and cost containment through increased competition, there is, at present, no conclusive evidence to confirm this theory. One study comparing service quality and efficiency in Shandong showed no difference in quality, extent of treatment, or willingness to provide preventive health care [Meng, Liu & Shi, 2000]. Another study in Yancheng County, Henan Province, examined the changes in training opportunities and prices before and after the transformation of township hospitals from collective ownership to private

ownership. The findings indicate that, after the reform, health workers had more opportunity for training and the overall price of health care was reduced. However, the mechanisms for these changes were not clear [Wu, 2000]. It was reported in Haicheng, Liaoning Province, that the cost of surgical operation for acute appendicitis was reduced from 1500 Yuan to 800 Yuan after privatization [Li, 2000]. However, the study was not clear about the change in overall medical expenditure and what the factors were that influenced the observed reduction in costs.

3.6 Cost containment and regulation

Medical services are mainly paid through a fee-for-service system. The prices of services are set by provincial governments through a fee schedule following central government guidelines. The prices set by the government are called the official fee schedule. While the fee schedules are obligatory for government hospitals, they are optional for the rest, although the prices do need to be approved by the Department of Price Administration. The official fee schedule is overly complex; it includes as many as 4000 procedures, making it unwieldy and limiting its regulatory capacity.

Distortion of the price schedule was widely found during the 1980s and 1990s. This was mainly attributed to the fact that prices in the fee schedules were set much lower than actual costs [Liu, Liu & Chen, 2000]. However, the distortion did not disappear after the prices were raised at the end of the 1990s. The evidence is that public hospitals did not strictly follow the fee schedule. Provision of unnecessary health care was found to be one way providers used to increase revenue without violating the fixed prices. In two tracer studies on acute appendicitis and childbirth, 30% to 45% of medical spending was unnecessary due to over-provision of procedures [Meng et al., 2004b; Xu et al., 2001]. It has been suggested that irrational prices distort medical practices, resulting in overuse of drugs and technologies [Hsiao, 1995]. Weak enforcement of regulation may be one explanation for the failure of the fixed price system. Another reason might be that the method uses average cost as the price



ing basis for all health providers regardless of the cost-structure of the individual health institution [Meng et al., 2002].

A high prevalence of unnecessary drug use has been found to be one of the reasons for the escalation of pharmaceutical expenditures in China. Unnecessary prescription of drugs is caused by both the health provider and the user. For the provider, drug prescription generates revenue; for the user, drugs are the most visible treatment for their health problem and are therefore in demand [Xiang, 2002]. Revenue generated from the use of high technology was another important source of hospital financing. A study in 33 hospitals between 1994 and 1997 showed that investment in high technologies such as magnetic resonance imaging (MRI) and computerized tomography (CT) scanners has resulted in a massive waste of resources [Ci, 1997]. For example, the utilization of positron emission tomography (PET) was shown to be as low as 30% to 60% of the potential workload. To compensate for this underutilization, prices charged to the user were set at exorbitant levels; targeted clients were mainly the insured and rich [Bian et al., 2002].

Some studies assessing the urban health insurance reform have shown there has been a positive impact on cost containment and access to health care. These studies found that replacing fees for services by contractual relationships between the insurer and the health provider led to control of hospitals' use of resources [Meng et al., 2004b; Yip and Eggleston, 2001]. However, the studies did not provide evidence about the effect of the new payment methods on quality and equity.

Pharmaceutical expenditure in China was US\$ 28 billion in 2001, and accounted for 44.4% of total health expenditures [Zhao, Wan & Gao, 2003]. This figure is 15% to 30% higher than in most developed or middle-income countries. The hospital sector is the main retail supplier of drugs, and drugs have been the most profitable fee item in hospitals since the early 1980s.

