SEPTEMBER 2016

ASIA PACIFIC FOUNDATION OF CANADA
FONDATION ASIE PACIFIQUE DU CANADA

BUILDING A HEALTHY AND SUSTAINABLE SYSTEM: CHINA'S HEALTH-CARE SERVICE SECTOR

CONTEMPORARY CHINA:
AN ASIA PACIFIC FOUNDATION OF CANADA RESEARCH SERIES

ABOUT THE ASIA PACIFIC FOUNDATION OF CANADA

Established by an act of Parliament in 1984, the Asia Pacific Foundation of Canada (APF Canada) is a not-for-profit organization focused on Canada's relations with Asia. Our mission is to be Canada's catalyst for engagement with Asia and Asia's bridge to Canada. APF Canada supports the building of Asia-competency and promotes knowledge and understanding of developments in Asia. Its research and policy work focuses on trade, investment, innovation, energy, and the environment.

A leader in research and analysis on Canada-Asia relations for over 30 years, APF Canada partners with government, business leaders, academics, and opinion makers in Canada and across the Asia Pacific region to offer clear, specific, and actionable policy advice.

Asia Pacific Foundation of Canada | Fondation Asie Pacifique du Canada

www.asiapacific.ca

Vancouver
900–675 West Hastings Street
Vancouver BC, Canada V6B 1N2

Tel. 604 684 5986
Fax. 604 681 1370

Toronto
205–375 University Avenue
Toronto ON, Canada M5G 2J5

Tel. 416 597 8040
Fax. 416 597 1162

TABLE OF CONTENTS

Over the past 30 years, China has made significant improvements to its health-care system. The government has established a basic health service system and introduced a system of universal health coverage for its population of 1.3 billion people.[1] These changes have had a direct and visible impact on its population's health: China's life expectancy at birth has increased from 67.9 years in 1980 to 74.8 in 2010, and infant mortality decreased from 3.47% to 1.31% over the same period. [2]

1. TRANSITIONING THE HEALTH-CARE SERVICE SYSTEM AND GROWING SERVICE SUPPLY

A HEALTH-CARE SERVICE SYSTEM IN TRANSITION

China's current health-care service system consists of a public health network and a three-tier medical service system. It is perceived that the public health network focuses more on prevention and the medical service system focuses more on treatment. Although in reality services provided by different institutions are sometimes overlapping.

Public health institutions provide services including disease prevention and control, health promotion, maternal and child health care, mental health care, emergency service, supervision and inspection, food security, and family planning.

The three-tier medical service system includes community clinics in cities and village clinics in rural areas as the first tier; district hospitals and township hospitals as the second tier; and tertiary hospitals and county hospitals as the third tier. Village and community clinics provide preventive and basic primary care services; township and district hospitals provide more advanced outpatient services and have beds for observing patients who are not very ill; and county and tertiary hospitals provide basic specialty care and inpatient services.

This system is currently in transition. China is trying to strengthen the public health network by providing equitable public health service to its entire people. At the same time, the government wants to reduce layers of different institutions by converting the three-tier medical service system to a two-tier system with hospitals for more advanced medical care and primary health-care institutions mainly for outpatient services.

GROWING HEALTH-CARE SERVICE SUPPLY

By the end of 2014, China had about one million health institutions, including 35,000 public health institutions, over 917,000 primary health-care institutions, and 258,000 hospitals. All together, there are over 10 million health professionals and 6.6 million hospital beds.[3]

In 2014, all the health-care institutions together handled 7.6 billion outpatient cases and over 200 million hospitalization cases. In the 10 years from 2004 to 2013, outpatient service increased at an annual rate of 7%, and hospitalization service at 12%.

Private health service has been increasing in recent years, but is still small in scale and limited in services delivered. It currently provides less than 15% of the total service in China. The number of private hospitals is almost the same as the number of public hospitals, but in 2014 only accounted for about 20% of total hospital beds and 18% of total health professionals.

2. CHANGING TRENDS IN DISEASE PROFILE AND HEALTH-CARE DEMAND

Economic development, urbanization, and population aging has led to a change of lifestyle and disease patterns in China.

