COUNTRY PROFILE: CHINA

Overview of China's health system

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LIST OF ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
HDI	Human development index
HIV	Human immunodeficiency virus
IMF	International Monetary Fund
MDG	Millennium Development Goal
OOP	Out-of-pocket
RCMS	Rural cooperative medical system
SCO	Shanghai Cooperation Organisation
UEBMI	Urban employee basic medical insurance
URBMI	Urban resident basic medical insurance
US	United States
US$	United States dollar
WHO	World Health Organization

EXECUTIVE SUMMARY

Some of the earliest records of the civilization known today as China can be traced back to written records dating from 1500 BC. Today, China has the largest population in the world with almost 1.4 billion inhabitants and just over half of the population residing in urban centres. The population consists predominantly of the Han Chinese and 55 other ethnic groups and the major language families include Sino-Tibetan, Altaic, Indo-European, Austroasiatic, and Tai languages. About two-fifths of the population is nonreligious with over one-fourth professing adherence to indigenous folk religions and others following Buddhism, Islam, and Christianity. The Chinese Communist Party unitarily operates the Chinese government with parallel national bureaucracies that extend from the capital Beijing to local levels. Since initiating market reforms in 1978, China has shifted from a centrally planned to a market-based economy and has experienced rapid economic and social development with GDP growth averaging about 10 percent a year; although slowing in recent years. Life expectancy rose from 67 years in 1990 to 75 years in 2013 resulting in the achievement of MDGs 4, 5, and 6. The burden of communicable diseases such as malaria, measles, and other neglected tropical diseases has declined, while outbreaks of hepatitis, tuberculosis, and HIV/AIDS remain a challenge in addition to the increasing prevalence of non-communicable diseases. Demographic changes—such as a decreasing fertility rate, an aging population, and an increased number of migrant workers—also pose a challenge to China's healthcare system. Decades of strong economic growth and transition to a free market have contributed to the development of China's competitive innovation landscape, which is currently largely dominated by the private sector.

1. COUNTRY AT A GLANCE

Component	Details/indicator/year	Data
Population	Total population (2014)	1 364 270 000[a]
	Percentage of urban vs. rural (2014)	Urban: 54, rural: 46[a]
Geography	China's landscape is marked by extensive mountain ranges, which comprise about a third of the country's total area. The three major topographic regions are the eastern, northwestern, and southwestern zones. The eastern zone is characterised by extensive rivers and a monsoon climate, the northwestern region is arid and shaped by wind, forming an inland drainage basin, and the southwestern region is cold and mountainous, with plateaus and lakes.[b]	
Ethnic composition	Predominantly Han Chinese, with 55 minority groups.[b]	
Government	The Chinese government is unitarily operated by the Chinese Communist Party, with parallel national bureaucracies that extend from the capital Beijing to local levels. Further divisions include 33 provincial-level units, an estimated 330 prefectural bodies, and more than 2 850 county-level entities. Ministries and commissions under the State Council, as well as Central Committee departments, are the main bodies in the political hierarchy. The National People's Congress and its Standing Committee hold legislative power, while the State Council and its Standing Committee are responsible for executing laws. The judicial system is operated through the Ministry of Justice and a court system.[b]	
Economic and infrastructure data	GDP per capita (purchasing power parity) (2014)	US$ 13 206.4 (current international dollars)[a]
	Economic growth as percentage of GDP (2014)	7.3[a]
	Gini-index (2013)	42.1[c]
	HDI (2014)	0.727 (ranked 90)[d]
	Percentage of people below national poverty line (2014)	-
	Percentage of unemployment (2014)	4.7[a]
	Percentage of adult literacy (2010)	95[a]
	Education gender parity index (2013)	1.01[a]
	Percentage of population with access to sanitation (2015)	Access to improved drinking water: 96 (urban: 98, rural: 93)[a] Access to improved sanitation facilities: 77 (urban: 87, rural: 64)[a]
	Percentage of population with access to electricity (2012)	100[a]
Health system	Health expenditure as percentage of GDP (2014)	5.5[a]
	Annual public expenditure on health as percentage of total health expenditure (2014)	55.8[a]

