PEACE *at "Jia"* PROGRAM FOR ELDERLY ADULTS WITH COHABITATION AND ENRICHMENT

ABSTRACT

With the rapid development of biomedical scientific innovations in the last century, life expectancies are higher than ever. As a result, the proportion of seniors around the world has grown. China, a country with a population of 1.386 billion, currently has the world's largest population of seniors, with 228 million seniors in 2017 projected to balloon to 478 million by 2050. This rising number of seniors has put a strain on the country's geriatric healthcare system and long-term care services, resulting in long waitlists and families who are burdened by the overwhelming responsibility of providing care. Furthermore, seniors who choose to stay at home to maintain their autonomy often score high on social isolation scales, which are risk factors for morbidity and mortality. Our project, Program for Elderly Adults with Cohabitation and Enrichment (PEACE), piloting in the capital city of Beijing, aims to pair local healthcare students with seniors as roommates, while simultaneously integrating biometric data collection to help seniors monitor, manage, and maintain their health. This ensures that families have peace of mind that their loved ones are doing well day-to-day with constant companionship. The four main goals of our program are to improve mental and physical well-being in the elderly through companionship, provide seniors with modest help around the house, provide students with affordable housing in the metropolitan area, and provide students with a hands-on gerontological and community education experience. Our project will lay the foundation for a long-term, sustainable solution that will work to bring ease to the aging process for the millions of seniors and their family members, while also reducing the financial burden of health professional students. Thus, putting everyone's mind at PEACE.

MEET THE TEAM

Casey Chu is currently a Masters of Public Health student in the Health Policy stream and Global Health Concentration at Yale University. Her research and public health interests have revolved around global health and mental health. She is currently interning at the England National Health Service looking at workforce transformation in general practice. Next, she will be interning at the World Health Organization's Mental Health Policy Department and working on their Quality Rights Initiative.

Michelle Dong is currently pursuing her Masters of Medical Sciences degree in Immunology at Harvard Medical School. Her research focuses on immunometabolism in autoimmune diseases, specifically in inflammatory bowel disease. In the past, she has worked in the fields of parasitology and virology and has a strong interest in global health, particularly neglected tropical diseases, and has served as the president of the Western chapter of UAEM, an organization dedicated to equitable and widespread access to essential medicines.

Tiffany Ni is currently pursuing her Masters in Laboratory Medicine and Pathobiology at the University of Toronto. Her research focuses on the development and characterization of novel anti-thrombotic drugs. She also has a strong passion for global health and translational research. She has served as the crew scientist at the Mars Desert Research Station where she 3D-printed low-cost labware items to provide affordable STEM learning opportunities for those living in low-income countries.

Nancy Wu is currently pursuing her Master of Science in Epidemiology at McGill University. Her current research projects focus on the behavioural and sociological aspects of diabetes management. She has previously worked in the field of public health and served as the president of her university's chapter of Partners in Health, an international non-profit building health systems in resource-poor communities.

GENEVA CHALLENGE 2019

PEACE

PROGRAM FOR ELDERLY ADULTS WITH COHABITATION AND ENRICHMENT

TEAM

Casey Chu
Michelle Dong
Tiffany Ni
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UNIVERSITY

Yale University
Harvard University
University of Toronto
McGill University

GOAL

Empowering the elderly and supporting the young: ensuring healthy and graceful ageing at home with a holistic mental and physical health approach

TABLE OF CONTENTS

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EXECUTIVE SUMMARY

With the rapid development of biomedical scientific innovation in the last century, people are now achieving longer life-expectancies than ever before. As a result, the proportion of seniors has grown. China, a country with a population of 1.386 billion, currently has the world's largest population of seniors, with 228 million seniors in 2017, projected to balloon to 478 million by 2050 (World Health Organization, 2015). To accommodate these rising numbers, there has been a rapid increase in the number of expensive private care institutions. In some cases, even able-bodied seniors (independent but with some manageable chronic conditions) may be enlisted to these private care programs by their family. These programs relieve the responsibility of care from the family, but they negatively affect the seniors in a variety of ways, such as eliminating their autonomy and removing them from a familiar and comfortable environment. Families deserve a higher quality and affordable option than institutionalization to ensure that their loved ones are doing well from day-to-day. All elderly should be able to stay at home to preserve their autonomy, yet have peace of mind that if something urgent were to happen, there would be someone present to help them.

Our project, the Program for Elderly Adults with Cohabitation and Enrichment (PEACE), aims to pair the Chinese elderly population with local health professional students to become roommates. This will provide the elderly with companionship, regular check-ins, and help with small household tasks. Likewise, students would receive free housing in an urban city known for its high lodging costs. PEACE will also feature a cloud-based system that allows students to help monitor and upload their senior roommate's biometric data so that health issues can be better prevented, predicted, and managed. Health professional students were chosen in particular for their understanding and appreciation for different health conditions. This is an opportunity for them to develop empathy and humility for the elderly population. Our pilot program will be called "家" (jia), after the Chinese word for home.

Despite a cultural environment in which children feel a strong duty to personally care for their parents, we believe that the low cost of our program will be especially attractive to those who cannot be at home with their elders and afford the predominantly private care home market in China. The elderly may also prefer PEACE as opposed to overburdening their families with worry. The biometric data cloud monitoring system would also allow the seniors' children to watch over the health of their parents remotely.

Our project will lay the foundation for a long-term, sustainable solution that will work to bring ease to the aging process for the millions of seniors and their family members, while also reducing the financial burden of health professional students.

INTRODUCTION AND BACKGROUND

GLOBAL AGING AND DEPENDENCE

Globally, the elderly population is higher than ever (Figure 1) and growing at a rate that is outpacing the growth rate of the younger population (He, Goodkind, & Kowal, 2016). Life expectancies in many nations are on the rise; however, there is uncertainty regarding the quality of life during these extra years. From a health systems perspective, global aging is a potent burden on available public health resources. This calls for a reorganization and modernization of social and community aids and services to cater to the growing proportion of elderly individuals.

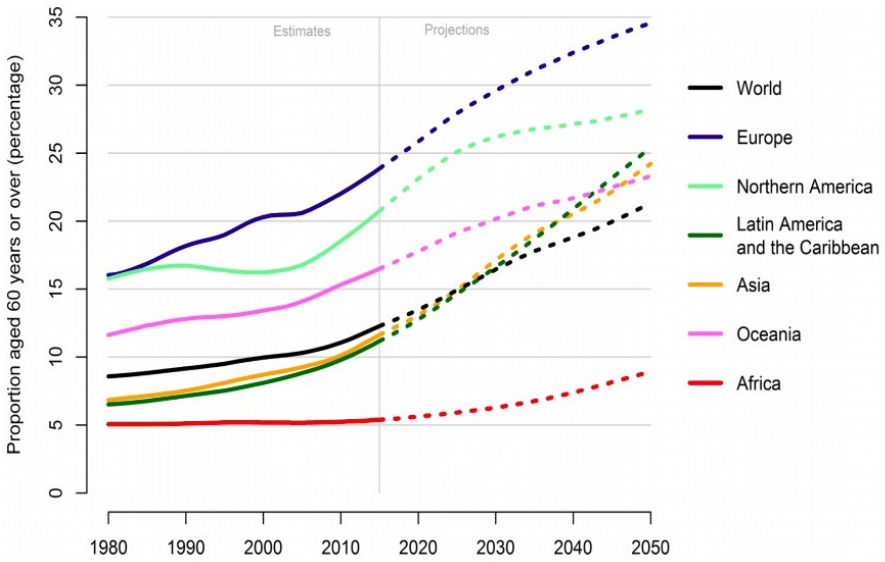

Figure 1. Percentage of population aged 60 years or over by region, from 1980 to 2050 (UN, 2017).

With these rising numbers also comes the risk of dependence, defined by the World Health Organization as the need for frequent human help or care beyond that habitually required by a healthy adult. This involves not only the dependent individual, but also their families, who often have a duty to provide care. In the US alone, an estimated 65.7 million family members are providing informal care, costing approximately 522 billion dollars per year is spent per year on informal care (Chari, Engberg, Ray, & Mehrotra, 2015; Merck KGaA, 2017). In the time that these family members could be formally employed, they are providing un-compensated and continuous care for their elderly kin. Moreover, there is overwhelming evidence demonstrating the negative physical and mental health impacts of caregiving. For instance, one study found that caregivers of people with dementia have been found to have an increased risk of cognitive decline (Dassel, Carr, & Vitaliano, 2017).

Although Japan continues to be in the lead with the most significant proportion of individuals over the age of 65, China has the greatest number of people over the age of 65. An outpacing trend is prominent in China, as their previous one-child policy limited the nation's fertility rate (Lou & Ci, 2014). In 2017, China was estimated to have 228 million people over the age of 65, and this is projected to increase to 478 million by 2050 (World Health Organization, 2015). China's age dependency ratio (the ratio of people aged 65 and older to people aged 15-64), is currently above the world average, and as the most populous nation in the world, this is of great concern (Figure 2).