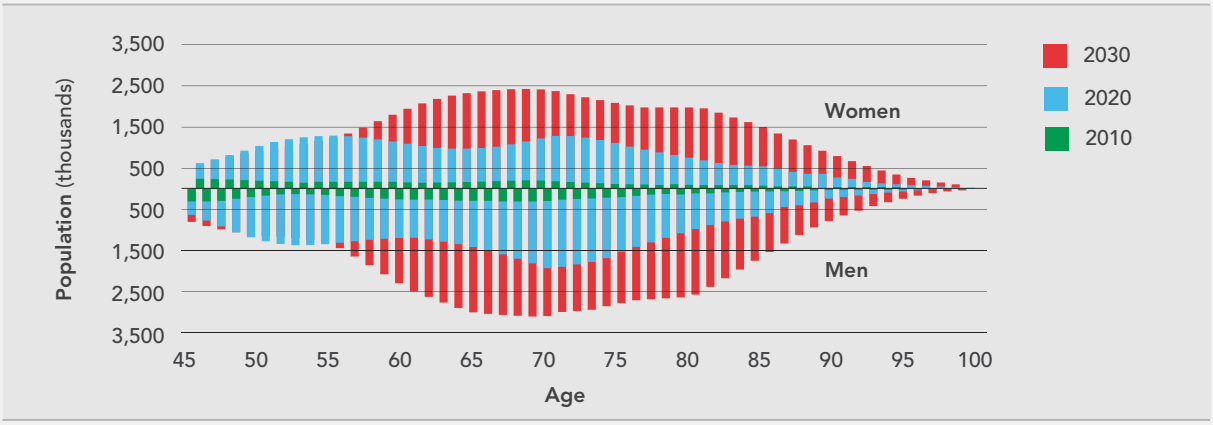
China's GDP per capita has grown over 25 times from US$300 in 1980 to US$8,000 in 2015. According to estimates by the International Monetary Fund, it will reach over US$11,000 by 2020.[4] Urbanization has been accelerating in China as well. Currently, 760 million people – or 55% of the total population – live in urban areas, while in 1980, the proportion was less than 20%.[5]

With a high life expectancy and low fertility rate, China's population has been aging at a much faster rate than the population of other countries. By the end of 2014, over 137 million people were aged 65 and above, accounting for more than 10% of the total population.[6] By 2050, almost 30% of the population will be aged 65 and above.

NON-COMMUNICABLE DISEASES BECOME THE MAIN BURDEN

The above developments have made non-communicable diseases (NCDs), such as heart disease, diabetes, and cancer, the main health issues in China. In 2011, NCDs accounted for 80% of annual deaths and 82% of the disease burden.[7] The World Bank has predicted that the number of NCD cases among Chinese people over 40 will double or even triple over the next two decades (see Chart 1). [8]

Chart 1: Number of people with at least one non-communicable disease, 2010–30



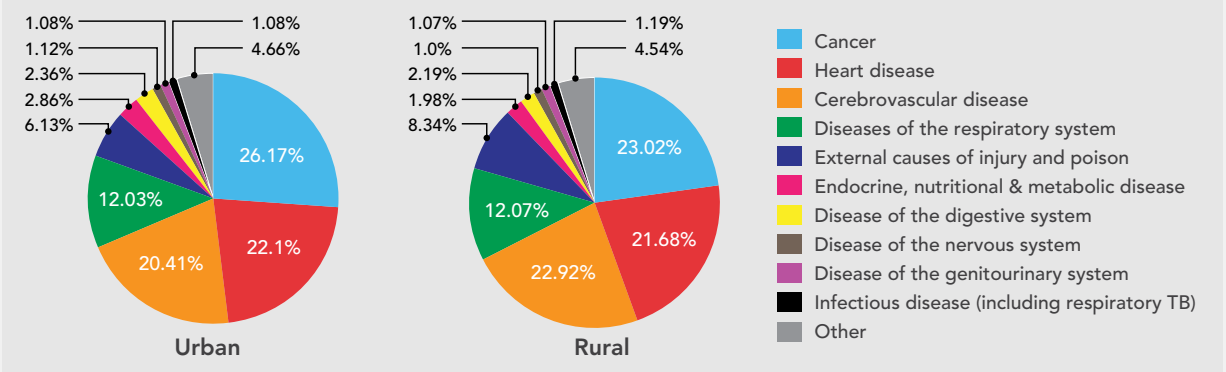
Source: The World Bank, Toward a Healthy and Harmonious Life in China: Stemming the Rising Tide of Non-Communicable Diseases, 2011.

Accordingly, demand for both preventive and curative health care – especially health care targeted at chronic diseases – as well as rehabilitation and long-term care will increase dramatically.