	Health expenditure per person (2014)	US$ 420 (current US$)[a]
	Number of physicians per 1 000 population (2012)	1.9[a]
	Number of nurses and midwives per 1 000 population (2012)	1.9[a]
	Percentage of births with skilled attendants (2013)	100[a]
	Average life expectancy in years (2014)	76[a]
Disease burden	HIV prevalence as percentage of population (2014)	0.037[e]
	Deaths due to AIDS (2014)	159 000[e]
	Deaths due to non-communicable diseases (2012)	8 577 000[f]
	Deaths due to homicide (2012)	15 480[f]
	Maternal mortality rate per 100 000 births (2015)	27[a]
	Infant mortality rate per 1 000 births (2015)	9[a]
	Under-five mortality rate per 1 000 births (2015)	11[a]
Top five causes of mortality as percentage of deaths (2012)[g]	1. Stroke	23.7
	2. Ischaemic heart disease	15.3
	3. Chronic obstructive pulmonary disease	10.3
	4. Trachea, bronchus, lung cancers	6.1
	5. Liver cancer	3.9
Top five causes of DALYs (2012)[g]	1. Cardiovascular diseases and diabetes	ND
	2. Cancers	ND
	3. Neuro-psychiatric conditions	ND
	4. Other non-communicable diseases	ND
	5. Unintentional injuries	ND

GDP: gross domestic product; gini-index: measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution; HDI: human development index; DALYs: disability-adjusted life years.
Sources: [a] World Bank (2015b); [b] Young et al. (2016); [c] UNDP (2013); [d] UNDP (2015); [e] National Health and Family Planning Commission of the People's Republic of China (2015); [f] WHO (2015); [g] WHO (2015a).

2. COUNTRY CONTEXT

2.1 COUNTRY HISTORY AND POLITICAL SYSTEM

The first Chinese state for which clear written records remain is the Shang Dynasty. In ca 1700 to 1046 BCE it united much of north central China and was replaced by the Zhou dynasty. In 221 to 206 BCE, King Ying Zheng of Qin united much of the Chinese heartland and built the first Great Wall of China, but his empire quickly collapsed after his death. Thereafter, Liu Bang founded the Han dynasty that ushered in the first Chinese cultural "golden age" lasting from 206 BCE to 220 CE, with growth in the money economy and promotion of Confucianism as the state philosophy. From 618 to 907 CE, the Tang Dynasty united China for nearly three centuries followed by the Song Dynasty from 960 to 1279 CE. In 1271 to 1368, the Mongols conquered China and established the Yuan Dynasty founded by Kublai Khan. In 1368, the Ming Dynasty conquered the Mongols and established a sophisticated agricultural economy as well as completed the erection of the Great Wall of China in the form seen today. In 1644, the Manchu Qing Dynasty came to power and the Chinese empire reached its zenith with the annexation of Tibet, Mongolia, and present-day Xinjiang (Turkestan). The Qing Dynasty began its long decline in the 19th Century with the "Boxer Rebellion" in Northern China stifled by foreign intervention. Western powers, Russia, and Japan extracted further concessions from the weakened Qing government (BBC, 2015).

In 1911 to 1912, the Republic of China was proclaimed after the abdication of the last Qing emperor, but struggled to consolidate rule amid the rise of the Communist Party. From 1934, Mao Zedong emerged as the Communist leader, and on 1 October 1949, Mao Zedong led the Communists to victory against the Nationalists after more than 20 years of civil war, proclaiming the founding of the People's Republic of China. The Nationalists retreated to the island of Taiwan and set up a government there. In 1950, China intervened in the Korean War on the side of North Korea and Tibet became part of the People's Republic of China (BBC, 2015).