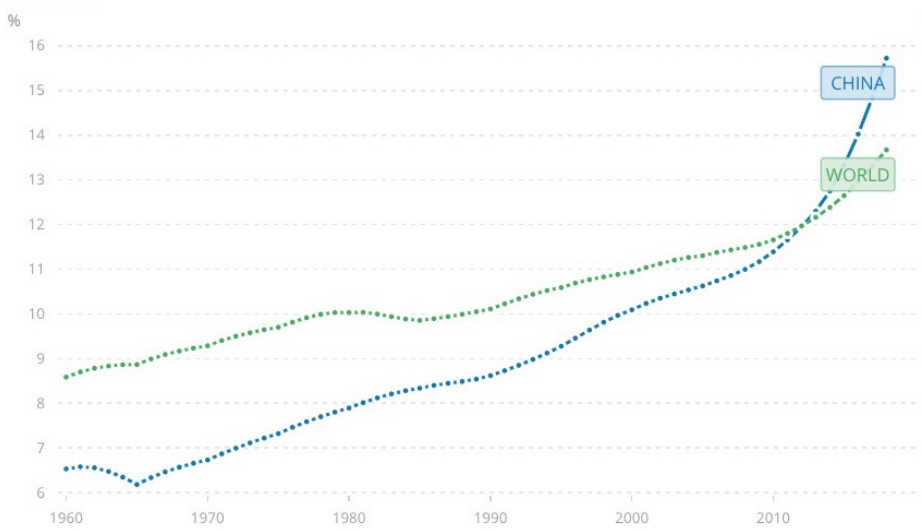

Figure 2. Age dependency ratio for ages 65 and above (by % of working-age population) (World Bank, 2017).

Among the health conditions related to dependence from aging, China has the greatest number of dementia cases in the world. This amount was last recorded to be 9.6 million in 2015 and is expected to rise to 23.3 million in 2030. In comparison, these numbers are 5 million and 13.8 million in the United States. It is becoming a growing concern not only because of difficulties for the individual but also because of the costs that are associated with the illness. Projections for China show that it will go from costing 47.2 billion USD in 2010 to 69 billion in 2020. The growth from 2010 to 2020 is found to be due to the increasing prevalence of dementia itself, but afterward, the increasingly aging population will be responsible for the growth beyond 2020. More specifically, 80% of the costs are due to informal care (Xu, Wang, Wimo, Fratiglioni, & Qiu, 2017).

LONG-TERM CARE POLICY IN CHINA

Long-term care in China is dominated by familial caregiving as cultural expectations of filial piety lead to most elderly preferring care by their kin at home, rather than an institution (Wenyi, 2014). Another reason for this preference may be the financial implications related to seeking outside help. Currently, China's long-term care is predominantly dependent on the local government and there is no national policy to support elderly on long-term care costs. Only the disabled elderly (those with no family, parents of martyred soldiers, old disabled soldiers, others who've had special contributions) receive subsidized care by the national government. In 2018, a new voluntary long-term care insurance policy has been piloted in 17 cities in China. This would cover at least 70% of the costs for those who decide to buy into the insurance policy. These pilots are still in their early stages, but there is great concern about cities' ability to fund their program long-term. Specifically, they found that the willingness to pay of the demand side (e.g. purchasers of long-term care insurance) may not be enough to sustain long-term care insurance plans (Wang, Zhou, Ding, & Ying, 2018). As well, if not enough people buy insurance, there is the risk of adverse selection, wherein premiums increase because not enough low-healthcare users (or healthy people) buy insurance. This issue was especially notable for the long-term care insurance efforts among federal employees in the United States (Davidson, 2016).

A recent economic projection study by Li & Otani (2018) found that keeping the frail elderly at home would save more costs for China's health system long-term. The projected cost savings and individual preferences prompted a movement by local government towards supporting more home-based care. Many cities have developed different schemes for how long-term care should be distributed among those who needed it. For example, Beijing's policy is called 9064. This represents 90% family and socialized services, 6% government provided community support and 4% institutional nursing. When this was presented initially, the 90% was mainly family caregiving, but it has gradually evolved to include all types of home-based care (Feng, Liu, Guan, & Mor, 2012). This priority is in line with the individual's preferences, as a qualitative study by Liu et al. (2015) found that empty-nested elderly in Beijing preferred home-based care.

PROJECT SCOPE

We chose Beijing as the pilot metropolitan city for our project for 3 main reasons: the high senior population, a large number of healthcare institutions and high cost of living.

Examples of potential partner universities in Beijing:

- Beijing University of Chinese Medicine
- Capital Medical University
- Peking Union Medical College
- Peking University Health Science Center, Peking University
- Tsinghua University

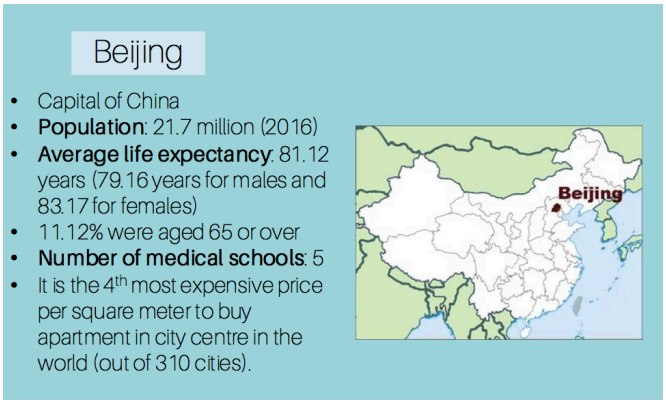

Figure 3. Demographics of Beijing

PROBLEM

A GROWING POPULATION PROBLEM

China, whose extraordinary economic prowess has been built on labour-intensive manufacturing, has little to no social safety net to protect their elderly populations. From 2015 to 2050, China's expenditure on senior care will 7.33 percent to 26.24 percent of the country's GDP; this financial burden cannot be supported by the Chinese government (Li, 2019), thus making them ill-prepared for the societal changes that the wave of an aging population would bring.

The scale of the problem is in part due to the one-child policy, introduced in 1980 to reduce the number of children to feed and halt the fast population growth. While the policy stands to be eliminated with a new civil code published in August 2018, the impact has already been felt. This trend is further exacerbated by the "middle income trap", where rapidly developing economies stagnate as incomes reach median levels and the emerging middle class state having fewer babies (Campbell, 2019).

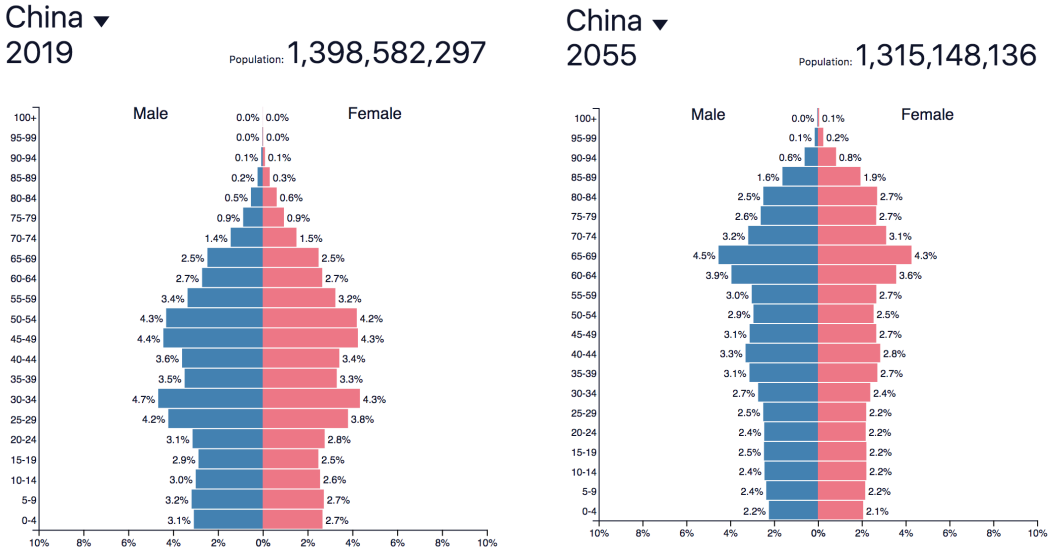

Figure 4. Predicted population percentages in 2055. Proportion of retired individuals increased significantly.

Much like in the Western world, many Chinese women are choosing to prioritize their careers over having multiple children, especially as the costs of education and living soar. The pressure to ensure that a child gets every opportunity also means few want to divide resources by having another. Culturally, children in China are most people's "retirement package" and expected to provide for parents in their old age. Likewise, because of the one-child policy, the child faces supporting four grandparents, two parents, and however many children they bear.

INCREASING GENDER INEQUALITY ONCE AGAIN—THE BURDEN ON WOMEN

The government response to a graying population by stimulating population growth (and therefore increase the ratio of workers: retirees), has the potential to set back recent gains of young middle-class women in China, after years of gender discrimination. Despite China's gender imbalance and positive discrimination favouring male students, more women than men attend Chinese universities, and women are outperforming men in education and increasingly in the workplace. Women are responsible for 41% of Chinese GDP–the highest proportion in the world (Vanham, 2018). Eighty percent of all global female self-made billionaires are Chinese (Kuo, 2018). But as the Chinese government seeks to grow families to help care for the elderly, it also risks backtracking into traditional family roles, where the women take care of the children at home. Meanwhile, with limited resources and rising school costs, larger families may once again prioritize sons for education. According to a survey by employment website 51job.com, 75% of companies felt less inclined to hire women following the move to the two-child policy (Campbell, 2019).

FINANCIAL BURDEN OF AN AGEING POPULATION

China's pension shortfall could reach $130 billion by 2020, according to Beijing's National Academy of Economic Strategy (Myers et al., 2019). It will take China 20 years for the proportion of the elderly population to double from 10% to 20% between 2017-2037 (UN World Population Prospects, 2017). By comparison, it will take 61 years in Germany and 64 years in Sweden (Raftery et al., 2014). China's dependency ratio for retirees—those aged 65 or older divided by total working population—was 14% in 2015. The UN estimates this could rise as high as 44% by 2050, with the number of those over 65 rising from approximately 100 million in 2005 to approximately 330 million in 2050—roughly the population of the United States. The greying of China's citizenry is expected to push costs for elderly care—including operations of retirement homes and medical services—from 7% of the country's gross domestic product to more than 25% by 2050 (Rapoza, 2017).