Between 1980 and 2000, the government controlled the entire cascade of drug prices, from the manufacturer's exit price, to the wholesale and retail price. The manufac-

turer's exit price was based on production costs plus a 5% profit margin, to which a 15% mark-up was added for the wholesale price. A further 15% margin constituted the retail price. Since profit margins for both wholesalers and retailers including hospitals were fixed, expensive drugs were preferred. In order to attract wholesalers and hospitals to their products, manufacturers would set higher-than-cost prices. Under this system, drug prices were recognized by government to be unreasonably high, which led, in 2000, to a change in the government's drug pricing strategy from controlling the entire cascade of prices for all pharmaceuticals to controlling the retail price of selected products only. However, drug expenditures for all patients still increased rapidly after implementation of the new pricing strategy [Cheng, 2004]. After the price of drugs was reduced by the central and provincial governments, the hospitals studied tended to prescribe more drugs for patients to maintain their level of income. This meant that quantity more than price became the determinant for drug expenditure. Improvement in rational use of drugs and correcting the present perverse incentive structure for hospitals will be important challenges for containment of drug expenditures [Cheng, 2004]. A study in Shanghai suggested that the use of a drug list and capping the annual growth rate of hospital incomes might be effective in controlling the rapid increases in drug expenditures [Hu et al., 2001]. However, there is no conclusive evidence for the effectiveness of this strategy in other areas.

3.7 Provider performance management

In order to stimulate health workers to increase their productivity, a bonus system was introduced in the hospital sector in the mid-1980s based on a flat rate. Later, bonuses were introduced elsewhere in the health sector and increasingly performance based methods were brought in, including elements such as revenue generated and quality and volume of service. However, it has been found that income is the main element encouraging health professionals to provide as much service as possible, including drugs, and thus induces doctors to over-treat and over-prescribe [Xu et al., 2001]. Several studies have shown that, in public health programmes,

health providers under-provide less profitable services, over-prescribe drugs, and over-provide more profitable services. One study, for example, showed that TB health care providers did not meet the minimum requirements for visits to TB patients' homes because such care did not provide financial returns for the staff [Meng et al., 2004a]. Another study on TB care showed that, in addition, the providers extended treatment, provided unnecessary tests and drugs to patients, and paid less attention to case detection and contact follow-up [Zhan et al., 2004]. In schistosomiasis control programmes, the health providers reduced preventive interventions in order to save costs and increased emphasis on profitable clinical care activities [Bian et al., 2004].

An internal contracting system was introduced in the hospital sector from the early 1990s, following recommendations by the health authorities, in an attempt to improve both departmental and individual staff performance including quality of care. This contract system is an internally administrated mechanism within each hospital division and usually has four components: volume of work, quality of service, revenue generated, and patient satisfaction. No systematic assessment has been undertaken to date of the impact of this approach on performance. However, in a study in Shandong and Henan provinces, it was found that clinical departments were concentrating on revenue generation because income had become the most important indicator in assessments by hospital managers [Xu et al., 2001].

3.8 National policies - local implementation strategies

The health policy-making process in China is complex. This is due partly to the five levels of government administration and to the transition towards more autonomy in health care financing and regulation for provinces and counties. Decentralization has given local governments greater power in making decisions on the management of local public affairs. This means that local government can make policy for local affairs and adapt the policies from higher level government in light of local circumstances. From this point of view, the governments at all levels are both policy-makers and policy-implementers.

On the other hand, health is a sector that is closely related to many other departments, e.g. the departments of planning and reform, finance, labour and social security, civil affairs, administration of food and drugs, and so when a health policy is made at a particular level, all the departments concerned should be involved.

The advantage of this approach to policy-making and implementation is that the central government can make policies for the country as a whole based on a comprehensive analysis of needs and within the overall development framework. Central policies can then be implemented at the local level with consideration of the specific situation. However, this approach also has potential problems, e.g. leakage of authority, risk of low compliance in implementation.

There are no incentives for local policy-makers to actively develop policies that may be more suitable for their own situations. In addition, local financing limitations might inhibit the implementation of centralized policies which require local government funding. Only a few studies have addressed this area of policy research.

