OUR HONG KONG FOUNDATION
團結香港基金

An Investment for the Celebration of Aging

About the Authors

Professor YEOH Eng Kiong, GBS, OBE, JP
MBBS(HK), FHKAM, FHKCCM, FHKCP, FFPHM(UK), FRCP(Edin), FRCP(Lond), FRCPS(Glasg), FRACMA, FRACP

Professor of Public Health
Director, JC School of Public Health and Primary Care
Head, Division of Health System, Policy and Management
Faculty of Medicine
The Chinese University of Hong Kong

Professor Yeoh is Director of the JC School of Public Health and Primary Care of The Chinese University of Hong Kong and Head of Division of Health System, Policy and Management. His research is in health systems, services and policy with an interest in applying systems thinking in studying how the complex components of health systems interact and interrelate to improve health. A current research is in developing an enhanced integrated health and social care delivery system to meet the complex needs to the elderly population.

Professor Yeoh was Secretary for Health, Welfare and Food of the HKSAR Government between 1999 and 2004. From 1990 to 1999, he was the head and first Chief Executive of the Hong Kong Hospital Authority. He was awarded JP, OBE and GBS.

Dr. LAI Hor Yan Angel, M.Sc, M.A., Ph.D.

Senior Researcher
Our Hong Kong Foundation

Graduated from a doctorate degree in social work at the Washington University in St Louis in the United States, Dr. Lai specializes her research in Human Development, Social Capital Intervention, and Poverty. As a senior researcher at Our Hong Kong Foundation, Dr. Lai is interested in aging from a life course perspective and explores how policy can meet the changing demographic needs of Hong Kong. Dr. Lai has also worked at multiple tertiary institutions, namely Hong Kong Baptist University, University of Hong Kong and Hong Kong Polytechnic University, on various human development projects. She was also involved in disaster relief work in post-quake Sichuan between 2009 and 2010, managing community development projects in a temporary housing area.

An Investment for the Celebration of Aging: Executive Summary

Population aging is a global phenomenon and addressing the unprecedented challenges requires a rethink and a reexamination of our political, social and physical infrastructures. The diversity of individuals in older age groups, is demonstrated by the wide range of intrinsic capacities, both physical and mental, in the population after the age of 65 from individuals who are in excellent health to those who lost much of their capacities to function fully without support and aids. The size of the population of older persons who may have lost much of their intrinsic capacity can be reduced substantially through health policies, programs and services that (i) reduce prevalence of chronic diseases which are life-style related (70% of chronic disease are life-style related), (ii) detection of early chronic diseases enabling better chronic disease management, which will reduce disease progression and health deterioration, and (iii) improve the physical and social infrastructures to enable better functioning of people who have poor health.

Older people's ability to contribute socio-economically is not only determined by their health but by also socio-economic policies and social norms and practices. As such, investment have to be made not only in health and social welfare systems but also in our social and political institutions to yield benefits that could accrue from the 2nd and 3rd demographic dividends, derived from the socio-economic contribution of an older population in the demographic transition.

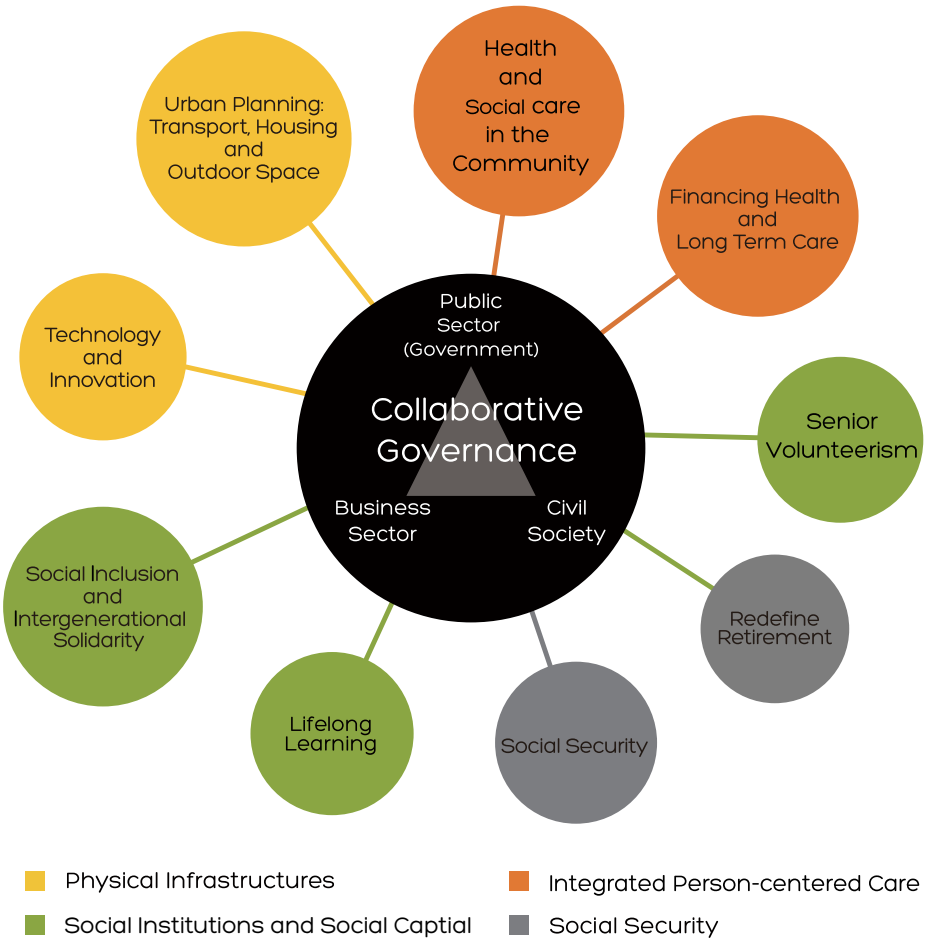
The median age of the population of Hong Kong will reach 51 years old by 2064, with an elderly support ratio of 567 older people per 1000 working-age population. While this change in the population structure can be perceived as potentially economically challenging, the government of Hong Kong has adopted a positive stance in the latest Hong Kong 2030+ and Elderly Services Program Plan consultation documents.

The research for the report affirms the justifications for this positive attitude to conceptualize aging. The optimism is a driver for advocating the community to 'think outside the box' and design a society that is more suitable, conducive and sustainable for an older population. In the analysis and examination of the challenges and opportunities of aging societies, the research team have identified key policy options to unleash the potential of a growing older population, which could generate prosperity and well being of the city. Hong Kong will be able to reap the benefits of longevity if our society has a healthy, engaged and productive population. Stakeholders of each and every sector will need to collaborate and invest in Hong Kong's physical, social and political institutions for an age-enabling environment.

Our Hong Kong Foundation, under the leadership of Professor E.K. Yeoh from the Jockey Club School of Public Health and Primary Care at the Chinese University of Hong Kong, has been working in the policy research for this report over the past 12 months. Based on results of our research, including a literature review and data analysis, we conclude that the city needs to invest in enabling health and establishing an age-enabling environment in order to transform Hong Kong in an age-enabling city (Figure a).

Figure a

Elements of an Age-Enabling City



Source: Adapted from World Health Organization (2015)

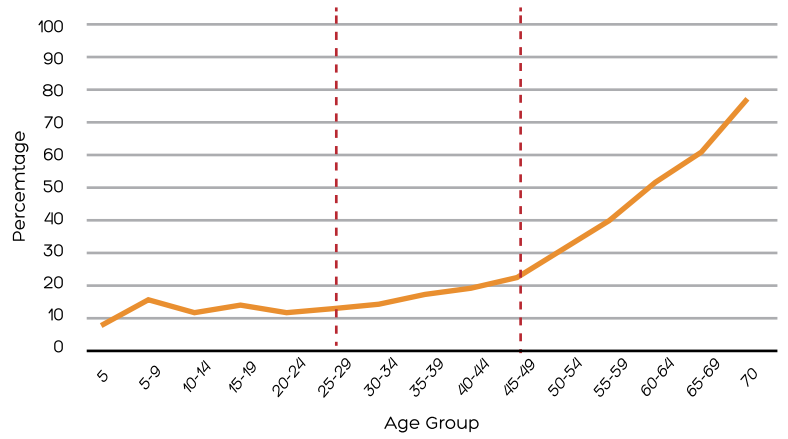
Invest in Health

Our research recommends developing the infrastructure for an integrated person-centered care system. We propose two specific enabling policies to enable the process:

(i) Chronic Disease Management Voucher Scheme

Here, we recommend a needs-based voucher scheme for chronic disease management targeting individuals aged 45 years and above which will better integrate public-private care and primary care-specialist services. The percentage of Hong Kong people having at least one chronic condition rises sharply once the population reaches 45 years old (Figure b), and that the likelihood of those aged 45 to 64 years old suffering from multimorbidity is 6 times more likely than those aged between 14 and 25(Census and Statistical Department, 2013, Chung, et al., 2015). For those who aged 65 years old and above, the likelihood of having multimorbidity is 18 times more (Chung, et al., 2015). Those aged below 45 still has an opportunity to prevent the occurrence of chronic disease through changing their lifestyle behaviors. For those aged 45 or above and living with chronic disease, a focus on health maintenance is essential.

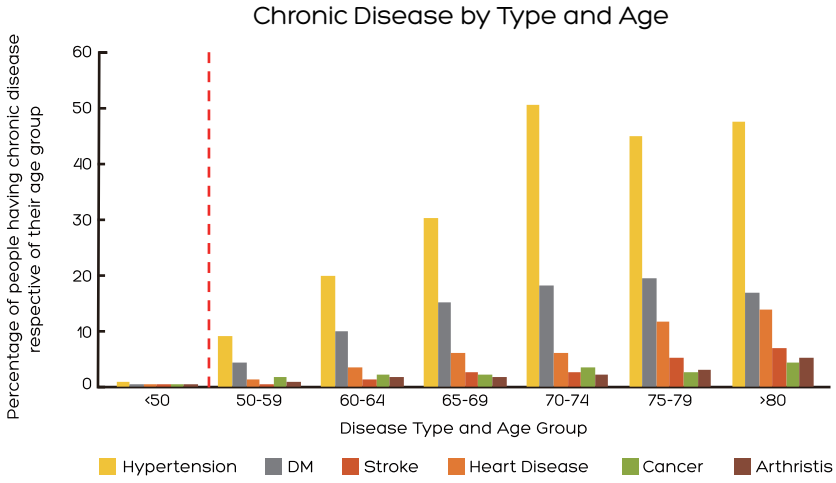
Figure b



Data Source: Census and Statistics Department (2013)

The annual voucher will target individuals diagnosed with hypertension and/or diabetes initially, because these two chronic diseases are most prevalent in Hong Kong. According to data from Census and Statistics Department (2014), about 10% of the population aged between 50 and 59 years old are suffering from hypertension and 5% from diabetes. For those aged between 60 and 64, 20% suffer from hypertension and 10% have diabetes (Figure c). As the population ages, more people will have chronic disease as well as multiple chronic diseases.

Figure c



Data Source: Census and Statistics Department (2013); Our Hong Kong Foundation

The Voucher Scheme subsidizes recipients to consult a private general practitioner in their neighborhoods to assess and screen for, and manage their chronic diseases while early, before it has a significant impact on their health. Better health allows the general population to continue to contribute to the society, the productivity of the workforce can thus be enhanced and demand for health and social care services can be lowered. This recommendation additionally aims at mobilizing private primary care resources and expertise in the community, so that all resources in the health system can be fully utilized.

We recommend the government to consider providing a subsidy for screening and management of chronic disease. For the first screening tier, a HK$1,000 voucher amount will be provided to the population who are 45 years old and above. People who are identified with the chronic disease(s) of hypertension and/or diabetes will then be provided with a consequential voucher. Based on a number of assumptions and scenarios, this second tier is estimated to be HK$3,040 per year for hypertension and/or diabetes.

Because there are currently 3.51 million of peo-

ple who are over 45 years old, the organization and logistics of the implementation of the scheme, especially for individuals with screening needs, have to be researched. In view of the volume, one option, which could be further evaluated for feasibility, is for the screening services from primary care providers in the community to be carried out in stages over 3 years for different age groups at the initiation of the Scheme. Additional research is needed to evaluate the Scheme itself, including whether subsequent screening needs to be repeated to the same cohort, and the effects and benefits accrued both in terms of health and the economy.

The proposed Voucher Scheme can be first provided on those from low income households. The rationale in offering the subsidy initially to the low income group is based on research showing that individuals from low income families are 40% more likely to develop multimorbidity (Chung et al., 2015). An additional rationale to target this group is the World Health Organization's objective of health equity, which states everyone in a society should have adequate resources to achieve similar health status, which advocates that more resources should be given to those most in need. If the Scheme is fully implemented to cover the major diseases and demonstrated to have achieved its objective, and proven to be cost effective, the government could consider extending the Scheme to fit the needs of people with higher levels of household income.

Based on the experiences of the existing Elderly Health Care Voucher Scheme, a successful voucher scheme depends on the design, and research and evaluation for effective policies. The services covered by the Scheme need to be targeted. Information on the private primary care market have to be transparent. Ensuring supply of appropriate trained primary care doctors and increasing the health literacy of the general population are also essential. Last, we need to conduct goal-oriented evaluation and cost-benefit analysis studies to understand the impact and effectiveness of the Scheme.

(ii) Health-Enabling Network

Our research recommends the establishment of a Health-Enabling Network, which features partnerships among the Department of Health, the Hospital Authority and the Social Welfare Department to build an integrated person-centered care system in collaboration with non-profit organizations, the private sector and the community. Using the secondary data set provided by the Social Welfare Department, we have identified the health needs of older people in the community, which inform us on the scope of services that the proposed Health-Enabling Network needs to cover.

Under the proposed Network, Elderly Health Centres managed by the Department of Health and the Community Health Centers of Hospital Authority, can serve as major health hubs, while local District Elderly Community Centres, Neighborhood Elderly Centres, or even private elderly service providers, can act as community partners to bring healthcare services to older people living in public housing estates. The Network will cover health promotion and preventive care services, primary care services and rehabilitation services. For older people living in private residential care settings, we propose better linkage between healthcare and residential care services providers. We also suggest the Network to gradually expand to private housing estates to serve older people residing there. Preliminary findings from the spatial analysis suggest the feasibility of building the Network.

The success of the Health-Enabling Network requires existing community service providers, including subvented, self-financed and private providers, to expand their services scope and additional resources are necessary to support this operational model of care. Further research work is also required in exploring strategies to establishing career prospects for elderly services workers, offering supplementary training for existing workers and using assistive robotic or healthcare technology in elderly care settings. We recommend the government should commission research to study how the Health-Enabling Network can be realized to better serve the health needs of an aging society. The government should also study the feasibility of integrated funding of medical and social services for older population. Last, we also need to research policy options to supply additional spaces for services expansion.

Invest in Age-Enabling City

The process of establishing an age-enabling city which sustains a vibrant, economically productive and socially engaged older society requires a joint effort of all sectors. Based on the research, which also draws from World Health Organization's Healthy Ageing framework, we propose Hong Kong should to review the political, social and physical environments of Hong Kong in order to better prepare the city for its aging population:

(i) Collaborative Governance

Aging policy encompasses a myriad of disciplines and impacts the every aspect of lives of everyone in the community. No single institution alone can formulate integrated policies and comprehensive strategies for aging which will be effective. Cross-sector collaboration experiences in other countries, also include academic institutions working alongside the government and the private sector to develop age-enabling policies, can be used as a reference for Hong Kong's own initiatives. Collaboration is necessary between the government, business sector and civil society to establish Hong Kong as an age-enabling city, so that no generation will be left behind as they age.

(ii) Build Social Capital for Sharing of Resources

Aging policies can establish platforms to enable cross transfer of resources between people of different generations. Building cross-generational solidarity is one way of tapping into the human capital of the older population. Greater efforts are necessary to establish a culture of positive intergenerational relationships not only within families, but also in the workplace and in the community as a whole. Redefining the retirement age, incentivizing employment in older age and investing in lifelong learning and senior volunteer programs are also policy options to release the resources embedded in the older generation. Amidst a shrinking workforce, the skills and experiences of older people can be an asset to promote economic, health and sustainability.

(iii) Technology to Create an Age-Enabling City

With the establishment of the Innovation and Technology Bureau and the promotion of the Healthy Aging platform initiated by the Hong Kong Science and Technology Parks Cooperation, Hong Kong is ready to leverage on new technologies to transform the city into an age-enabling one.

Investments in biotechnological research would generate technological breakthroughs that improve biological capacity. The Ministry of Education (MOE) Key Laboratory of Regenerative Medicine jointly established by the Chinese University of Hong Kong and Jinan University is an example of inter-university effort to develop innovative technologies to promote health.

Assistive technology is revolutionizing the way older people can independently manage their health thus successfully age in place. Substantial international experiences, demonstrate that the inclusion of medical and sensor-equipped devices in the living environment of older people increase their level of independence, enabling the realization of the concept of aging in place.

Hong Kong can also utilize big data analytics to understand the everyday lives of our population and create an age-enabling city. Data linkage is necessary among all government departments and the participation of academic institutions in the process is a pre-requisite. In the process of establishing a big data platform, one of the first issues that needs to be tackled is privacy protection. With collaborative efforts, Hong Kong will become an age-enabling city that can maximize the opportunity of an aging population, thus ensure sustainability.

An Investment to Enable the Celebration of Aging

To enable the celebration of aging, society has to invest in promoting the health of the population. Research from the U.K. has demonstrated

the benefits of implementing screening and chronic disease management programs. Lifestyle change programs, such as healthy eating and exercise, are demonstrated to be effective in decreasing the incidence rates of stroke and cardiovascular disease (Lee & Paffenbarger, 1998; Lee, Folsom & Blair, 2003; He, Nowson & MacGregor, 2006). Chronic disease management programs can successfully decrease hospital readmission of heart failure and cardiovascular disease by 30%, all cause readmission by 12% and combined event of readmission of death by 18% (Gonseth et al., 2004).

In the U.K., the net contribution of people aged 65 years or older to the society amounts to £40 billion, far exceeding their consumption. Their economic contribution includes spending (£75 billion), taxation and other financial contributions (£75 billion) (Cook, 2011). Older people in the U.K. also contribute through providing social care and engaging in voluntary work (£44 billion) (Cook, 2011). The Australian government estimates that women aged between 65 and 74 years contribute to AUD $16 billion per year in unpaid caregiving and voluntary work (Vaus, Gray, & Stanton, 2003). Economic contribution of volunteers in Hong Kong aged 60 to 79 years is valued at US$117 million in 2007, and is estimated to be 0.55% of GDP (Leeson & Harper, 2007).

Considering the evidence, we proposed the Chronic Disease Management Voucher Scheme and Health-Enabling Network as facilitating programs to realize integrated person-centered care. With better health, the productivity of the older population can be enhanced if they are given the right platform, as such, this report also advocates the establishment of age-enabling infrastructures.

Investments in building an integrated person-care system and an age-enabling environment will yield the return of sustainable ageing societies, which recognize the value and cumulative contribution of every member of society regardless of age and health, enabling their engagement and participation in social life. Investments are required for the celebration of aging.