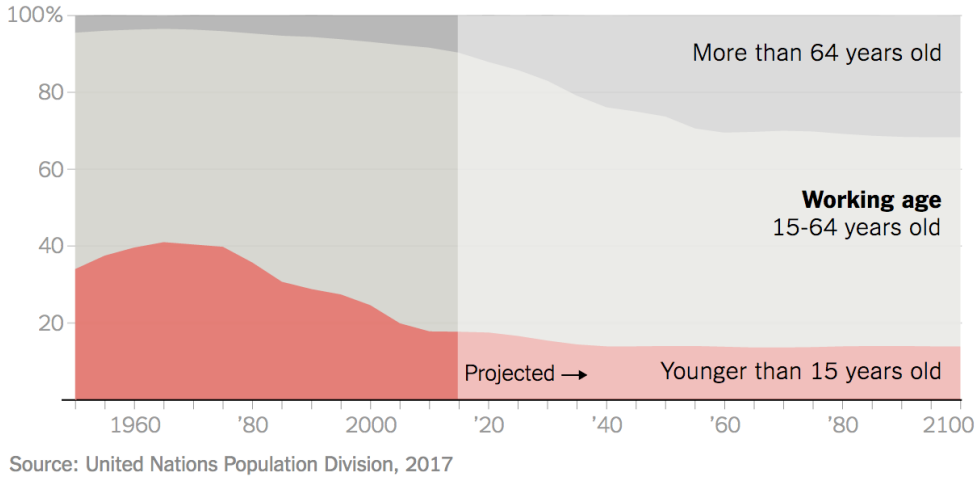

Figure 5. For every one retired senior citizen, there will only be 2 working citizens past 2060.

MENTAL HEALTH IN AGEING POPULATIONS

The number of "empty-nest" elderly individuals has been steadily increasing, with 31.8% of the older population living apart from their family (Liu et al., 2015). Without their children to help take care of them, they are increasingly looking for resources to help take care of their needs in their retired years of life (it is important to note that this empty nest population of seniors are distinct from the 6-8% of the population that prefer nursing homes and would have their needs met by the constant medical care in a nursing home). This empty nest population, comprising of around 85% of the total senior population in China, wish to remain at home. The goal of our program is to target this 85% of the senior population, in particular, those who expressed signs of negative emotional well-being (feelings of being forgotten, boredom, loneliness, depression, helplessness, and a feeling of burden) (Liu et al., 2015). On top of the stressors common to all people, older individuals also experience stressors associated with a loss in capacities and a decline in functional capacities such as mobility, frailty, or other health problems, as well as a drop in socioeconomic status with retirement. These stressors can lead to isolation, loneliness, or psychological distress, which plays into physical health as well. For example, depression is a risk factor for coronary heart disease and may negatively impact its outcome, and vice versa, adults with health conditions such as heart disease have higher rates of depression (Barth et al., 2004).

FINANCIAL BURDEN FOR HEALTH PROFESSIONAL STUDENTS

Beijing is known for its notoriously high lodging costs within the city; the cost of living including a shared bedroom in the city centre is approximately $1200 USD per month. The cost of tuition for one year of medical school is, conservatively, $18,000 USD. This amounts to $32,400 USD per year for a student (Peking Union Medical College, n.d.; "The cost of studying at a university in China," 2018).

SOLUTION

OVERVIEW OF GOALS

Our unique program (called "家" *or "jia"*, after the Chinese word for home) will pilot in the capital of China in Beijing, chosen for its negative population growth rate, high costs of living for students, and the general demographics of the region. Expansion into other metropolitan regions of China and eventually rural regions and other countries will happen on a case-by-case basis.

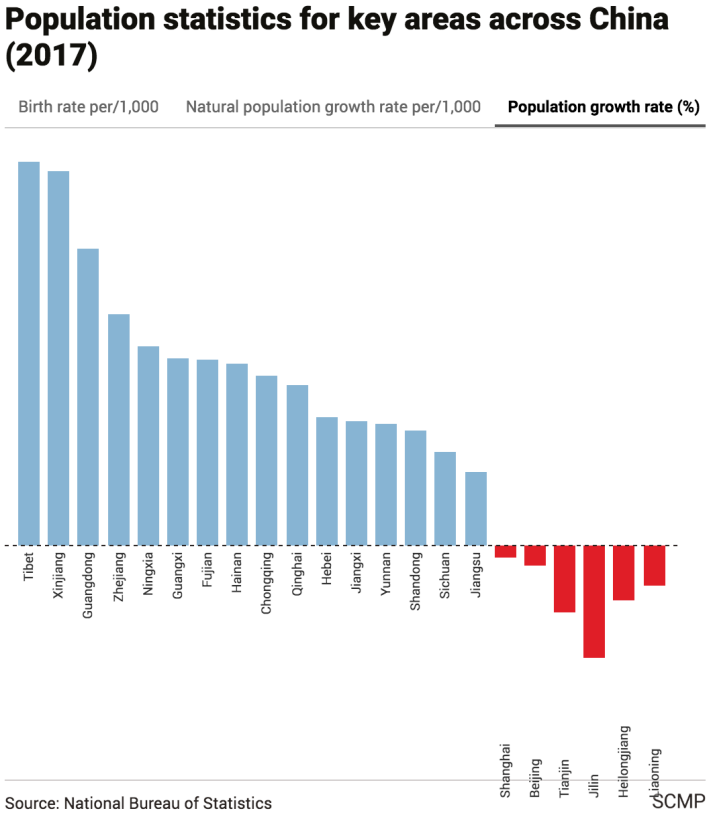

Figure 6. Negative population growth in certain metropolitan areas of China

By tackling the pressing issue of poor mental health in the elderly population, we will be fulfilling goal number 3 of the sustainable development goals, which is to ensure healthy lives and promote well-being at all ages (including old age).

The four main goals of our program are to improve mental and physical well-being in the elderly through companionship, provide seniors with modest help around the house, provide students with affordable housing in the metropolitan area, and improve gerontological and community education for students. PEACE is a multi-stage plan that encompasses detailed plans on how to achieve each of these goals.

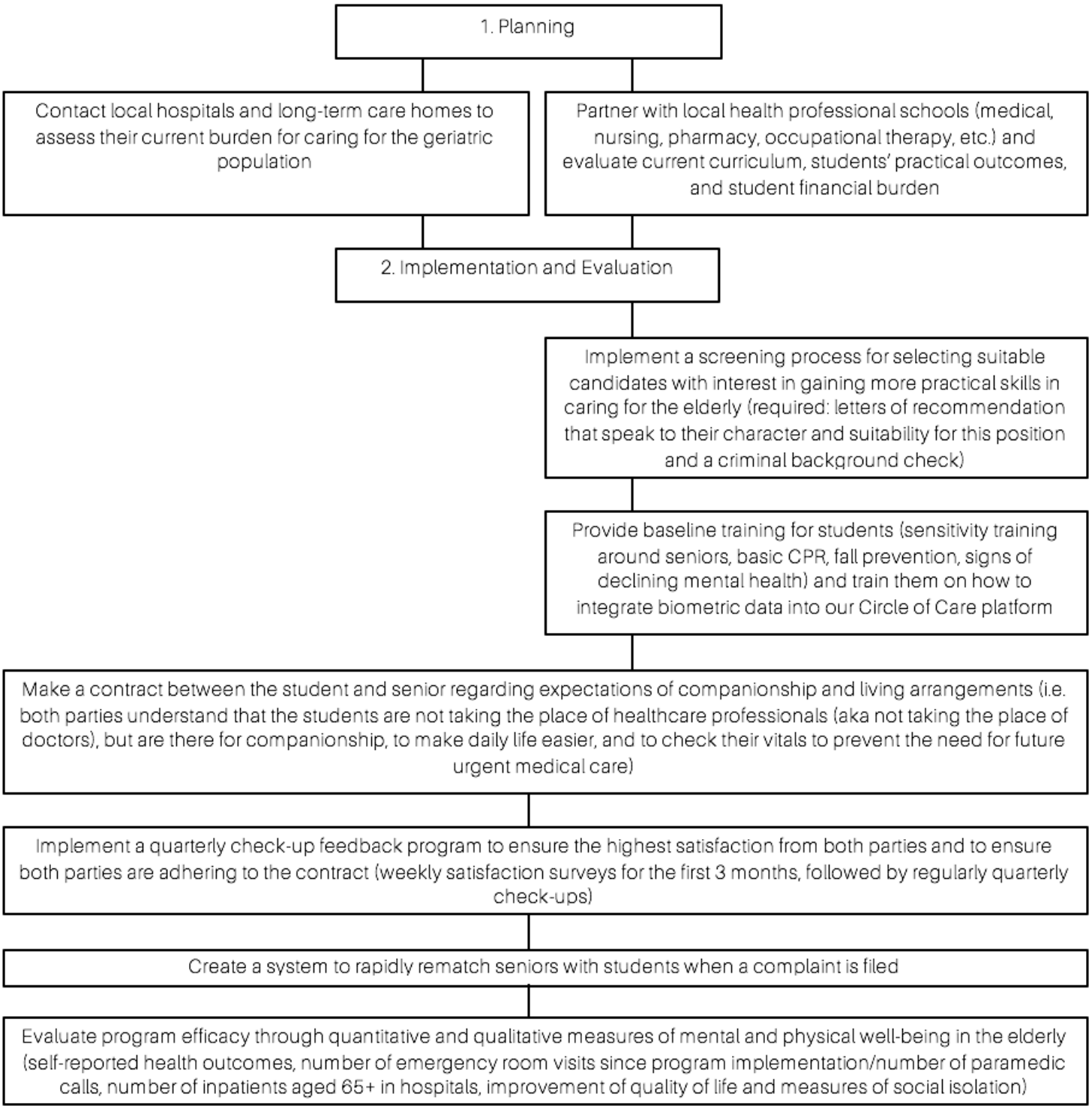

Figure 7. Overview of the PEACE solution

STAGE 1: PLANNING

The planning phase of the program begins by contacting local hospitals and long-term care homes to assess their burden on caring for the regional geriatric population. Our goal is to determine the neighbourhoods in these metropolitan areas with the highest need for our program (for example, local hospitals that have high rates of geriatric patient admissions, or long-term care homes with long waiting lists or rejection rates). This period of location scouting will determine the regions within the city that most urgently require our program.