In 1958, Mao launched the "Great Leap Forward", a five-year economic plan that included the collectivisation of farming and the introduction of a labour-intensive industry. The drive produced economic breakdown and was soon abandoned with disruption in agriculture blamed for the starvation of millions of people following poor harvests. Between 1966 and 1976, Mao introduced a 10-year political and ideological campaign termed the "Cultural Revolution", which produced massive social, economic, and political upheaval. After Mao died in 1976, Deng Xiaoping emerged as the dominant political leader in 1977 and initiated far-reaching economic reforms. In 1979, diplomatic relations were established with the US and the Chinese government imposed a one-child policy to curb population growth. An "open-door" economic policy in the late 1980s opened the country to foreign investment and the development of a market economy and private sector with stock markets opening in Shanghai and Shenzhen by the end of the decade. In 1989, troops opened fire on demonstrators who had camped for weeks in Tiananmen Square with the official death toll at 200, fueling international outrage and sanctions. In 1992, Russia and China restored friendly ties and the International Monetary Fund (IMF) ranked China's economy as the third largest in the world after the United States and Japan (BBC, 2015).

After the death of Deng Xiaoping in 1997, Xinjiang separatists planted three bombs on the day of his funeral, killing nine and injuring 74. Hong Kong reverted to Chinese control in the same year. Zhu Rongji succeeded Li Peng as premier in 1998. In June 2001, leaders from China, Russia, and four Central Asian states launched the Shanghai Cooperation Organisation, signing an agreement to fight ethnic and

religious militancy while promoting trade and investment. In 2002, Vice-President Hu Jintao was named head of the ruling Communist Party, replacing Jiang Zemin. The following year, 2003, the National People's Congress elected Hu Jintao as president. It was also in this year that the pneumonia-like Sars virus broke out in China and Hong Kong and strict quarantine measures were enforced to stop the disease from spreading (BBC, 2015).

In the last decade, China's trade network has expanded substantially. In 2004, China signed a landmark trade agreement with 10 Southeast Asian countries with the accord possibly eventually uniting 25% of the world's population in a free-trade zone. In 2006, African heads of state gathered for a China-Africa summit in Beijing where business deals worth nearly US$ 2 billion were signed and China promised billions of dollars in loans and credits. Following the summit, President Hu Jintao toured eight African countries to boost trade and investment, while Western rights groups criticised China for dealing with corrupt or abusive regimes (BBC, 2015).

Tibet's political status remains contested. In 2008, anti-China protests escalated into the worst violence Tibet has seen in 20 years, five months before Beijing was to host the Olympic Games. Pro-Tibet activists in several countries focused world attention on the region by disrupting progress of the Olympic torch relay and nearly 100 Tibetans have reportedly set themselves on fire since 2009 in protest against Chinese rule (BBC, 2015).

China's one-child policy has been completely reformed. In 2009, officials in Shanghai started urging parents to have a second child in an effort to counter the effects of an ageing population and by 2015 the Communist Party announced that it had decided to end the decades-old one-child policy (BBC, 2015).

In 2012, the Communist Party held congress to start a once-in-a-decade transfer of power to a new generation of leaders. Vice-President Xi Jinping took over as party chief and assumed the presidency in March 2013; launching numerous reforms including an efficiency and anti-corruption drive and the abolition of "re-education through labour" camps (BBC, 2015).

In recent years, the Chinese government has revised growth targets after a slump in economic growth (6.9%, down from 7.3% in 2014) and the IMF predicts further deceleration (Young et al., 2016).

2.2 POPULATION

China's population of approximately 1.3 billion people (World Bank, 2015b), currently the largest in the world, is composed of a large number of ethnic and linguistic groups and the basis for classifying the country's population is largely linguistic rather than ethnic. The Han (Chinese) form the largest homogeneous group, outnumbering minority groups and nationalities in every province or autonomous region except Tibet and Xinjiang. Approximately 55 minority groups are spread over roughly three-fifths of the country's total area and several autonomous regions have been established on the basis of the geographic distribution of nationalities. Several major language families are represented in China, with the largest groups being speakers of Sino-Tibetan (notably Han Chinese, Mandarin, Wu, Fuzhou, and Cantonese) and Altaic (Turkic, Mongolian, and Manchu-Tungus) languages, with considerably smaller numbers speaking Indo-European, Austroasiatic, and Tai languages (Young et al., 2016).

