

**Combatting Healthcare Scarcity: Geographic Disparities, Aging Populations, and  
Proactive Reform Strategies**

## Introduction

Access to quality healthcare stands as a prominent challenge in the 21st century. The World Health Organization estimates that currently, there is a global shortage of 4.3 million healthcare professionals.<sup>1</sup> The World Health Organization expects this shortage to be exacerbated; if no measures are taken to address this shortage, there will be an estimated shortage of 10 million health workers by 2030.<sup>2</sup> This shortage disproportionately affects low and middle-income countries.<sup>3</sup> There are considerable barriers to addressing the shortages in these countries. There is a disconnect between the availability of specific educational and training programs to train professionals and the needs of the population.<sup>4</sup> Even more concerning is the increasing international migration of qualified health workers away from low to middle-income countries.<sup>5</sup> This is caused in part due to the lack of funds to pay health workers.<sup>6</sup> The problem becomes twofold; not only are there unmet health needs, but there are many factors that discourage people from serving these populations.<sup>7</sup>

To make matters worse, these shortages are further intensified among certain segments of the population. The availability of healthcare varies based on a person's age, race, ethnicity, socioeconomic status, disability status, gender, geographic location, education, and culture.<sup>8</sup> This essay will examine a few of these segments, namely geographic location and age, using the

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<sup>1</sup> World Health Organization, "Health Workforce," World Health Organization, accessed January 1, 2024, [https://www.who.int/health-topics/health-workforce#tab=tab\\_1](https://www.who.int/health-topics/health-workforce#tab=tab_1).

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> National Institute on Aging, "Goal 3: Health Disparities in Older Adults," National Institute on Aging, accessed January 1, 2024, <https://www.nia.nih.gov/about/aging-strategic-directions-research/goal-health-disparities-adults>.

Chinese healthcare delivery system as a case study to inform the worldwide disparities in healthcare.

### *Geographic Location*

Rural residents are more likely to face additional challenges than their suburban and urban counterparts. On average, rural residents smoke more, exercise less, have less nutritional diets, and are more likely to be obese than suburban residents.<sup>9</sup> These behaviors are correlated with income and education, and efforts to change unhealthy behaviors have often proven less effective among low-income, less-educated populations.<sup>10</sup> Rural residents are also more likely to have poorer health, being ranked poorly on metrics such as health behaviors, mortality, morbidity, and maternal and child health measures.<sup>11</sup> These relate as higher levels of education are associated with a longer life and an increased likelihood of obtaining or understanding basic health information and services needed to make appropriate health decisions.<sup>12</sup> Additionally, the health disparities include access to healthcare as the rural location makes it difficult for healthcare workers to be available.<sup>13</sup>

### *Age*

Another vulnerable segment of the population is the elderly. With the population of people over 60 projected to be 1.4 billion by 2030, the elderly population should not be

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<sup>9</sup> David Hartley, "Rural Health Disparities, Population Health, and Rural Culture," *American Journal of Public Health* 94 (2004): 1675-1678, <https://doi.org/10.2105/AJPH.94.10.1675>.

<sup>10</sup> *Ibid.*

<sup>11</sup> *Ibid.*

<sup>12</sup> Centers for Disease Control and Prevention, "Health Disparities in Youth," Centers for Disease Control and Prevention, accessed January 1, 2024, <https://www.cdc.gov/healthyyouth/disparities/index.htm#:~:text=Health%20disparities%20are%20preventable%20differences,youth%20health%20risk%20behaviors%20persist.>

<sup>13</sup> World Health Organization, "Health Workforce," World Health Organization, accessed January 1, 2024, [https://www.who.int/health-topics/health-workforce#tab=tab\\_1](https://www.who.int/health-topics/health-workforce#tab=tab_1).