At the same time, we will establish contact with local healthcare professional schools (medical schools, nursing schools, physical and occupational therapy schools, and pharmacy schools) and evaluate the current curriculum, students' practical outcomes, and students' financial burden. For example, in the end-of-year surveys that students fill our regarding courses, we would ask to read the comments pertaining to the amount of hands-on time students receive, and if they feel like they are receiving an adequate amount during their training years. We will also be evaluating the financial burden of students (average student loan/debt accrued, part-time job(s) taken to pay for tuition), and ask students to fill out questionnaires about whether eliminating the cost of rent by cohabiting with a senior would help alleviate some financial anxiety. Finally, we will look at past student outcomes from when they entered their field of work in order to inform our curriculum and help fill in gaps in their education (for example, students might have felt that they lacked mental health training, especially when interacting with senior citizens).

STAGE 2: IMPLEMENTATION AND EVALUATION

IMPLEMENTATION PLAN

Older adults who would be suitable candidates for our program are identified by healthcare professionals and trained staff members employed by PEACE. Once enrolled in the program, patient information is collected and personal health and cohabitation goals are established. Then, each patient's information is uploaded into a secure cloud, similar to the ones used across Canada and the United States healthcare systems, such as Azure or EPIC (Zeidenberg, 2019). This information can be made available to family members with the patient's consent. In addition, our program will ensure that each patient is consistently using the devices that address the specific needs of their health condition (these may include blood pressure monitors and glucometers obtained through their health insurance). Patients and the healthcare student are provided training on how to utilize each device to monitor their illness. Monitoring devices may include: a fall detection device, a weight scale, blood pressure monitor, heart rate monitor, glucometer, etc. Trends and reports of biometric data are generated through the daily use of these devices and uploaded into our Circle of Care cloud-based biometric data platform.

Our Circle of Care web-based cloud platform is a reliable health information exchange (HIE) platform. Circle of Care allows secure access to patient information by healthcare professionals such as physicians, nurses, pharmacists, personal support workers, etc. as well as family members (after patient consent). The healthcare student can help the patient upload the biometric data onto the cloud at the discretion of the patient. The platform facilitates easy communication and coordination across a patient's circle of care.

If any biometric data recording falls outside of a set threshold, an alert is automatically generated, and if the metric falls outside the range for a consistent period of time (for example, if A1C levels are steadily increasing over many months), family members and healthcare professionals such as their primary care physician have the option to be notified. As part of their training, the healthcare training student will review the patient's current health status along with the physician to help patients manage their symptoms. Through follow-up phone calls, in-home visits and referrals to appropriate healthcare providers, patients learn how to manage their illness better. Our program takes a proactive approach in preventing hospital admissions by providing constant care at low-level exacerbations.

SCREENING FOR STUDENT PARTICIPANTS

Students are recruited into our program through their university; participants interested in gaining more practical skills in caring for the elderly are chosen after a criminal background check and letters of recommendation supporting their character and suitability for this job have been verified. Part of the rationale for student-senior cohabitation is that many adverse health events such as falls leading to injury could have been prevented if someone was home caught signs of decline earlier (Lee et al., 2013).

TANGIBLE APPLICATION OF PEACE TRAINING

As part of the cohabitation agreement, students are required to help reduce perceived loneliness and social isolation in older adults enrolled in PEACE, as well as notice the signs of depression. These skills will be honed during the training session our program provides and activities will be catered to each individual client and may include encouraging more frequent social outings, helping with household chores to free up time for to meet with friends, or encouraging them to get back into old hobbies (for example, weekly mah-jong nights with friends). Evidence has shown that increased social ties can reduce the risk for the common cold (Cohen et al., 1997), cardiovascular events (Hawkley et al., 2003), neuroendocrine function (Seeman et al., 1994) and a myriad of other health factors.

CONTRACTUAL AGREEMENT BETWEEN STUDENTS AND SENIORS

A contract will be made between students and seniors regarding expectations of companionship and living arrangements. This contract ensures seniors understand that these students are not taking the place of healthcare professionals (i.e. not taking the place of doctors), but are there for companionship, to make their everyday life more comfortable, and to help with measuring biometric data to prevent any unnecessary health troubles. Following initial matching, one of our staff members will facilitate a discussion between the elderly, students, and family members. This would be to foster communication, accountability, and discuss any unique duties and responsibilities between the students and the elderly.

FEEDBACK AND RE-MATCH SYSTEM

For the first 3 months of every partnership, weekly satisfaction surveys will be sent out to ensure a harmonious partnership and both sides are adhering to the contract. After the 3-month period, the checkups will taper down to quarterly checkups, with a system in place to rapidly rematch seniors with students when a major complaint is filed.

EVALUATION OF PROGRAM EFFICACY

Our foremost goal with the program is to improve the mental and physical well-being of the older adults enrolled in our program, and we plan to evaluate that with qualitative and quantitative measures.

MENTAL WELL-BEING IN ELDERLY POPULATIONS

Using metrics such as the NSHAP Social Network Module (Cornwell et al., 2009), we can quantitatively measure social isolation. This scale measures two aspects of social isolation: social disconnectedness, which is a physical separation from others, and perceived isolation, which is a feeling of loneliness and lack of social support (Cornwell et al., 2009). Together, these factors of social isolation have been shown to be major risk factors for morbidity and mortality in older adults (Cacioppo et al., 2014). Since the students in PEACE are not only trained in mental health training but also in navigating social connectedness, we expect these scores to increase and feelings of loneliness to diminish over time.

PHYSICAL HEALTH OUTCOMES IN ELDERLY POPULATIONS

During the intake period, our program will have collected health data such as smoking status, obesity status, compliance with medication, number of falls in the past that required an ambulance, mental well-being, indicators of chronic diseases (rheumatoid arthritis, hypertension, diabetes, etc.,) and overall poor or fair health (both self-reported and measured) for continual monitoring throughout the program. On a local level, we will also be maintaining data on the number of calls to paramedics and the number of inpatients aged 65+ in local hospitals; as the program expands, we expect to see these numbers decrease significantly.

REDUCTION IN STUDENT FINANCIAL STRESS WITH AFFORDABLE METROPOLITAN HOUSING

In terms of student outcomes, we will be measuring their financial stress before and after the program using metrics such as the student debt burden (and their general economic anxiety), the number of students receiving loans and grants to finance their studies, and the number of part-time jobs they have to undertake. We expect to see a reduction in financial stress in students enrolled in our program. In past studies on student debt amongst medical students, it was found that anticipated debt contributed an additional 11.5% to stress levels (Morra et al., 2008); our program works to reduce this anticipated debt. PEACE will also distribute anonymous surveys at the start of the program and (and yearly thereafter) with questions pertaining to current debt, anticipated debt upon graduation, and their sense of financial burden. Focus groups will help us identify factors that contribute to a sense of financial burden, and how/if this burden affects their education, and how they deal with the stress.

IMPROVED GERONTOLOGICAL AND COMMUNITY EDUCATION FOR STUDENTS

Finally, we will be evaluating the quality of supplemental education our program provides for healthcare students by comparing the before and after values of the number of practicum hours, supervisors' survey data of the respective allied health professional students on their practical skills when interacting with patients at the bedside, and student confidence and interest in gerontology before and after participation in our program.

Figure 8. The four main goals of our program.

STAGE 3: SCALE AND SUSTAIN

ADDITIONAL TRAINING FOR PEACE STUDENTS ON COMMON GERIATRIC CONDITIONS

As the PEACE program scales up, we will face both an increase in the number of senior participants and an increase in aged seniors over the age of 70. Although our program strives to bring ease to the aging process, inevitably, the elderly will gradually experience a loss of functioning from chronic disease and age-associated impairments. In 2013, nearly 50% of the senior population in China experienced non-communicable disease (Tang, Ehiri, & Long, 2013). Of these, more than 37 million had significant reductions in physical function (Tang, Ehiri, & Long, 2013). Despite being more prevalent in senior populations, older individuals suffering from chronic diseases are less likely to seek out healthcare services (Jiang et al., 2018). As a result, their health condition could exacerbate and lead to severe long-term consequences.