One study found that, for TB control programmes, overall performance was better in wealthier areas than that in poorer areas, partly because the poorer counties were not able to match the funding provided by the World Bank loan project [Meng et al., 2004a]. Another study showed significant delays in implementing policies mandated from higher levels. For example, in 1996 the central government asked for price adjustments to health care services. However, up to 2001, this policy had not been implemented for various reasons [Meng et al., 2002]. Other studies found that the local governments did not implement central government policies for disease control. Guidelines issued by the Ministry of Health on TB prevention and control, including use of the DOTS strategy and provision of free or subsidized services, were not implemented; instead some inappropriate interventions were included in the local policy [Zhan et al., 2004].



4. Research needs and systems

China has made significant leaps forward in health policy and systems research, and in knowledge generation and dissemination in the past two decades. Although there are no formal statistics about the total number of research projects conducted over the past ten years, the number is probably in three digits. The projects were supported by the Chinese government (all levels) as well as international agencies such as the WHO, World Bank, EU, TDR, and Alliance-HPSR. Some NGOs such as the Ford Foundation, and bilateral development agencies such as DFID, have also provided funds. As well, technical assistance for the projects was received from international academic institutions such as the Institute of Development Studies at the University of Sussex (UK), Harvard School of Public Health (USA), and other sources. Some of the findings have already been translated into health policy by the central and provincial governments. Two examples are worth citing:

- Recommendations for promoting the health security system, reallocation of health resources in urban and rural areas, partnership between the public and private sectors in health care service delivery, as well as re-regulation and deregulation of the health care service market, were integrated into The Decision on Health Reform and Development enacted by the Central Committee of the Communist Party of China and the State Council in 1997.
- The Cooperative Medical System was re-established in 2002, using earmarked funds transferred from the Ministry of Finance and Department of Finance of the Provincial Government, as well as from the Prefecture Government. This policy is based on recommendations from research on the rural community health financing system conducted by the China Network [Wei, 1997].

However, many policies are still formulated on the basis of weak or no evidence and health policy implementation is not systematically evaluated. There is a long way to go before health policy and systems research reaches its full potential. Improved communication and dialogue between the researchers and the policy-makers will be critical to achieving this.

4.1 Current research needs to close gaps in knowledge

Balance 1: *Between rural and urban areas.* Addressing this balance includes transfer of payment between urban and rural areas, changes in the labour market structure, and increased urbanization. Addressing the rural–urban divide, and the integration of health systems between cities and industrializing peri-urban areas, are some of the major challenges for the coming years and will affect very large parts of the population. Research needs are:

- The contributions made by health investment to economic development and rural-urban disparities.
- Challenges and strategies in the regulation and management of the health care market in both rural and urban settings during the continuing transition from planned to market economy in China.
- The functioning of the health care system in a society which is in a large-scale and long-lasting transition.
- Strategy and policy on systems of medical assistance and social health insurance for floating populations.
- Access to health care services by the poor, including equity and outcome issues.
- Evaluation of Basic Medical Insurance for Urban Employees and the New Cooperative Medical System in rural areas, in terms of access to health care, quality of health care, responsiveness of hospitals, and cost containment.

Balance 2: *Between regions.* Addressing the imbalance between eastern, central and western areas will require encouragement and incentives for economic activities in some areas. Addressing the regional effects will call for multidisciplinary and timely case-study type of research in order to capture the ‘unexpected’. Health policy research could include:

- The constraints and options for fiscal transfer for health from Central Government and Eastern areas to Central and Western areas of China.
- Strengthening of endemic diseases control in Central and Western China; formulation and application of specific policies; balance between preventive and curative services.
- Public and private partnership in health care delivery in central and western areas of China.



- Impact of the increased economic activity on the environment and health status.
- The labour market, health status and access issues.