ignored.<sup>14</sup> Especially in low and middle-income countries, conditions such as ischaemic heart disease, stroke, and chronic obstructive pulmonary disease contribute to their mortality.<sup>15</sup> Yet, this population faces many barriers despite these conditions. In one survey, 63% of elderly respondents found it difficult to access health care when needed.<sup>16</sup> Among the major barriers that older persons confront is affordability.<sup>17</sup> The elderly may often work in low-paying jobs and live off of family support or passive income like assets or pensions.<sup>18</sup> Where health care is not provided universally, many elderly people may avoid preventive care and treatment or pay medical fees at the expense of other basic needs.<sup>19</sup> For the elderly, other factors such as country and geographic location have an intersectional effect. For instance, when health care is accessed, older people, particularly in developing countries, often encounter health care professionals who have little knowledge of their distinct health issues and health care services that are not age-appropriate.<sup>20</sup> Additionally, many elderly people live in rural areas and thus are especially prone to shortages of skilled health workers.<sup>21</sup> Accessibility is another significant barrier to health care, particularly for those older persons with limited mobility and in rural areas with poor transportation infrastructure and where long distances must be traveled to reach health facilities.<sup>22</sup>

### **China's Aging Rural Population: A Case Study**

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<sup>14</sup> United Nations, "Global Health and Aging," United Nations, accessed January 1, 2024, <https://www.un.org/development/desa/ageing/wp-content/uploads/sites/24/2018/04/Health-Inequalities-in-Old-Age.pdf>.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> Ibid.

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

To demonstrate these challenges in context and suggest methods to solve its healthcare scarcity, China with its aging rural population is an ideal candidate. With a population of 1.41 billion people as of 2022, it is one of the most populated countries, meaning that China's healthcare delivery system, as well as any shortages in healthcare the system has, impacts many lives.<sup>23</sup> China's demographics and economy subject it to healthcare disadvantages. China is a middle-income country.<sup>24</sup> China's rural population makes up about 1/3 of the population.<sup>25</sup> The median age in China is also rising; it is projected to be 50 by 2050.<sup>26</sup>

Overall, China's healthcare delivery system does not adequately address the needs of its people, especially the elderly and the rural population.<sup>27</sup> Reflecting the literature, factors such as smoking, sedentary lifestyles, alcohol consumption, air pollution, and non-communicable diseases account for more than 80% of 10.3 million deaths annually and lead to heart disorders in elderly people.<sup>28,29</sup> As measures such as campaigns to encourage healthy lifestyles and improved communication could curtail these outcomes, healthcare needs to be reformed to include preventative measures. Additionally, as of 2020, 70 million people, which is 5% of China's population, are uncovered by a basic medical insurance program.<sup>30</sup> The hospital-centric nature of

<sup>23</sup> World Bank, "Population, Total - China," World Bank, accessed January 1, 2024, <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=CN>.

<sup>24</sup> World Bank, "China Overview," World Bank, accessed January 1, 2024, <https://www.worldbank.org/en/country/china/overview>.

<sup>25</sup> Statista, "Urban and Rural Population of China 2011-2023," Statista, accessed January 1, 2024, <https://www.statista.com/statistics/278566/urban-and-rural-population-of-china/#:~:text=In%202023%2C%20about%20933%20million,populous%20country%20in%20the%20world>.

<sup>26</sup> Statista, "Age distribution in China in 2020," Statista, accessed January 1, 2024, <https://www.statista.com/statistics/270163/age-distribution-in-china/#:~:text=According%20to%20the%20age%20distribution,percent%20of%20the%20total%20population>.

<sup>27</sup> Jiwei Lou et al., "Deepening Health Reform In China" (Washington, D.C.: World Health Organization, 2016), pp. ix.

<sup>28</sup> Ibid., xvi.