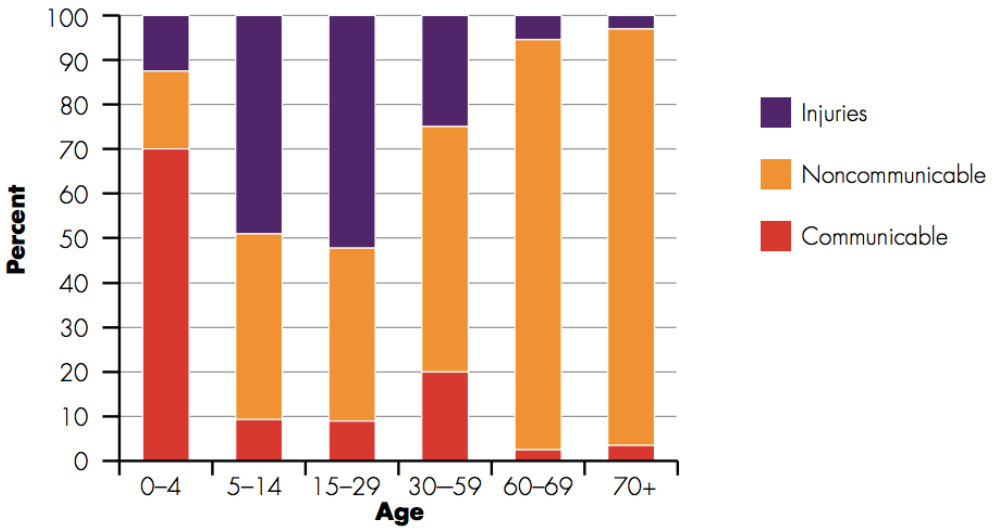

Figure 9. Proportion of diseases by age group (WHO, 2012).

As our population of elders in our care ages, we will provide more specialized training for PEACE students on common geriatric conditions. This will focus on awareness, early identification, and long-term disease management. Further, to ensure continuity with the student's current health professional training and to avoid redundancy, we hope to work with universities on a complementary curriculum.

EXPANSION OF THE PEACE PROGRAM TO SERVE SENIORS IN RURAL COMMUNITIES

With the modernization of China in the last few decades, there has been an immense pull for young adults to migrate from rural areas to urban areas. Previous data has found that there is a much higher proportion of seniors in rural areas (21.8%) compared to that of urban communities (14.8%) (WHO, 2015). These seniors from rural communities often face very different healthcare challenges compared to urban counterparts. These challenges include, but are not limited to, social isolation, lack of access to affordable and nutritious food, the impact of rural poverty, and the disparities in access to healthcare and timely diagnosis and treatment (Nielsen, D'agostino, & Gregory, 2017).

Due to the one-child policy in 1980, the sizes of families within the past decades have become much smaller and the future care of these senior populations is of urgent concern (Jiang, Li, & Feldman, 2013). In addition, there is an unequal distribution of healthcare professionals (e.g. doctors, nurses, medical technical personnel) between rural and urban areas. The ratio of medical doctors to patients in urban and rural areas is 3.2 and 1.4 per 1000 people, respectively (Hou & Ke, 2015). Similar distribution ratios exist for other health professionals (Hou & Ke, 2015). Thus, retaining qualified, well-trained, knowledgeable healthcare professionals is of utmost importance.

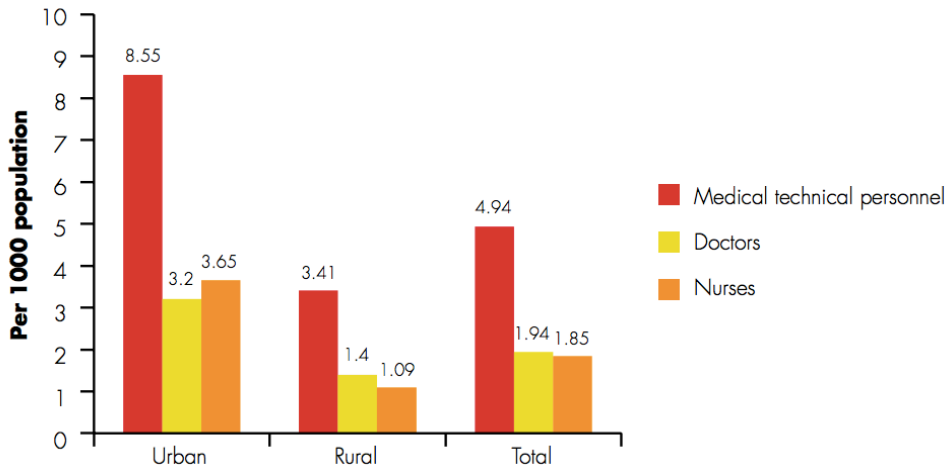

Figure 10. Proportion of healthcare professionals in regions of China (NBS, 2013).

In order for the PEACE program to effectively improve the quality of life in rural areas, several critical challenges must be addressed. These include the lack of qualified service providers, retention of qualified PEACE students, and reduced technology access in remote areas. As a result of the exposure to rural healthcare, PEACE will work to inspire students and increase their interest in practicing in these communities following graduation from their degree programs.

Challenge	How we will adapt

• Lack of major healthcare institutions in rural areas
• The low number of qualified local service providers
	• Forge collaborations with local healthcare clinics and community hospitals
	• Implement a separate stream for qualified PEACE program applicants that have completed elementary and middle school education in a rural county⁎
	  • Students have first-hand experience with the unique challenges of rural healthcare
	  • Better understanding of the environment
	  • More likely to empathize with seniors from rural communities and commit long-term

• Retaining qualified PEACE students	• Implementing a mandatory 6-month rotation in a rural county • Outreach programs to encourage local students from rural areas to apply for PEACE program
• Reduced technology access in remote areas	• Cloud-based system for storing personal health information that allows seniors and their healthcare practitioners to access their information from any location

⁎Urban and rural areas were defined using the definitions released by the National Bureau of Statistics of China (NBSC) in 2008.

ALIGNMENT WITH NATIONAL STRATEGY

Healthy China (HC 2030) strategy was announced by President Xi Jinping in October 2016 (WHO, 2016). It is a general national guideline document for promoting people's health in the next 15 years. The five specific targets of HC 2030 are to improve the level of health, promote a healthy life, improve health services and health security, improve environmental health, and reform the health industry (Tan, Liu, & Shao, 2017). Within this system are the 4 core principles: health priority, reform and innovation, scientific development, and justice and equity (Tan, Liu, & Shao, 2017). In recent years the government of China's focus on health services has been shifted from disease treatment to health promotion and health management (Tan, Liu, & Shao, 2017). Our proposed project is in alignment with the health priority core principle and the promotion of a healthy life target. The objective of this proposed project is to improve mental and physical well-being in the elderly through companionship and better the quality of life for elderly populations in urban areas by providing seniors with modest help around the house. In addition, our project will provide support for bright young healthcare professionals by granting them affordable housing in the metropolitan area and improve gerontological and community education. This PEACE project will add value to the government's initiatives by supporting the nation's growing senior population in reducing common risk factors for future diseases, and ultimately support the human right to autonomy, independence, and dignity for both the old and the young.

Goal				
Put health on the priority list of development to a strategic position; promote the concept of health in the whole process of public policy implementation;enable everyone to be involved health and everyone to share health care services;focus on the health of all the people all their life in China.				
Principles				
Health Priority	Reform and Innovation	Scientific Development	Justice and Equity	
HC 2030: China's vision for health care				
1. Health Level	**2**. Healthy life	**3**. Health Services and Health Security	**4**. Environmental Health	**5**. Health Industry
The 13 Core Indicators				
A. The average life expectancy **B**. The mortality rate of infants **C**. The mortality rate of children below 5 years of age **D**. The mortality rate of pregnant women and mortality **E**. The proportion of those meeting the national physique determination standard among urban and rural residents	**A**. The level of health literacy among residents **B**. The number of people taking part in physical exercise	**A**. Premature mortality as a result of major non–communicable diseases **B**. The number of registered doctors per 1000 residents and registered nurses per 1000 residents **C**. The proportion of personal health spending in the total health expenses	**A**. Good air quality rate of all cities at prefecture level or above **B**. The rate of surface water quality better than III	**A**. The total investment scale of health services

Figure 11. Framework of Health China 2030 vision

PARTNERSHIP WITH THE GOVERNMENT

After empirically evaluating our pilot program, we hope to find that it had a positive impact on all participants. This can be shown through metrics such as our biometric data, self-reported satisfaction or even reduced debt for students upon graduation. Once these findings are reported, we hope that the local or regional government will see PEACE's potential to reduce the burden that an aging population will inevitably put on the health system. If successful, we expect to work closely with the social and health sectors of the government to sustain and grow our program. By becoming a publicly supported entity, we would gain reputability and have the ability to reach out to more individuals. We envision PEACE to be offered as an additional option alongside nursing and residential homes for elderly that public long term care insurance could subsidize or fund entirely.