Balance 3: *Between economic and social sectors.* Addressing this balance will involve both an increase in and redistribution of resources between sectors and within the health sector. Policy and systems research can contribute to both policy formulation and evaluation of policies. An increasing resource base for health provides an opportunity to do more, but also poses a challenge to do the right thing in order not to waste the society's resources. Research could include:

- Empirical studies on the relationship between social development - including education, R&D, and poverty alleviation programmes - and health status in China.
- The efficiency of allocation of resources, cost-effectiveness, and returns on investments in health.
- The impact of reforms to local tax systems on health finance.
- The interrelationship between health development strategies and measures to reform local government to make it more accountable to the community.
- Measures to enable people to become better informed users of health services, and to improve the capacity of local representative bodies to monitor and influence health system performance.
- National health accounts.
- The disparities between health status and social factors such as gender, occupation, social group, and income group.

Balance 4: *Between economic development and the natural environment.* Continued rapid growth, including one that has social objectives and involves attempts to geographically regulate the growth, will potentially have an adverse impact on the environment and will directly and indirectly impact the health of the population. Addressing the relationship between economic development and nature, with its links to health, is a challenge that requires critical independent policy and systems research. Specific studies that could be undertaken include:

- Development and application of policies for protecting the environment and health.
- Empirical studies on environmental degradation and

disease (lung cancer, liver cancer, etc.) prevalence.

- Preventive policy and regulations on pollution transfer from the developed world to China in the environment of globalization.
- Quality-adjusted life years and economic losses effected by ecological degradation in China.
- Implementation and impact of health-related interventions to address environmental issues.

Balance 5: *Between domestic and international markets.* Development of the domestic market is likely to accelerate globalization in terms of increased marketing of manufactured consumer goods, some of which may be harmful to public and individual health. Market forces will, by nature, drive activities to where the greatest profits are found, hence will often be on a collision course with public health and require strong evidence to support the public and political debates. This can only come from critical and independent research. Specific studies could be on:

- Survey of occupational injury and diseases, and the impact of China's access to the World Trade Organization (WTO) on socioeconomic development.
- The challenges to and policy on tobacco control after China deregulated the retail price, the wholesale entrance policy, the manufacture and the import of tobacco, according to its WTO commitments.
- The alert and response system to infectious diseases emerging across borders.
- Regulation of food safety.
- Regulation of the health care market, i.e. the private, semi-private and public markets.
- The effect of different models of ownership and governance on the health sector.

4.2 Likely future research needs to close gaps in knowledge

Experience from the past decade has shown that problem-oriented health policy and systems research has an important role to play in improving the process of health policy-making and implementation. Extensive dialogue and close collaboration among researchers, policy-makers and medical workers have played, and will continue to play, a critical role in the development of the health sector in China.

Development of the socioeconomic environment, including the health sector, which by all measures has been extremely rapid, will continue for a long time, probably for more than one generation. Health policy and systems research, therefore, will need to operate with a short-term horizon, addressing the immediate needs and challenges of the 11th Five-year Plan. In addition, health policy and systems research is needed to prepare for the 12th Five-year Plan and beyond. Long-term health policy and systems research is needed on:

- Transformation of the health financing system to one which is equitable and sustainable.
- The re-orientation and development of the public health system in the next 10-20 years based on situation analyses and projections of future health problems.
- The opening and regulation of the health care market: pricing system reform, tax waver policy to private investors in the health sector, and enforcement of regulation in the health care market.
- Transformation of the health care delivery system in accordance with regional health planning to promote efficient allocation of health resources.
- The massive population movement from rural to urban areas.

The above are broad areas of research which need to be further developed and defined.

4.3 Gaps in research capacity

There are important gaps in research capacity in China, including in priority-setting and skills for translating research findings into health policy and practice. It is necessary for China's government to demand research to meet their policy needs, and for the research community to push health policy and systems research forwards to meet the future challenges. The gaps between needed health policy and systems research and current research performance include:

- *The lack of a health policy and systems research agenda agreed by policy-makers and the research community*
China has made exemplary progress in developing a well functioning network of health systems research institutions and has national institutions that coordi-

nate activity in this area. However, there is a need to improve shared priority-setting. The Ministry of Health has not set up the health policy development agenda agreed by relevant departments in the central government and the research community.