China is the birthplace of the religio-philosophical schools of Confucianism and Daoism (Taoism). Buddhism likely came to China in the 3rd century BCE and China has been an incubator for many present-day Buddhist sects including Zen, Pure Land, and by extension, Tibetan Buddhism. The

political and social upheavals in China during the first half of the 20th century saw a reduction in traditional religious observances and from 1949 the country became officially atheist. About two-fifths of China's people claim that they are nonreligious or atheist, with over one-fourth professing adherence to various indigenous folk religions. Members of non-Han minorities constitute the bulk of those following Buddhism and Islam and Christians are a growing minority—many of them converts to Evangelical Protestant denominations (Young et al., 2016). Life expectancy is 76 years (World Bank, 2015b) and the median age is about 35 years (United Nations, 2015). Although the government implemented the one-child policy in 1979 to control population growth (Young et al., 2016), this policy recently ended in 2015 due to the effects of an ageing population (BBC, 2015).

2.3 ECONOMY

Table 1. Economic measures of China

Indicator/year	Data
GDP per capita (purchasing power parity) (2014)	US$ 13 206.4 (current international dollars)[a]
Economic growth as percentage of GDP (2014)	7.3[a]
Debt as percentage of GDP (2015)	43.9[b]
Gini-index (2013)	42.1[c]
HDI (2014)	0.727 (ranked 90)[d]
Percentage of unemployment (2014)	4.7[a]

GDP: gross domestic product; gini-index: measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution; HDI: human development index.
Sources: [a] World Bank (2015b); [b] IMF (2015); [c] UNDP (2013); [d] UNDP (2015).

Since initiating market reforms in 1978, China has shifted from a centrally planned economy to one that is market-based and has subsequently experienced rapid economic and social development. GDP growth averaging about 10% a year has lifted more than 800 million people out of poverty. All Millennium Development Goals (MDGs) have been reached or are within reach. China recently became the second largest economy and is increasingly playing an important and influential role in the global economy. Still, China's per capita income is much less than that of advanced countries and poverty reduction remains a fundamental challenge. Rapid economic ascendance has brought with it inequality, rapid urbanisation, and the challenge of environmental sustainability. China also faces demographic pressures related to an ageing population and the internal migration of labour. China's 12th Five-Year Plan (2011-2015) addresses many of these issues including targets to reduce pollution, increase energy efficiency, improve access to education and healthcare, and to expand social protection. China's annual economic growth target of 7% in the 12th Five-Year Plan and 6.5% in the 13th Five-Year Plan signals the intention to focus on quality of life, rather than pace of growth (World Bank, 2015a).

2.4 ENVIRONMENT

China stretches for 5 250 km from east to west and 5 500 km from north to south, with a land frontier of about 20 000 km in length, and a coastline of 14 000 km. China is directly bordered by 14 countries, with Mongolia to the north; Russia and North Korea to the northeast; Vietnam, Laos, Myanmar,

India, Bhutan, and Nepal to the south; Pakistan to the southwest; and Afghanistan, Tajikistan, Kyrgyzstan, and Kazakhstan to the west. China also faces South Korea and Japan across the Yellow Sea, and the Philippines beyond the South China Sea (Young et al., 2016).