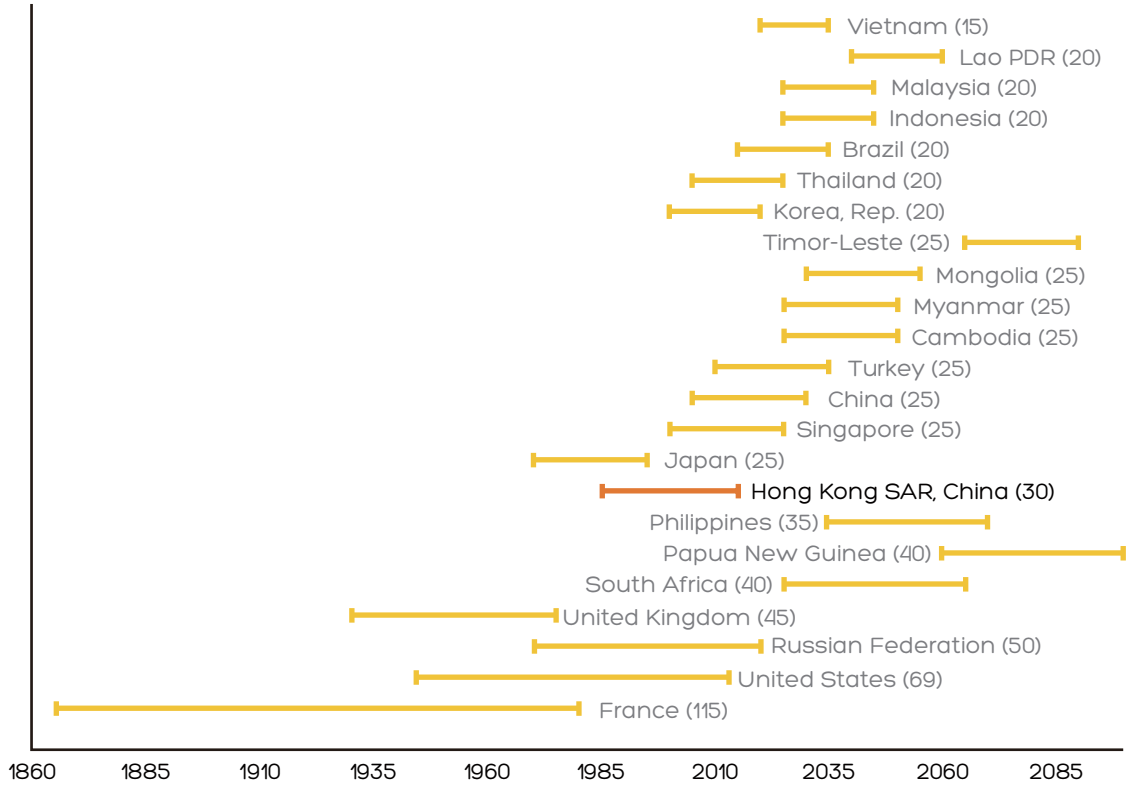
Contents

Chapter 1:
Global Age Transition and Sustainability

Population aging is affecting many countries around the world. Driven by a declining birth rate and a steady increase in life expectancy, the traditionally defined support ratio, (i.e., the number of persons aged 15 to 64 years to the number of persons aged 65 years or older,) will decrease by half from 7.9 to 3.9 in the next 45 years (United Nations, 2015a). Figure 1.1 shows the number of years for each economy to move from having 7% of the population aged 65 and above to 14%. In Asia, Japan started and completed the transition decades ago. Hong Kong started the transition in the mid-80s and has also completed the transition (World Bank Group, 2016).

Figure 1.1

International Comparison on Countries' Transitions into an Aged Society



Source: World Bank East Asia and Pacific Regional Report (2016)

1.1 Implications of Aging

The shrinking workforce and the aging of the baby boomer generation in developed countries suggests the expiration of the 1st demographic dividend. Demographic dividend is defined as the economic growth associated with changes in the population structure (Lee, 2003). Many countries have experienced an economic growth due to the rise of the baby boomer population, which provides them with a significant increase in the workforce, leading to economic prosperity (Lee & Mason, 2011). The decline in fertility rates in developed regions, associated with urbanizations, jeopardizes economic growth by reducing the workforce, causing the expiration of the 1st demographic dividend (Lee & Mason, 2011).

One of the key implications on population aging is the need to redefine retirement. The use of 65 years has become an increasingly obsolete threshold for defining old age and for conditional benefits for the older population. In developed societies such as Hong Kong, this "norm" should be re-conceptualized given the rising trends in health and education. The stages of life and the notions of work, leisure, saving and retirement should also be reconsidered in an aging population that is stronger and healthier than before.

A major implication of increasing consumption in old age is the increase in health and social care costs. In the United States, for instance, total consumption among adults over the age of 60 years was lower than that among the younger adults in 1960. However, in 1981, total consumption rose across the adult population and by 2007 the age-consumption profile had drastically transformed: The older population, in total, consumes much more than the younger population. In 1961, an 80-year-old consumed 83% of what a 20-year-old consumed, and in 2007 an 80-year-old consumed 67% more (National Research Council, 2012).

1.2 Second Demographic Dividend: The Economic Growth of an Aging Society

Merely looking at the increasing, traditionally defined elderly dependency ratio in developed countries suggests a rather grim economic prospect. If appropriate policies are implemented, the aging population may in fact lead to a new wave of economic growth, known as the 2nd demographic dividend (Lee & Mason, 2011).

A new system of accounting, known as National Transfer Accounts, is developed to inform how policy can be used to achieve the 2nd demographic dividend. National Transfer Accounts use simple accounting methods to understand the economic behaviors of different age groups and describe how resources are transferred across generations (Lee & Mason, 2011). Equation 1.1 illustrates the mathematical concept of National Transfer Accounts:

Equation 1.1

$$gr[C/N] = gr[(1-s)Y/L] + gr[L/N]$$

gr = growth rate
C/N = Consumption per worker, which is a measure of material standard of living
([(1-s)Y]/L) = Amount of income each worker produces and consumes, which is 1 minus savings rates (i.e.,1-s) times income per effective worker (Y/L) (i.e., [(1-s) x (Y/L)]).
(L/N) = Support ratio, which is the number of workers relative to the number of consumers

National Transfer Accounts offer an alternative understanding on the economic impact of aging. They measure the flow of resources among people of different ages by examining actual labor income and consumption for each particular age group. Labor income refers to earnings of employees, fringe benefits, income from self-employment and unpaid family labor. Consumption refers to goods and services from both public and private sources. Basically, National Transfer Accounts record the intergenerational flow of money and analyze the implications of the changing age structure. Policymakers, then, use this information to formulate aging policy that can lead to the 2nd demographic dividend.

To understand how National Transfer Accounts work, let us divide the population into three age groups: children, working adults and the older people. Now, let us look into the wallets of different age groups. For children, their wallets depend on that of their parents and the government, who provides social welfare programs like basic education and healthcare. Children make up the one age group that receives the highest per-capita support from the government. For adults, they are able to earn income, which allows them to pay taxes, consume with discretion, take care of others, and save or invest for their future income security. When a person reaches retirement, money in their wallet comes mainly from savings, asset income and social welfare. We can see that only adults earn enough income to support the government. Children and older people, who are in retirement, earn less than they consume and, therefore, have to rely on the government and adults.

The National Transfer Accounts advocate the implementation of policies that enhance labor productivity of older people and change the existing system on transfers of resources, so that the aging demographic structure of many countries will not lead to a smaller amount of money in national funds.

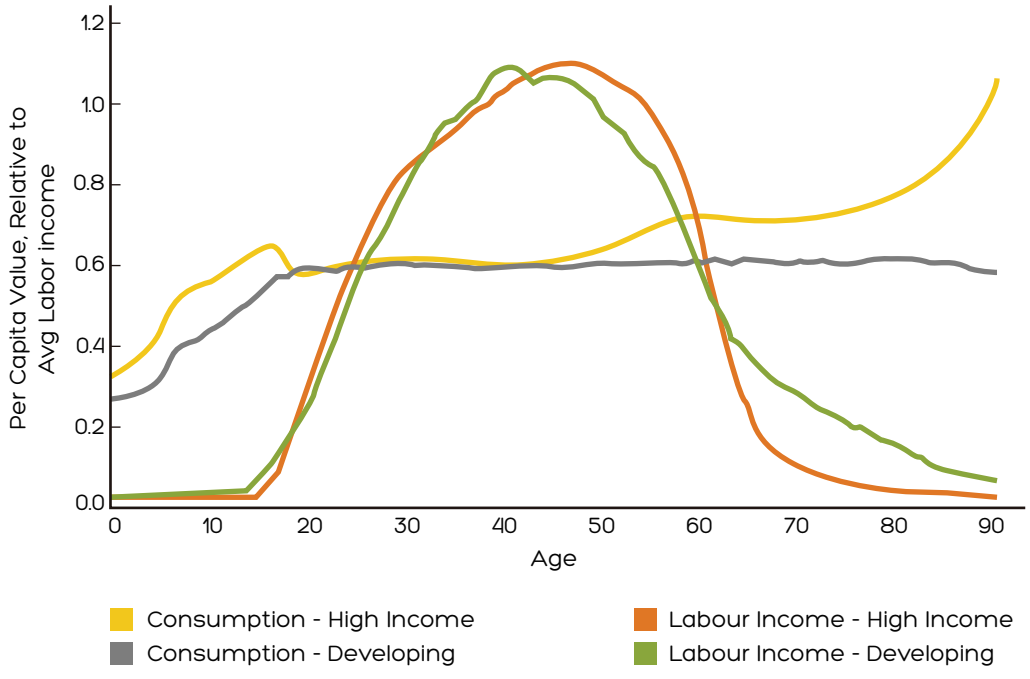
1.3 Economic Life Cycle

The National Transfer Accounts use the concept of the economic life cycle to look at the labor income and consumption patterns of different countries according to their population distribution. Figure 1.2 shows the economic life cycle of six developing and six high income countries. As illustrated in the graph, labor income (i.e., the sum of wages or salaries before tax, unpaid labor and self-employment) is highest during working age, while it is lowest in youth and old age (Lee, Lee, & Mason, 2014).

The most remarkable difference between developing and high income countries is the consumption pattern among different age groups. In high income countries, consumption rises with age and older people consume more than the younger generation, whereas developing countries have younger populations that consume more. An important implication of the difference is the shift in population needs when a society transforms from a developing economy into a developed one.

Figure 1.2

Economic Life Cycle of High Income Versus Developing Countries



Note: High income countries include Austria, Finland, Germany, Japan, Sweden and the United States. Developing countries include China, India, Indonesia, Kenya, Nigeria, and the Philippines.

Source: Lee, Lee, & Mason(2014)

1.4 Life Cycle Deficit

According to the National Transfer Accounts, the life cycle deficit is the gap between consumption and labor income at a particular age group. It provides us with a monetary estimation on the impact of the changing population structure on the economic growth of a society (UNFPA & HelpAge International, 2012). In an aged economy, the life cycle deficit in older age is assumed to be higher than that of the younger generation. Because the life cycle deficit equals consumption minus labor income, aging policies that focus on increasing labor productivity and decreasing demand for public services in old age can narrow the deficit, or in some cases, result in the 2nd demographic dividend, where the older generation contributes to the economic growth of society.

1.4.1 Increasing Labor Productivity

According to the National Transfer Accounts, a decline in fertility rate and an increase in life expectancy may not result in a population crisis, and can even lead to a 2nd demographic dividend if we are able to increase the net productivity per worker (Lee & Mason, 2010). Increase in labor productivity will lead to a higher tax revenue and in turn this will increase funding in social security and healthcare (National Research Council, 2012). With the current generation of older people having higher educational attainment, the aged population possesses knowledge and problem solving skills that are extremely valuable to the continuous development of society (Fried, 2016).

In fact, older people are contributing to the economy of many societies around the world. In the U.K., the net contribution of people aged 65 and above to society amounts to £40 billion, far exceeding their consumption. (Cook,2011) Their economic contribution includes spending (£75 billion), taxation and other financial contributions (£75 billion) (Cook, 2011). In the U.S., 23% of new U.S. enterprises that started in 2011 were launched by entrepreneurs aged 55 to 64 (Holly, 2014). Two-fifths of Americans aged 44 to 70 are found to be highly motivated to adopt an "encore career" after retiring from their earlier careers; 9% of them are already in their second career (MetLife Foundation, 2008). In Hong Kong, the average age of a Hang Seng Index constituent company director is 58 years old (HKICS, 2012).

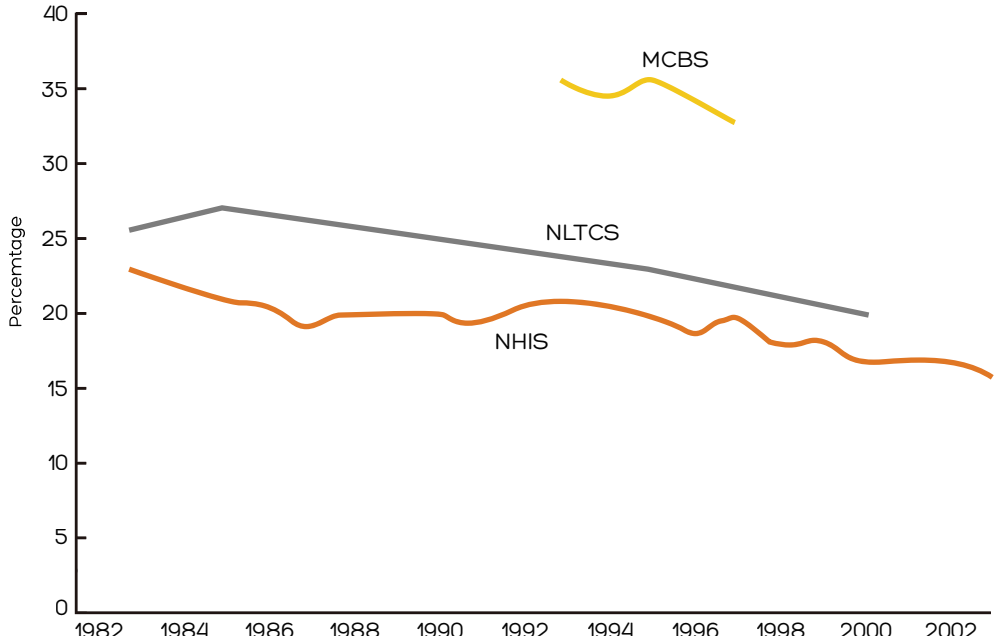
As for the value of unpaid work, in the U.K., older people contribute through providing social care and engaging in voluntary work (£44 billion) (Cook, 2011). The Australian government also estimates that women aged 65 to 74 contribute to AUD $16 billion per year in unpaid caregiving and voluntary work (Vaus, Gray, & Stanton, 2003). Economic contribution of volunteers in Hong Kong aged 60 to 79 was valued at US$117 million in 2007, and is estimated to be 0.55% of GDP (Leeson & Harper, 2007).

How can we increase productivity? One of the ways to increase labor productivity is through promoting health. Having poor health disables older people from participating in meaningful and productive activities. As such, a good healthcare system that focuses on health promotion, disease prevention and primary care is crucial for maintaining the health of its people.

In fact, the trends in functional impairment among the older population in the U.S. has progressively decreased over the years, according to three large-scale survey studies in the U.S.: Medicare Current Beneficiary Survey, National Long Term Care Survey, and National Health Interview Survey (Figure 1.3).

Figure 1.3

Trend in Disability Rate for aged 65+ in Three American National Surveys



Source: National Research Council of The National Academies (2012)

Advancement in medical and social services, as well as improvement of educational attainment, have helped lower the proportion of moderate or severe functional limitations among older people, which led to an increase in active life expectancy and a reduction in morbidity during the 1980s and 1990s (Freedman et al., 2011). Owing to the importance of health in driving up productivity, this report will emphasize enhancing and maintaining the health of current and future olds. In Chapter 2, we will discuss how the healthcare and long term care systems can be designed to result in healthy aging. The experiences of the United Kingdom (U.K.), Japan and Singapore in promoting and maintaining the health of their populations are reviewed in Chapter 3. Chapter 4 maps the issues associated with aging in Hong Kong to identify possible policy options to promote and maintain health in the general population.

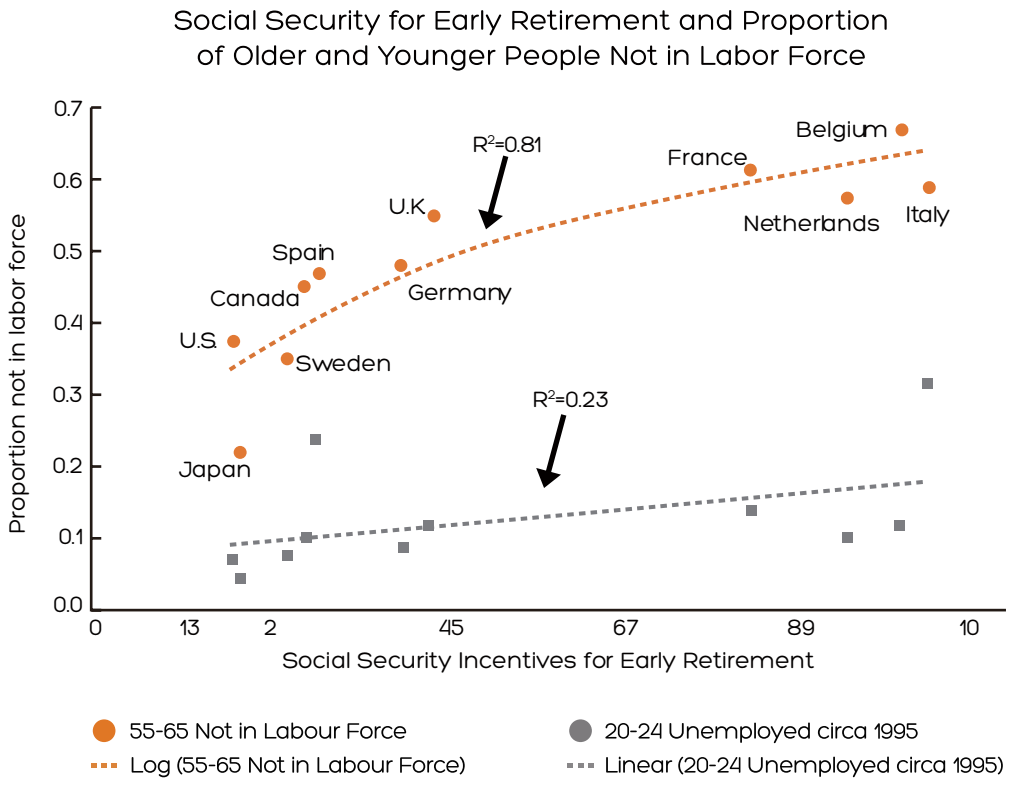
In addition to health, older people need an age-enabling environment to engage in productive activity. For instance, setting a compulsory retirement age or increasing social security for early retirement may result in the loss of valuable labor in the older workforce, who otherwise can still make a significant economic contribution. Moreover, lifelong education for older workers may increase their opportunity of participating in the workforce, thus truncating the life cycle deficit and contributing to economic growth.

Box 1.1

Will longer participation among older people lead to a decrease in job opportunities among younger people?

Some people argue that longer labor participation among older people will lead to a decrease in job opportunities among younger people. In fact, that is not the case. Figure 1.4 illustrates the social security incentives for early retirement and the proportion of older and younger people not in the labor force. The blue dotted line suggests that as social security for early retirement increases, more people will be out of jobs. Interestingly, the pink dotted line also shows that as social security for early retirement increases, the unemployment rate of youth also increases. If there is only a fixed amount of jobs in the market, logically, increased social security for early retirement will lead to a higher proportion of older people not in the labor force, resulting in more jobs available the in market, thus lowering youth unemployment rate. As such, there is no evidence to support that encouraging older people to leave the workforce would free up jobs for the youths.

Figure 1.4



Source: National Research Council of The National Academies (2012)

Another way of increasing productivity is via innovative technology. The development of robotics and information technology can greatly improve productivity via allowing older people with limited mobility to continue to work. Regenerative medicine can delay the aging process, creating a healthier labor force. In addition, these technology can also substitute low-skilled workers in the future due to rising education level. Another possible policy option is immigration of high skilled labor around the globe. The skills brought along by immigrants can significantly improve development of technology and innovative products. Furthermore, investment in education spending that supports the learning of technology and development of innovative mindsets should be encouraged, so that the productivity of the workforce can be enhanced.