- *The lack of a bridging mechanism between the policy-makers and health policy and systems researchers*

In spite of the China Network on Health Economics, policy-makers lack sufficient access to the results of policy and systems studies as well as to the skills needed to assess and use these results for policy-making. The policy researchers, on the other hand, are often unaware of the needs of health policy-makers, and lack the skills and channels to communicate their results effectively.

- *The lack of incentives for researchers to participate in practical policy and systems studies*

At present, researchers are hesitant to conduct practical research because of the lack of financial support, including from local health authorities; the researcher's top priority is promotion in his/her academic position rather than practical research findings. Greater research commissioning is required to attract the most talented researchers to the field.

- *Weak capacity in policy and systems research*

Researchers have insufficient training on policy and systems related subjects, and most policy researchers have little experience on which to integrate theory into practice. Most policy and systems research requires a multidisciplinary team, but many researchers have little experience in managing and participating in such teams.

- *Customary lack of critical independence*

For historical reasons, many researchers abstain from making conclusions that critique existing policies. Policy-makers, on the other hand, are slowly beginning to realize the value of critical independent policy research.

- *The unfeasibility of policy recommendations*

Researchers tend to underestimate the obstacles to policy implementation in the real world, and often get frustrated when their recommendations are not taken up immediately and in the form that they are made.



- *The lack of funding opportunities for health policy and systems research projects*

In China, only a small proportion of research funds are used for policy-oriented research, while funds from international donors directed to policy and systems research are insufficient to meet the needs. Policy-makers have no recurrent earmarked funds to support research. Most funds for health policy and systems research come from foreign sources.

4.4 Options for closing the gaps

China has made some progress in closing the gaps between the requirements for conducting health policy and systems research and the capacity of the research institutions and researchers. For instance, China Network has sent 26 trainees to participate in the World Bank Flagship Training Program on Health Sector Reform and Sustainable Financing since 1997. The China Network has also held 24 training courses on health economics and health policy for trainers and researchers from the 10 key medical universities in China, and has held another 28 training programmes for officials from the health authorities at provincial/prefecture government level. Moreover, the China Network has coordinated eight Senior Policy Seminars in which critical issues in health policy were discussed and new research findings disseminated to officials from relevant departments of central and provincial government. TDR has supported training programmes on health economics and management, and case-study research, among other things. DFID has also provided funds to support dissemination of health policy research findings, while the Alliance-HPSR has supported training for Chinese researchers and policy-makers in taking research into policy and practice and has also funded a number of projects.

The concept of evidence-based development of health systems has been accepted by officials, and a greater number of policy-makers are now aware of the importance of concrete evidence in terms of the health problems, health interventions, health outcomes, and performance of health financing schemes and health care delivery systems. So there is increased demand for scientific health policy and systems research, which is achiev-

able through close dialogue between researchers and policy-makers at national and provincial level. Many strategies can be used to promote health policy and systems research in China, including multidisciplinary research collaboration, research capacity building through training, research activities, and dialogue and communication between policy-makers and researchers. There is also room for organizational development, including establishing research and training networks within provinces and internationally, and for technical assistance and funding support from the national and provincial governments as well as from international donors.

Improving the research-policy dialogue

Much research-policy dialogue has taken place on an ad hoc basis, depending on individual funding and project opportunities. In order to bring researchers and policy-makers closer together, dialogue needs to be more formalized and could, for e.g., include:

- National and provincial health policy research fora, which might e.g. bring policy-makers and researchers together once a year to discuss new research findings as well as policy challenges and research needs.
- Publication and dissemination of regular policy briefs, providing digests of research findings in a language and form relevant to policy-making.
- Establishment of a website for mapping research needs and opportunities, including calls for proposals, funding, etc.

Improved dialogue will help researchers and policy-makers develop a common understanding of the issues as well as a common vocabulary, which eventually will facilitate communication and uptake of recommendations.

