

# HAPI

Health  
And  
Places  
Initiative

May 2015

## Chinese Demographics and Aging, Health, and Place

A RESEARCH BRIEF  
VERSION 1.0



Photo by Ann Forsyth

The HEALTH AND PLACES INITIATIVE (HAPI) investigates how to create healthier cities in the future, with a specific emphasis on China. Bringing together experts from the Harvard Graduate School of Design (HGSD) and the Harvard School of Public Health (HSPH), it creates a forum for understanding the multiple issues that face cities in light of rapid urbanization and an aging population worldwide.

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The Research Briefs series summarizes recent research on links between human health and places at the neighborhood or district scale and provides background for a number of other products—a set of health assessment tools, planning and urban design guidelines, urban design prototypes, and neighborhood cases. While the Research Briefs draw out implications for practice, it is these other tools that really provide specific, real-world guidance for how to create healthy places.

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Thanks to Heidi Cho, Lydia Gaby, Andreas Georgoulas, Emily Salomon, and Dingliang Yang for assistance and to Emily Salomon and Yifan Yu for helpful comments.

Suggested Citation:

Health and Places Initiative. 2015. Chinese Demographics and Aging, Health, and Place. A Research Brief. Version 1.0. <http://research.gsd.harvard.edu/hapi/>.

## Big Ideas

### Demographic and social issues

- The proportion of older people (age 65+) relative to the total population is growing in China, which already has the largest population of older people in the world.
- Changing family structures and rapid population aging will stress social, economic, and health care infrastructure in China.
- China will be the first major economy to “grow old before it grows rich”.
- Rural, low-income, and rural-to-urban migrants face a growing struggle with health care costs and coverage.

### Place issues

- Rural to urban migration in China is occurring at a rapid rate. Those living in rural areas face a widening wealth gap and deepening rural-urban divide in terms of geographic healthcare access.
- Simultaneously, urbanization is associated with more chronic and disabling diseases as people age, an increased risk of communicable disease, and increasing environmental health issues in urban areas (e.g. air pollution, water pollution, sub-standard housing).
- While urban migrant workers may be healthier than non-migrant populations in the short-term, in the long-term migrants have poorer health (than non-migrants) due to the cost for health care, a lack of access to health insurance, occupational safety problems, and poor psychological well-being of migrant workers (along with accompanying migrant children and elderly).
- These inequalities between the urban and rural, rich and poor cause a complicated situation, with diverse needs.

### Future needs

- China faces the need for major reforms in healthcare capacity, coverage, affordability and access for rural populations, migrant workers, and an increasingly aging population.
- There is a need for more diversity in housing types, increased public infrastructure, and innovative social welfare programs for the rapidly growing aged population, who may no longer be able to depend on children or government pensions for financial support.
- The Chinese senior pension strategy heavily emphasizes home-based care followed by community care and facility care. The senior housing market has begun to increase rapidly, although it is not clear what proportion will be public versus private development. Lack of public investment is a challenge for construction, but how private capital enters the senior industry is uncertain.

## What the Research Says

### Health Issues

**The proportion of people over the age of 60 is growing rapidly in China, which puts increasing stress on social and healthcare structures.**

*Example:* The United Nations Population Division World Population Prospects (2013, using updated 2010 data) indicates that China has the largest older population of those aged 65 and older, numbering 113 million in 2010 (the most recent data available). For comparison, the next largest older populations in 2010 were India (61 million) and the United States (40.7 million) (UN 2013).

*Example:* In an analysis of demographic changes in China, Riley (2004) used Chinese census data to determine that older groups are growing in both absolute numbers and as a proportion of the population. The proportion of Chinese over the age of 60 is projected to increase from 10 percent in 2000 to 27 percent in 2050 (Riley 2004, 21).

*Example:* Using data compiled by the World Bank and United Nations, Wang (2012, 19) describes this problem, “This compression of demographic change into such a short period of time means that China will be the first major economy to grow old before it grows rich. At China’s current level of population aging, with 9% of the



## CHINESE DEMOGRAPHICS AND AGING, HEALTH, AND PLACE

total population over the age of 65, other societies had already achieved a much higher level of standard of living. Measured by per-capita purchasing power parity, income levels in Japan were twice as high, and those in South Korea nearly three times higher. Moreover, China's social infrastructure—especially its pension and healthcare system—is much weaker than those in most other aging societies. And no other countries cope with such a large share of families supported by single children” (Wang 2012, 19).