1.4.2 Decrease transfers of resources from the working age group to older generations

Another feature of the National Transfer Accounts is the flow of resources across generations in a society. Labor income of the working group is transferred to the young and the old for consumption through the channels of net public transfers, net private transfers and asset-based allocations (Lee and Mason, 2011). The sum of these three elements of transfer equals the life cycle deficit (Equation 1.2):

Equation 1.2

$$\underbrace{C(x)-Y^{L}(x)}_{\text{Lifecycle Deficit}}=\underbrace{\underbrace{\tau^{+}(x)-\tau^{-}(x)}_{\text{Net Transfers}}+\underbrace{Y^{A}(x)-S(x)}_{\text{Asset -based Reallocations}}}_{\text{Age Reallocations}}$$

C(X) = Consumption; $Y^{L}(X)$ = Labor income

$t^{+}(X)$ = Transfers inflows; $t^{-}(X)$ = Transfers outflows

$Y^{A}(X)$ = Asset income, which is equal to capital income plus property income

S(X) = Savings

Considering the shrinking working age group, it makes sense to establish a system that decreases the transfers of resources from the younger generation to the older generation in order to narrow the life cycle deficit (United Nations, 2013). This does not negate the notion that intergenerational transfers and care should not continue instrumentally and emotionally. Yet, in order to ensure economic sustainability and cohesiveness in intergenerational societies, we advocate investments in a system that can maximize the self-sufficiency and economic contributions of the older population or even facilitate the transfers of resources of the older to the young generations.

1.4.2.1 Increasing private transfers from the aged to the younger generations

Transfer of resources in private sector reallocations are governed by voluntary contracts, social conventions and behavioral patterns of the market. Family is the major system where resources are transferred through private channels to younger children and members in need. Familial transfers from the young to the old is also a major source of old age income support in Asian countries (Lee, Mason & Park, 2011).

However, in some countries, older people offer more resources to their families than they receive, resulting in a negative value in their net transfers (Queiroz, Lee, & Mason, 2014). In Thailand and the Philippines, 55% and 67% of the older parents provide economic assistance to their children respectively (Chan, 2005). A study in India shows that public transfers to older people are negative because of the taxes they paid (Narayana, 2011). The value of negative private transfers in the older population suggests their continued productivity and points to the fact that intergenerational net transfers are often socially constructed and defined by public policies. Thus, policies that facilitate productivity in older ages enable the flow of resources from the older to younger generations at both familial and community levels, and can lower the levels of the life cycle deficit in old age.

1.4.2.2 Decreasing public transfers from the work force to the older population

By imposing taxes on the working groups

and implementing social welfare programs, resources are transferred to the young and old through public channels. Having an aging population will no doubt increase healthcare expenditure (WHO, 2015a; Lee, Mason & Park, 2011). Yet, old age is not the key factor leading to increased healthcare expenditure; rather, age-related diseases is primaiy the factor. Hence, promoting and maintaining the health of the older population will not only increase labor productivity but also decrease the transfer of resources from the working groups to the older generations via public channels.

1.4.2.3 Asset-based allocations

Another way of decreasing transfers of resources from younger to older generations is through asset-based allocations. Asset-based allocations involve inter-temporal flows, meaning that it happens across time. Older people can fund their consumptions through their accumulated assets during their working lives, and rely on asset income or dis-savings of those assets during retirement years. The accumulation of wealth, especially among the older population in developed countries, may also result in greater investment with appropriate policies (Matsukura, 2014).

Policy options can be implemented to encourage more savings as well as investment activities, so that older people will have steady income streams after retirement. Employment-based pension plans, home ownerships, building businesses and accumulated savings at working age are ways to establish assets in the long run (Lee & Mason, 2011). Additionally, improving financial literacy should be encouraged to enhance people's understanding of basic economic and financial concepts necessary for their working, savings and retirement plans (Lusardi & Mitchell, 2007). To prepare for the future, governments may need to design policies to encourage the younger generations to accumulate assets, so that they will have enough resources to maintain their quality of life when they become old (United Nations, 2013).

1.5 The Current Report

The purpose of this report is to examine both the challenges of aging societies and how they may be addressed, and the maximization of opportunities of a growing older population, so that Hong Kong can reap the benefits of the "longevity dividend" (UNFPA & HelpAge International, 2012) . Our earlier report on "Riding on Mainland's Economic Development in a New Era" (Liu, Lam & Shui, 2016) has also noted some of the challenges and opportunities associated with aging Hong Kong. With the majority of people transitioning into old age in the near future, we have to think 'outside of the box' and re-design a city that is suitable for the older people. In order to achieve the 2nd demographic dividend, investments in reinventing multiple aspects of society and public policies to increase labor productivity and to reduce consumption of health and social resources are necessary.

This report advocates investments in building health in the general population. In addition, this report will explore options to invest in the building of social, physical and political infrastructures to facilitate healthy aging and enable Hong Kong to celebrate the achievement of old age.

1.5.1 Methodology

Our Hong Kong Foundation, together with Professor Yeoh Eng-Kiong, Director of The Jockey Club School of Public Health and Primary Care at the Chinese University of Hong Kong, conducted relevant research on the topics associated with an aging society in the context of Hong Kong and compiled the current research report. Various research methods (Table 1.1) were adopted to explore possible policy options. Creating a comprehensive plan for an age-enabling city requires years of research and hard work; therefore, this report aims to facilitate discussion and seek to identify potential directional solutions.

Table 1.1

Research Methodology of the Policy Report

Desktop research	**The team reviewed available local and international publications on relevant topics, researches and theories. Some of the publications reviewed were government documents, peer-reviewed journals, reports written by renowned global organizations and think tanks, such as the World Health Organization and OECD. Relevant aging policies of the U.K., Japan and Singapore were identified as reference for the Hong Kong experience in establishing an age-enabling city.**
Interviews with professionals and service providers	**Representatives (n=15) from the policy, social and medical fields of elderly services were invited to participate in one-on-one interviews to understand stakeholders' views towards the existing aging culture, social and healthcare systems in Hong Kong.**
Focus group interviews with older people	**Eight focus group interviews (n= 55 older people, aged 61 to 94) were conducted to understand the perception of older people towards the provision of healthcare services in Hong Kong. To understand older people's perception of public and private primary care services in managing chronic disease in the community, we only interviewed older people who are still, in general, healthy with minor chronic illness that requires some management. The interviewees' perception towards EHCVS were also captured.**
Secondary data analysis	**Quantitative data from the Social Welfare Department were used to describe the health profile of older people who apply for long term care services. Unmet health needs in the community were identified and policy options are suggested to provide coordinated care for older people with health and functional needs in local neighborhoods.**
Spatial analysis	**Spatial analysis was carried out to identify healthcare and social service locations in Hong Kong. The Esri ArcGIS was employed to construct a series of infomap locating existing facilities. This spatial analysis sought to identify the location proximity of elderly care services in the community with the population aged 65 and above residing in Public Rental Houses.**
Projection modeling	**We established projection models to estimate the long term cost of different types of disease and elderly care services.**

1.5.2 Scope of the report

This report calls for investments to restructure the healthcare and long term care systems for integrated person-centered care and to recreate the holistic environment from the political, social and physical perspectives, in order to prepare Hong Kong for an aging population. Based on our research findings, this report focuses on the following policy options to promote health and establish an age enabling environment (Table 1.2). Chapters 2, 3 and 4 will present the findings of our literature review and research using primary and secondary data. Based on the findings, Chapter 5 will discuss the proposed policy options.

Table 1.2

Policy Options	
Promote and maintain health among older population	**Integrated person-centered care** •Chronic Disease Management Voucher Scheme •Health-Enabling Network for health and long term care
Facilitate productive activities among older people	**Age-Enabling Environment** •Collaborative governance among the government, business sector and civil society (Political Infrastructure) •Social Capital for transfers of resources (Social Infrastructure) •Technology for age-enabling city (Physical Infrastructure)

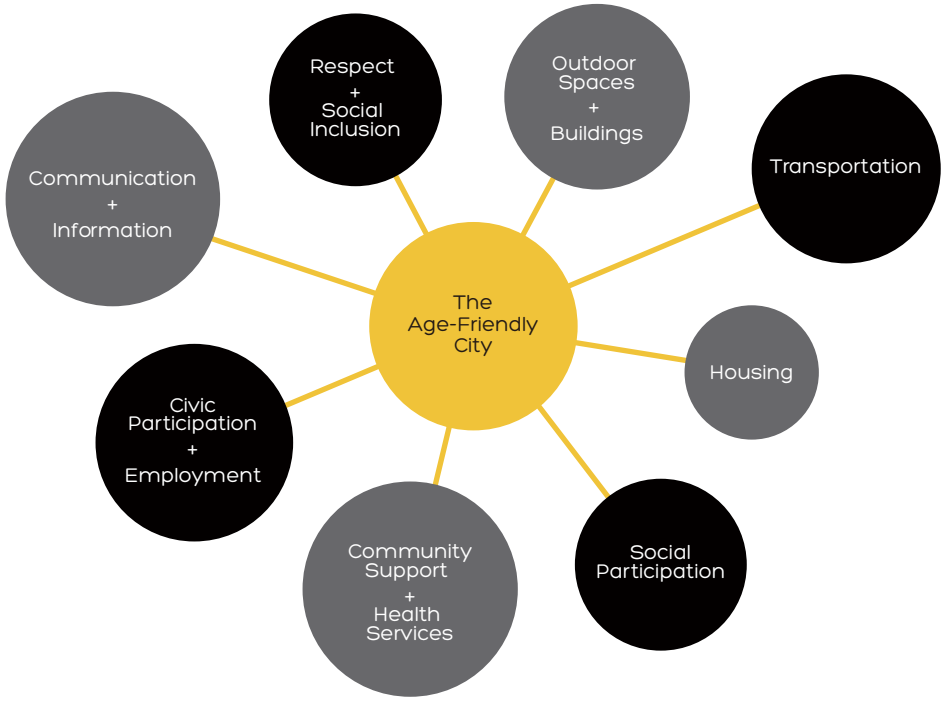
Chapter 2:
Successful Aging

Successful aging can be defined as: (1) low probability of disease and disease-related disability and the absence of associated risk factors, (2) high cognitive and physical functional capacity, and (3) active engagement with life defined as having desirable interpersonal relationships and participation in productive activities (Rowe & Kahn, 1997). To achieve successful aging, making changes to multiple aspects of the environment is necessary because the world we now live in does not meet the needs of an aging population. In 2007, the World Health Organization (WHO) published a guide on building an age-friendly city based on their research of 33 cities around the world (WHO, 2007). The guide (Figure 2.1) highlights eight interrelated domains and provides direction in thinking about the policies as well as physical and social infrastructures required to create an age-enabling city for older people of today as well as those in the future (Handler, 2015). Moreover, aging policy is not only about improving the quality of life for today's older people, but a pressing issue concerning the lives of all people in the future.

This chapter reviews three important conceptualizations of aging. The first is Diversity in Aging, which proposes the non-deterministic nature of aging trajectories. Aging itself is not the most significant factor of poor health; rather, it is undesirable lifestyles and environmental factors that contribute to the deterioration of bodily functions. Because of the diversity in aging trajectories, a public health system focusing on disease prevention and health promotion across the life course is essential in minimizing or delaying the deterioration of physical and functional health in old age (Moritz & Stein, 1999; WHO, 2015a). The second is an Investment Approach to Aging, which states that aging is an investment opportunity for economic growth. This idea is termed the 2nd demographic dividend (UNFPA & HelpAge International, 2012). Older people possess economic and human capital, and these resources can be tapped into for sustainable development, given the appropriate political, social and physical environment (WHO, 2015b). Last, we discuss the framework of Healthy Aging and propose a systematic change in the health and long term care systems as well as other aspects of the environment in order to enable society to celebrate successful aging. Furthermore, this section will identify and discuss areas of investment (Lee & Mason, 2011).

Figure 2.1

Eight Interrelated Domains on Building an Age-Friendly City



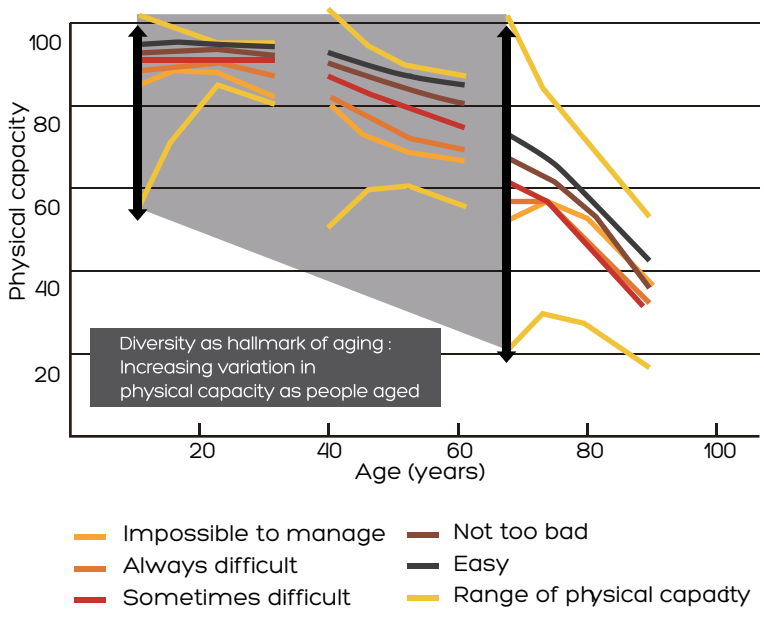
Source: WHO (2007)

2.1
Diversity in Aging: A Life Course Approach to Conceptualizing Aging

The heterogeneous nature of aging, also known as the Diversity in Aging, recognizes that past experiences and the external environment affect subsequent outcomes of individuals, resulting in the diverse range of abilities in the older population. Figure 2.2 shows that across different levels of functional health (as indicated by a person's ability to manage current income), there is a wide range of physical capacity at around 80 years old, while those at 20 years old have a smaller range, suggesting that older people do not age at fixed stages and that the aging process is heterogeneous, depending on past experiences and the external environments (WHO, 2015a). For example, two older people who enjoyed the same health status when they were young may end up having different levels of bodily functioning in older age due to the dissimilar amount of physical activities they did and/or the different amount of pollutants they were exposed to as they aged.

Figure 2.2

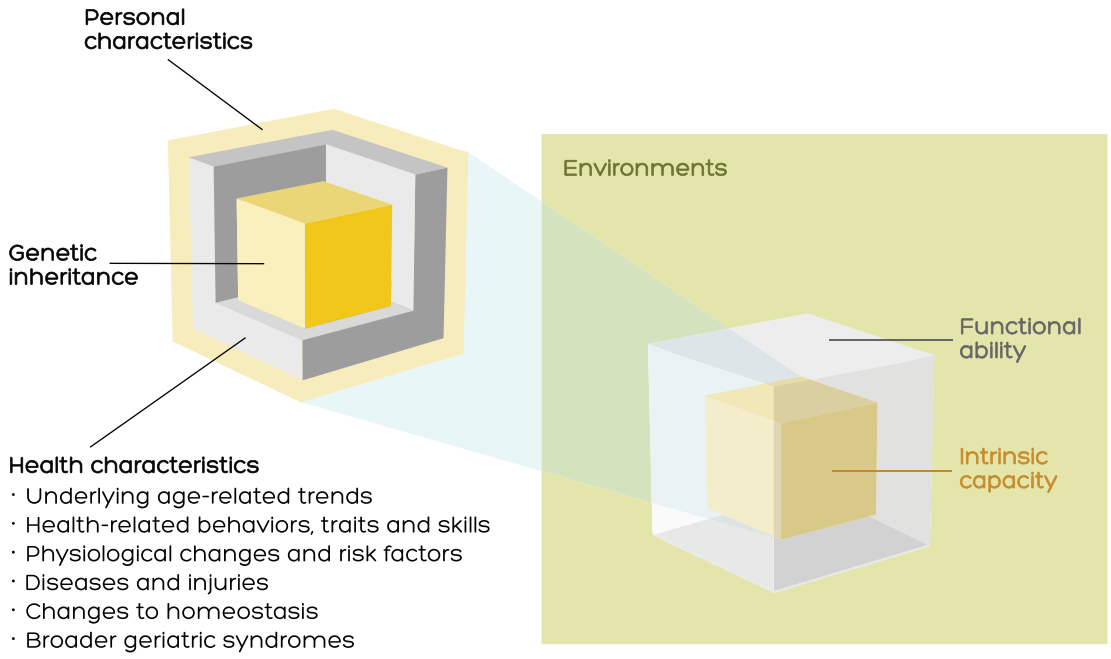
Physical Capacity Across the Life Course Stratified by Ability to Manage on Personal Finance



Source: WHO (2015a)

Figure 2.3

The Notion of Intrinsic Capacity and Functional Ability of Older People



Source: WHO (2015a)

The health of individuals can be broadly categorized as intrinsic capacity and functional health. Figure 2.3 illustrates the intrinsic capacity and functional ability of older people as embedded in and affected by the external environments. With reference to the life course approach to aging, the ongoing interaction between older people and their living environment results in diverse trajectories of their intrinsic capacity and functional ability.

Intrinsic capacity in old age is a summation of genetic inheritance, health characteristics (e.g., health behaviors, traits and skills, diseases and injuries, changes in homeostasis and geriatric syndromes) and personal characteristics (e.g., wealth, educational attainment and occupation). While genes of an individual experience the inevitable "gradual accumulation of molecular and cellular damage that results in a general decrease in physiological reserves" (WHO, 2015b), health characteristics of a person can be modified to slow down the rate of decline in intrinsic capacity.

Age-related chronic diseases, such as diabetes, have origins in early life experiences and can develop further as one ages and continues to be exposed to disease determinants (Kuh, 2007). According to the WHO's latest report on diabetes, being overweight or obese are strongly linked to diabetes, and the trend seems to be on the rise despite global efforts in reducing obesity (WHO, 2016). While physical inactivity is highly associated with risk factors of diabetes, physical inactivity is increasing globally (WHO, 2016b). Taking the life course perspective, the WHO report suggests that eating and physical activity habits formed earlier in life can significantly reduce the risk of having the disease. Overall, these findings point to the importance of preventive medicine, which focuses on altering the lifestyles of the general population so that they can stay healthy as they age.

Personal characteristics also influence the development of health characteristics, which in turn affect intrinsic capacity. For example, a person with higher educational attainment may be more aware of the importance of health maintenance; as a result, s/he may develop a healthy lifestyle at a young age and hence have a lower risk of developing physiological risk factors (e.g., high blood pressure). Moreover, the external environment can also affect health characteristics. A country that pools a substantial amount of its resources into health promotion and preventive healthcare may increase

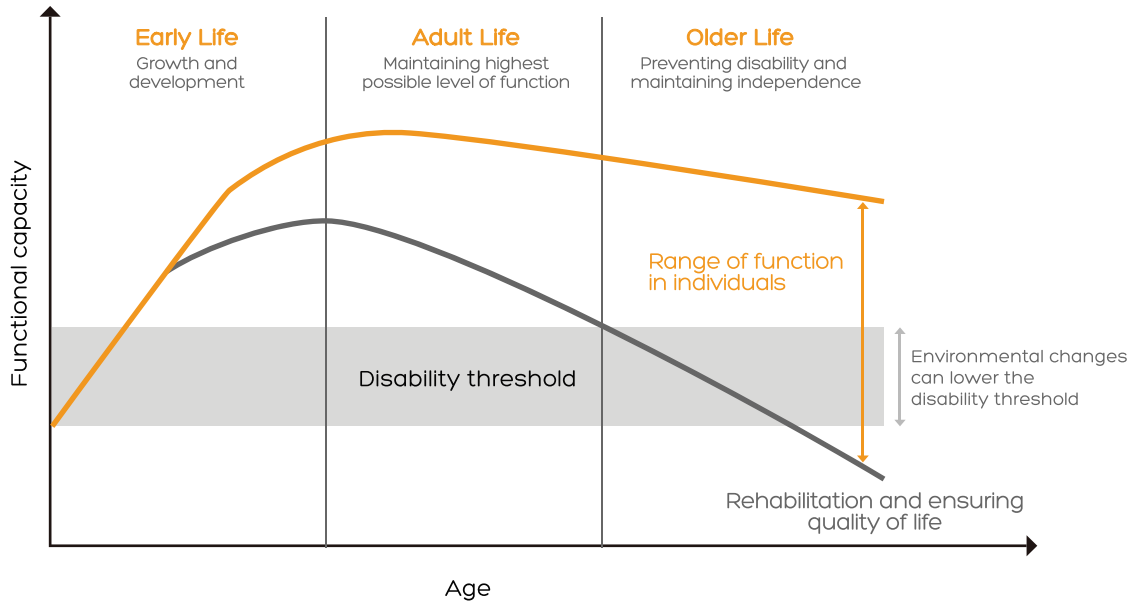
its population's awareness of the importance of maintaining a healthy lifestyle, resulting in their increased engagement in health promoting behaviors. As such, intrinsic capacity is not solely affected by genetic inheritance; rather, it evolves out of the intertwining effects of personal, health and environmental characteristics.