TIMELINE OF PEACE PLAN

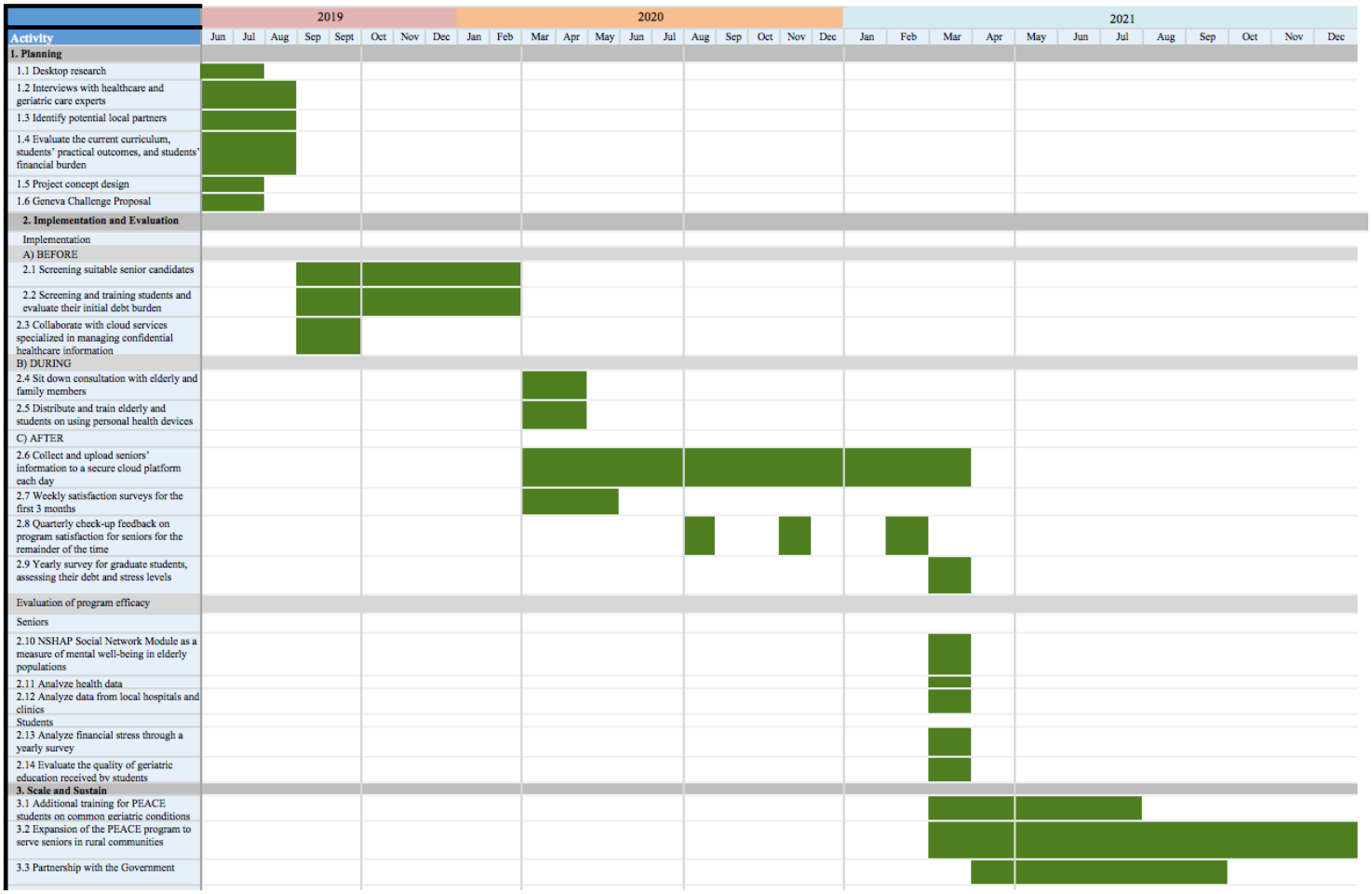

Figure 12. Detailed projected timeline of PEACE plan

THE HEALTH BENEFITS OF COHABITATION FOR ALL

In general, the cohabitation component of PEACE aims to reduce social isolation and loneliness. Tackling these two social issues have also been found to reduce the incidence of its associated physical and mental illnesses in the elderly. A rigorous meta-analysis published in 2015 with searches of literature from 1980 to 2014 across the world found that being socially isolated or lonely corresponded to an approximate 30% increased likelihood or mortality (Holt-Lunstad et al., 2015). Another rigorous meta-analysis of studies in high-income countries found that poor social relationships were associated with a 29% increase in the risk of incident coronary heart disease and 32% increase in the risk of stroke (Valtorta et al., 2016). A large survey study conducted in Ireland found that 70% of depression cases in the widowed population were directly attributable to loneliness or poor social network (Golden et al., 2009).

More specifically, the intergenerational aspect of PEACE's cohabitation scheme is expected to contribute to better health outcomes. Few programs that facilitate intergenerational contact have been formally evaluated, but peer-reviewed articles overwhelmingly report that intergenerational contact has positive effects on social capital and mental health for the elderly. For example, a randomized controlled trial in Brazil tested an intervention in which elders were paired with students and asked to chat and share their memories together two hours per week, over four months. The students who participated in the intervention were more likely to self-report better health than the control group, and the elders were more likely to report that they believed their neighbours to be helpful and trustworthy (de Souza & Grundy, 2007). Over the years, these extra-familial interactions have also been promoted. This effect is also being promoted in Asian countries such as Japan - where there are strong, even with traditional values of keeping social interactions within one's family intra-familial interaction—schools, adult education institutions, and social welfare institutions have all been working to build more opportunities programs for senior citizens and youth to socialize in an effort to support the wellbeing of a growing senior population (Yamazaki, 1994).

EASE FINANCIAL BURDEN ON STUDENTS

A 2015 survey on 15 global cities found Beijing to be the most unaffordable city to live in when compared to individual earnings. Specifically, housing costs were 1.2 times the average monthly wage. This ranking was based on earnings of all individuals in Beijing and one can expect that even if students were working part-time, they would at the most, be on the low end of the share of net earning scale (Figure 12). In addition to housing, there is also the added burden of paying for tuition and living supplies. Thus, with the free rent as a part of PEACE, we will greatly

reduce the financial strain on students, allowing them to spend more time, energy, and resources on their professional pursuits.

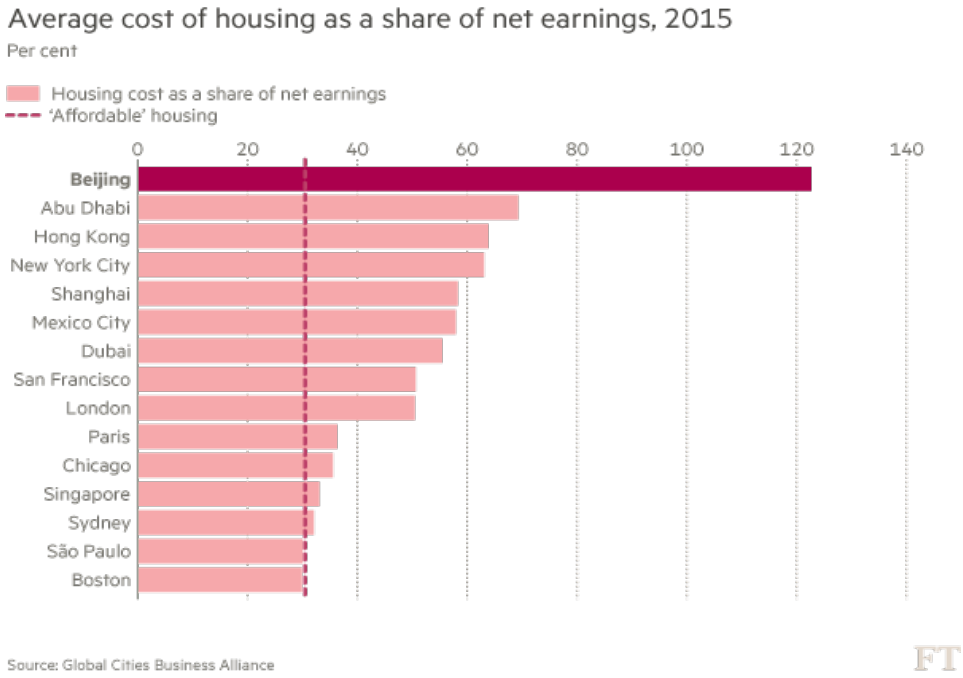

Figure 13. Average cost of housing as a share of net earnings in 2015 for 15 global cities (Global Cities Business Alliance, 2015)

IMPROVED GERONTOLOGICAL SKILLS IN FUTURE WORKFORCE

With the aging population comes the inevitable need for more expertise in gerontology. This means that the number of individuals who specialize in areas related to the health of the elderly population cannot stay stagnant. By interacting with the elderly population through PEACE, students are not only going to develop a deeper understanding of this age group, but they may also be inspired to specialize in their care as they develop future careers.

BUILDING ON EXISTING PROGRAMS

Although there were many cases of intergenerational cohabitation or interaction programs globally, they have not been empirically evaluated. While we acknowledge the importance of and will report in our project, the qualitative and anecdotal outcomes, PEACE is exceptional in that it will use new technology to track quantitative data. This will allow us to run rigorous data analytics at different points in our timeline to make adjustments if necessary. We will also be able to publicly report our findings to others. By piloting this intervention with a research mindset, we will not only be able to pinpoint areas of improvement or success within our program, we will also be able to provide a case for similar programs across the globe.

SUCCESS OF COHABITATION ARRANGEMENTS

Existing documentation on intergenerational living initiatives are predominantly news articles, and all report great benefits to the community. Below is a compilation of sample programs from around the world and their anecdotal successes.

Program	**Description**	**Benefit summary**	**Anecdote**
Humanitas Retirement Home, The Netherlands	University students pay no rent in exchange for spending 30 hours of quality time a month with their 160 older housemates, including watching sports, celebrating birthdays and, perhaps most importantly, offering company when seniors fall ill, which helps stave off feelings of disconnectedness.	Seniors feel integrated into a modern society that tends to leave them behind.	Both older and younger residents are delighted with the arrangement. Strong bonds have formed. 'The students bring the outside world in, there is lots of warmth in the contact,' says the head of Humanitas.
		Students feel that they can do a real service to the community and lives of those around them. Housing institution staff are slightly relieved of the burden of care. Seniors feel less "medicalized" when cared for by students.	One student recalls being woken up in the middle of the night by a staff member. One of the residents had attacked a nurse. The resident was extremely agitated and nothing the staff did seemed to help. 'When she saw me, it was like 180 degrees around,' the student recalls. 'She was instantly relaxed and happy to see me.' The student had gotten to know her while giving her computer help. They spent the rest of the night watching Dirty Dancing before the student headed off to work.
		Seniors experience full, exciting social interactions; an essential component of health in the full meaning of the word.	The elderly tell stories, they have a lot of interest in the young ones. They always want to know whether they have girlfriends and whether they are staying overnight,' laughs one staff member.
Judson Manor, United States	Graduate-level music students live for free in the manor - in return, they participate in the musical arts committee, assist staff therapists, and volunteer at various events throughout the year. Judson also requires them to give quarterly performances at each of their three campuses.	Seniors inadvertently provide students more wisdom on the depth of human life and importance of connection.	One student at Judson interviewed every resident, spending over an hour with each one, and compiled a keepsake book. She's now working on a second volume to include additional residents.