HEALTH-CARE DEMANDS ARE DIVERSIFIED

Demand for health care has become highly diversified in China. While NCDs have increased the demand for preventive care and chronic or long-term care across the country, treat-ments for communicable diseases such as tuberculosis and hepatitis remain in high demand in rural and poorer areas. China and India together account for almost 50% of the estimated global incidents of multi-drug-resistant Tuberculosis cases, and every year there are 100,000 new cases in China.[9] Infectious diseases are still the eighth and 10th most common cause of death in rural and urban areas, respectively (Chart 2).

Chart 2: Cause of death by disease type in China, 2014



Source: China Statistical Yearbook 2015, tables 22-16, 17

Meanwhile, demand for better and more advanced health care is also increasing as people's incomes increase and their health insurance coverage expands. In particular, there is a growing demand from the wealthy for better-quality health care and better service. They are willing to pay a higher price for these services and have sought service from private hospitals, foreign-invested/managed hospitals, and health institutions in foreign countries such as the U.S. and Japan. A recent report estimated this market will reach over RMB100 billion (around US$16 billion).[10] Shanghai, with its advanced medical facilities and expertise, has attracted patients from the Yangtze River Delta and all over the country. Experts had predicted in 2013 the market could reach RMB30 billion (about US$5 billion) in 2015.[11]

As China looks to the future, its key challenge is to build a dynamic health-care system that can meet these varied demands.

3. LIMITATIONS OF THE CURRENT HEALTH-CARE SERVICE SYSTEM

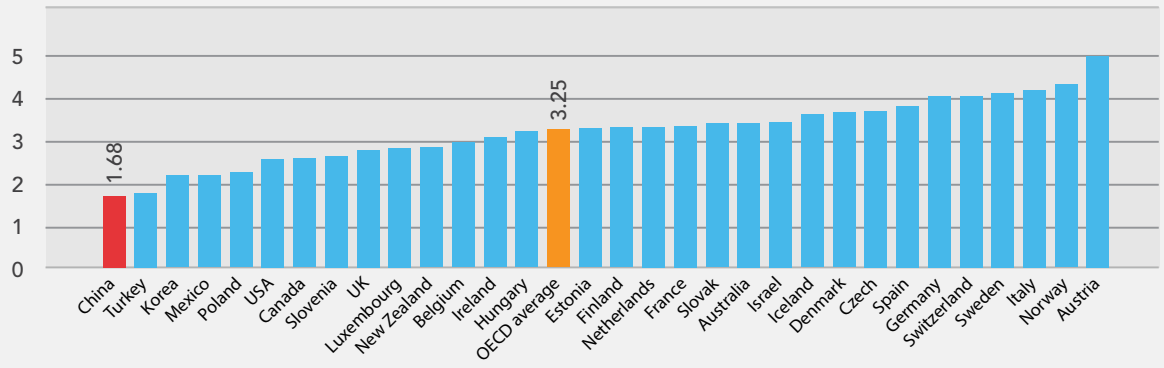
To respond to the change in demand, the health-care service system needs to adapt. Specifically, it will need to address the following problems.

OVERALL SHORTAGE OF HEALTH-CARE RESOURCES

In view of rapidly growing demand, total health-care resources in China are still in short supply. China is behind Organization for Economic Co-operation and Development (OECD) countries in terms of the number of its health professionals and facilities. In 2013, China had 1.68 doctors per 1,000 people, about half of the OECD average of 3.25 (Chart 3).[12]

Quality is another problem. In 2012, only 45.4% of all the practising doctors and 10.6% of the registered

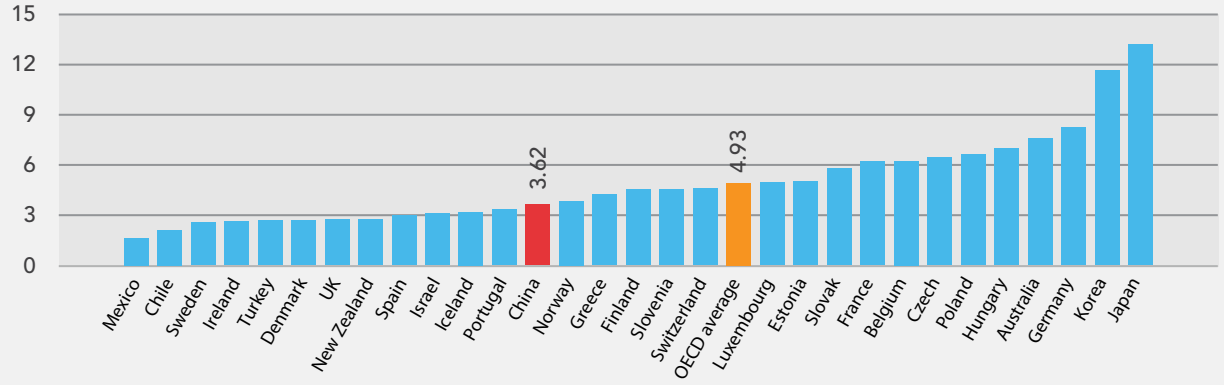
Chart 3: Doctors per 1,000 inhabitants OECD countries and China, 2013



nurses held a bachelor's degree or higher. In some township hospitals, only 10% of the practising doctors and 2.4% of the registered nurses held a bachelor's degree or higher.[13]