Contracting out and commissioning of existing institutions

More and more health policy-makers at national level emphasize research findings in the process of policy-making. However, they frequently complain that they cannot find the reliable evidence they need, while officials from provincial level have difficulty in finding applicable research results relevant to their local situations. At

the same time, many researchers conduct their research according to personal interest and funding opportunities rather than according to priorities for health policy. Frequently, the quality of research undertaken is wanting due to a combination of lack of skills and the fact that many policy and systems researchers work in isolation, i.e. are not exposed to the rigorous peer review process which characterizes science in many places.

A large number of individuals and institutions are currently involved in policy and systems research, some of whom are listed in the Annex. Suggestions for making better use of, and further developing, existing capacity and structures, include:

- Health authorities and relevant departments at national and provincial levels should develop priorities in health policy and systems research based on the macro-socioeconomic environment and critical health problems as well as on the evolution of health care management. Government funds from national and provincial levels must be made available for health policy and systems research.
- Contracting out or commissioning of health policy and systems research should be based on concrete principles and transparent process. Independent and technically competent review committees should be involved in evaluating proposals and reviewing results. Competitive selection of researchers and projects is of paramount importance for the process.
- There is a need to strengthen exchange and capacity building programmes for conducting multidisciplinary health policy research in order for Chinese academic institutions to support the next generation of researchers. Participating in concrete and externally reviewed research projects is the best way to give young researchers a feel for, and the skills to conduct, high quality research.

Use of existing capacities, provided that appropriate structures for commissioning are in place, makes good sense in terms of economy and sustainability. Further, through a competitive model, researchers are challenged to continuously improve the quality of their research.

Creation of new institutions

At present, some policy-makers and researchers think it necessary to establish a national health policy research centre, and that a national institution should coordinate activities such as health policy and systems research priority-setting, communication between senior policy-makers and researchers, and management of resources to support research. However, others suggest that the option to increase contracting and commissioning with existing institutions, as described above, is preferable, because:

- There are already many national health policy and systems research institutions, such as the China Health Economics Institute, the China Hospital Management Institute and, in addition, every province has several universities which could conduct health policy and systems research. What is needed is the challenge, funding, and bridging of research to policy.
- Re-constructing and re-organizing the existing health policy and systems research institutions in China could lead to more benefits in a shorter period of time.
- The provincial governments will have more immediate benefit from restructuring existing research capacity because this will ensure local relevance and sustainability, including providing training opportunities for a new generation of local researchers.
- Large institutions with secure funding tend to lose innovation and quality over time due to not being constantly challenged to improve performance.

Capacity building for policy and systems researchers and policy-makers

Capacity building includes more than mere provision of training courses. For it to be sustainable, a comprehensive capacity building programme would include e.g. the following elements:

- Provision of opportunities for research dialogue, funding, peer review, and international exposure.
- Integration of health policy and systems research into the curricula for researchers and policy-makers to be.
- Specific skills training, including conduct of multidisciplinary case-study research.



5. Conclusion, strategy and way forward

To maintain the social values in Chinese society, it will be critical to develop a fair, efficient and sustainable health care system during the coming two decades in accordance with the new development paradigm. Health policy and system research can provide the evidence to improve policy-making towards this goal.

Research undertaken in China in the past ten years, mostly by Chinese researchers, has proved to be a valuable tool to identify problems in the health system and to help resolve operational bottlenecks. Building on this sound basis, research priorities can now be identified and resources dedicated to research can be increased.

To make new investments more productive, specific strategies for improving health policy and systems research and translation should be formulated. These should include capacity building for researchers and policy-makers, exercises for setting research agendas, coordinating research at the national and provincial levels, and disseminating research findings to policy-makers.

More funds and resources should be allocated to support health policy and systems research programmes. With assistance from international agencies, the China Ministry of Health should launch research projects targeting priorities in the context of the new development framework. Formal and informal dialogue between researchers and policy-makers, funding for research, and uptake of findings should be included in the formulation of the 11th and 12th Five Year plans for health development.

It is our hope that the review presented this document will contribute to the debate and facilitate the way towards improved health, equity and health care delivery in China and elsewhere in the coming years.



Annex: Directory of health policy research institutions

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