		Incredibly strong bonds are created between seniors and students, reducing loneliness.	Another student became so close with a resident that she asked her to be the flower girl at her wedding. The older woman declined, physically unable to make the trek to the West Coast, but threw a party for the couple at Judson instead.
		Students and seniors build neaningful, long-term relationships, rather than simply "benefit" from each other.	Matthew Kaplan, a professor of intergenerational programs and aging at Pennsylvania State University, says these relationships can acquire far more depth than is possible with "the one-shot-only activity, where kids come into the long-term care facility, sing a song and then go home." That may be nice, he says, "but it's not until [the older and younger people] have a real relationship—which takes a lot of interaction—that it becomes meaningful."
Hope & A Future, United States	Young families living in the same condominium complex can aid senior citizens with physical tasks, and seniors can serve as mentors for young families. Seniors who purchase the condos will not need full-time care, but Hope & A Future will provide health services when needed. The community room is used for recreational gatherings.	Members of the community generate a collective sense of trust and well-being, regardless of their background.	People of all different ages and backgrounds attended the parties, said the coordinator. She recalled one night a teenager with a blue mohawk and facial piercings knocked at the door. "Can I help you?" she said. He said he had heard about a party at her home. She said that was true, but was puzzled as to whether or not he understood what kind of party he was attending. She explained there were no drugs or alcohol in the house. The teenager said he knew that, and wanted to come in anyway. She asked him his reason for coming, and he said he heard there was great conversation, music and food at the parties. He was welcomed inside.

Symbiosis, Canada	Symbiosis is a program that aims to connect graduate students with seniors in the McMaster University community for a mutually beneficial housing relationship.	Students and seniors regularly have a constant companion.	The feedback given to us by our participants has been overwhelmingly positive and rewarding. Responses gathered through our end-of-year mixer proved that co-housing is beneficial to seniors and students as they both expressed increased sense of community, companionship and learning about different cultures. Students and seniors spent quality time by cooking, dining, and doing recreational activities with each other.
			Here's a testimonial from one of our seniors: "The symbiosis cohousing is great I think if the right fit is there for the student and landlord, it's a great experience. I am so lucky, that (the student) is a perfect fit, she has renewed her stay with us for another 12 months".
Chicago, United States	Up to 10 students from DePaul University, Loyola University Chicago, the University of Illinois at Chicago and the School of the Art Institute of Chicago are provided free private bedrooms in a senior facility in exchange for 20 hours a week doing light housekeeping, grocery shopping and giving computer lessons.	Students are relieved of financial burden and can better flourish in their studies.	"I organize field trips to museums, and I'll read poetry to them," Montes, 25, said. "When I was a student in Seattle with normal roommates, it was a stressful time. I was in school full time and working four jobs to pay the rent. Now I have time to focus on my studies and art projects."
		Seniors get help with small but important chores such as grocery shopping. Students exposed to friendships outside their age group.	For Christina Larson, a nursing student at the University of Illinois, seniors are preferable to millennial roommates. "I lived with roommates my own age, and it wasn't a positive living experience," Larson, 29, said "Here everyone gets along. We watch a lot of 'Star Trek' together. Everyone is really laid back. The most important job I have is grocery shopping."

FEASIBILITY

ADVICE FROM EXPERTS

In preparation for this report, we consulted academics in health economics and long-term care in China. One main area that we were advised to make a special note of was the culture surrounding long-term care in China. In particular, children often have high expectations for hiring caregivers and may be resistant to receiving care by a professional in training. We expect this to be a challenge but will emphasize during recruitment that even though our program is done by professionals in training and have received baseline health training from their academic institutions as well as our program, the focus of our program is on companionship, not professional healthcare. This program is for any elderly individuals who could be diverted from being institutionalized and would require someone to watch over them and help them with some activities of daily living. We also confirmed the cost of living as a top concern faced by students in urban cities like Beijing, which supports our program's benefits at the student side.

PRACTICAL FEASIBILITY

Although cohabitation of non-familial elderly and young is a relatively unconventional strategy, we expect high interest in this program from the perspective of both the elderly and caregivers. This program would prove most attractive to elderly individuals who are still healthy enough to care for themselves, but may require a conscientious person to check-in frequently with them. We can identify many categories of individuals (not limited to the following) who would benefit highly from this program. For elderly couples without children or with children who are not present, this would reduce the pressure of one elderly individual caring for another. A study by Liu et al. (2015) qualitatively evaluated living experiences and living plans of empty-nested elderly. They distilled the pathways of long-term care for empty-nested elderly (Figure 14). Based on this figure, our project would intervene and prolong the time point where the elderly are capable of "home-based care by themselves" and slow the movement towards needing supportive care or needing home-based care by housemaid employment. This program would also be useful for people with only one offspring (which comprises a large portion of the population due to China's previous one-child policy), who can now dedicate more time to their job and care for their offspring and spouse. The recent China Health and Longitudinal Retirement Survey showed that 45% of elderly respondents were living alone (Lei, Strauss, Tian, & Zhao, 2015). For this group, our strategy would be the perfect way for them to have some companionship.

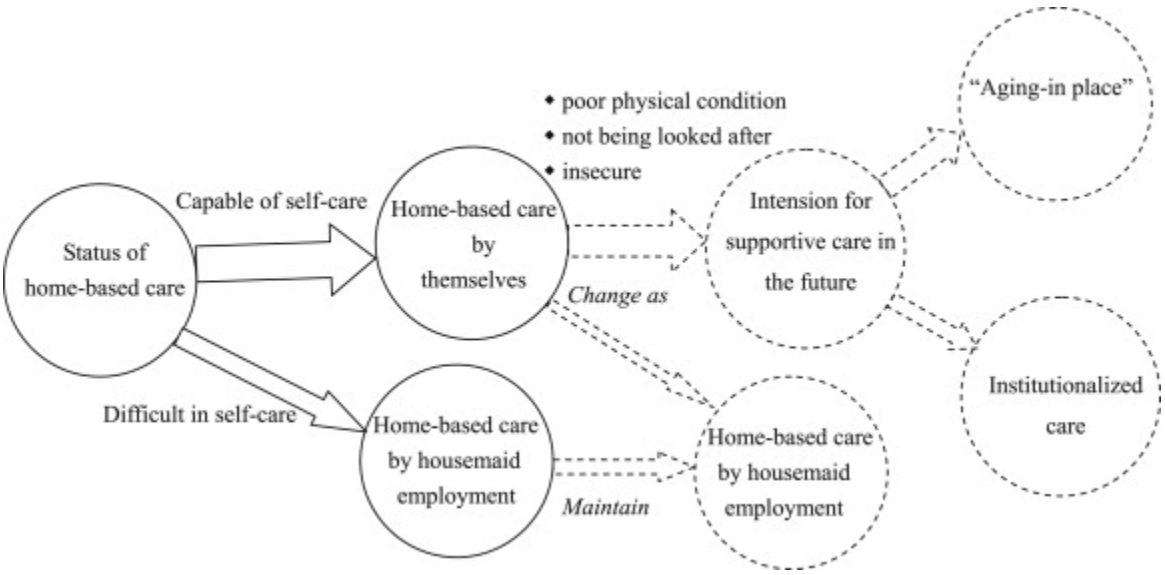

Figure 14. Current Living experiences and care needs of Chinese empty-nest elderly people (Liu et al., 2015).

From the broader government and health systems perspective, this solution is an efficient way to use the limited resources for the dependent elderly. Simultaneously, it blunts the demand driven by the exponentially increasing elderly population in China, but also supports students in a health care professional program. By redirecting some individuals, who are still not entirely dependent, out of nursing and care homes, we are freeing up beds and spots for those who need it the most.

CULTURAL FEASIBILITY

The culture surrounding long-term care and elderly in China present a host of different factors that must be considered. Most notably, there is a practice of filial piety in Chinese culture, where children tend to have a strong sense of respect and duty to their elders. For many, this is a deeply ingrained ideology, and may prevent them from passing on caregiving to another individual or institution. In cases where the child is struggling financially, this is even more burdensome. Our program is non-profit and offered at a very low cost, and families given the option to be as involved as they choose to be. For example, it could just be that they want peace of mind by having someone to keep their mother or father company until they get home from work.

FINANCIAL FEASIBILITY

This table provides a description of the anticipated financial expenditures required to implement a pilot PEACE initiative over the course of 20 months. These projections are based on data analyses from the China Health and Retirement Longitudinal Study (CHARLS) pilot (Strauss et al., 2012). Grant funding would be provided by Grand Challenges Canada - Stars in Global Health Fund and the Ontario-China Research and Innovation Fund (OCRIF).