Functional ability refers to "health related attributes that enable people to be and to do what they have reason to value. It is made up of the intrinsic capacity of the individual, relevant environmental characteristics and the interactions between the individual and these characteristics" (WHO, 2015a). Functional health is generally divided into two subcategories: activities of daily living (ADLs) and instrumental activities of daily living (IADLs) (Morris, Berg, Fries, Steel, & Howard, 2013; Leung, Leung, & Chi, 2011). ADLs refer to basic tasks necessary for older people's everyday living, such as eating, bathing, dressing, moving around the home and toileting. IADLs, on the other hand, refer to activities for older people to live an independent lifestyle, such as housework, managing finances, meal preparation, managing medications, shopping and phone use.

Similar to intrinsic capacity, functional health also depends on the external environment. If placed in an appropriate environment, the functional ability of an older person can be maintained. Figure 2.4 shows that the functional capacity of an individual increases in childhood and peaks in adult life, followed by a gradual decline. The rate of decline is largely determined by lifestyles and the external environment. At a given level of intrinsic capacity, functional ability can be enhanced. Appropriate measures can be adopted to ensure that people's external environments will enable them to function better than through their intrinsic capacity alone. These measures may include the use of assistive health technologies, ranging from a simple handrail to sophisticated robots.

Figure 2.4

A Life Course Perspective for Maintenance of the Highest Possible Level of Functional Capacity



Source: WHO/HPS (2000)

In addition to providing the right platform for health promotion, policy makers will also need to promote a positive mindset to older people and the general population in regards to aging. Stemming from the Capability Approach (Sen, 2001), the idea of functional ability emphasizes individuals' freedom of choice to make use of their internal and external resources in order to maximize functioning (Sen, 2001; Walker & John, 2011). For example, an older person who does not believe that s/he can move around, or who believes that s/he lives in an ageist society, may not want to join a rehabilitation program in the community. As a result, even with the provision of suitable services, his/hers functional ability will not be enhanced if s/he chooses not to use them. As such, apart from creating the physical infrastructure for promoting the health of older people, policy makers need to foster positive attitudes of older people and the general population to take action against ageism. Older people who have positive attitudes of themselves will have a greater sense of mastery in the management of their lives, resulting in better health and more social participation and contribution (Chan, Woo & Hui, 2012).

2.2 Demographic Dividend: An Investment Approach to Aging

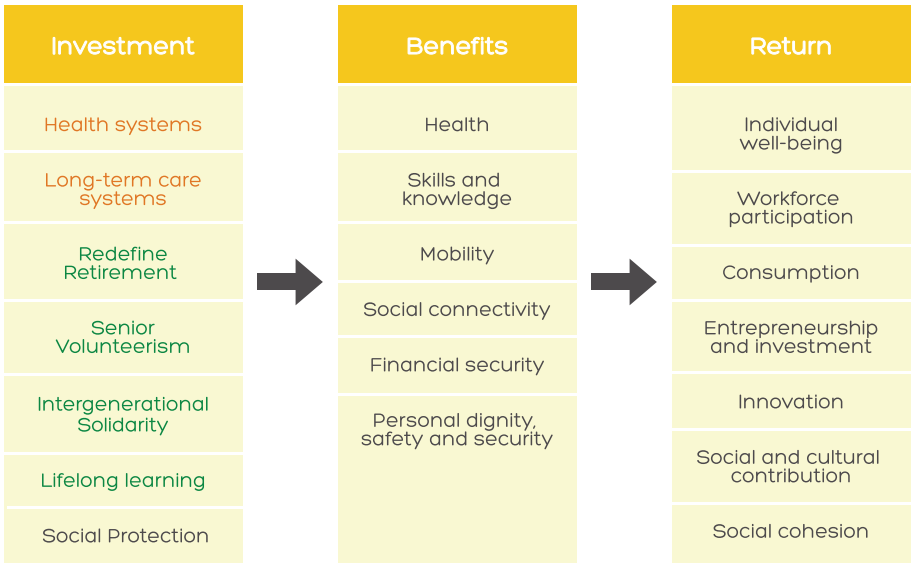
The preventive approach enables an investment approach to aging. According to the concept of the demographic dividend, changes in the population structure can result in economic growth depending on how facilitating the external environment is. Although aging of the baby boomers results in a shrinking workforce and subsequently ends the first economic growth, otherwise known as the expiration of the 1st demographic dividend, this group of new olds will still have an immense positive impact on society due to their high levels of savings and high spending power (UNFPA & HelpAge International, 2012).

Apart from economic resources, some baby boomers are educated and have accumulated wisdom and extensive experiences that can be transferred to the younger generation in an effort to secure a future for all ages (Fried, 2016). To facilitate the transfer of resources from older to younger generations, we need to build the social capital of intergenerational cohesions, and, at the same time, invest in building human capital of the current and future olds through education (Fried, 2016). To achieve this, a new social institution that values social cohesiveness and education, together with a comprehensive health promotion and disease prevention system, is necessary to ensure that older people are capable of helping the younger generation to succeed.

Figure 2.5 illustrates the potential return on investment, as suggested by the World Economic Forum Global Agenda Council on Ageing in 2013 (WHO, 2015a). To ensure that aging societies capitalize on this opportunity and tap into the market of new olds, policy makers need to invest in various aspects of the environment, including health and long term care systems, education, social protection and age-friendly environments, to reap the benefits of an aging population for health, social and economic benefits and returns (WHO, 2015b) .

Figure 2.5

Investment for Return



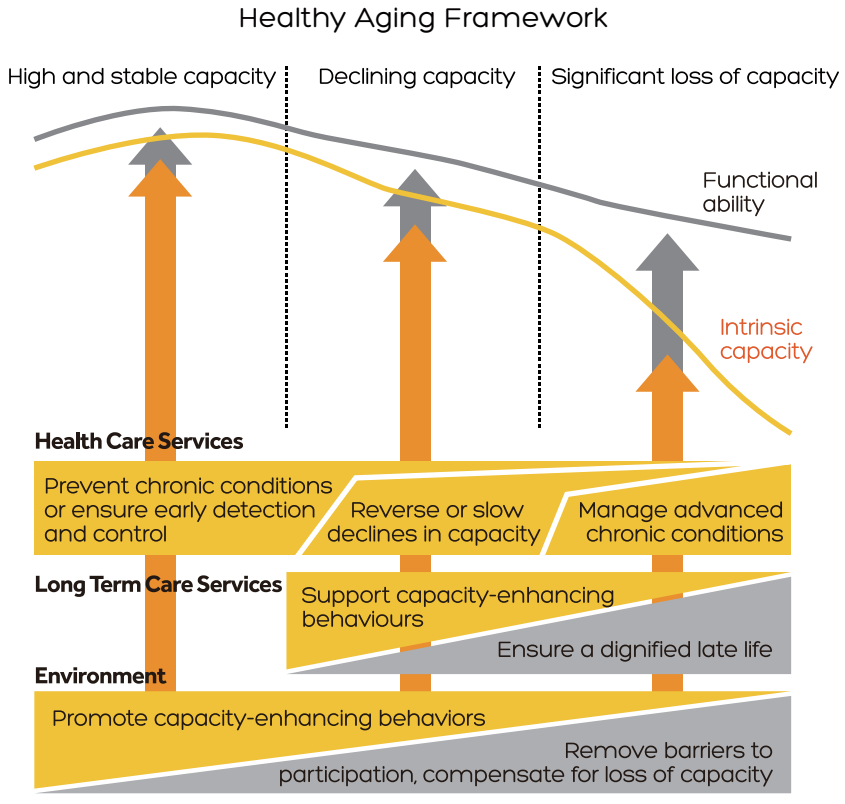
Source: WHO (2015)

2.3 Healthy Aging: A Systematic Framework for Age-Enablement

Healthy Aging provides a systematic framework on how policy can be formulated to transform society into one that meets the health needs of the older population. According to the WHO, "healthy aging is not defined by a specific level or threshold of functioning or health. Healthy aging reflects the ongoing interaction between an individual and the environments they inhabit, with opportunities for healthy aging shaped by many factors including broader determinants of health and intermediary factors. Environment reflects the social, political, economic and natural/built environments, including health and social systems" (WHO, 2015b). Figure 2.6 suggests that achievement of Healthy Aging will require actions in the healthcare system, the long term care system and the larger environment to maintain or optimize older people's abilities to lead meaningful lives.

As demonstrated in Figure 2.6, resources should be invested differently at various stages of aging to meet the specific needs of different levels of capacity. The first element that policy makers must focus on is ensuring the health of its older people in terms of their intrinsic capacity, namely physical health. Health can be promoted via preventive care and management of chronic diseases.

Figure 2.6



Source: WHO (2015)

However, as people age, it is inevitable that their intrinsic capacity will decline. Despite decreasing intrinsic capacity, the functional health of the population can be promoted with integrated person-centered health and long term care services as well as an age-enabling environment. As such, resources will need to be invested in enhancing functional health in later stages of aging.

The combination of enabling policy and good health can allow endless variations on the conventional definition of the life course (WHO, 2015a). This section focuses on changing the health and long term care systems based on the needs of older people at various stages of aging. Discussion on changing the larger environments will be in latter sections.

2.3.1 Revamping Healthcare Systems for Preventive Care and Chronic Disease Management

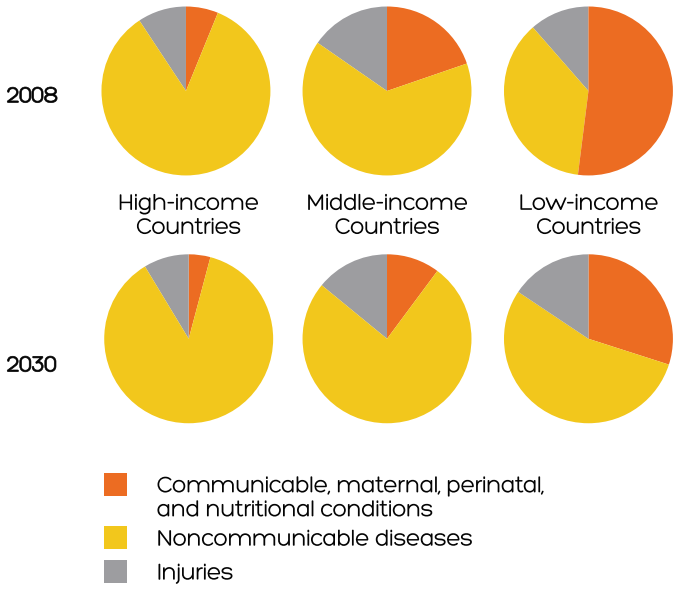
For those with high and stable capacity, resources can be invested in preventing the occurrence of risk factors associated with chronic conditions, such as screening tests and health promotion programs. Preventive care, which can be delivered in the form of basic health checks and lifestyle change programs, is effective in improving the health of the population. Although general health checks do not improve health directly, health checks influence individuals' behavioral patterns for using preventive care, decrease patients' anxiety and increase rates of new diagnosis for early intervention (Harris, 2008; Narasimhan, 2013; Krogsbøll, Jørgensen, Larsen, & Gøtzsche, 2012).

Lifestyle change programs, such as those that promote healthy eating and exercise, are demonstrated to be effective in decreasing the incidence rates of stroke and cardiovascular disease (Lee & Paffenbarger, 1998; Lee, Folsom & Blair, 2003; He, Nowson & MacGregor, 2006). Basic health checks and lifestyle change programs can be effectively carried out in community settings at an inexpensive rate, which will ultimately lower the incidence of age-related diseases among older people.

For those with declining capacity, there is an emergence of chronic non-communicable diseases (NCDs) in the aging population (WHO, 2011) (Figure 2.7). These diseases are often not completely curable, require continuing monitoring and care in the community and often occur in the presence of other diseases, referred to as multimorbidity.

Figure 2.7

The Increasing Burden of Chronic Noncommunicable Diseases: 2008 and 2030



Source: WHO (2011)

Multimorbidity is defined as the co-occurrence of more than one chronic condition in a single individual (Akker, Buntinx & Knottnerus, 1996; Reste, et al., 2013; Mercer, Smith, Wyke, O'Dowd & Watt, 2009). It is an increasingly common phenomenon among older patients living with chronic diseases (Barnett et al., 2012). A database of 1.75 million patients registered in 314 practices in Scotland reported that up to 23% of all people suffered from multimorbidity, with the percentage rising sharply with age (Barnett et al., 2012). Multimorbidity is associated with various adverse outcomes, including higher risk of premature mortality than from a single disease, longer hospital stays, greater health service utilization and healthcare costs, as well as lower patient compliance with chron-

ic medications (Gijsen, et al., 2001; Glynn, et al., 2011; Salisbury, et al., 2011;Wolff, Starfield, & Anderson, 2002; Menotti, 2001; Lehnert, T. et al.2011; Wong et al., 2014). Multimorbidity is associated with poorer clinical outcomes, leading to a substantial public health burden (Tooth, Hockey, Byles & Dobson, 2008).

Considering that the current health system focuses on delivering acute episodic care rather than continued care of NCDs, the WHO called for actions to prioritize healthcare resources for the global management of chronic diseases within the next decade. There is universal consensus that multimorbidity should be a central focus of attention (Tunstall-Pedoe, 2006; Stange, Breslau, Dietrich, & Glasgow, 2012). We need to re-align health systems to prevent, minimize or delay the deterioration of health among older people through comprehensive primary care services, especially for those who are chronically ill. A systematic review of 16 care programs in the United Kingdom suggests that through the appointment of primary care professionals to coordinate care, elective admissions into hospitals can be decreased by 4% and out-patient department attendance by 20% (NHS, 2012). Another systematic review of 54 articles showed that chronic disease management programs can successfully decrease hospital readmission of heart failure and cardiovascular disease by 30%, all cause readmission by 12% and combined event of readmission or death by 18% (Gonseth, et al., 2004). These studies support the objective of revamping the healthcare system from one based on curing diseases to one geared towards disease prevention and health maintenance for older people with chronic diseases.

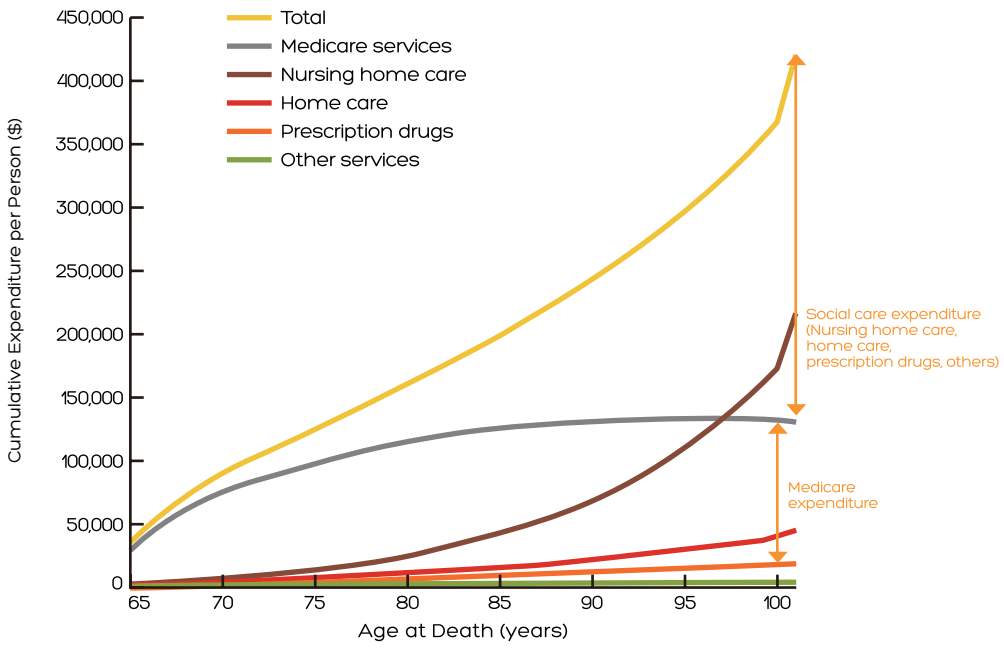
2.3.2 A Re-Orientation in Long Term Care for Aging Independently

Although better chronic disease management can reverse or reduce declines in capacity, some older people will eventually suffer losses in their physical and/or mental capacities, become fragile and suffer disabilities, requiring care, support and assistance from others. Given age-related frailty and impairment, spending on older people's social needs tends to increase while their medical spending tends to decline (Figure 2.8 a-b) (Spillman & Lubtiz, 2000; WHO, 2015a). The statistics emphasize the need to re-prioritize spending on medicalre and social care for the frail and impaired, and to design an integrated person-centered health and long term care model for the future older population.

The goal of long term care should be geared towards improving and maintaining older people's functional abilities rather than merely providing them

Figure 2.8.a

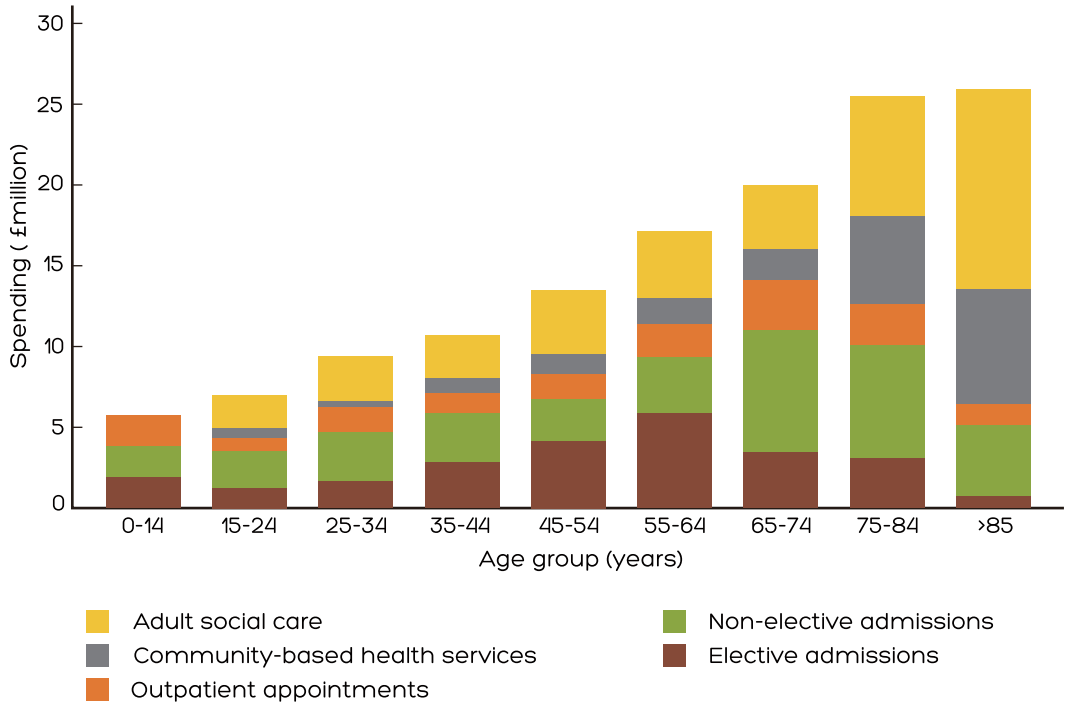
Expenditure on Medicare and Social Care Services by Age at Death



Source: Spillman & Lubtiz (2000)

Figure 2.8.b

Annual Cost of Health-care Services, by Age Group and Type of Service, Torbay (population: 145,000), England, 2010-2011



Source: WHO (2015)

with care and assistance. In fact, programs such as geriatric assessment for frail older people, community-based care after hospital discharge and fall prevention programs are effective in reducing nursing home admission and hospital admission, as well as improving physical functioning (Beswick, et al., 2008). Exercise training is effective in enhancing strength, physical fitness, functional and cognitive performance of the frail and impaired (Heyn, Abreu & Ottenbacher, 2004).