In terms of hospital beds, China had about 30% less than the OECD average in 2014: there were 3.62 hospital beds per 1,000 inhabitants in China, while the average was 4.93 beds in OECD countries (Chart 4).[14]

Chart 4: Hospital beds per 1,000 inhabitants, 2014

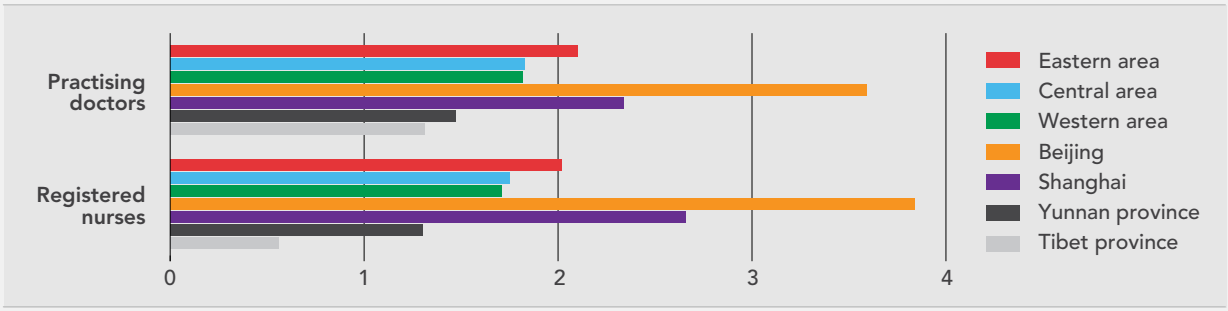


IMBALANCED HEALTH-CARE RESOURCE DISTRIBUTION

Health-care resource distribution in China is imbalanced both in quantity and quality. There is a significant urban-rural difference as well as other regional differences. This results in inequitable access to health care for the country's population.

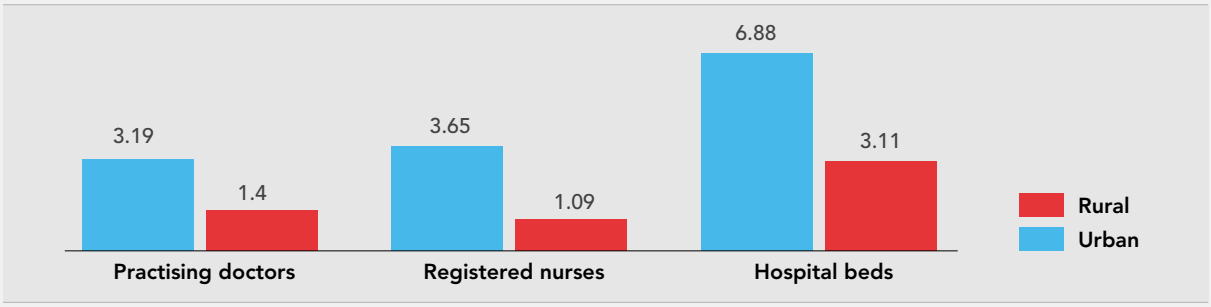
In Beijing, there are 27 hospitals for every million people – three times as many as in Guangxi Province, where there are only 10 hospitals per million people.[15] The eastern provinces have more doctors and nurses per 1,000 inhabitants compared with central and western provinces. When looking at specific provinces, the difference is much greater. Doctors and nurses per 1,000 inhabitants in Beijing are 2.7 times and 6.9 times of those in Tibet (Chart 5).

Chart 5: Doctors and nurses per 1,000 inhabitants in different regions and provinces, 2012



Source: National Health and Family Planning Commission of China, Chinese Health Statistical Yearbook 2013, table 2-2-2

Chart 6: Doctors, nurses and hospital beds per 1,000 inhabitants in urban and rural China, 2012



Source: National Health and Family Planning Commission of China, Chinese Health Statistical Yearbook 2013, tables 2-2-1, 3-1-4

Differences between urban and rural areas are also significant. Between 2003 and 2012, human resources and hospital beds in urban areas were two to three times more abundant than in rural areas. Chart 6 shows the urban and rural difference in doctors, nurses and hospital beds in 2012.