<sup>29</sup> "Aging and Health in China: What Can We Learn from the World's Largest Population of Older People?," PRB, accessed December 10, 2022,

<sup>30</sup> Baokang Yi, "An Overview of the Chinese Healthcare System," *Hepatobiliary Surgery and Nutrition* 10, no. 1 (January 10, 2021): pp. 93-95, <https://doi.org/10.21037/hbsn-2021-3>.

the system means people aren't treated at the grass-root level.<sup>31</sup> With the increased migration of younger generations to urban areas, the rural elderly population experiences a disparity in healthcare accessibility.<sup>32</sup> These exemplify how the delivery systems in China don't adequately reach everyone, especially those at lower income levels, which compromises a universally healthy population. The healthcare system needs quality improvement as well. The system is concerned with increasing treatment instead of improving treatment and there is a shortage of healthcare professionals.<sup>33</sup> With this pressure to provide more treatment with limited personnel, healthcare professionals may not be able to ensure everyone is treated well or at all, and the quality of care becomes insufficient. Due to these deficiencies of preventative measures and insufficiencies in the quantity and quality of healthcare, China's healthcare delivery system needs reform to address the disparities.

### **Reforms**

Seeing these deficiencies in the healthcare delivery system, reform catered toward the growing elderly population, especially in China, but worldwide as well must be handled with care to ensure the prevention of illness as well as higher quality and quantity of healthcare.

#### *Preventative Campaigns*

Literature on healthcare reform is largely concerned with rectifying the shortages. It is especially concerned with increasing the amount of healthcare available by increasing the number of healthcare workers through financial incentives and increasing the quality of medical

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<sup>31</sup> Jiwei Lou et al., "Deepening Health Reform In China" (Washington, D.C.: World Health Organization, 2016), pp. xvi.

<sup>32</sup> "Aging and Health in China: What Can We Learn from the World's Largest Population of Older People?," PRB, accessed December 10, 2022,

<sup>33</sup> Jiwei Lou et al., "Deepening Health Reform In China" (Washington, D.C.: World Health Organization, 2016), pp. xvi.

education and training.<sup>34</sup> However, this does not reduce the increasing health needs of the population and puts unrealistic expectations on the healthcare system to perform. This is coupled with the fact that many health conditions faced by aging rural populations are largely preventable through healthier lifestyle choices.

Specifically for the Chinese case, targeted interventions in the form of campaigns help increase preventative measures among the elderly population, especially those in rural areas.<sup>35</sup> This campaign may be inspired by the Million Hearts Campaign, which has been successful in securing over 100 partners in committing to campaign goals, providing resources that promote healthy lifestyles and protocols such as meal planning and tobacco cessation management, and reducing smoking as well as sodium and trans fat intake through legislation.<sup>36, 37</sup> Through these efforts, the Million Hearts Campaign Prevented an estimated 135,000 heart attacks, strokes, and related acute cardiovascular events.<sup>38</sup> The campaign saved \$5.6 billion in direct medical costs, a substantial portion of which was saved by public insurance programs such as Medicare and Medicaid.<sup>39</sup> A similar campaign in China could target organizations that cater to elderly populations, especially those in rural areas, informing them of healthy lifestyle choices to reduce the number of heart disorders. Preventative campaigns can be universal by learning about the population's healthcare needs and creating catered messages that decrease these needs. The impacts are also universal; by providing these services with resources to promote healthy lifestyles, the campaign could bolster the caregiving ability of home and community-based

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<sup>34</sup> World Health Organization, "Health Workforce," World Health Organization, accessed January 1, 2024, [https://www.who.int/health-topics/health-workforce#tab=tab\\_1](https://www.who.int/health-topics/health-workforce#tab=tab_1).

<sup>35</sup> Jiwei Lou et al., "Deepening Health Reform In China" (Washington, D.C.: World Health Organization, 2016), pp. 55.

<sup>36</sup> Ibid., pp. 56.

<sup>37</sup> Cdc, "Partners & Progress: Million Hearts®," Centers for Disease Control and Prevention, December 7, 2021, <https://millionhearts.hhs.gov/partners-progress/index.html>.