About one-third of the total area of China consists of mountains. China has the world's tallest mountain, Mount Everest, and the world's highest and largest plateau, in addition to its extensive coastal plains. The surface may be divided into three steps or levels. The first level is the Plateau of Tibet, which is the highest highland area in the world with an average elevation of over 4 000 metres above sea level. The second step lies to the north of the Kunlun and Qilian mountains and to the east of the Qionglai and Daliang mountain ranges, with sharp descents to between 1 800 and 900 metres. The third step consists of hills and plains lying below 450 metres. China is prone to geologic instability as a result of the northward movement of the Indian tectonic plate beneath southern Asia and throughout its history hundreds of earthquakes have collectively killed millions of people. The distribution of surface water in China is uneven and only a few parts of the country have sufficient quantities year-round (Young et al., 2016).

China's climate is heavily influenced by the seasonal movement of large air masses between the Pacific and mainland China. Three other air masses also influence China's climate; namely the equatorial continental air mass (a highly unstable southwest monsoon), the polar maritime air mass, and the equatorial maritime air mass. Because China is vast with complex topography, the interaction between different air masses and relief produces a wide range of climatic conditions. Precipitation decreases from the southeast to the northwest. The annual total precipitation along the southeastern coast amounts to over 2 000 mm; the Yangtze valley receives 1 000 to 1150 mm and farther north the annual rainfall is around 880 mm, with 500 to 650 mm falling annually in the lower reaches of the Huang He (Young et al., 2016).

3. HEALTH SYSTEM

3.1 OVERVIEW

China has made significant gains in achieving greater healthcare coverage and meeting MDGs 4, 5, and 6, as well as reducing the incidence of communicable diseases such as tuberculosis. However, the country is undergoing a significant epidemiological transition with an increasing burden of non-communicable diseases and environmental health challenges such as pollution. The government has made efforts to reform its health insurance schemes and ensure universal coverage as well as stimulate development in both the public and private health sectors. However, disparities in health status and resource allocation persist (WHO, 2014).

3.2 ORGANIZATION

China's health system is primarily under the jurisdiction of the National Health and Family Planning Commission. Other government entities that contribute to healthcare reform include the State Council Healthcare Reform Leadership Committee, National Development and Reform Commission, Ministry of Finance, Ministry of Human Resource and Social Security, Ministry of Civil Affairs, and Ministry of Commerce. Furthermore, governance has been decentralised to the Bureaus of Health in each of the 31 provinces or autonomous regions (Wennerholm, Scheutz, and Zaveri-Roy, 2013).

Healthcare is generally delivered through the following three systems (Wennerholm, Scheutz, and Zaveri-Roy, 2013):

1. **Hospitals**: includes general hospitals, traditional Chinese medicine hospitals, and special hospitals. Hospitals are further classified into tertiary, secondary, and primary, with tertiary hospitals providing high-level, specialised care and serving as training hospitals and hubs of research. Hospitals at each level are also divided into classes A, B, and C, with class A tertiary hospitals being the most advanced in a particular region.

2. **Primary healthcare facilities**: includes village health posts, urban community health centres, rural township health centres, and outpatient clinics.

3. **Public health institutions**: includes Centres for Disease Control, hospitals for special treatment and disease prevention, maternal and child healthcare centres, and health supervision institutions.

3.3 CAPACITY

Table 2. Number of facilities and health workers per population, China

Indicator/year	Data
Total number of hospitals/% public (2011)[a]	21 979/65.2
General hospitals	14 328
Public tertiary hospitals	1 350
Public secondary hospitals	6 034
Public primary hospitals	2 908
Traditional Chinese medicine hospitals	2 831
Special hospitals	4 283
Total number of primary healthcare facilities (2011)[a]	918 003
Urban community health centres	32 860
Rural township health centres	37 295
Outpatient clinics	184 287
Village health posts	662 894
Total number of public health institutions (2011)[a]	11 926
Centres for Disease Control	3 484
Hospitals for special treatment and disease prevention	1 294
Maternal and child healthcare centres	3 036
Health supervision institutions	3 022
Number of beds per 1 000 population (2011)	3.8[b]
Physicians per 1 000 population (2012)	1.9[b]
Nurses and midwives per 1 000 population (2012)	1.9[b]
Community health workers per 1 000 population (2011)	0.8[b]

Sources: [a] Wennerholm, Scheutz, and Zaveri-Roy (2013); [b] World Bank (2015b).