In addition, long term care should be provided in the community rather than at the institutional level, so that older people can stay active in a familiar, meaningful environment for as long as possible. Aging in place has become a popular concept in current aging policy because it is perceived as enabling older people to live independently in a familiar environment, which contributes to a meaningful life for older people; concurrently, older people can avoid the costly and often unpreferred option of institutionalization (Wiles, et al., 2011; WHO, 2007). Older people prefer to age at home and in the community where they have a sense of connection and attachment, security, and enjoy independence, autonomy and caring relationships (Wiles, et al., 2011). A survey in Hong Kong showed that 80% of low-income older people preferred aging in place (Lum, et al., 2014). If disability can be compressed to the last years of life through preventive measures, and the frail and impaired can age in their community, not only will the quality of life of older people and their caregivers be enhanced, healthcare and long term care costs can also be better controlled.

Changes in the external environments are also necessary for engaging older people to participate in and contribute to society. Engagement in social and productive activities is associated with high levels of functional health among older people (Everad, Lach, Fisher & Baum, 1999; Menec, 2003). Measures should also include creating positive social attitudes towards aging and encouraging flexible retirement age (UNFPA & HelpAge International, 2012).

2.3.3. Investing in an Age-Enabling Environment

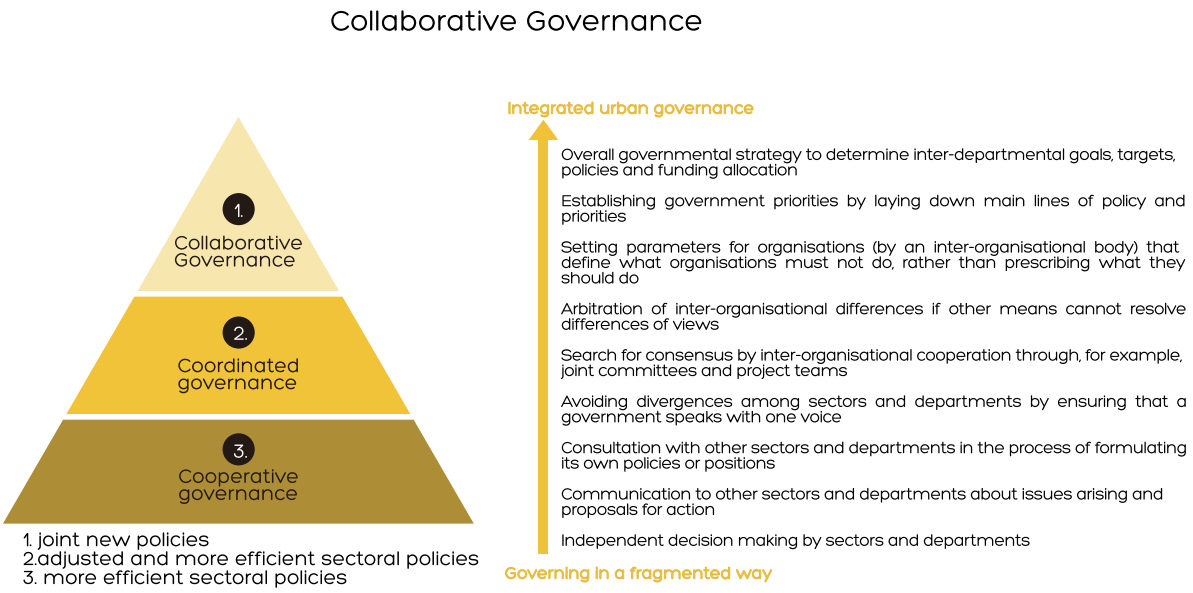
As mentioned earlier, Healthy Aging is not only about changing the health and long term care systems, but also about changing the larger environment. This section discusses some of the areas that the government can consider investing in. A change in the political, social and physical environments are necessary to comprehensively facilitate Healthy Aging.

2.3.3.1 Establishing Collaborative Governance for Aging Polices

Considering that the phenomenon of aging implies the need to change multiple aspects of society to meet the needs of the future population, various public policies need to be jointly reconsidered and researched for the future older population. Unfortunately, the discourse on aging today is dichotomized between normal aging and non-healthy aging, and the policy focus is disproportionally placed on the negative aspects of high medical expenditure associated with old age. When formulating sustainable aging policies, it is essential to conceptualize aging as a lifelong process, and to recognize that human functionalities, resources and the diverse social environments affect human development. The WHO (2007) also advocated that an age-friendly city can only be established with an integrated approach that centers on how older people live.

Because of the wide spectrum of issues covered by an aging society, collaborative governance, defined as a management of cross-cutting issues in policy making that transcends the boundary of policy fields, is necessary. Collaborative governance involves the horizontal and vertical integration of governmental departments. Vertical integration is used to describe the linkage that occurs across different levels of government–namely, local, regional and national administration (Schwedler, 2011). Horizontal integration adopts a broader view and focuses on cross-sectoral collaboration on the same level; for instance, a collaboration across social, healthcare and housing sectors (Thomas, et al., 2008). Both vertical and horizontal integrations are necessary for continuous, comprehensive and coordinated services (Valentijin et al., 2013). Figure 2.9 illustrates the spectrum of policy integration, which shows that having a centralized governmental strategic framework is necessary so that policy can be coordinated with shared goals and values (Schwedler, 2011).

Figure 2.9



Source: Stead & Jong (2006)

Another important part of collaborative governance is a participatory approach; that is, the civil society (i.e., non-profits, research institutions and older people themselves) and business sectors are invited to share their experiences and ideas in the policy making process and participate in the formulation and implementation process as well. A participatory approach is an important advocacy process. Through providing a sense of ownership to the general public and promoting transparency, achieving socially accepted, sustainable and innovative policies and outcomes will be easier (Naue & Kroll, 2010; Schwedler, 2011; OECD, 2015).

Good practices of collaborative governance include a centralized approach with leadership, shared common values and trust across public and non-public sectors, an effective platform for the exchange of information and communication, and an appreciation of multidisciplinary knowledge in each policy area by creating new roles that work across disciplines (OECD, 2015; Thomas et al., 2008; Institute of Public Care2013). Investing in a change in the culture of collaborative governance will help formulate person-centered aging policies that meet the needs of older people today and of those in the future.

2.3.3.2 Financing Old Age

To prepare for an aged or super-aged society, it is necessary to come up with ways to help generation X establish assets and wealth so that they can maintain a high standard of living when they become old. In fact, for countries that have a high accumulation of wealth among the aged population today (e.g. Thailand, Philippines and the United States), individuals tend to rely on their own resources to support their livelihood through retirement or even for long term care expenses. In turn, this can decrease their dependency on public and private resources for post-retirement livelihood (Lee & Mason, 2011; Matsukura, 2014), suggesting the feasibility of encouraging individuals to start accumulating wealth and assets to fund their old age retirement. Furthermore, assets of the older generation can increase spending and government tax revenue (The Economist, 2014). As mentioned in Chapter 1, older people in the U.K. contribute economically through spending and taxation, which is possibly a result of the asset and wealth accumulated when they were previously employed (Cook, 2011). Policies, thus, can be designed to facilitate the older generation to use their assets for improving their post-retirement lives or financing their health and long term care (Matsukura, 2014). Reverse mortgage is an example of a government initiative that has been implemented in different regions (e.g. Hong Kong, the United Kingdom or Australia) to allow older people to use their assets to finance their retired life.

To encourage and help future olds accumulate assets and wealth, innovative strategies will need to be generated (Leigh, 2006). Providing subsidies for the younger generation for home-ownership is one example of helping the youth to accumulate assets for the future and prevent them from falling into the safety net when they become old (Wong, et al., 2015). The Mandatory Provident Fund launched by the government of Hong Kong in 2000 and the Central Provident Fund of Singapore are expected to be a growing source of retirement income over time (Leigh, 2006; Lee, Mason & Park, 2011). Pre-paid insurance during productive years for long term care is another feasible funding mechanism. In the long run, these measures, if implemented effectively, can pave the way for aging societies to enjoy the 2nd and 3rd demographic dividends.

2.3.3.3 Lifelong Education for Sustainability

Investment in education can have important influences on population health and worker productivity. High levels of education were found to be associated with better health, less disability, lower risk of obesity and lower incidence of dementia and cardiovascular diseases later in life (Bloom, Canning, & Sevilla, 2004; Laclaustra, et al., 2010; Patterson, Frank, Kristal & White, 2004; Katzman, 1993; Winkleby, Jatulis, Frank, & Fortmann, 1992). Education may be associated with better access to and understanding of health information, thus resulting in better health (Culter & Lleras-Muney, 2006). Education was also perceived to affect health behaviors of individuals, resulting in better health over the course of life (Feinstein, Sabates, Anderson, Sordaindo & Hammond, 2006). Last, education is associated with income and

wealth, which in turn, can affect life expectancy: a review on inequalities in health in the United Kingdom showed that on average, people living in wealthier neighborhoods died 6 years later than those living in poorer neighborhoods (Marmot, 2010).

In the case of productivity, higher levels of education were associated with greater workforce participation. According to Burtless (2013), only 32% of males between the ages of 62 and 74 who obtained a high school education were in the workforce, compared to 65% of those with a college degree. For women, only 25% of those with a high school diploma versus 50% of those with an undergraduate education were employed. The findings suggest that education level, rather than age, is the key factor affecting productivity of an older population.

Population aging is also associated with low fertility. Yet, having few workers does not necessarily mean lower productivity. Increasing the quality of the labor force through investing in education of different generations of the workforce can ensure economic sustainability. Because of a shrinking younger population, it should be possible to increase education expenditure per child, resulting in higher levels of human capital (Lee, Mason & Park, 2011). Policies can also focus on investments in educating and retraining the older population to increase their productivity and labor participation (UNFPA & HelpAge International, 2012). Leveraging on the rapid advancement of technology in the 21st century and the potential for technology to improve the health of older people, investments in education and training in the field of aging technology are essential. Such training can increase the productivity of future workers, help establish a society with infrastructures that enable aging in place, as well as offset the negative effects of a shrinking workforce.

2.3.3.4 Intergenerational Transfer of Resources and Intergenerational Solidarity

The baby boomer generation that grew up in the post-war world has experienced unprecedented economic growth, globalization and a revolution in communication technology that brought them education, valuable experiences and an extensive social network. The key is to establish a social institution that allows the transfer of intangible resources from the older to the younger generation, otherwise known as the 3rd demographic dividend (Fried, 2016).

Cross-generational transfer of resources can be facilitated through paid employment or volunteering opportunities for the older population. Delaying retirement age or introducing flexible retirement allows older people to work closely with the younger generations, thus enabling the former to play the role of advisors to the latter. Introducing an e-platform for older people who are physically immobile to work at home or participate in online meetings also provides opportunities for the transfer of resources between the older and younger generations. Offering meaningful opportunities for older people to directly train younger generations is another possibility (Fried, 2016). One example is the vocational training program for rural youth developed by Uganda Development and Training University, where older people volunteer to train younger ones on trade and business skills. The program improved standards of living for of the younger generations and at the same time offered meaning, engagement and income for older people (URDT, 2014).

However, if the younger generation does not have a positive attitude towards older people and the older ones do not trust that the younger population can succeed, cross-generation collaboration will not occur. Intergenerational solidarity and altruism, which can be defined as shared values and contracts across generations for the exchange of resources, is the prerequisite for the cross-generational transfer of knowledge and experience (Bengtson & Oyama, 2007). Because the social capital of intergenerational solidarity and altruism is a fundamental element of any society and is critical for enabling aging in place, we need to invest in building this capital within the familial and community levels. In this way, the younger generation can benefit from the intangible assets of the older generation while concurrently enabling the older population to enjoy the support and care they need as they age.

2.3.3.5 Translating Technology into Physical Health and Age-Enabling Infrastructure

The 21st century marked the development of digital technology that enables the use of computers, smartphones, internet, robots and sensing devices in people's daily lives (Schulz, et al., 2014). Schulz, et al. (2014) identifies five core domains that should be developed in the area of aging and technology– physical and mental health, daily activities and leisure, safety, mobility, and social connectedness- to improve the lives of older people. Investments in the implementation and development of these age-related technologies will create new industries with abundant high-skilled job opportunities, which in turn, results in economic growth.

In regards to physical and mental health, investments can be made in health promotion for the future of older people, so that they can age healthily and can stay longer in the workforce, which keeps them socially engaged. To improve and maintain health among generation X, one suggestion is to generate an open, big data platform for the exchange of health information (Schadt & Chilukuri, 2015). The use of big data will help public health professionals to establish predictive models of disease trajectories as well as identify health and social drivers of diseases, which allows for early diagnosis or prevention (Schadt & Chilukuri, 2015). In addition, the establishment of an accessible data platform can provide updated information for individuals on their health trajectories, increase the awareness and knowledge of their own health and thus promote their practice of healthy lifestyle behaviors. Developing wearable devices or cell and tissue-based biosensors for health monitoring collection is another worthwhile investment (Schadt & Chilukuri, 2015; He et al., 2012). Health data can be collected in an automatic and timely manner for health improvement and monitoring.

Development of biotechnological research to delay the process of aging is another technological breakthrough. Olshansky, Perry, Miller and Bulter (2007) propose the longevity dividend approach to public health, which refers to the extending a healthy life through delaying biological aging in general rather than the traditional way of managing specific diseases. They argue that a "modest deceleration in the rate of biological aging would produce the equivalent of simultaneous major breakthrough against every single fatal and non-fatal disease and disorder associated with growing older" (Olshansky et al., 2007). If the aging process is slowed by seven years, the age-specific risks of frailty, disability and death will reduce by nearly half at every age (Farrelly, Pechacek, Thomas, & Nelson, 2008). Hence, investment in research on understanding how genetic mutations influence the basic rate of aging may be worthwhile, because it helps scientists develop preventive measures against individual conditions related to old age (e.g., development of type 2 diabetes, heart failures, dementia or cancer) (Olshansky & Perls, 2008). As people live longer and healthier lives due to this compression of morbidity, fewer older adults will suffer chronic health problems and as a result, overall healthcare costs can be reduced (Olshanky et al., 2007; Farrelly, Pechacek, Thomas, & Nelson, 2008).

Developing and implementing assistive health technologies that allow older people to live independently and productively is also necessary. Assistive health technology is "the application of organized knowledge and skills, procedures and systems related to the provision of assistive devices and services, with the primary purpose of maintaining or improving an individual's functioning and independence, to facilitate participation, and enhancement of overall well-being and quality of life" (Garçon, et al., 2016). Assistive health technologies remove some environmental barriers for older people in order to promote their independent and autonomous living (Agree, 2014; Garçon, et al., 2016). For example, in Japan, the use of robots as household helpers for older adults has greatly improved the lives of older populations (Wagner, 2009). Telemedicine in Hong Kong has also been shown to be effective in improving the clinical outcomes of older people with chronic diseases (Woo, 2007). The reinvention of manual wheelchairs, such as adding the features of stair-climbing or allowing people to stand upright, has assisted many older people with limited mobility to continue to participate in society (Castillo, 2012; Modak & Bhoomkar, 2009).

The integration of information technology and assistive technology has opened a platform for the development of increasingly individualized tools for independent living. For example, "Smart Homes," with sensors and an information technology platform, allow constant monitoring of the health and functional abilities of older people and the real time detection of emergency situations for safety (Rantz, et al., 2013). For those with declining physical abilities, sensor technology, together with a coordinated care system, has been found to improve clinical outcomes because of the possibility of early intervention (Rantz, et al., 2013).

For promoting mobility and social connectedness, technologies will need to be integrated at the city level. The development of responsive transportation services that provide door to door services to enhance mobility of the frail and impaired will significantly improve their quality of life (Coughlin, 1999). The launching of Uber is a perfect example of the integration of geographical information technology and transportation services. Further cross-disciplinary development in the field of information systems and healthcare can certainly generate innovative transportation services that cater to the needs of older people with a disability. Designing an interdisciplinary information system with assistive technology (i.e., technology convergence) to enable access to social activities, workplace and connection with families and social providers will also drive up the well-being and productivity of older people (Agree, 2014; Coughlin, 1999). The use of an online interactive platform for health education, virtual exchanges, voting, building a social network or working away from traditional office settings are some examples (Agree, 2014; UNFPA & HelpAge International, 2012).

However, the health of older people does not exist in a vacuum. Merely investing in the development of technology without considering the users' perspective will deter many older people from fully utilizing them (Agree, 2014; Schulz, 2015; Garçon, et al., 2016). For example, the interface for accessing online information are geared towards young or mainstream users instead of older people (Agree, 2014). Additionally, older people may have difficulties in understanding or utilizing high-tech products, not to mention participating in their invention (Agree, 2014). Ensuring that older people will have access to a wide selection of customizable devices requires a thorough understanding and knowledge about the latest technological solutions and also sufficient funding for the initial acquisitions and continuous maintenances of devices, which are key policy implications to be considered (Agree, 2014; Schulz, 2015; Garçon, et al., 2016). In addition to merely investing in developing the technology itself, policy makers need to also invest in implementation research to generate insight to product developers on how to enhance the use of technology in the context of aging (Connelly, Laghari, Mokhtari, & Falk, 2014).

2.4 Conclusion

In reviewing the phenomenon of Diversity in Aging, the platform for Healthy Aging and the 2nd demographic dividend, this chapter identifies areas for improvement and how investments in public policy are needed in order to establish a society that is economically sustainable and improves the level of social well-being for an aging population. Below is a summary of the key points:

1. The establishment of an integrated person-centered care system with a focus on preventive and primary care.

2. The re-orientation of a long term care system with a goal of maintaining functional health in the community.

3. Having collaborative governance, building economic capital for old age protection, developing technology for health and age-enablement, spending on education, and promoting intergenerational transfer of resources are suggested areas that policy makers can consider investing in to build a sustainable age-enabling environment.

Building on the concepts in this chapter, the next chapter will discuss experiences of the United Kingdom, Japan and Singapore on their policy actions in establishing an age-enabling environment and building an integrated person-centered care system for the future older population.

Chapter 3: International Experience

This chapter reviews aging policies in the United Kingdom (the U.K.), Japan and Singapore to identify experiences that have contextual similarities to Hong Kong. Because aging is a fundamental, societal issue that requires reinvention of policies and cross-sectoral collaborations at all levels of society, we first discuss how these countries have organized collaborative governances that build on partnerships among the pillars of the society, the public sector, the business sector and the civil society, for the rethink, strategical design and implementation of aging polices. Policy actions that focus on reforming societal expectations of older people, establishing age-enabling environments, building an integrated health and long term care system with a preventive focus that allows aging in place are reviewed. As population aging are also expected to incur expenditures on social security, health and social care, the countries' experiences and/or ideas on financing are also examined.

Given the demographic and general development of the U.K., Japan and Singapore share some similarities to Hong Kong, we examine the aging policies of these countries. Table 3.1 shows the population statistics of these three countries as compared to Hong Kong. As illustrated, Japan is the fastest aging country, with nearly double the percentage of the population over 60 years old and the highest median age. In 30 years' time, Hong Kong and Singapore will catch up with Japan due to the low fertility rate.