*Example:* In a brief literature review (20 articles, mostly published 2004 through 2007), Flaherty et al. (2007) used survey data gathered by the World Health Organization and found that as of 2006, the 60+ population requiring nursing home care in China was 6.5 million. The authors then projected this number to rise to 16.8 million in 2030, based on a 5% estimate seen in most developed countries (Flaherty et al. 2007, 1296).

*Furthermore,* Flaherty continues to highlight the implications of aging and health care access, stating that “although older Chinese currently have a good probability of having worked for some type of government office and may have some health insurance, because most of society before the policy of opening up began in 1978 was government run, the group born after 1960 are less likely to have coverage... this is the group that will grow dramatically” (Flaherty et al. 2007, 1299).

**Many Chinese people face a growing struggle with health care costs and coverage, especially in rural areas. Out-of-pocket medical costs cause financial hardship, and increase the numbers of those living below the poverty line.**

*Example:* Liu et al. (2003) used data from the 1998 China National Health Services Survey (40,210 rural households surveyed) to show that, “Due to escalating medical costs and lack of insurance coverage, medical spending often causes financial hardship to many rural families...Based on the reported statistics on income alone, 7.22% of the whole rural sample was below the poverty line. Out-of-pocket medical spending raised this by more than 3 percentage points [to 10.22%]” (Liu et al. 2003, 216).

*Example:* Flaherty et al. (2007) cited the Chinese Ministry of Health's (2004) major findings from the 2003 China Health Services Survey (57,023 households) as, “Out-of-pocket expenditures for healthcare costs between 1991 and 2001 increased from an average of 38.8% to 60.5% of the total healthcare costs. According to the same report, 64% of 43% of hospitalized patients who discharged themselves against medical advice did so, because they ran out of money” (Flaherty et al. 2007, 1299).



Photo by Ann Forsyth

Rural areas in China face a growing inequality and discrepancies in wealth and healthcare access.

## Place Issues

### **Rural to urban migration in China is happening at a rapid rate.**

*Example:* In his book *Social Ties, Resources and Migrant Labour Contention in Contemporary China*, Becker (2014) states that the Chinese census defines migrants as, “Those who moved to their current residence from outside their home township or urban district and lived in a new residence for at least six months in a prior year” (Becker 2014, 26).

*Example:* China’s 2010 Population Census reported 261.3 million internal migrants. Compared to the 2000 population census, migrants increased by 116.9 million people, or 81%. There are also increasing numbers of rural-to-urban migrants. Since 2000, the numbers of urban residents increased by 207.1 million persons, and the number of rural residents dropped by 133.2 million people. The proportion of urban residents is reported as having risen by 13.46% (National Bureau of Statistics of the Republic of China 2011).

### **However, it is difficult to estimate the numbers of unregistered migrants, or ‘floating populations’, in China.**

*Example:* Riley’s analysis of demographic changes in China describes that unregistered migration is illegal and therefore vastly underreported. Estimated statistics vary widely with high uncertainty, which has strong implications for rates of healthcare access, communicable diseases, and stresses on urban health infrastructure systems (Riley 2004, 28).

### **Those aging in rural areas face a widening wealth gap and deepening rural-urban divide in healthcare access.**

*Example:* Blumenthal and Hsiao (2005) reviewed 21 articles in the English and Chinese literature to examine the history and current status of the Chinese health care system. They demonstrate, “In China’s market-based health care system, the wealth of consumers is a critical predictor of their access to service and the quality of services, and with urban incomes triple the incomes in rural areas, urban residents have fared far better than rural citizens” (Blumenthal and Hsiao 2005, 1168).

*Example:* Riley’s analysis of demographic changes in China shows that “The rural-urban mortality gap is persistent and growing. Rural health problems and higher mortality are tied to lower living standards and inadequate health services” (Riley 2004, 8).

### **Urban areas offer many health and economic advantages over rural areas. But urbanization can contribute to health problems too: such as spread of communicable disease, health care delivery to the urban migrant population, and hazards from urban environments.**

*Example:* Li et al. (2012) reviewed literature from the past 10 years (67 articles) on urbanization and human health in East and South Asia. They describe how, “Urbanization in East Asia countries offers many opportunities for improvements in population health. However, it is also associated with health risks including air pollution, occupational hazards and traffic injury, and risks caused by dietary and social changes” (Li et al. 2012, 436).