Human health resources in China are more heavily concentrated in urban areas, which contain 70% of physicians and nurses but only approximately 54% of the population. Inequalities in distribution are generally due to inequalities within individual provinces rather than across them. Such inequalities are also exacerbated in lower-income provinces. Although urban areas have greater health workforce densities, they also experience greater inequality in distribution (Anand et al., 2008).

China expanded tertiary education of medical professionals by integrating medical and nursing schools within universities in 1998, and has since increased admissions to college-level educational institutions in health-related fields by 350% and admissions to post-high school educational institutions in the same fields by 225% from 1998 to 2005. There is also greater diversity in educational programmes. As of 2006, 168 programmes exist for Western medicine, 27 programmes in traditional Chinese medicine, 179 programmes in nursing, and 6 programmes in pharmacy (Anand et al., 2008).

Pilot alliances between regional public hospitals in Shanghai, Beijing, Wuhan, and Shenzhen have been initiated to integrate care from the primary to tertiary levels. Patients will be allowed access to all care centres in the alliance, with the primary healthcare centre (community health centre) as the first point of contact. The government has also recently emphasised investment of private capital in non-profit private hospitals, furthering development of the private health sector (Wennerholm, Scheutz, and Zaveri-Roy, 2013).

3.4 POLICY ENVIRONMENT

The World Health Organization (WHO) (2014) states:

> The 12th Five-Year Plan for National Economic and Social Development (2011-2015) urges a deepening of health-care system reform that was launched full-scale in 2009 to meet people's basic healthcare demands. The State Council launched The 12th Five-Year Plan for Health Sector Development (2011-2015) and the Plan for Further Strengthening Health Care System Reform (2012-2015) in 2012.
>
> Urban Employee Basic Medical Insurance, Urban Residents Basic Medical Insurance and the new Cooperative Medical System are three basic medical insurance systems in China, with more than 95% of the population covered by 2011. Efforts to harmonize the schemes and deepen the insurance coverage, strengthen the essential medicines system, equalize the basic public health services, strengthen primary health services at the grass-root level, and tackle public hospital reform are priorities.
>
> The Government of China has strong commitment to international agreements such as MDGs and International Health Regulations to advance health and health security for its population and beyond. It is also addressing the burden of noncommunicable diseases through the National Plan for Noncommunicable Disease Prevention and Control 2012-2015 and implementing provisions of the Framework Convention of Tobacco Control. With China's deep engagement in the globalization of trade and strengthening of the regulation, quality assurance and management of medicines, vaccines and health technologies, China's contributions to global health are ever increasing.

WHO (2014) lists the following as strategic priorities for China:

1. Strengthen health systems towards universal health coverage.
2. Reduce morbidity and mortality from major diseases of public health importance and from risks to health and health security.
3. Reduce inequalities in health in the western region of China through subnational public health action.
4. Contribute to strengthening global health through supporting the collaboration of China in the global health arena.

3.5 HEALTH FINANCING

Table 3. Health financing data for China, 2014

Indicator	Data
Total health expenditure (current US$)	US$ 574 799 041 000
Public expenditure on health as percentage of total expenditure	55.8
Public expenditure on health as percentage of general government expenditure	10.4
OOP expenditure on health as percentage of total private expenditure	72.3
Private insurance expenditure on health as percentage of total private expenditure	10.2
Expenditure of non-profit institutions serving households as percentage of total private expenditure	0.4
External funding (current US$)	US$ 180 419 000
Health expenditure as percentage of GDP	5.5

OOP: out of pocket; GDP: gross domestic product.
Source: WHO (2015b).

The contribution of out-of-pocket (OOP) payments to health expenditures spiked from approximately 35% to nearly 60% in 2002. After the SARS outbreak, government made attempts to increase equity and develop a social security system with OOP payments falling back to baseline levels (Wennerholm, Scheutz, and Zaveri-Roy, 2013).