Table 3.1

Hong Kong and Three Selected Countries' Population Statistics

				
Total population	127m	5.5m	65.1m	7.3m
Median age of population	46.5 years	40.0 years	40.0 years	43.2 years
Current % > 60	33.1%	17.9%	23.0%	21.7%
Predicted % > 60 in 2030	37.3%	30.7%	27.8%	33.6%
Average life expectancy	83.6 years	82.6 years	81.1 years	84.0 years
Fertility rate	1.4 children	1.3 children	1.8 children	1.2 children
Older dependency ratio	43.3	16.1	27.6	20.6

Source: The World Bank (2014, 2015); United Nations (2015)

Apart from the similarity in population structure, the U.K., Japan and Singapore all have innovative and comprehensive aging policies that are comparable to Hong Kong. The U.K. has successfully built a strong primary care system. The country also promotes the notion of 'universal design' by encouraging interuniversity and transdisciplinary collaboration. For Japan, the country's longevity is suggested to be associated with its healthy diet, strong communities and excellent medical care (Vernon, 2010). Japan is also known for its innovative approach to aging, as evidenced by its determination to build a collaborative governance that promotes age-friendly cities by passing the Basic Law for Measures of Aging Society, its strong leadership in the development of assistive technology in Asia and its implementation of public long term care insurances. Singapore has adopted creative aging policies. The country has established a collaborative governance for an aging society since the 1980s. The city-state is determined to shift its healthcare system from a hospital care-led to a primary care-led one and has launched the innovative Medisave and ElderShield programs for financing health and social care.

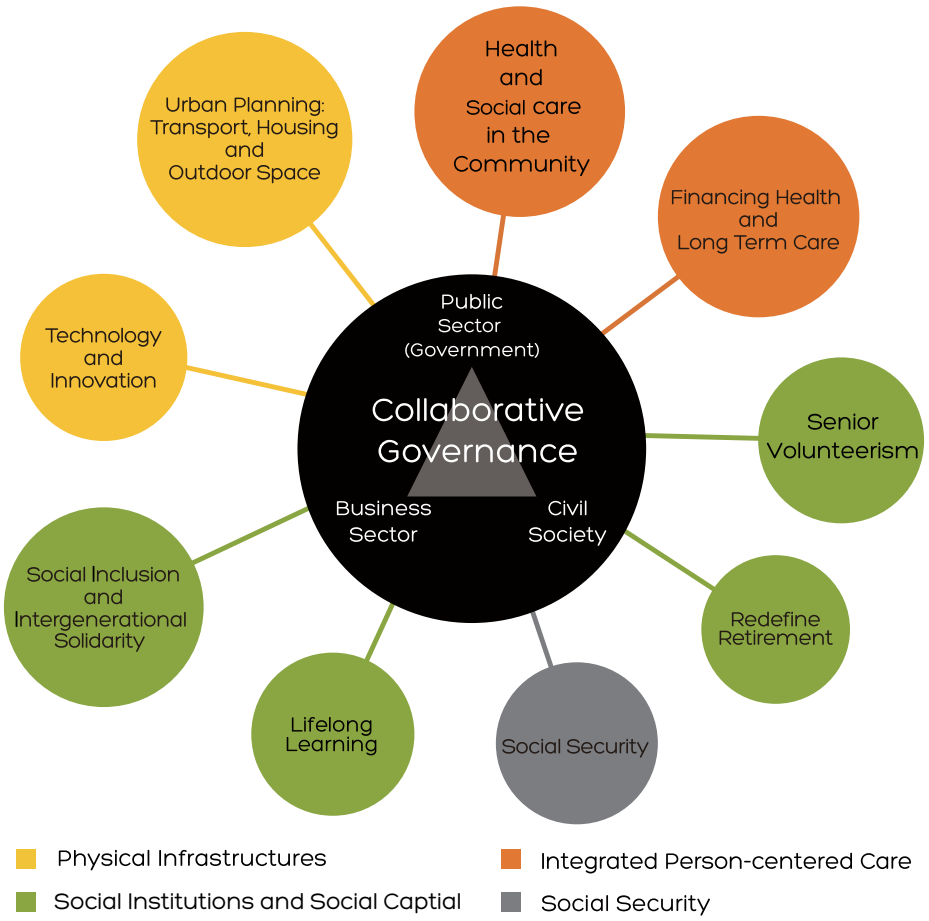
3.1 Policy: Collaborative Governance

In the process of reviewing the age-enabling environment, 10 aspects are identified based on the review on the policy actions in the U.K., Japan and Singapore. (Figure 3.1)

As illustrated in Figure 3.1, the establishment of an age-enabling environment goes beyond the ground level, physical features of a place (Handler, 2015). Such an environment is designed to enable older people to engage socially, emotionally and politically with the external environment (Handler, 2015). As demonstrated in the diagram, a collaborative governance is the core in building an age-enabling society. Efforts to establish an age-enabling environment are not the sole responsibility of the government but a joint collaboration among key stakeholders of a society, including the business sector and the civil society. An overarching governance that encourages collabora-

Figure 3.1

Elements of an Age-Enabling City



Source: Adapted from World Health Organization (2015)

tion is essential to the building of an age-enabling city.

Efforts have been made by the governments of the U.K., Japan and Singapore in establishing cross-sectoral collaborations at all levels of society to develop joint policy directions for their aging societies. The U.K. has published government documents advocating for the need for a coordinated governing infrastructure and made some progress. Japan has been ahead of the game since the enactment of the Basic Law on Measures for the Aging Society in 1995. The Basic Law takes a comprehensive approach to addressing the needs of an aging population by promoting its measures within all levels of society. Singapore, in 2016, also made major progress by publishing an Action Plan for Successful Aging, describing how Singaporeans will meet the challenges of an aged society in a comprehensive and collaborative manner.

The United Kingdom. In response to the aging population, the House of Lords in 2012 appointed the Select Committee on Public Service and Demographic Change to map the implications of an aging population and to recommend policy actions. The Ready for Ageing? report published in 2013, states the need for immediate action for cross-party collaboration on financial protection and integrated health and social care services (The Select Committee on Public Service and Demographic Change [PSDC], 2013). Long term thinking, comprehensive visions, public engagement and collaboration among central and local leadership are essential elements to prepare the country for its demographic change (PSDC, 2013). The report also criticizes the government for its past positions, including the perception that aging is a problem, prioritization on reactive rather than preventive services, a tendency to ignore the particular needs of some groups and the under-utilization of older people's ability to contribute to society (Centre for Ageing Better, 2016).

The report resulted in the creation of the independent and government-funded Centre for Ageing Better in 2014. It provides community-based solutions to the challenges and opportunities of aging. In addition, the government provides funding for "Fulfilling Lives: Ageing Better" to support non-profit organizations programs for the older population (Big Lottery Fund, 2016). These initiatives are governmental efforts for establishing partnerships with the civil society to develop comprehensive, person-centered aging policies.

Japan. Japan was one of the first countries to begin developing policy initiatives for its aging population. In 1995, the government enacted the Basic Law on Measures for Aging Society to promote the development and coordination of comprehensive aging policies among the national and local governments. The law adopted a positive approach in tackling aging-related issues. By perceiving older people as an asset to society, the law encourages life-long opportunities, social participation and employment for older people. In addition, the law supports a bottom-up approach to intergenerational solidarity and establishes a common goal of building an affluent society where people are entitled to living a fulfilling life at all stages of life. The law also clearly defines the governments' responsibilities in designing and implementing aging policies-- the national government is accountable for setting directions and the local government for implementation. The general public needs to take care of their own health and help build social solidarity so that they can live healthy and prosperous lives in older age.

Six elements of an aging society are suggested as key focus areas in developing appropriate aging policies– employment and income; health and welfare; lifelong learning and social involvement; living environment; research promotion; and reflecting the views of people in policy. To ensure smooth implementation and progress in each policy area, the government is required to submit annual reports to the National Diet (i.e., the Japanese parliament) concerning the state of the aging society and related implementation measures. In addition, the Aging Society Policy Council, directly under the governance of the Prime Minister, was advised to be established in order to draft general principles on measures for an aging society, coordinate administrative agencies, conduct deliberations on important aging matters

and promote the implementation of aging policies. Since the enactment of the Basic Law, the Cabinet Office has been publishing annual reports on the latest status of aging and relevant measures. The reports provide the government, the business sector and the civil society with systematic information on the latest situation of aging in Japan. They also promote the formulation, implementation, review and reform of related aging policies (Yong, Minagawa, & Saito, 2015).

Singapore. Similar to Japan, the Singapore government was aware of the challenges of aging back in the early '80s, and formed a Committee on the Problems of the Aged in 1982. A report produced under the Committee highlighted the need to maintain the productivity of older people. In the 1990s, Singapore began to establish a coordinated national response to the challenges of an aging society (Goh, 2006). By 1999, the Inter-Ministerial Committee on the Ageing Population (IMC), under the Ministry of Health, was established. The IMC comprises members across relevant government ministries in Singapore and is responsible for planning and implementing whole government response to aging (Ministry of Health, Singapore, 2013). The thrusts of Singapore aging policies are grouped as: building an elder-friendly place; promoting social inclusiveness; providing integrated and continuous care; offering opportunities for healthy and active lifestyles; and generating positive aging attitudes.

Singapore takes a collaborative approach in policy-making for their older population by involving all stakeholders. In 2014, the IMC built consensus on various policies via focus group discussions to gather ideas from 4,000 Singaporeans on how to achieve successful aging (Ministry of Health, Singapore, 2015d). Based on the discussions, the Ministry of Health published an Action Plan for Successful Aging (Ministry of Health, Singapore, 2016), outlining 10 areas for building an age-friendly city: lifelong employability; health and wellness; senior learning; senior volunteerism; community building; inter-generational harmony; aged care; active aging and assisted living; and transport and research.

3.2 Social Institutions and Social Capital

Establishing social institutions for creating an age-enabling city is crucial. Instead of stereotyping older people as individuals with low productivity, various policies can facilitate meaningful engagement and continuing growth among older people in order to enable them to continue to contribute socially and economically. The following discusses the experiences of the U.K., Japan and Singapore in (i) redefining retirement, (ii) encouraging senior volunteerism, (iii) promoting lifelong learning, and (iv) enhancing social inclusiveness and intergenerational solidarity as policy options that establish age-enabling social institutions.

3.2.1 Redefine Retirement

The increase in educational attainment and the accumulation of knowledge and skills among the older generation make older adults invaluable assets to society. Policies that tap into such human capital for productivity and facilitate the transfer of intangible assets across generations are critical for the sustainability of an aging society. Longevity and better health enjoyed by the older population have allowed them to work and stay active longer; thus, the notion of a retirement age, which was defined during an era with a much different demographic landscape as today, is becoming open to reinterpretation. In redefining retirement, a key question needs to be posed: is it necessary to impose a mandatory retirement age, or should older people have the choice to remain in the workforce for as long as they wish provided that they have the required functional and cognitive capacities? The experiences of the U.K., Japan and Singapore show an increasing recognition in many developed economies of the need to ultimately rethink the idea of "retirement" as we currently understand it, with the delay of retirement age as a first step. A cultural change in the workplace on ideas of employable persons may be necessary. To do so, policy makers may need to provide incentives to companies to encourage the employment of old age workers to demonstrate their value. Additionally, the re-design of physical office space can greatly enhance the productivity of old age workers.

The United Kingdom. Since the early 20th century, the U.K., like many European countries, has wrongfully encouraged early retirement of older people to release jobs for younger workers, primarily during a recession. This practice assumes that there are only a fixed amount of jobs in a society and the retirement of older workers can reduce the unemployment rate, which has been referred to as the 'lump of labor fallacy.' Recent research has shown the assumption wrong: analysis of U.K. data showed a positive correlation between older workers' labor market participation and employment rates for younger generations (Banks, Blundell, Bozio, & Emmerson, 2008). Consequently, relevant policy actions were taken to encourage the older population to remain in the labor force.

The enactment of the Employment Equality Regulations in 2011 allowed the gradual phasing out of the compulsory retirement age of 65. Instead, employers are encouraged to enable older people to work part-time, wind down their workload and take up pensions flexibly. A Business Champion for Older Workers was appointed by the government in 2014 to drive a cultural change among employers and employees to promote later life employment. Specific initiatives promulgated by the Champi-

on include retaining, retraining and recruiting older workers. Retaining focuses on explaining the case for longer working lives to employers and the public with the support of evidence-based research. Retraining pertains to subsidizing apprenticeships for older workers, providing adult learning loans and Mid-life Career Reviews. Recruiting means extending the service of job centers to help older job seekers, incentivizing employers to recruit older workers through Social Impact Bonds[1] and fixing the period exemption within the National Insurance, or state benefits scheme, for hiring older workers.

The U.K. government has also partnered with non-governmental organizations to support older people to start their own businesses. A well-known example is the Prince's Initiative for Mature Enterprise (PRIME), which utilizes two key methods for encouraging entrepreneurship: i) using campaigns and lobbies that target the over-50s to consider self-employment and business start-ups, and ii) providing loans to the unemployed and acting as a conduit for appropriate help and advice (Kautonen, Down, & South, 2008). There is also the New Enterprise Allowance, a non-age specific scheme set up by the government to support people who wish to move off benefits and into self-employment by providing access to business mentoring and financial support. The scheme has been very successful with older claimants. In the first two years after its commencement in 2011, the New Enterprise Allowance has already helped 9,260 people aged 50 years and older start new businesses (Department for Work & Pensions, 2014).

Japan. Japan has been active in enacting labor policies that encourage older people to continue working beyond the defined retirement age of 60 years. Since the mid-80s, Japan has advised companies on the importance of reemploying older workers (Asian Productivity Organization, 2011). Old age employment helps the government maintain financial sustainability for supporting the aged while also directly meeting the needs of the older population. Studies in Japan have shown that 74.3% of baby boomers are willing to continue working into their late 60s or later, supporting that older people want to participate in and contribute to society (UNFPA & HelpAge International, 2012).

In 2006, the Law Concerning Stabilization of Employment of Older Persons was amended to secure jobs to employees until the age of 65 by establishing a rehiring system for workers up to age 65. In 2007, an amendment to the Law Concerning Stabilization of Employment of Older Persons stated the importance of seeking an "age-free" society in Japan (Asian Productivity Organization, 2011). Under a campaign called "enterprises you can work at until 70 years old," small or medium-sized companies that welcome employees to work until the age of 70 are given varying financial aid, thus increasing job opportunities for older people.

Singapore. Singapore has made great efforts in promoting lifelong employability and productivity to ensure that older people stay active and financially independent (Ministry of Health, Singapore, 2016). With the Retirement and Re-employment Act in 2002, the retirement age was raised to age 67. Since 2011, employers who voluntarily re-employ older workers aged 65 and above receive an additional offset of up to 3% of an employee's monthly wages through a Special Employment Credit. To maximize older worker productivity, the Singapore government has enhanced the existing WorkPro Program to re-design jobs and create age-friendly workplaces for seniors.

3.2.2 Senior Volunteerism

Senior volunteerism helps increase productivity and encourages social engagement and participation of older people (UNFPA & HelpAge International, 2012). Studies have demonstrated that participation in volunteering activities improves the health and well-being of older people (Heaven, et al., 2013). Based on these findings, the governments of the U.K., Japan and Singapore have developed policies to support senior volunteerism. Their experiences suggest that a coordinated attempt to mobilize older people as volunteers seems to be the preferred policy direction. Rather than providing monetary awards as incentives for senior volunteerism,

1. A Social Impact Bond is a mechanism in which investors pay for a set of interventions to improve social outcome (e.g., increased employment of over 50s), and if the social outcome improves the Government repays the investors for their initial investment plus a return for the financial risks.

intangible rewards, such as work recognition, may serve as better motivators.

The United Kingdom. Across the U.K., older volunteers contribute £ 10 billion per annum to the national economy (WRVS, 2011) due to several initiatives taken by the government to encourage senior volunteerism. In 2001, the Home Office granted a subsidy to Experience Corps, a non-profit volunteer recruitment agency that connects older people with non-profit charitable organizations in need of unpaid manpower. Other government-funded programs include Volunteering in Third Age and the Retired Senior and Volunteering Program. In addition to facilitating the flow of information on volunteer opportunities, the U.K. government has established an e-platform for people interested in volunteering (https://www.gov.uk/volunteering/find-volunteer-placements).

Japan. In the face of a shrinking workforce due to a low fertility rate, Japan has devised innovative ways to engage older people in unpaid or semi-paid volunteer work. The nationally subsidized Silver Human Resources Centers (SHRCs) have helped 760,000 older volunteers to look for meaningful work on a part-paid voluntary basis. The network aims to tap into the expertise of the older generation, promoting healthy lifestyles and well-being as well as establishing social connectedness. Since 1974, the SHRCs have offered 30 different types of partial-paid volunteering tasks (Williamson & Higo, 2007). Japanese older people earn about ¥45,000-50,000 per month through the program (National Silver Human Resource Center Corporation, 2006). In 2003, SHRC chapters throughout Japan introduced a Senior Work Program. Members receive free skills training and job interview counseling with the assistance of business owners and public employment institutions. Research shows that active male volunteers of the network tend to enjoy greater sense of well-being than inactive members (Weiss, Bass, Heimovitz & Oka, 2005).

Another prominent government senior volunteerism initiative is the mobilization of healthy older community dwellers as peer support providers of the frail and impaired in 1,700 municipalities as part of the country's long term care system (Hayashi, 2014). The rationale behind the initiative is to offer assistance and support to the frail while providing a platform for healthy older persons to engage in productive activities. One scheme under this initiative, the Volunteer Support with Reward Scheme, is particularly innovative-- it rewards senior volunteers for providing peer support to frail older adults with points they can use to pay for long term care insurance premiums. This scheme has enhanced older people's sense of community and identification with the entire long term care system. Preliminary results show improvements in participants' perceived health and volunteers' activity levels.

Singapore. Singapore recently started a national senior volunteerism movement to enable older people to contribute their talents and experiences to the community after retirement. Thus far, over 50,000 seniors have enrolled in this program (Ministry of Health, Singapore, 2016). The movement, which was the first initiative under the city-state's Action Plan of Successful Aging, was done through a silver volunteer matching fund for supporting the training of seniors as volunteers and building networks in the community to recruit, develop and support senior volunteerism (TODAY, 2015). The fund, which will be matched dollar-by-dollar by the government, targets to raise 40 million Singaporean dollars (TODAY, 2015). The National Volunteers and Philanthropy Center in Singapore plans to introduce a new senior volunteerism category in the President's Volunteerism and Philanthropy Awards (TODAY, 2015) to encourage participation.

3.2.3 Lifelong Learning

Improving the skills of its adult and older population to meet the changing needs of society is one way to ensure the sustainability of an aging society. Positive associations between lifelong learning and economic growth have been observed in the U.K., Japan and Singapore. These countries have invested in supporting lifelong education, especially for older generations.

The United Kingdom. Skills enhancement has been a key strategy of U.K.'s lifelong learning and lifelong guidance policy. While the OECD has identified many strengths of the U.K. career guid-

ance system–namely, the extent of its provision, diversity, accessibility, innovation, emphasis on quality and research and evaluation infrastructure–one of its weaknesses is the lack of a coherent institutional framework to inform and support the development of high quality career guidance (Hughes, 2005; OECD, 2003). In 2005, its Department of Education and Skills published a Skills Strategy White Paper to set targets and strategies to ensure that individuals have necessary skills for employment and continual improvement in quality of life. Strategies include providing better information on learning opportunities, tackling obstacles that people face in assessing jobs and encouraging employers and trade unions to meet skills and training needs (Hughes, 2005).

In 2010, the Department for Business Innovation and Skills published a guide for developing a long term adult learning and skills policy to support sustainable economic development (Department for Business, Innovation & Skills, 2010). The government takes a person-entered approach in its adult learning policy in that learners select training and qualifications valued by the market. Training is provided by independent providers who must maintain their quality to attract learners. Prioritized funding is given to support low-skilled or disadvantaged learners, although learners and employers are expected to co-invest alongside the government to cover the training costs. Overall, the new system aims to build a society that engages the most disadvantaged people and creates connections with other kinds of learning (Department for Business, Innovation & Skills, 2011) . To support the learning needs and encourage participation of older people, activities are developed to help people set up learning groups and enhance informal learning in care settings (Southwood, Dixon, & Ruck, 2012).