Project Stage	**Item**	**Cost**	**Units (if applicable)**	**Total**	**Non-grant funding source**
STAGE 1: PLANNING	Travel costs: administrators assessing student need and senior housing interest	$5.00/monthly pass	10	$50.00	
STAGE 2A: IMPLEMENTATION	Travel costs: initial meetings between senior and student	$2.00/3-day pass	40	$80.00	
	Criminal background check reimbursement	$10.00	20	$200.00	
	Fall alert device	$25.00 USD/unit	20	$500.00	Health insurance, adequate coverage as suggested by patterns in Healthcare and Insurance Among the Elderly in China: Evidence from the CHARLS Pilot (Strauss et al., 2012)
	All other medical equipment	$0	20	0	Seniors are given home medical equipment such as blood pressure cuffs by their healthcare providers (Liu et al., 2017).
	Advertising to students	$50.00		$50.00	
	iCloud data storage subscription (50 GB)	$1.00 USD/month	20	$20.00	
	Administrative expenses	$200.00		$200.00	
STAGE 2B: EVALUATION					
	Administrative expenses	$200.00		$200.00	
	Travel costs: project close-out and data collection	$5.00/monthly pass	10	$50.00	
	TOTAL			$1,350.00	

LIMITATIONS

ETHICAL CONSIDERATIONS

The risks in this program are expected to differ from client to client. To prevent and safeguard all parties involved in the program, we require an official agreement to be made between the client, family, and student cohabitant. At minimum this document will outline expectations of each party regarding level of engagement, types of caregiving assistance needed and living arrangements. In addition to our organization's regular check-ins, all participants have a duty to report any non-adherence to the agreement at any time. A probation time of 1-month will be given to make any changes based on the report; after which, clients will be reassigned and students may be eliminated from the program.

Ethical considerations will be based on the three broad principles. The first principle of autonomy is an important consideration due to the sensitive population that we are working with. There is the concern that families will forcibly enter their parent into this program. This will be avoided as only elderly individuals who are able to consent are eligible for this program. To avoid coercion of any form, consent will be done as consistently and uniformly by members of our staff. For the principle of beneficence and non-maleficence, our regulatory procedures (regular check-ins and official agreements) aim to ensure that benefits are maximized. The line of communication to our staff will be kept as open as possible to ensure that all participants feel comfortable in reporting any concerns. The last ethical principle of distributive justice is constrained by our exclusion criteria for this program (i.e. only healthcare professional students and elderly who are not overly dependent). However, as this is a new program, we want to be as careful as possible with who is allowed to participate. Cohabitation is a highly personal practice, and we need to make sure that students are motivated to provide support to the elderly, who may be deemed as the more vulnerable party.

POTENTIAL CHALLENGES

As advised by the experts we consulted, families may expect a lot from these health professionals in-training. As they have not been officially licensed, students are not allowed to practice their health profession (e.g. diagnosing and treating). They are, however, encouraged to promote a healthy lifestyle and encourage our clients to contact their primary care provider if they identify any signs of ill-health. Clients and their family members are not to expect nursing or diagnosing/treating of disease. To avoid any miscommunication on this front, our staff will review and revise the formal agreement to ensure that there are no expectations that students will practice. The reason for allowing only health care professional students to participate is because they are more understanding of the health of their elderly clients and already have some baseline schooling in healthcare. Although additional health and safety training and elderly-specific

information will be provided, health-inclined students are expected to be able to understand and retain the information better. We greatly emphasize that students are meant to provide support that matches what a usual family caregiver would provide (e.g. cleaning, cooking, buying groceries).

Compliance with the optional biometric tracking technology is expected to vary widely in our sample population. We understand that although cost is not a barrier (since our project and the patient's health insurance will be funding these wearable technologies), some clients may feel overburdened by the need to use these devices. This is where the students come in to help with data entry of their biometric data for optimal compliance, as well as reminding the clients that tracking health data improves longevity and quality of life. It is also important to note that the Circle of Care cloud biometric data service is supplementary to our main service of cohabitation and companionship. The wearable biometric trackers are viewed as not only a way for our project to measure impact, but also as a tool for which students can help engage the elderly in their own health. By having students teach the elderly individual how to use and interpret their data and understanding when they should seek professional health, we are fostering health literacy among the elderly and giving them the means to champion their own health.

CONCLUSION

Given the rapidly expanding dependent elderly population in China and the lack of both affordable and high-quality private care services, PEACE greatly relieves the social and financial burdens placed on seniors and their families in Beijing by optimizing existing physical and social infrastructure. Health profession students are matched to live alongside seniors, and in return for living free of charge in a city whose lodging costs are notoriously high, they provide meaningful company for the seniors, take on small chores such as grocery shopping, and importantly, help monitor their physical health. We anticipate a significant reduction in social isolation in seniors and reduced financial burden and debt stress for students. As PEACE progresses, additional measures can be taken to screen students and the elderly for financial need, train students to identify geriatric conditions, and expand to rural communities. PEACE uniquely adapts this project to China and additionally addresses the need to easily monitor the senior's health status, while maintaining their sense of autonomy and independence.

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APPENDICES

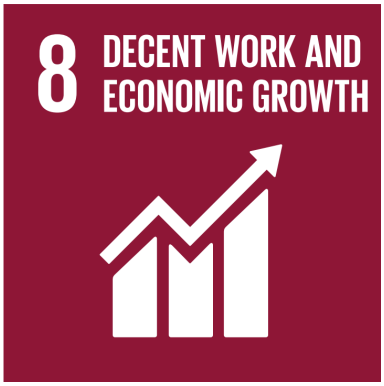
APPENDIX 1: EXAMPLE LIST OF DEVICES IN THE *PEACE* PROGRAM

Category	Device
Medication Administration Equipment	Dosing equipment (e.g., cups, eyedroppers, blunt syringes) Nasal sprays, inhalers Medication patches Syringes/sharps
Test Kits	Male/female/stress hormone test Cholesterol test Allergy test Bladder infection test HIV test Hepatitis C test Drug, alcohol, nicotine test
First Aid Equipment	Bandages Ace bandage, compression stocking Snakebite kit Heating pad Traction Ostomy care Tracheotomy care Defibrillator
Assistive Technology	Eyeglasses Hearing aid Dentures (full or partial) Prosthetic device Orthotic device, including braces Cane or crutches Walker Wheelchair Scooter
Meters/Monitors	Thermometer Stethoscope Blood glucose meter Blood coagulation (PT/INR) meter Pulse oximeter Weight scale Blood pressure monitor Apnea monitor Electrocardiogram monitor Fetal monitor
Treatment Equipment	IV equipment Infusion pumps Dialysis machines Transcutaneous electrical nerve stimulation systems
Respiratory Equipment	Ventilator, continuous positive airway pressure, bi-level positive airway pressure, and demand positive airway pressure equipment Oxygen cylinder Oxygen concentrator Nebulizer Masks and canulas Respiratory supplies Cough assist machine Suction machine Manual resuscitation bags

Feeding Equipment	Feeding tubes (nasogastric, gastrostomy, jejunostomy) Enteral pump
Voiding Equipment	Catheter Colostomy bags
Infant Care	Incubator Radiant warmer Bilirubin lights Phototherapy Apnea monitor
Telehealth Equipment	Cameras Sensors Data collection and communication equipment (e.g., computer) Telephone or internet connections

SDG:	Contribution to:	How PEACE fulfills this SDG:
	Ensure healthy lives and promote well-being for all at all ages	An often overlooked population when it comes to healthcare is the senior citizen population. The risk of dying from non-communicable diseases such as cardiovascular diseases, cancers, chronic respiratory diseases and diabetes is much higher in the senior population. Additionally, a weakened immune system in old age makes older adults more susceptible to infections. *PEACE* would ensure that there is adequate monitoring for chronic conditions, and students trained in this program are aware of signs of illness (both mental and physical) to ensure that clients age gracefully and healthily at home. In 2016, 79 per cent of suicides occurred in low- and middle-income countries, of which seniors comprised a significant portion, especially those who found the transition to living alone during retired living difficult. The companionship of enrolling in *PEACE* would alleviate some of those feelings of isolation.

	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	The price of post-secondary education is often a gatekeeper from higher education, especially for those in low- and middle-income countries. *PEACE* offers a way to alleviate some of these costs while enhancing the quality of education and access to hands-on skills in the healthcare field for many students who may not otherwise get this opportunity.
	Achieve gender equality and empower all women and girls	Women on average devote three times as many hours in unpaid care and domestic work than men, limiting the time available for paid work, education and leisure and further reinforcing gender-based socioeconomic disadvantages. Some of the unpaid work includes taking care of elderly family members, taking time away from career development and furthering the gender wage gap. *PEACE* would contribute to alleviating some of the deeply ingrained notions that women in the family have a duty to take care of elderly family members, and free up time for other ventures.

	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	*PEACE* is an equal opportunity program that accepts all students interested in participating who meet our professional criteria, regardless of race, gender, sexual orientation, etc. In 2018, one fifth of the world's youth were not in education, employment or training, meaning that they were neither gaining professional experience nor acquiring or developing skills through educational or vocational programs in their prime years., and young women were more than twice as likely as young men to be unemployed or outside the labour force and not in education or training. Our goal at *PEACE* is to be a force in changing these statistics
	Make cities and human settlements inclusive, safe, resilient and sustainable	The quality of a city's accessibility depends on the the next generation of innovators to create solutions to transportation, open spaces, and architectural design. This would not be possible without seeing the city from the perspective of seniors who have mobility issues while navigating urban centers. *PEACE* gives these students, who may go on to design public health initiatives such as more parks and open spaces, a first-hand glance at the difficulties of living in the city as an older adult

Adapted from Report of the Secretary-General with relevant ties to PEACE