Three main medical insurance schemes are currently in place: urban employee basic medical insurance (UEBMI), urban resident basic medical insurance (URBMI), and the rural cooperative medical system (RCMS). All enterprises, government agencies, social groups, non-state-owned enterprises, and employees are required to participate in UEBMI, while URBMI covers urban residents not covered by UEBMI for hospitalisation and catastrophic illness. The RCMS is voluntary but covers 95% of rural residents with coverage for catastrophic illnesses (20 major illnesses), inpatient and outpatient services, and ambulatory services. The central government has long sought to merge urban and rural medical insurance schemes. Recent focus has been placed on the administration of URBMI and the RCMS and adoption of reforms based on the principle of universal coverage and equity (Wennerholm, Scheutz, and Zaveri-Roy, 2013). In addition to the three main schemes, there is a medical assistance programme for those in poverty, implemented through the Civil Affairs Administration (Hu et al., 2008).

As of 2005, there has been a misallocation of financial resources. Secondary and tertiary hospitals received 65% of health expenditures in 2005, while urban community health centres and rural township health centres received only 10.8%. Insurance coverage policies, such as URBMI, also incentivise use of higher-level facilities. Providers also receive the majority of their income from fees for services and medicines, further misaligning incentives (Hu et al., 2008).

3.6 COUNTRY DISEASE PROFILE

Table 4. Disease profile for China

Indicator/year	Data
Age-standardized DALYs per 100 000 for communicable diseases (2012)	3 282[a]
Age-standardized DALYs per 100 000 for non-communicable diseases (2012)	18 748[a]
Age-standardized DALYs per 100 000 for injuries (2012)	2 781[a]
Under-five mortality rate per 1 000 live births (2015)	11[b]
Infant mortality rate per 1 000 live births (2015)	9[b]
Maternal mortality rate per 100 000 live births (2015)	27[b]
Estimated cases of malaria (2013)	4 800[a]
Estimated deaths due to malaria (2013)	< 50[a]
Prevalence of TB per 100 000 (2014)	89[a]
Incidence of TB per 100 000 (2014)	68[a]
Deaths due to TB among HIV-negative people per 100 000 (2014)	2.8[a]
HIV prevalence as percentage of population (2014)	0.037[c]
Deaths due to AIDS (2014)	159 000[c]
Deaths due to non-communicable diseases (2012)	8 577 000[a]
Deaths due to homicide (2012)	15 480[a]
Percentage of top five causes of mortality (2012)[d]	
1. Stroke	23.7
2. Ischaemic heart disease	15.3
3. Chronic obstructive pulmonary disease	10.3
4. Trachea, bronchus, lung cancers	6.1
5. Liver cancer	3.9
Top five causes of DALYs (2012)[d]	
1. Cardiovascular diseases and diabetes	ND
2. Cancers	ND
3. Neuro-psychiatric conditions	ND
4. Other non-communicable diseases	ND
5. Unintentional injuries	ND

DALYs: disability-affected life years; TB: tuberculosis; ND: not determined.
Sources: [a] WHO (2015c); [b] World Bank (2015b); [c] National Health and Family Planning Commission of the People's Republic of China (2015); [d] WHO (2015a).

China's health status has improved significantly with life expectancy rising from 67 years in 1990 to 75 years in 2013. From 1990 to 2015, infant and under-five mortality rates dropped from 42 to 9 per 1 000 live births and from 54 to 11 per 1 000 live births, respectively; meanwhile maternal mortality decreased from 120 to 27 per 100 000 live births in the same period. MDGs 4, 5, and 6 have been achieved and the burden of communicable diseases such as malaria, measles, and other neglected tropical diseases has also declined. However, outbreaks of diseases such as hepatitis, tuberculosis, and HIV/AIDS remain a challenge, in addition to the increasing prevalence and incidence of non-communicable diseases (WHO, 2014; World Bank, 2015b).