*Example:* Gong et al. (2012) reviewed the recent English and Chinese literature on urbanization and health in China (85 articles). They find that urbanization affects health in four ways: first, through “chemical, biological, and physical hazards”. Second, through “changes in occupational activities, socioeconomic status, and social structures” that can promote chronic diseases. Third, “the massive rural-to-urban migration...created particular challenges for health-care delivery in highly mobile and often undocumented populations... Finally, urbanisation has connected previously isolated locations... with implications for the spread of communicable infections across the country” (Gong et al. 2012, 844).



## Vulnerable Groups

**Health disparities among age groups (children, adult, elderly), status (migrant, ethnic minority), or location (urban versus rural) stem mostly from differences in education and income, with variations due to social and political differences in China's history.**

*Example:* Using data from the China Health and Nutrition Survey (N=7,432 individuals in 1991, 6,717 in 1993, 6,991 in 1997, 6,494 in 2000, and 6,648 in 2004—altogether yielding 34,282 person-year records), Chen et al. (2010) analyzed a five-wave data set spanning 13 years, reaching the conclusion that "...models largely support cumulative disadvantage theory: the [socioeconomic status (SES)] gap in health is wider at older ages than at younger ages... affected by education and income. By influencing resources such as access to health care, health behavior, and social support, the cumulative effect of SES results in greater inequalities in health over the life course" (Chen et al. 2010, 143).

**Urban migrants often have better short-term physical health, but worse health access, greater long-term health risk, and psychological distress.**

*Example:* Chen (2011) surveyed households in Beijing in 2009 (N=1474) to research the widely accepted "healthy migrant effect". He concludes that, "Migrant populations generally have better physical health than non-migrants in China, but report higher psychological distress than do non-migrating populations, a trend that lessens as the length of residence in the urban destination increases" (Chen et al. 2011, 1294–301).

*Example:* Hesketh et al. (2008) surveyed thousands of urban, rural and migrant workers (N=8,319 total) in Eastern China in 2004. Hesketh et al. (2008) conclude that, "although healthy at the outset, migrants may be vulnerable to poor long-term health because of their apparent inattention to health and reluctance to attend health-care facilities, which our study highlights... This inattention to health may have important implications, not only for the long-term health of the workforce, but also for the burden of ill health in rural areas, as migrants return to their hometowns when they become ill" (Hesketh et al. 2008, 196).



Photo by Ann Forsyth

Rural-to-urban migrants tend to have poorer health (than non-migrants) in the long-term.

*Furthermore*, Hesketh et al. surveyed Chinese workers' eligibility for sick pay and health insurance in Zhejiang Province, and found that "Only 19% of migrants had any kind of health insurance, with varying percentages of reimbursement, and only 26% were entitled to some sick pay... This lack of coverage is explained by the current urban health insurance system, which is work unit-based... It is only mandatory for employees holding urban hukou [residence permits], though many work units... still do not provide health insurance to their urban employees unless they are on longer contracts" (Hesketh et al. 2008, 196).

*Example:* As previously described, Gong et al.'s (2012) review on urbanization and health in China highlighted low insurance rates and high exposure risk for rural-urban migrants, who often go undiagnosed and untreated in urban environments, leading to poorer health over time, and return trips home for treatment [citations removed](Gong et al. 2012, 846).

### **Rural-to-urban migrants and rural children have worse health outlooks than native urban children, but this gap may be declining.**

*Example:* Gong et al. (2012) reviewed the English and Chinese literature of the past 15-20 years on urbanization and health in China (85 articles cited). Gong et al. (2012) concludes that children of migrant workers suffer from similarly poor access to health care and immunization, reporting that immunization coverage, "...is less extensive than in both their urban and rural counterparts" (Gong et al. 2012, 846).

*Example:* Using data from the China Health and Nutrition Survey (1989–2006, N=15,719, pooled cross sectional observations) Liu et al. researched health disparities between urban and rural children in China. They found that "Urban children are approximately 40% less likely to be stunted (OR = 0.62;  $p < 0.01$ ) or underweight (OR = 0.62;  $p < 0.05$ ) during the period 1989–2006. We also find that the urban–rural health and nutritional disparities have been declining significantly from 1989 to 2006. Both urban and rural children have increased consumption of high protein and fat foods from 1989 to 2006, but the urban–rural difference decreased over time. Moreover, the urban–rural gap in child preventive health care access was also reduced during this period" (Liu et al. 2013, 294).