INEFFICIENT RESOURCE ALLOCATION

To keep the population healthy, "An ounce of prevention is worth a pound of cure." An old Chinese saying carries a similar concept: "The greatest doctors cure before the disease arises, the lesser doctors cure when the disease is about to arise, the worst doctors cure when the disease has already arisen" (上医治未病，中医治欲病，下医治已病).

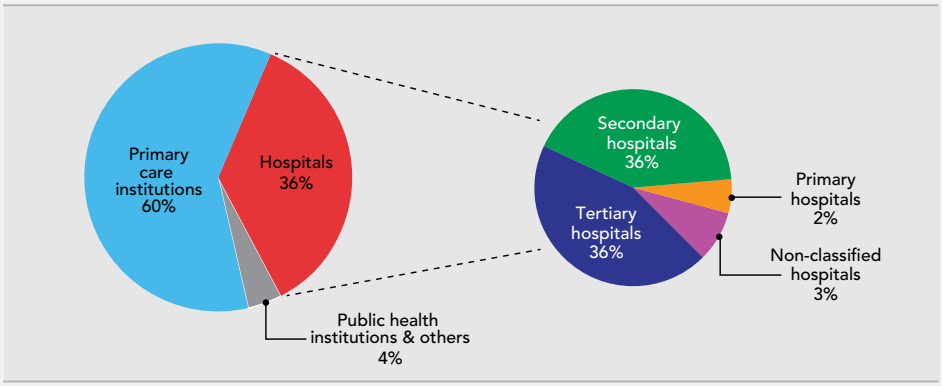
Public health interventions and regular screenings can largely prevent and reduce NCDs such as heart disease, diabetes, cancer, and lung disease.[16] Yet, the role of public health intervention in China has been underdeveloped or neglected for a long time, and services like disease prevention and health promotion are underfunded. In 2012, 40% of the total revenue of public health institutions was subsidized by the government, and the remaining was generated from service.[17]

For medical treatment, resources are concentrated in hospitals, especially the large tertiary hospitals. Hospitals have the best expertise, facilities, and resources so they have the greatest capacity and provide the best service, while lower-tier health-care institutions are not well equipped or staffed to provide quality service.

In addition, there is no compulsory referring mechanism. Technically, any patient can seek health care anywhere at any health institution in China. Therefore, all patients tend to go to hospitals, especially the tertiary hospitals, even for minor and common diseases. Currently, about 40% of outpatient service is provided by hospitals (Chart 7).[18]

As a result, hospitals are always overcrowded, while many community health centres often have few patients. This pattern of health-care use creates a waste of medical resources by using the most advanced expertise and technology for common and regular diseases. Moreover, poor patients have

Chart 7: Outpatient visits by provider type, 2012



Source: National Health and Family Planning Commission of China, Chinese Health Statistical Yearbook 2013, table 5-1-1, 5-2-2

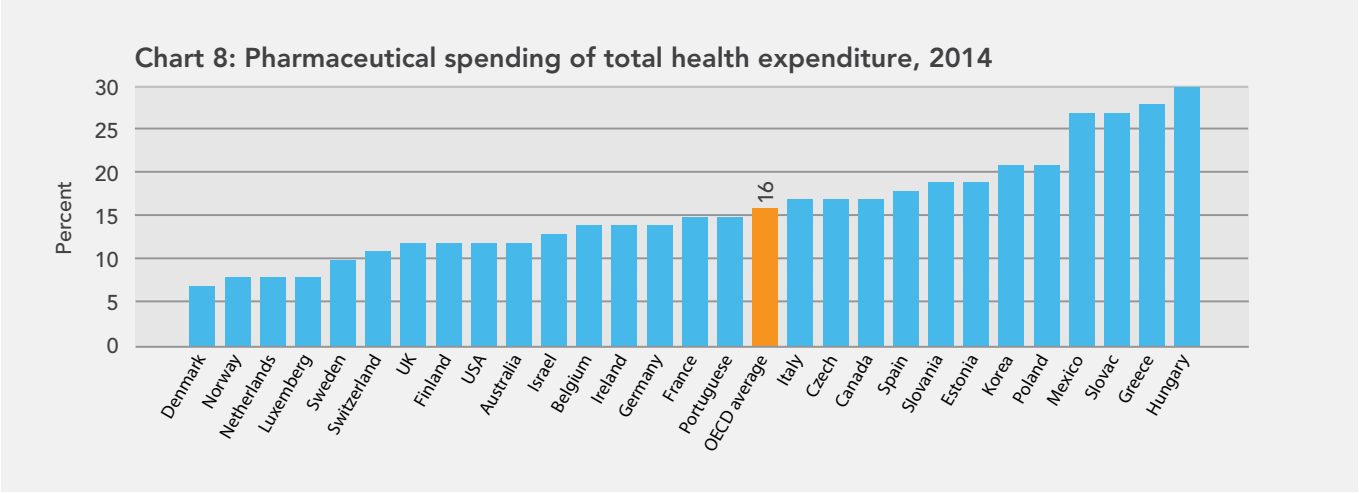
an incentive to delay treatment to a later stage of the disease, which could cause complications and increase medical and financial burden to the system.