Japan. Lifelong learning is commonly used to describe adult education activities. In 2009, Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) stated that lifelong learning refers to people having the opportunity to learn in any time of their lives with proper recognition for related learning achievements (MEXT, 2009). By stating that education is for people of all ages and that proper recognition should be awarded, the Ministry advocates for and invests in continued learning and growth among senior citizens. In addition, lifelong learning re-engages young adults who previously dropped out of school and provides workers with a platform to receive training (Ogden, 2010).

The Lifelong Learning Policy Bureau established in 2001 under MEXT is the central organization responsible for the coordination of policies to promote lifelong learning. The government expands educational opportunities by delivering classes through radio and television and setting up an online university. However, despite the centralized effort, traditional Japanese culture, which emphasizes formal education and professionalism, makes it difficult for lifelong learning to become a part of mainstream education. Lastly, there is limited access to higher education because local universities offer few opportunities for adults to participate in non-degree or degree programs. A paradigm shift, together with the appropriate infrastructure, is necessary to encourage lifelong learning.

Singapore. To promote lifelong learning, the government has invested heavily in education and training. Policy actions include developing the Singapore Workforce Skills Qualifications, the Institute for Adult Learning and SkillsFuture, all of which are initiatives to help Singaporeans with their employment and training needs (Ministry of Health, Singapore, 2016). The government also pledges to create more learning opportunities for the older population. For example, the National Silver Academy will be set up to provide a platform for seniors to stay active and participate in its society (Ministry of Health, Singapore, 2016). The Intergenerational Learning Program, which pairs students with senior learners to learn about various topics, will be launched. The program aims to provide an avenue for older people to pursue lifelong learning and to strengthen intergenerational ties (Ministry of Health, Singapore, 2016).

3.2.4 Social Inclusion and Intergenerational Solidarity

Although the majority of the world's population will be over 60 years old in the near future, ageism and social exclusion of older people prevail. Without social acceptance and intergenerational inclusiveness, the knowledge and wisdom of older

people cannot be transferred to the younger generation. In addition, older people will lack social platforms to make continued contributions. Intergenerational solidarity enables the transfer of resources across generations and is key to the sustainability of social systems in an aging society. In recognition of the importance of intergenerational solidarity, the U.K., Japan, and Singapore have adopted relevant policies.

The United Kingdom. In 2012, the U.K. government enacted the Equality Act in 2010, effectively banning age discrimination in services, public functions and associations. The Act also sets out areas where the government believes that different treatment of people of various ages can be justified or beneficial, especially regarding health and social care, financial services and some age-based concessions. Enforcement of the law is expected to further promote positive attitudes toward older people, thus enhancing intergenerational solidarity in the long run.

To further understand intergenerational solidarity, the Government Office for Science published a report entitled Intergenerational Relationships: Experiences and Attitudes in the New Millennium to discuss existing gaps in generational relationships in the U.K. (Keating, Kwan, Hillcoat-Nalletamby & Burholt, 2015). Similar to European countries, older people in the U.K. tend to fund their post-retirement life with personal assets or public funding (Lee & Mason, 2014). Familial transfers, though, are not a major source of post-retirement funding. On the familial level, the report discusses the challenges of managing caring relationships between aging parents and baby boomers' offspring. With increased longevity, adult children nearing retirement and a shrinking Generation X, seeing families as the primary support mechanism amidst the rising cost of health and social care systems may not be a feasible solution. The report also discusses intergenerational relationships on the societal level, stating the different experiences between the older and younger generations in housing tenure, wealth, employment and debt. While the well-educated, affluent and powerful baby boomer generation may be seen as helpful for achieving the Second Demographic Dividend, such "superior" status may be interpreted as a form of inequality by the younger generation, especially with the slowing down of the economy resulting in lower upward mobility. Overall, although the report does not offer a concrete plan to promote intergenerational solidarity, it provides multiple perspectives for understanding the topic.

Japan. The norms of caregiving have been changing with the changing family structure in Japan. Young families tend to live in urban areas, while older people live independently or alone. The low fertility rate implies limited capacities of the younger generation in caring for the older population. With the older generation living longer and sometimes with greater healthcare and long term care needs, the burden on their adult children is higher, especially for those with young children themselves (Newman & Larkin, 2007). To search for a solution to this challenge, the Ministry of Health, Labour and Welfare in Japan sponsored an intergenerational program called REPRINTS to engage senior citizens to provide education for young children (Fujiwara, et al., 2009). The program engages older people in productive contribution, encourages intergenerational solidarity and promotes the well-being of the younger generations. A review on this program showed improvements in the physical and psychological functioning of the older adults as well as healthier upbringing of the younger adults in the program (Yasunaga, et al., 2016). This program highlights that intergenerational caregiving can take place in a bidirectional manner-- younger generations provide for the older generation and vice versa.

Singapore. Singapore places considerable attention on intergenerational harmony. In 2014, the Ministry of Health (MOH) piloted a community befriending program, in which seniors who live within the same block are encouraged to "befriend" and visit each other regularly. In addition, the Housing and Development Board (HDB) pilots programs such as the Multi-Generation Priority Scheme to promote intergenerational harmony by encouraging families to live close to each other (Housing & Development Board, 2016).

3.3 Physical Infrastructures

Innovative ways are needed to handle the laborious and tedious work performed by human beings to sustain productivity despite decreasing fertility rate. Scientists have been creating new ways of integrating technology into the daily lives of the aging population, on the individual level of healthcare and assistive technology and on the city level of urban design, housing and transportation. This section discusses how the U.K., Japan and Singapore leverage on technology to build an age-enabling city.

The U.K., Japan and Singapore have developed relatively inexpensive ways of revamping their cities to meet the everyday needs of older people. Modifying the design of housing, transportation and city infrastructure for the older population can promote their independence, thus improving their quality of life. This section first discusses the technology and innovation policies adopted by these countries, followed by other actions pursued in urban and living spaces to support age-enablement.

3.3.1 Innovative Design and Technology for Age-Enablement

In health and long term care, technology designed for health monitoring or for assisting people with reduced mobility are attractive, as they are able to promote the health and independence of older people. On a larger scale, encouraging innovative designs to integrate technology into daily activities and the use of big data for analysis are new policy trends for meeting and understanding the needs of the aging population. These trends will enable better preparation for future changes. The following describes policy initiatives adopted by the U.K., Japan and Singapore to combine the fields of technology and gerontology.

The United Kingdom. The U.K. government believes that technology is integral to facilitating aging in place and improving future health and social care. A report by the Health Select Committee in 2002 called for a national strategy to promote the systematic development of telecare solutions as a part of home care. A national telecare and telehealth system has been applied across the country. According to the NHS (2015), the telecare system helps older people live independently and supports them with assessed care needs. The telehealth system helps people with long-term health conditions at home and monitors their health conditions with digital devices to automatically send data to health professionals (Age UK, 2015).

Leveraging on the use of information technology, the government is committed to ensuring universal broadband access to promote social connectedness and intergenerational relationships of older people (Department for Business, Innovation & Skills, 2009). Through programs such as the Digital Inclusion Program for Sheltered Housing, people living in sheltered housing now have access to new technology along with necessary support and training. As a result of the initiative, older people have increased access to information, goods and services via the Internet. Research shows the use of the Internet enables older people to keep in touch regularly with family and friends and to encourage social participation and contact (Age UK, 2010; Sayago & Balt, 2010; Bailey & Ngwenyama, 2011; Woodcard et al., 2011).

Collaboration with local universities is also

a policy strategy adopted by the U.K. government. The New Dynamics of Ageing (NDA) Program is the largest research program implemented in the UK funded by public money. It involves four cross-disciplinary research councils covering behavioral, biological, social, economic and technological sciences. The NDA program has influenced policy and practice in aging sciences and created new products to assist older people (Economic and Social Research Council, 2015). Additionally, the University of Sheffield-Research center has set up a Centre for Assistive Technology and Connected Healthcare (CATCH) to develop new technologies to enable people to live and age well. The Centre is backed by the Higher Education Funding Council England (HEFCE), which has invested funds for the research center to develop telehealth and assistive technology (CATCH, 2016).

The U.K. government supports initiatives from tertiary institutions that focus on the design of products, services and environments that account for the needs of older consumers. For instance, a government-appointed Inclusive Design Champion promotes the idea of Inclusive Design, which focuses on using design to meet the needs of a diversified population and advocates its benefits for the business sector and the society at large. The new London taxi, to be launched in 2017, is an excellent example of Inclusive Design that targets older people with limited functional ability. (See Box 3.1)

Box 3.1

Case Study: Inclusive Design and the London Black Cab

Designers from the Royal College of Art (RCA)'s Vehicle Design program and the Helen Hamlyn Centre for Design's Age and Ability Research Lab have been leading the way in redesigning London to be more socially inclusive for people of all ages and abilities. Among their many projects, these designers have been on a mission to modernize one of the most important elements of Londoners' way of life: the black cab.

Since 2013, lead designers of the black cab project have been working with design consultancy Hexagon Studios and Turkish automotive manufacturer Karsan to develop the first all-electric and fully inclusive vehicle for the London taxi market. Key to their development of a more practical and accessible black cab has been people-centered research. Through in-depth interviews with participants including vehicle experts, cab service centers, cab drivers and ordinary citizens, the project team learned Londoners' different needs in order to develop the most socially inclusive cab.

Opinions gathered from Londoners enabled RCA designers to develop specific modifications for the black cab. Their field research revealed that most London cab drivers are older: many are over the age of 65. These drivers expressed that the current cab design fails in providing them with the necessary features and comfort that they need when spending long hours in the driver's seat. The research also revealed that passengers of all ages had their functional and cognitive needs, including wheelchair-bound passengers finding access to cabs difficult.

The people-centered approach of the Royal College of Art's research is to be reflected in the final design of the new black cab. With target production by the end of 2016, the revamped black cab will be a model for other countries on how socially inclusive research and design can be effectively conducted for building a more age-friendly society.

Source: Rac.ac.uk (2016)

Apart from the Government, the civil society and business sector have also contributed to integrating technology into urban design. For example, the Royal College of Art's Great British Public Toilet Map, designed and built by the website design company Neontribe, is a user-friendly website that pinpoints public toilets throughout the U.K. with the use of public data, GIS technology and the Internet. This technology provides information on over 8,000 public toilets in the UK (The Guardian, 2014). As many people with chronic bowel or bladder conditions are older individuals, the Map is a tremendous help that enables them to locate the nearest public toilet and removes obstacles that prevent them from going out (See Box 3.2).

Box 3.2

Case Study: The Great British Public Toilet Map (U.K.) versus Toilet Rush (Hong Kong)

The Great British Public Toilet Map (U.K.)

Answering the call of nature is a part of our daily lives and may not come to mind as something that requires extensive planning. For many people, however, like older adults with chronic bladder or bowel conditions, knowing where to access the closest public toilet determines whether they step out of their home for the day. This is why the Great British Public Toilet Map has been significant in enabling many residents, young and old, to live independently in the U.K.

The Great British Public Toilet Map was launched on November 19, 2014–World Toilet Day (RCA, 2014). The Map began as a research project funded by the New Dynamics of Ageing program. This project consisted of interviews with over 100 people of different ages, with questions focusing on interviewees' experience of needing and finding public toilets throughout the U.K. The findings showed that many people felt discouraged to leave their homes for an outing, in fear that their incontinence problems coupled with not knowing where to find the closest public toilet would be a stressful experience.

This research was then utilized by the Royal College of Art's Helen Hamlyn Centre of Design in London to create the inclusively designed, convenient and user-friendly public toilet map now used today. The Map has also become the largest U.K. database of publicly accessible toilets. Data used to locate toilets come from local councils, private providers, and the public and crowd-sourced mapping project, OpenStreetMap. With just a web search away, finding the closest public toilet has become much easier. The Great British Public Toilet Map has set a precedent for making public data easily accessible and using this data to improve public service provision for all.

The Great British Public Toilet Map shows that the public toilet infrastructure is available in the U.K., but widespread knowledge of their locations is not. Key to the project's success has been the collaboration of public and private institutions in developing the Map. Project leaders are hoping for further research support to promote the idea that dissemination of knowledge about public toilet locations is critical for allowing citizens of all ages to live confidently and independently in their community.

Toilet Rush, Hong Kong

Hong Kong has a Great British Public Toilet Map of its own. Since 2013, many people in Hong Kong have utilized a similar application called Toilet Rush, developed by technology entrepreneur Leo To. The mobile app provides information on 4,000 toilets around Hong Kong,

including 1,600 government-maintained public toilets and another 1,400 toilets in shopping malls and parks (SCMP, 2013). Specific locations of public toilets are based on both government data and user-generated information. The app allows users to provide comments on the conditions of the toilets and mark if the toilets provide certain features, like toilet paper and handicap accessibility.

Toilet Rush has the potential to be further utilized by the government and private providers to make Hong Kong more age-friendly. Thus far, the government's main way of addressing issues with public toilet accessibility has been to build more facilities around the region (GovHK, 2015). Widespread knowledge of toilet location, however, may be unavailable. Toilet Rush has been a bridge that connects people in need of a toilet with information on toilet locations. The feature of allowing app users to rate the hygiene of public toilets enables more users to know what to expect in terms of the condition of a facility.

Accessibility and hygiene of public toilets affect the quality of life for all people when they are out in the community. To improve the service of these facilities, the government can leverage innovative ideas from the public, like Toilet Rush, and work together to develop, implement and advocate for inclusively designed, age-friendly public facilities.

Japan. Development of technology seems to be an answer to Japan's continually shrinking labor force. In 2010, the Japanese government formulated a policy paper, The New Growth Strategy, to revitalize the country's economy. One proposed initiative was to make Japan into a healthcare superpower through Life Innovation, with the goal of generating ¥50 trillion in new markets and creating 2.84 million new jobs in health-related areas by 2020 (Decision, 2010).

In promoting Life Innovation, the government first pledged to position medical, nursing care and other health-related industries as growth-driving industries by (i) removing barriers that hinder new service providers and private firms from entering the healthcare market, (ii) establishing a system that ensures service diversity and monitors quality, and (iii) enhancing accessibility to products and services (Decision, 2010). Second, the government discussed the need to promote trans-disciplinary research and development in pharmaceuticals, medical and nursing care technologies (Decision, 2010). A particular emphasis was placed on inventing regenerative medicine and cell therapy that could transform Japan into a bio-medical hub, exporting high-tech pharmaceuticals and medical-related services to other Asian countries for economic growth (Council for Science and Technology [CSTP], 2010). The Ministry of Health, Labour and Welfare and Ministry of Education, Culture, Sports, Science and Technology provided competitive grants-in-aid for related scientific research (Muramatsu & Akiyama, 2011).

Japan is known for its advancement in medical and health assistive technology in Asia. The country's domestic medical technology ranges from diagnostic imaging apparatuses and operating instruments (endoscopes and surgical disposables) to multi-functional elderly care robots and home medical devices (Junicon, 2010). For healthcare services using information and communication technologies, Japan has built a telecare system, including tele-medicine and tele-nursing services. These caregiving services assist in monitoring older people's physiological signals through sensor-equipped smart wearables together with telecommunication technology. This technology has enabled elders to stay in their familiar environment while providing them with reliable healthcare treatment and nursing care (Japan Telemedicine and Telecare Association, [JTTA], 2013).

Cross-sectoral collaboration is a key policy strategy in innovation and technology. The government's investment in the business sector helps develop technology that promotes independent living. In 2013, Prime Minister Shinzo Abe allocated ¥2.39 billion for robot development. Twenty-four companies, including Toyota Motor Corp., Sekisui Hometechno Co. and Toli Corp as selected by the Ministry of Economy, Trade and Industry, received subsidies to cover between half and two-thirds of the costs of devel-

oping "nursing care robot equipment." They have successfully developed various assistive robots (JIJI, 2013). Apart from governmental participation, the private sector also collaborates to integrate technology into the daily lives of older people. For example, the installation of intelligent toilets for older people has been led by Toto, a private enterprise that works to enhance bathroom facilities, and Daiwa House, Japan's largest house builder (Collinson, 2010). These toilets have medical sensors to measure blood sugar levels based on urine, blood pressure and body fat of the user (Collinson, 2010). Toyota also works closely with Professor Kawashima, a renowned Japanese neuroscientist, to develop intelligent cars that have the function of monitoring brain activity in older people (Collinson, 2010).

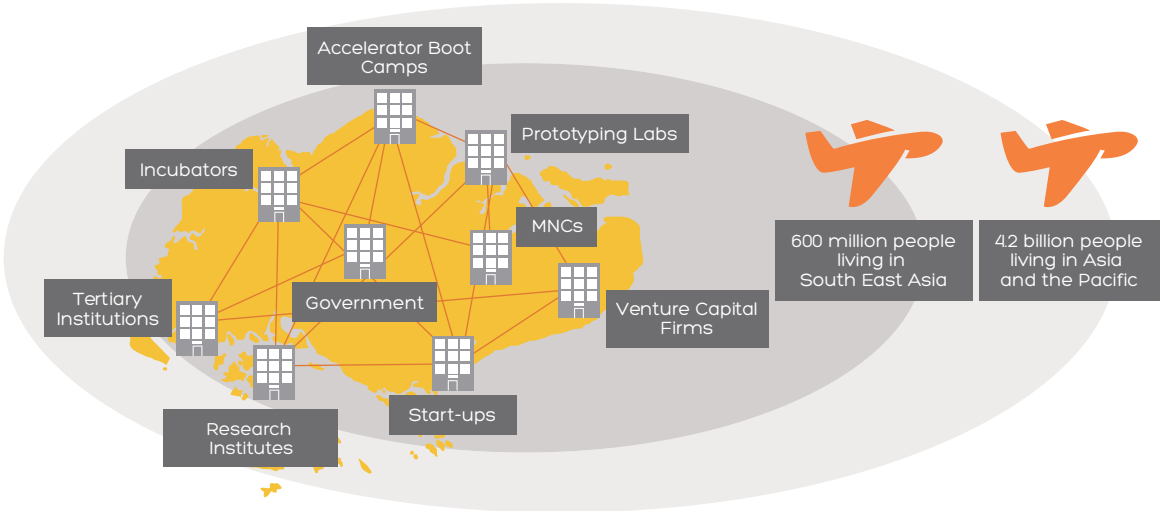
Lastly, the government acknowledges the importance of secondary analysis to inform policy development (Muramatsu & Akiyama, 2011). With the implementation of the Statistics Act in 2007, the Japanese Statistics Bureau began to provide de-identified data for research purposes in 2009 (Muramatsu & Akiyama, 2011). The availability of secondary data enables more longitudinal research, which can allow the identification of key factors that underlie the trajectories of aging, and inform aging policies in Japan.

Singapore. Singapore is a late starter in investing in technology for its aging population when compared to Japan and the U.K.. However, Singapore kick-started a comprehensive policy strategy to transform itself into a smart city (Smart Nation, 2016). Singapore initiated the Smart Nation drive in 2014 to connect everyone with everything at all times throughout the city using information technology (May, 2016). By collecting data on the daily activities of people, the country's leaders hope to better understand the needs of its citizens, thus building a city that truly meets the needs of its society (Smart Nation, Singapore, 2016).

To fully utilize the benefits of technology in the everyday lives of citizens, the Singapore government highlights cross-sectoral collaboration as a key policy initiative. Because the Singapore government understands the importance of pulling together diverse resources in developing cutting-edge technologies, it has established multiple platforms to facilitate the exchange of innovative and technological ideas, such as Launchpad. Launchpad is a dedicated zone where starts-ups, labs, boot camps, venture capital firms, incubators, public and private research institutes as well as tertiary institutions are all closely situated to advance cross-sectoral collaborations (Amin-Chaudhry, 2016) (Figure 3.2).

Figure 3.2

Singaporean Government's Vision of Cross-Collaborative Platform



Source: Forbes & Smart Nation Singapore (2016)

In addition, the government has invested in research and development. It has sustained R&D spending at about 1 percent of GDP, with an emphasis on translating research to solve problems of daily living, promoting innovation and technology adoption in companies, and driving up economic growth through productivity enhancement (Smart Nation, Singapore, 2016). Furthermore, the government recognizes the importance of open data and connectivity. As a next step, the government will open a data portal for the general public and the civil society to turn data into useful information. Designed around the needs of the citizens, the OneService app will allow citizens to easily send feedback on municipal issues to relevant agencies for timely responses (Benner, 2016). An integration of technology with the open data platform will enable health tracking in real time to practice preventive medicine (Benner, 2016).