## **Things for Certain (or semi-Certain)**

**In most countries today, there is a dramatic increase in the proportion of older people relative to the total population, due to overall trends of increasing life expectancy and lower rates of fertility. The relative proportion of the oldest-old (those over age 80) is expected to rise even more by 2050.**

*Example:* According to the United Nations' (UN) Department of Economic and Social Affairs' report on World Population Prospects (2010), in 1950 the proportion of those aged 65 or higher in the world's more developed regions was 8%. By 2010, the proportion of the population in developed regions aged 65 or older had doubled to 16%. The population of older people is expected to continue to rise in developed regions. Estimates for 2050 place those aged 65 and older making up 26% of the population in developed regions (UN 2011, 372–373).

*Example:* The NIH (2007) report *Why Population Aging Matters: A Global Perspective* explains, "Less developed regions of the world have experienced a steady increase in life expectancy since World War II, with some exceptions in Latin America and more recently in Africa, the latter due to the impact of the HIV/AIDS epidemic. The most dramatic gains have occurred in East Asia, where life expectancy at birth increased from less than 45 years in 1950 to more than 72 years today" (Dobriansky et al. 2007, 8).

*Example:* According to the Organisation for Economic Co-operation and Development (OECD) historical population data and projections, "The increase in the share of the population aged 80 years and over will be even more dramatic. On average across OECD countries, 4% of the population were 80 years old and over in 2010. By 2050, the percentage will increase to 10%" (OECD 2013, 170).

**China has the largest population of older people in the world, due to three factors: its increasing longevity, especially low fertility rates ('one child policy'), and one of the largest populations in the world.**



## CHINESE DEMOGRAPHICS AND AGING, HEALTH, AND PLACE

*Example:* The National Institute of Health (2011, 5) *Global Health and Aging* report estimates that improving health statuses and subsequent increasing longevity will lead to the growth of China's elderly population to 330 million by 2050, three times the estimated population of 110 million of 2010 (United Nations 2010 world population data).

*Example:* Gong et al. (2012) reviewed the English and Chinese literature of the past 20 years on urbanization and health in China (85 articles included). They write, "Although China's population is following the worldwide trend (i.e., ageing due to reduced fertility rates and increasing life expectancies), the country is unique in that government policy, namely the one-child policy, has had a key role" (Gong et al. 2012, 848).



Photo by Ann Forsyth

The proportion of older people relative to the total population is growing in China, which already has the largest population of older people in the world.

### Things up in the Air

**China's health insurance systems and subsidies remain up in the air, not only for migrants but also for the general elderly population.**

*Example:* In "An Aging World: 2008 International Population Reports" Kinsella and He use Chinese labor statistics data to describe the pension situation in China by an increase in the number of people receiving a formal pension and a concurrent reduction in the ratio of covered workers to pensioners "...China remains in the process of developing the largest pension system in the world." (Kinsella and He 2009, 129).

**It is difficult to estimate how many facilities (e.g. nursing homes, geriatric doctors, etc.) will actually be needed for the aging Chinese population, since needs vary by demographics and health conditions. Estimates of these rates vary by country.**

*Example:* Flaherty (2007) used 5% of China's population who are and will be over 60 years old to estimate how many of those individuals require nursing-home level care, based on a rate used for other developed countries. However, this estimation method may not be appropriate for the Chinese population.

*Example:* The recent report from the Joint Center for Housing Studies of Harvard University (2014) states, "At any given time, only about 2 percent of older adults reside in group care settings" (JCHS 2014, 5). And "The likelihood of living in group quarters remains very low until age 80, when the share increases to 8.3 percent or one in 12 persons" (JCHS 2014, 19). "Even so, assisted living facilities, nursing homes, and hospices provide critical support for those recovering from acute medical episodes or at the end of life. According to [the Department of Health and Human Services] HHS, 37 percent of those aged 65 and older will receive care in an institutional facility at some point in their lives" (Joint Center for Housing Studies 2014, 5).



## Implications

**China faces the need for major reforms in healthcare capacity, insurance coverage, affordability, and geographical access to address inequalities for rural populations, migrant workers, and an increasingly aging population.**

*Example:* HelpAge International's Global AgeWatch Index team (2013) describes four main domains supportive of wellbeing as we age: income security, health status, employment and education, and an enabling environment (Gorman et al. 2013, 14). The team used these domains (with indicators) to rank 91 countries worldwide. On these factors, China ranks only 35 out of 91 ranked countries (Gorman et al. 2013, 17).

*Furthermore,* they state, "In terms of sheer scale of numbers and proportions of older people, China [ranked 35 out of 91 countries] is predominant, but the rapidity of the demographic transition means that it is only in recent years that the country has begun addressing this challenge. China's comparatively low ranking in income security and health reflects this. However, bold initiatives to extend social protection and healthcare insurance to urban and rural areas have significant potential to change the outlook for older Chinese people. At the same time, and despite the impacts of the 'one-child' family policy in limiting available care and support, older people express a high level of satisfaction with the enabling environment in which they live" (Gorman et al. 2013, 34).