DISTORTED INCENTIVES IN PUBLICLY-OWNED HEALTH INSTITUTIONS

The majority of health institutions in China are publicly-owned, which provided 89% of outpatient service and 87% of hospitalization service in 2014.[19] Despite being "publicly-owned," only about 10% of their revenue comes from government budget or subsidies; the remaining revenue comes from charges to patients for medical service, drugs, and exams. In 2012, 8.16% of revenue of public-owned health institutions was from government subsidies.[20]

Prices are regulated by the government. Medical services have been underpriced with the intention of keeping them affordable. However, as government subsidies are not enough to keep hospitals in operation, health institutions are allowed to earn revenue from drugs and tests prescribed to patients. Not surprisingly, income from drugs and tests has become a large part of the revenue and over-prescribing drugs is common. In 2012, 40% of their revenues came from selling drugs.[21] In OECD countries, pharmaceutical spending averaged just 16% of total health spending in 2014 (Chart 8).[22]

In recent years, the government has tried to change this distorted incentive for health institutions by eliminating profit-making from prescribing drugs and by increasing government support to primary health-care institutions. However, this has caused strong resistance from the tertiary hospitals, as they still need to fund their operations.



4. REFORMS IN THE HEALTH-CARE SERVICE SECTOR

To address the limitations of the existing system, China launched a round of reforms of the health sector in 2009. This included three key reforms related to health-care service: equalizing basic public health service, establishing a primary health-care service system, and reforming public hospitals.

The Chinese government has more recently signalled that it plans to expand its health-care resources to increase overall supply. According to the *Planning Outline of The National Healthcare System 2015 – 2020*, China aims to increase the numbers of health professionals and facilities by 2020, as indicated in Chart 9.

Chart 9: Indicators of health-care resources in China, 2014 and 2020

* Number of GPs per 10,000 residents is for the year of 2013 and 2020.

Source: National Health and Family Planning Commission of China, Nov. 5, 2015, 2014 Statistical Bulletin of Health and Family Planning Development in China; State Council, March 6, 2015, Planning Outline of the National Healthcare System 2015 – 2020

EQUALIZING BASIC PUBLIC HEALTH SERVICE

This reform aims to improve universal and equal access to basic public health services to fill the gap between urban and rural areas, different regions, and different income groups. It includes two types of public health service programs: basic public health programs and major public health programs, both covered by the government budget.

Basic public health programs are provided to all residents by the government, and the national government supports poor areas through transfer payments. Currently, services include family health records, women's and children's care, vaccinations, services for the elderly care, chronic disease prevention and control, and health education. The spending standard for basic public health services has been increasing over the past years, reaching RMB30 per capita in 2013.[23]

Major public health programs include prevention and control of major diseases such as tuberculosis, HIV-AIDS, and hepatitis B, as well as programs improving water and sanitation in rural areas.

ESTABLISHING A PRIMARY HEALTH-CARE SERVICE SYSTEM

This part of the reform focuses more on the primary health-care providers, especially the urban community centres as well as township hospitals and village clinics in rural areas. Measures include building/upgrading facilities, training health personnel, and changing financing and operational mechanisms.

In 2011, the State Council issued a guideline on establishing a general practitioner system, trying to strengthen the quality of service of primary health institutions.[24] In 2015, the State Council issued another guideline on establishing a tiered diagnosis and treatment system, dividing the functions of health institutions at different levels and establishing a two-way referral mechanism in the system.[25] In 2016, the National Health and Family Planning Commission issued a guideline on urging family doctors to sign service contracts with residents.[26] The reform also provides more government subsidies to these institutions and stops them from making money by selling drugs.