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

services that address the disparity in healthcare accessibility the rural elderly population faces.<sup>40</sup> The campaign would educate the rural population and reduce healthcare needs, reducing the strain on the healthcare system. The money the campaign can save can then be invested in funding medical education and training, increasing the capabilities of the broader healthcare system. This will provide the preventative measures necessary to decrease illness among the elderly population, increasing the availability of health professionals and accessibility of treatment.

### *Targetted Healthcare*

As mentioned previously, literature on healthcare reform as well as China's current approach focus on the healthcare system rather than the patients. A method of increasing quality would be to implement a program similar to the Netherlands' Horizon model. In the first step of the Horizon model, questionnaires and surveys collect information on personal health status, physical abilities, well-being, and the ability to cope with daily routines.<sup>41</sup> Care profiles are developed to highlight prevalent health concerns among the elderly.<sup>42</sup> Subsequently, a random population survey is conducted annually to validate if the generated profiles accurately represent the entire population.<sup>43</sup> Demographic trends are used to estimate the number of people that fit each profile, estimating the magnitude of each health concern.<sup>44</sup> The second step involves determining the care needed for each profile.<sup>45</sup> The third step focuses on identifying the most suitable setting of care based on the type of care required. This assessment considers the needs of

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<sup>40</sup> "Aging and Health in China: What Can We Learn from the World's Largest Population of Older People?," PRB, accessed December 10, 2022,

<sup>41</sup> Jiwei Lou et al., "Deepening Health Reform In China" (Washington, D.C.: World Health Organization, 2016), pp. 111.

<sup>42</sup> Ibid.

<sup>43</sup> Ibid.

<sup>44</sup> Ibid.

<sup>45</sup> Ibid.

each profile and determines the optimal care setting.<sup>46</sup> The three-step model ensures a comprehensive understanding of health profiles, facilitates efficient care categorization, and informs strategic planning for the allocation of resources in response to the specific needs of the elderly.

Applied to the Chinese healthcare context, the implementation of the Horizon model's surveys can play a vital role in measuring the severity of known trends, such as heart disorders among the elderly rural population, and unveiling any emerging health needs. This information can be instrumental in providing the appropriate treatment and working in tandem with preventative campaigns. By tailoring campaign messages to address these specific health needs, the overall effectiveness of preventative measures is likely to be significantly enhanced. Moreover, the Horizon model's provision of clear information about health needs to healthcare workers can alleviate the burden on professionals, ensuring more targeted and effective treatments for the population. This holistic and patient-centered approach aligns with the goal of optimizing healthcare delivery and addressing the specific healthcare needs of both the Chinese elderly population as well as vulnerable populations worldwide.

### **Conclusion**

The global shortage of healthcare professionals, projected to worsen without intervention, presents a critical challenge, particularly affecting low and middle-income countries. Disparities in healthcare access further compound the issue, with rural geographic location and age as significant factors influencing health outcomes. Focusing on China's aging rural population as a case study, the inadequacies of the healthcare delivery system are evident, marked by preventable health issues and a shortage of healthcare professionals. Reform efforts are

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<sup>46</sup> Jiwei Lou et al., "Deepening Health Reform In China" (Washington, D.C.: World Health Organization, 2016), pp. 111.

imperative, and the essay proposes targeted interventions, such as preventative campaigns inspired by successful models like the Million Hearts Campaign, to address lifestyle-related health concerns among the elderly rural population. A targetted healthcare approach, modeled after the Netherlands' Horizon model, is recommended to better understand health profiles, efficiently categorize care, and inform strategic resource allocation. These reforms aim not only to decrease illness among the elderly but also to relieve strain on the healthcare system, promote accessibility, and enhance the quality of care. Ultimately, these approaches offer a holistic and patient-centered solution to healthcare scarcities, not only in China but also for vulnerable populations globally.

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