Photo by Ann Forsyth

There is also a need for innovative social welfare programs for the rapidly growing aged population, who may no longer be able to depend on children or government pensions for financial support.

**Globally, there is a need for more diversity in housing types, public infrastructure and social welfare programs for the growing aged population, who may no longer be able to depend on children or government pensions for financial support. This has lessons which can be applied to China.**

*Example:* The WHO provides a guide to *Global Age-Friendly Cities*, in which it defines an age-friendly city as one that "encourages active ageing by optimizing opportunities for health, participation and security in order to enhance quality of life as people age. In practical terms, an age-friendly city adapts its structures and services to be accessible to and inclusive of older people with varying needs and capacities." The guide comes with a companion *Checklist of Essential Age-friendly Cities Features* covering 8 broad topics: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, communication and information, civic participation and employment, and community and health services (WHO 2007, 1).

*Example:* In their book, *Aging: the Social Context*, Morgan and Kunkel (2001) explain as the numbers of older people increase, so too will the importance of societal issues related to this demographic. "Health care, education, and the economy are good examples of social organizations and institutions that are affected greatly by the growth of the older population" (Morgan and Kunkel 2001, 8).

*Example:* The National Institute of Health (NIH 2011, 3) describes how "people today have fewer children, are less likely to be married, and are less likely to live with older generations. With declining support from families, society will need better information and tools to ensure the well-being of the world's growing number of older citizens." Finally, "The ultimate impacts of these changing family patterns are unknown. Older people who live alone are less likely to benefit from sharing goods that might be available in a larger family, and the risk of falling into poverty in older age may increase as family size falls. On the other hand, older people are also a resource for younger generations, and their absence may create an additional burden for younger family members" (NIH 2011, 22).

## CHINESE DEMOGRAPHICS AND AGING, HEALTH, AND PLACE

*Example:* The National Institute of Aging reports that, “The number, and often the percentage, of older people living alone is rising in most countries” (Dobraiansky et al. 2007, 17).

*Example:* Forsyth (2013) reviewed the international literature on suburbs (over 100 articles cited) and argues that suburbs will be a critical tool in managing the demographic and economic challenges of a globally aging population in the coming century. She states that, “Even with healthier aging this is a large change—in family life, social support, retirement incomes, and in how people interact with places including suburbs. Here outer location is likely the most crucial issue; some suburbs will be well placed for older people who can no longer drive or who need other support. Houses might be large enough for intergenerational or group housing; many suburbs have vibrant and convenient town centers. They can be redeveloped at a human scale. But many suburbs will need extensive retrofitting and some may be just too expensive to service with implications for the possibilities of aging in place” (Forsyth 2013, 6).

**The Chinese senior pension strategy heavily emphasizes home-based care followed by community care and facility care. The senior housing market has begun to increase rapidly, although it is not clear what proportion will be public versus private development. Lack of public investment is a problem for construction, but how private capital enters the senior industry is uncertain.**

*Example:* Feng et al. reviewed the literature (48 articles) on policy challenges related to creating a long-term care system for an aging Chinese population. They found that despite the Chinese government actively promoting home-based care as the main source of services for the aging, home and community-based services remain spotty outside of a few major cities, while institutional elder care are growing rapidly especially in the urban private sector (Feng et al. 2012, 2767-2768, 2770). However, there is a lack of regulatory framework and enforcement (Feng et al. 2012, 2769).

*Example:* Chu and Chi (2008) reviewed the literature (35 articles) and recent data from the Chinese Ministry of Civil Affairs on nursing homes in China. They describe how, “...the present policy emphasis is on community and home care...At present, community home care services for older adults are still in their early and suboptimal stage of development” (Chu and Chi 2008, 242). The authors conclude, “Because of the change of the family structure in China, the prevalence of nursing home residents among older adults is anticipated to increase. The Chinese government realizes its financial limitation in coping with this emerging need and has recently encouraged private and overseas investors to build and operate private nursing homes in China” (Chu and Chi 2008, 242).



Photo by Ann Forsyth

Despite the Chinese government actively promoting home-based care as the main source of services for the aging, home and community-based services remain spotty outside of a few major cities, while institutional elder care are growing rapidly especially in the urban private sector.



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## CHINESE DEMOGRAPHICS AND AGING, HEALTH, AND PLACE

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