All these policies aim to direct more health resources to the primary level of service. This is to encourage patients to first seek care at the primary care facilities, with the view of increasing the efficiency of system usage overall.

REFORMING PUBLIC HOSPITALS

As discussed earlier, public hospitals play an important role in the health-care service system.

Therefore, public hospital reform is crucial but also the most difficult.

In 2010, 17 cities were selected for a pilot reform of urban public hospitals. The main measures included separating treatment from the sale of medication, as well as changing the income structure of health professionals. Starting in 2012, China selected over 300 county-level public hospitals for a pilot reform. The main measures included reforming revenue-making structures; adjusting prices on medical services, tests and checkups; and changing payment methods of health insurance programs to hospitals. These measures aim to eliminate an incentive for hospitals to make money through selling medicines, to increase income from providing professional services, and, at the same time, to control costs and improve the quality of medical services.

China has also issued several policies encouraging the development of non-public hospitals to diversify the health-care supply structure. So far, the number of private hospitals has increased greatly, but in terms of service quantity and quality, private hospitals are far from being competitive with public hospitals.

The reforms are still ongoing and it is too early to say whether or not they will be successful. While there is consensus on the progress made by the health insurance system, assessment of the impact of the reforms on the health-care service has been mixed. The fundamental divergence has been regarding whether the market or the government should play a dominant role in service supply. This debate is not unique to China. Some scholars argue that the health sector is a market with asymmetric information, where market principles cannot really operate. Others believe that general market rules still function in the sector.

5. IMPLICATIONS FOR CANADA

From what has been emphasized in China's latest round of reform, Canada is well positioned to share its experience and expertise in the following areas.

PREVENTION AND MANAGEMENT OF CHRONIC DISEASES

As NCDs are becoming a major health issue, China is trying hard to improve its health promotion strategy and achieve better health outcomes. Solutions and programs to help prevent and manage NCDs are always welcome in the country. Canada has a good reputation in this field and has already applied its expertise in China. The Wellness Institute at Seven Oaks General Hospital in Manitoba is an example. As a leading expert in prescribing and supporting lifestyle intervention based on exercise, nutrition, and behavioural changes, the Institute has demonstrated success in helping people afflicted with diabetes, cancer, and heart, kidney, and lung diseases – as well as people at risk of disease – to adopt and maintain healthy lifestyles. The Institute has developed strong relationships and projects in the city of Rizhao in Shandong Province in partnership with the Rizhao City Hospital of Traditional Chinese Medicine.[27]

EMPHASIS ON PRIMARY CARE

China has put a lot of resources into improving the facilities in primary health-care institutions. However, there is still a big gap regarding qualified health professionals, especially general practitioners (GPs), as well as the organization and management of an efficient primary care system. Canada is famous for its sound primary care system and high standard of GPs, which provide highly cost-effective services. The fact that Canada has more GPs per capita versus the U.S. is one of the reasons that health-care expenditures in Canada are much lower than in the U.S.[28] Canada should be able to work with China to improve the primary health-care system in China, including training GPs for China. This model will be of great value and need to China.

ADVANCED BIOMEDICAL TECHNOLOGIES

China is moving toward a service-driven economy, and demand for health-care services has been increasing. However, there is a shortage of quality health-care service in China, from mental-health-related care to cutting-edge technologies for disease diagnosis and treatment. Canada – and British Columbia in particular – has become a world-leading centre for health technologies, especially in genomics and cancer.[29] Canada should explore opportunities to export this expertise to China.

Reforming the Chinese health sector is not an easy task; there is no panacea. Each model has its own advantages and disadvantages. Along China's long road to establishing a safe, effective, equitable, accessible, and sustainable health-care system for its population, Canada can certainly be a partner – to the benefit of both countries.

Dr. Iris Jin is senior program manager for trade, investment, innovation and Canada-China relations at the Asia Pacific Foundation of Canada.