Demographic changes such as a decreasing fertility rate, an ageing population, and an increased number of migrant workers continue to pose a challenge to China's healthcare system. Although China has enjoyed significant economic growth and poverty alleviation, rapid industrialisation and urbanisation have also led to significant increases in pollution and food safety concerns resulting in environmental issues remaining a challenge. Health disparities have also been a concern, though these have been addressed through healthcare reforms since 2009 (WHO, 2014; World Bank, 2015b).

4. INNOVATION ECO-SYSTEM

Decades of strong economic growth and the transition to a free market have contributed to the rise of China's innovation landscape; with private firms dominating over individuals, universities, and state-affiliated institutes, suggesting a shift towards the private sector. Patents granted to domestic versus foreign entities indicate greater local capacity for innovation. This has occurred almost evenly across many of the provinces, which may be in part due to the government's policy to coordinate and develop the central and interior regions. China stands to gain from further analysis of its innovative capabilities across regions, sectors, and technological classes. This knowledge could lead to more effective public policies and private firm strategies to optimise the exchange and application of resources (Huang, 2010).

REFERENCES

Anand, Sudhir, Victoria Y. Fan, Junhua Zhang, Lingling Zhang, Yang Ke, Zhe Dong, and Lincoln C. Chen. 2008. "China's Human Resources for Health: Quantity, Quality, and Distribution." *The Lancet* 372 (9651). Elsevier Ltd: 1774–81. doi:10.1016/S0140-6736(08)61363-X.

British Broadcasting Corporation. 2015. "China Profile - Timeline." http://www.bbc.com/news/world-asia-pacific-13017882.

Hu, Shanlian, Shenglan Tang, Yuanli Liu, Yuxin Zhao, Maria Luisa Escobar, and David de Ferranti. 2008. "Reform of How Health Care Is Paid for in China: Challenges and Opportunities." *The Lancet* 372 (9652): 1846–53. doi:10.1016/S0140-6736(08)61368-9.

Huang, Kenneth G. 2010. "China's Innovation Landscape." *Science* 329 (August): 632–33. doi:10.1126/science.1190212.

International Monetary Fund. 2015. "World Economic Outlook Database." Washington, DC.

National Health and Family Planning Commission of the People's Republic of China. 2015. "2015 China AIDS Response Progress Report." Beijing.

United Nations. 2015. "UNdata." http://data.un.org/.

United Nations Development Programme. 2013. "Income Gini Coefficient." http://hdr.undp.org/en/content/income-gini-coefficient.

———. 2015. "Human Development Report 2015." New York.

Wennerholm, Peter, Andreas Muranyi Scheutz, and Yasmin Zaveri-Roy. 2013. "China's Healthcare System – Overview and Quality Improvements." östersund, Sweden. http://www.tillvaxtanalys.se/en/home/publications/direct-response/direct-response/2013-05-20-indias-healthcare-system---overview-and-quality-improvements.html.

World Bank. 2015a. "China: Overview." http://www.worldbank.org/en/country/china/overview.

———. 2015b. "World Development Indicators." Washington, DC: World Bank. http://data.worldbank.org.

World Health Organization. 2014. "WHO Country Cooperation Strategy at a Glance: China." Geneva. http://www.who.int/countryfocus/cooperation_strategy/ccsbrief_chn_en.pdf?ua=1.

———. 2015a. "China: WHO Statistical Profile." Geneva: World Health Organization. http://www.who.int/gho/countries/chn.pdf?ua=1.

———. 2015b. "Global Health Expenditure Database." http://apps.who.int/nha/database.

———. 2015c. "Global Health Observatory Data Repository." Geneva: World Health Organization. http://apps.who.int/gho/data/node.main.

Young, Ernest P., Brian E. McKnight, Erik Zürcher, C. Martin Wilbur, Cho-yun Hsu, Kenneth G. Lieberthal, Chusei Suzuki, et al. 2016. "China." *Encyclopaedia Britannica*. Britannica. http://global.britannica.com/place/China.