ENDNOTES

1. National Bureau of Statistics China, *Tabulation on the 2010 Population Census of China*, table 1-1, http://www.stats.gov.cn/tjsj/pcsj/rkpc/6rp/indexch.htm
2. National Health and Family Planning Commission of China, *Chinese Health Statistical Yearbook 2013*, table 9-2-1.
3. National Health and Family Planning Commission of China, Nov. 5, 2015, "2014年我国卫生和计划生育事业发展统计公报" (2014 Statistical Bulletin of Health and Family Planning Development in China), http://www.nhfpc.gov.cn/guihuaxxs/s10742/201511/191ab1d8c5f240e8b2f5c81524e80f19.shtml
4. International Monetary Fund, World Economic Outlook Database, April 2016, http://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx
5. United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision, https://esa.un.org/unpd/wup/CD-ROM/
6. National Bureau of Statistics of China, *China Statistical Yearbook 2015*, http://www.stats.gov.cn/tjsj/ndsj/2015/indexch.htm
7. The World Bank and the Development Research Center of the State Council, P. R. China, 2013, *China 2030: Building a Modern, Harmonious, and Creative Society*, http://www.worldbank.org/content/dam/Worldbank/document/China-2030-complete.pdf
8. The World Bank, 2011, *Toward a Healthy and Harmonious Life in China: Stemming the Rising Tide of Non-Communicable Diseases*, http://www.worldbank.org/content/dam/Worldbank/document/NCD_report_en.pdf
9. WHO, 2010, Multidrug and Extensively Drug-Resistant TB: 2010 Global Report on Surveillance and Response, http://apps.who.int/iris/bitstream/10665/44286/1/9789241599191_eng.pdf
10. Taikang Life Insurance and Hurun Report, *Meeting the Challenge for an Aging Population: 2015 Healthcare of Chinese HNWIS*.
11. "中国高端医疗需求迅速扩大 社会资本办医需落实," http://finance.china.com.cn/industry/medicine/yyyw/20130426/1424309.shtml
12. OECD Health Data (2016), https://data.oecd.org/health.htm#profile-Health resources (accessed on 14 July 2016)
13. National Health and Family Planning Commission of China, *Chinese Health Statistical Yearbook 2013*, tables 2-1-5, 2-7-3.
14. OECD Health Data (2016), https://data.oecd.org/health.htm#profile-Health resources (accessed on 14 July 2016)
15. OECD, 2012, "第七章 中国的医疗卫生：近期趋势与政策挑战"，*聚焦中国：经验与挑战*。
16. OECD, 2012, "第七章 中国的医疗卫生：近期趋势与政策挑战"，*聚焦中国：经验与挑战*。
17. National Health and Family Planning Commission of China, *Chinese Health Statistical Yearbook 2013*, table 4-3-1.
18. Liu Bo, December 23, 2015, "中国医改的下一步怎么走？" ("How should China proceed with its reform on the health sector?" Financial Times in Chinese), http://www.ftchinese.com/story/001065410?full=y
19. National Health and Family Planning Commission of China, Nov. 5, 2015, "2014年我国卫生和计划生育事业发展统计公报" (2014 Statistical Bulletin of Health and Family Planning Development in China), http://www.nhfpc.gov.cn/guihuaxxs/s10742/201511/191ab1d8c5f240e8b2f5c81524e80f19.shtml
20. WHO, 2015, "People's Republic of China health system review" (Health Systems in Transition, Vol. 5 No. 7 2015), p55, http://www.wpro.who.int/asia_pacific_observatory/hits/series/china_health_systems_review_cn.pdf?ua=1
21. National Health and Family Planning Commission of China, *Chinese Health Statistical Yearbook 2013*, table 4-4-1.
22. OECD Health Data (2016), https://data.oecd.org/healthres/pharmaceutical-spending.htm (accessed on 14 July 2016).

23. WHO, 2015, "People's Republic of China health system review" (Health Systems in Transition, Vol. 5 No. 7 2015), http://www.wpro.who.int/asia_pacific_observatory/hits/series/china_health_systems_review_cn.pdf?ua=1
24. The State Council, 2011, "关于建立全科医生制度的指导意见", http://www.gov.cn/zwgk/2011-07/07/content_1901099.htm
25. The State Council, 2015, "关于推进分级诊疗制度建设的指导意见", http://www.gov.cn/zhengce/content/2015-09/11/content_10158.htm
26. National Health and Family Planning Commission of China, 2016, "关于印发推进家庭医生签约服务指导意见的通知", http://www.nhfpc.gov.cn/tigs/s3577/201606/e3e7d2670a8b4163b1fe8e409c7887af.shtml
27. The Wellness Institute, http://wellnessinstitute.ca
28. Fuchs, V. R., and Hahn, J. S. (1990). "How does Canada do it? A comparison of expenditures for physicians' services in the United States and Canada," *The New England Journal of Medicine*, 323(13), 884–890.
29. The Asia Pacific Foundation of Canada, *Asia Business Leaders Advisory Council – 2016 Summary Report*, https://www.asiapacific.ca/sites/default/files/ablac_2016_summary_report_1.pdf