Digital technology makes a big impact on five key areas associated with aging: transport, home and environment, business productivity, healthy and enabling aging, and public sector services (Smart Nation, Singapore, 2016). Between 2014 and 2015, the country piloted many programs, including initiatives for autonomous vehicles, smart-enabled homes and hospitals with telehealth functions. Some of the latest achievements are in integrating information technology with the health care systems, housing infrastructure and public transportation (Box 3.3).

Box 3.3

Healthcare

The Centre for Healthcare Assistive and Robotics Technology (CHART) is a project spearheaded by Changi General Hospital and Singapore Economic Development Board. The Centre provides a collaborative platform to enable healthcare professionals to work closely with academia and research institutions to develop healthcare solutions with robotic and assistive technology.

Housing

Singapore's Housing and Development Board (HDB) announced its Smart HDB Town Framework, which focuses on the blending of information technology in everyday living. One of the key features of this innovative housing project, the Smart Elderly Monitoring And Alert System, allows the younger generation to monitor their older relatives through sensors placed in the flat to send alerts to caregivers via text messages in case of an emergency.

Transportation

To pave the way for autonomous vehicles to replace bus drivers in the future and to enhance the mobility of older people, the government has set aside spaces for companies and researchers to test the development of self-driving vehicle technologies and mobility concepts. The French company Induct and the Nanyang Technological University (NTU), in partnership with JTC Corporation, have been testing a self-driving electric vehicle manufactured by Induct in CleanTech Park, an eco-business development in Jurong, Singapore.

3.3.2 Urban Design: Housing, Public Space and Transports

While the blending of technology and gerontology takes time to be implemented and is targeted to provide solutions to the future older population, the governments of the U.K., Japan and Singapore have invested in modification of living and public spaces with inexpensive measures to provide timely and person-centered solutions for today's older population to enable aging in place and engagement in meaningful activities.

The United Kingdom. In regards to city design, more awareness of and research on age-friendly city development have led to improvements in the physical infrastructure of public housing, outdoor spaces and transportation. As the Greater London Authority (GLA) emphasized the need to increase accessibility of new public housing units for older people, the London Design Guide standards were adopted (King's College London, 2015). These standards include providing more balcony space, increasing the minimum space per person by 10% than current units, providing full accessibility to the disabled and designing 10% of new homes with wheelchair accessibility (GLA Business Plan, 2015). While all current homes must meet the Decent Homes Standard, the new public housing units must also meet the basic standards of the Lifetime Homes requirements, with specific age-friendly requirements in homes and facilities, such as installed lifts, widened entrances to dwellings and secured grab rails on bathroom walls (Lifetime Homes, 2010). In 2011-2012, more than 17,000 affordable homes for older people were built, effectively granting London boroughs planning permission for more than 75,000 Lifetime Homes and 8,000 wheelchair-accessible homes (King's College London, 2015).

London also recognizes the importance of making the outdoor environment more accessible. Senior parks, like the Hyde Park Senior Playground, are free outdoor facilities designed with low-impact exercise machines (Age UK, 2014). They aim to encourage seniors to stay active and provide them with a place to socialize. Open space projects of larger scale are also ongoing. Since 2005, 310 million has been invested in a variety of public space projects, such as enhancing the availability of public toilets, promoting shared road space and extending 20 mph zones (CPRE London & Neighbourhoods Green , 2014). In addition, an ongoing project called the All London Green Grid (ALGG) is in the works to build a network of green infrastructure throughout London. The network of walkable roads will connect town centers, major public transportation stations, residential and employment areas, parks and other open spaces. Overall, these infrastructures aim to enable older people to leave their homes and become physically active in the city.

Transport for London has provided different services to encourage older people to move around the city. Dial-a-Ride provides door-to-door minibus services for free and the Taxicard Service provides eligible persons with disability with subsidized taxi rides (Transport For London, 2014). The Freedom Pass grants free bus travel to those at the state pension age or older, and the Oyster 60+ card allows those aged 60 and above to travel for free (King's College London, 2015). Equally important is the improvement of public transport facilities and traffic fixtures, such as the increase of countdown displays at traffic lights and 20 mph zones in some districts. By the end of 2012, half of London's Overground stations and 66 Underground stations have become step-free to platforms and more than 250 wide gates have been installed for wheelchair users.

Japan. Japanese cities have been working to provide more initiatives and public facilities to support the aging population. While the central government takes a central role in transitioning Japan into an age-friendly society, city governments also view the development of age-friendly cities as a community-led effort. The city of Akita is a model in this regard.

In 2010, the Akita City Age-Friendly City Plan Promotion Group was established to advance and prioritize age-friendly city initiatives in government affairs. By 2011, the WHO approved Akita to be a member of the Global Network of Age-friendly Cities and Communities (WHO, Age-Friendly World; WHO, Toward An Age-friendly Akita City). By 2013, Akita has formulated the Akita City Age-Friendly City Action

Plan, which presents the city's basic measures for creating an age-friendly society, with emphasis on the government and citizens collaborating to make the city livable for citizens of all ages.

Promotion of redesigning public areas to be barrier-free and "universally" designed has successfully enhanced facilities to be more accommodating to older Akita citizens. In the Akita train station, for example, the wide passageway has ramps, ridged sidewalks for the visually-impaired, handrails, as well as an elevator, escalators and stairs. Washroom signs are large and well-lit. The universal design is seen in outdoor spaces and buildings around Akita. In addition, the One-Coin Bus project, originally introduced in 2011, allows older citizens to ride a fixed-route bus for 100 yen (FOIFA). In 2013, the city government amended the entitlement age from 70 to 68 years or older to enable more older people to be active residents. The subsidized bus fare program has received positive feedback from older citizens who utilized the subsidy; they expressed appreciation for the opportunity to travel in their community feasibly and frequently.

Singapore. The City For All Ages (CFAA) project initiated by the Singaporean government aims to enhance age-friendly facilities in the community (MSF, 2011). This project includes improving Green Man Plus facilities, which give senior citizens specific services such as more time to cross the road, more benches with arm rests, levelled void deck aprons and concrete slabs over drains (Ministry of Health, Singapore, 2016). To support the growth of the market for older consumers, Singapore set up the Silver Industry Standards Committee to develop and facilitate the implementation of Singapore standards (Spring Singapore, 2016).

For senior housing, the Ministry of Health, the Ministry for Community Development, Youth and Sports, and the Housing and Development Board (HDB) have built Senior Activity Centres, Senior Care Centres and nursing homes in HDB towns (Ministry of Health, Singapore, 2016). Starting from 2012, HDB has offered the Enhancement for Active Seniors (EASE) program to improve HDB flats, such as by installing grab bars inside the flats. All HDB flats are planned with barrier-free designs and equipped with lifts for wheelchair-bound dwellers (HDB, 2015). Lastly, HDB also has a Senior Priority Scheme. This scheme gives priority to eligible seniors to buy flats and become homeowners (HDB, 2016).

The Public Transport Council and the Land Transport Authority have provided senior citizens with more affordable and convenient transport experiences. For people over 60 years old, the Singapore government issues a free PAssion Silver Card. The Card aims to help citizens stay connected with their community by engaging them in activities sponsored by Community Clubs and other outlets of the People's Association, a statutory board that promotes social cohesion within the community. The Card also offers priority queues and special discounts from participating stores to older people, thus promoting the growth of the older consumer market. The Land and Transportation Authority has made plans to make senior-friendly changes in public transportation, including making buses and MRT wheelchair-accessible, introducing affordable seats on buses, implementing priority queues in bus interchanges for seniors and disabled persons, enlarging the size of the fonts in directional signage and providing lifts in platform at all MRT stations (Ministry of Health, Singapore, 2016).

3.4 Integrated Health and Social Care Delivery System

Health needs of older people are often complicated and chronic, requiring multidisciplinary care. Most health problems of older age result from chronic diseases, including diabetes, hypertension, cardiovascular diseases or dementia. The impact of multimorbidity on an older person's capacity, health care utilization and costs of care is often significantly greater than the expected summed effects of each condition (Marengoni, et al., 2011). Multiple sources of care are often required to meet older people's health care needs. This calls for an integrated health and social care system that is centered around the needs of older people, with a focus on preventive care and health maintenance across the lifespan.

In health care research, vertical integration is the linkage of primary, secondary and tertiary care to treat specific diseases (Box 3.4), whereas horizontal integration is the bridging of multiple disciplines, such as via connecting health and social care, at every level of care to improve overall health (Valentijin, Schepman, Ophij & Bruijnzeels, 2013). Research indicates that integrated care at vertical and horizontal levels can improve the quality of care for patients and reduce hospital admission (Linertova, et al., 2010; Dorling, Fountaine, McKenna & Suresh, 2015).

Box 3.4

The Basics of Health Care Systems

A typical healthcare system is divided into different levels, namely primary, secondary and tertiary care. The goal in healthcare is often to keep the population healthy with primary healthcare services, so that less secondary and tertiary care is needed. Primary care is the first point of contact for patients and family in a continuing healthcare process (WHO, 2016b) and focuses on the long term health of a person rather than the short duration of the disease. In global population aging, with increasing numbers of older adults at greater risk for chronic non-communicable diseases, rapidly increasing demand for primary care services is expected.

Secondary care is often defined as healthcare (elective or emergency care) provided by medical specialists in a hospital or other secondary care settings (DOH, 2010). Secondary care includes specialist ambulatory medical services and acute inpatient care. Patients are usually referred from a primary care professional such as a general practitioner. To access secondary care, some systems allow patients to receive secondary care directly via self-referral and/or through emergency medical services. Tertiary care is usually provided in hospital settings and requires highly specialized equipment and expertise. Section 3.4 describes the healthcare systems of the U.K., Japan and Singapore, and how they are designed to meet the needs of their aging populations.

Integrated care requires high levels of cooperation and communication among care professionals; as a result, a specific strategy is necessary to ensure that the care model can be implemented (Goodwin, Dixon, Anderson & Wodcins, 2014). It is observed that successful implementation of integrated care revolves around behavioral and clinical changes by clinicians, patients and organizations. The following first describes the experiences of the U.K[2] , Japan and Singapore in delivering health care services (Table 3.2), followed by their long term care systems. Efforts in bridging health and social care services will be discussed.

2. Healthcare metrics for the U.K. as a whole are available for international comparison purposes. However, in terms of healthcare delivery and policies, responsibility is devolved across the U.K., where NHS policies and practices within England, Scotland, Wales, and Northern Ireland are governed independently. Considering the availability of data in comparison to other NHS systems within the U.K., NHS England is specifically used when describing the U.K. healthcare system.

Table 3.2

Comparison of Major Health Indicators

Indicator	Japan	Singapore	UK
*Hospital beds per 1000 people	13.7	2	2.9
**Nurses and midwives per 1000 people	11.489	5.76	8.801
#Physicians per 1000 people	2.297	1.95	2.809
+Births attended by skilled health staff (% of total)	99.8	99.7	99

Source: The World Bank, WHO, OECD, UNICEF, State of the World's Children
Note: *Data are based on WHO and supplemental country data. Data from U.K. and Singapore are based on year 2011; data from Japan are based on year 2009.
****Data are based on WHO Global Health Workforce Statistics, OECD and supplemental country data. Data from U.K. and Singapore are based on year 2013; data from Japan are based on year 2012.**
#Data are based on WHO Global Health Workforce Statistics, OECD and supplemental country data. Data from U.K. and Singapore are based on year 2013; data from Japan are based on year 2010.
+Data are based on UNICEF, State of the World's Children, Childinfo and Demographic and Health Surveys, 2016.

3.4.1 Healthcare Delivery Systems

The United Kingdom. Health care is primarily delivered by the National Health Service (NHS), the publicly-funded, universal healthcare system with independent bodies within each state of the U.K. The Department of Health provides direction for overall health policy, while NHS England is responsible for managing the NHS budget and overseeing 209 local clinical commissioning groups (Arora & Thorlby, 2015). NHS England is the largest single-payer healthcare system in the world, contributing to more than 80% of public healthcare expenditure through general taxation and payroll taxes (The World Bank, 2014).

All ordinary residents in the U.K. and non-residents holding a European Health Insurance Card are eligible for free health services. The NHS pays and provides for a wide range of services from preventive to tertiary care. In 2012, NHS England underwent massive structural reorganization with the introduction of the Health and Social Care Act, which includes a key development of the supplementation of local administrative bodies that manage the funding and provision of provider services, or primary care trusts (PCTs), into clinical commissioning groups (CCGs) (Kennedys, 2012; Health and Social Care Act, 2012). CCGs are led by clinicians who manage hospital, community, emergency, mental health and other care services in their designated geographical areas, effectively giving general practitioners (GPs) significant involvement in meeting patient needs. Trust hospitals contract with CCGs to provide services. Since 2014, primary care services were added to CCG commissioning, primarily involving monitoring the budget and GP performance of general practices (NHS, 2014). This addition has increased the involvement of primary care providers in policy decisions. The U.K. has been successful in building a strong primary care model necessary for the provision of care for chronic diseases in an aging population.

Primary care, mainly delivered by GPs but also by dental practices, community pharmacies and optometrists, is patients' first point of contact with the health care system. Most GPs are private contractors who operate under the national General Medical Services contracts. These contracts are negotiated between the British Medical Association (representing doctors) and the government, and payment is provided by capitation to cover primary care services, optional fee-for-service payments for additional services, and an optional performance-related scheme. In order for patients to access health care services, registration with a local practice is required. Except in emergencies, patients can access hospital services delivered by the public sector via their GPs. General practices, however, are gradually transforming into more integrated entities, leveraging multidisciplinary teams of specialists, public

health experts, social workers and pharmacists and networking with other practices. Patients with urgent conditions are able to see a specialist sooner with a referral by their GPs (NHS, 2015). Because of universal coverage and the strong gatekeeper role of primary care providers, general practice is one of the greatest strengths of the NHS.

Prevention is also a major focus of the U.K.'s primary care services. People aged 40 to 74 are invited by NHS England once every five years for a free check-up with their GPs to assess and manage their heart disease, stroke, diabetes and kidney disease risks and to raise awareness of dementia for those aged 65 to 74 (Fenton, Kelly, Newton, Patrick & Richards, 2013). Evaluation of the programs found that NHS Health Check has been able to identify people at risk of developing a major cardiovascular incident and to diagnose conditions commonly linked to cardiovascular disease, including type 2 diabetes, high blood pressure and chronic kidney disease (Robson, et al., 2016). However, there have been ongoing debates on the program's impact on treatment, mortality and cost-effectiveness (Chang, et al., 2016) and the need for actions to improve the uptake rate. Besides NHS Health Check, a range of population-based screening programs are offered by the NHS, including bowel cancer, breast cancer and cervical screenings (NHS, 2015).

In the private sector, about 548 private hospitals and between 500 and 600 private clinics are found across the U.K., offering services that are either unavailable in the NHS or require being placed on long waiting lists. These hospitals and clinics typically do not have emergency or intensive-care facilities.

Japan. Japan's health care system is characterized by a dominant hospital sector and a weaker primary care sector. Primary care in Japan is delivered mostly through a network of approximately 100,000 community clinics. These clinics are owned by physicians who, after spending time practicing in a hospital specialty, become generalists in the community without further mandatory training (OECD, 2015). Some hospitals, mostly private non-profit organizations, deliver primary care in outpatient departments. Demarcation between generalist and specialist is weak. People generally do not have a consistent primary care doctor and there is no gatekeeping to more specialized medical treatments. In the secondary and tertiary care sectors, various types of entities own hospitals, including governments (national and local), universities, charitable organizations and private non-profit organizations. One-third of beds are found in the public sector with the other two-thirds owned by physicians and their families within the private sector (OECD, 2015). Among OECD countries, Japan has the highest number of hospital beds, with 13.7 hospital beds per 1000 population compared to the OECD average of 4.8 per 1000 population (OECD, 2014) (Figure 3.4). Although the average length of stay in hospitals in Japan has come down significantly since 2000, it still remains the highest in the OECD, which is 18 days compared to an average of 8 days (OECD, 2013).

The strong hospital sector is partly related to its easy access. Patients are able to see hospital specialists directly for any health care needs. Their preference for hospital care has been high possibly due to the better facilities provided in hospitals. Hospitals provide significant amount of ambulatory care services not only because it is an attractive source of revenue from insurer payments, but also because outpatient care represents an important source (60%) of inpatient admission (Food and Health Bureau, 2011). With an aging population with long term care needs, many acute care beds are repurposed for long term care for the elderly.

For healthcare in the community, the Japanese government uses financial incentives to promote co-ordination in cancer, stroke, cardiac and palliative care. Additional fees are provided to encourage hospitals to use post-discharge protocols for patients with multimorbidity and establish contracts with clinic physicians to provide follow-up after discharge, for which physicians receive additional fees (Liu & Haseltine, 2015). Japan's goal has been to establish the delivery of healthcare and social care for its aging population through localized, comprehensive "total" care. For the frail and impaired, Japan uses community-support programs, mainly exercise programs, to encourage older people at risk of entering institutionalized long term care to stay healthy (Fukutomi, Kimura, Wada, Okumiya & Matsubayashi, 2013).

Preventive care is also a focus of Japan's healthcare policy. A care-prevention program was launched in 2001 to help older people stay healthy. Its target clients are older people who are healthy and require minimal care. For the general population, a national health promotion framework, Healthy Japan 21 (2000-2012), was launched to encourage healthy behaviors and lifestyles. Preventive measures to keep the general population healthy, including screenings, health education and counseling, are all covered by health insurance plans, while cancer screenings are delivered by municipalities. Annual health checkups are mandatory for all employees under the occupational health and safety law (Ministry of Justice, Japan, 2006). The law was modified in 2008 when a recommendation for a new national health checkup system focusing on metabolic syndrome was launched for all Japanese aged ≥40 years (Ministry of Health, Labour and Welfare, 2007). People diagnosed with metabolic syndrome receive standardized and individualized lifestyle guidance. Research showed that for those receiving the guidance, their metabolic conditions improved at 6 months (Munakata, et al., 2011) but the effect did not last at 12 months (Hirakawa & Uemura, 2013).

Singapore. Private GPs dominate primary health care in Singapore and deliver approximately 80% of primary care consultation services (Ministry of Health, Singapore, 2015a). Primary care is provided by GPs and nurses in 1,500 private medical clinics and 18 public, multi-doctor public polyclinics that primarily serve low-income populations in the community (Ministry of Health, Singapore, 2015a). Patients are not required to register for care and are given flexibility in choosing their primary care physician. Private GPs dispense medicine and are typically paid on a fee-for-service basis. Public polyclinics provide integrated services, which include subsidized outpatient care, immunizations, health screenings and pharmacy services, with some offering dental care as well. Patients are referred from polyclinics to specialist clinics and hospitals, if necessary. Self-reliance and personal responsibility are core values in Singapore and they set the basis for a healthcare system that is based primarily on self-financing and less on welfare. To prevent overconsumption of healthcare services and embolden a sense of personal ownership for one's health, providers charge copayment fees.

The government is the main provider of secondary and tertiary care. The management system of these care sectors resembles that of the commercial sector. In 2015 there were a total of 26 hospitals and specialty centers in Singapore, 16 of which are publicly-funded with the majority of hospital beds in the public sector. The public general hospitals provide acute inpatient services, a 24-hour emergency department and outpatient services. Public hospitals and specialty centers operate as private companies wholly-owned by the government. In public hospitals, wards are tiered into four main classes with different availability of amenities. Patients in the highest-class wards are treated as private patients and thus, they are not subsidized. Among the other classes, patients receive varying subsidies contingent on means-testing and the type of ward chosen (Liu & Haseltine, 2015).

Commercial accounting systems are used in the healthcare system, providing a more accurate picture of the operating costs and instilling greater financial discipline and accountability. Hospitals can reallocate generated savings to develop other public health care services (Ministry of Health, Singapore, 2015a).

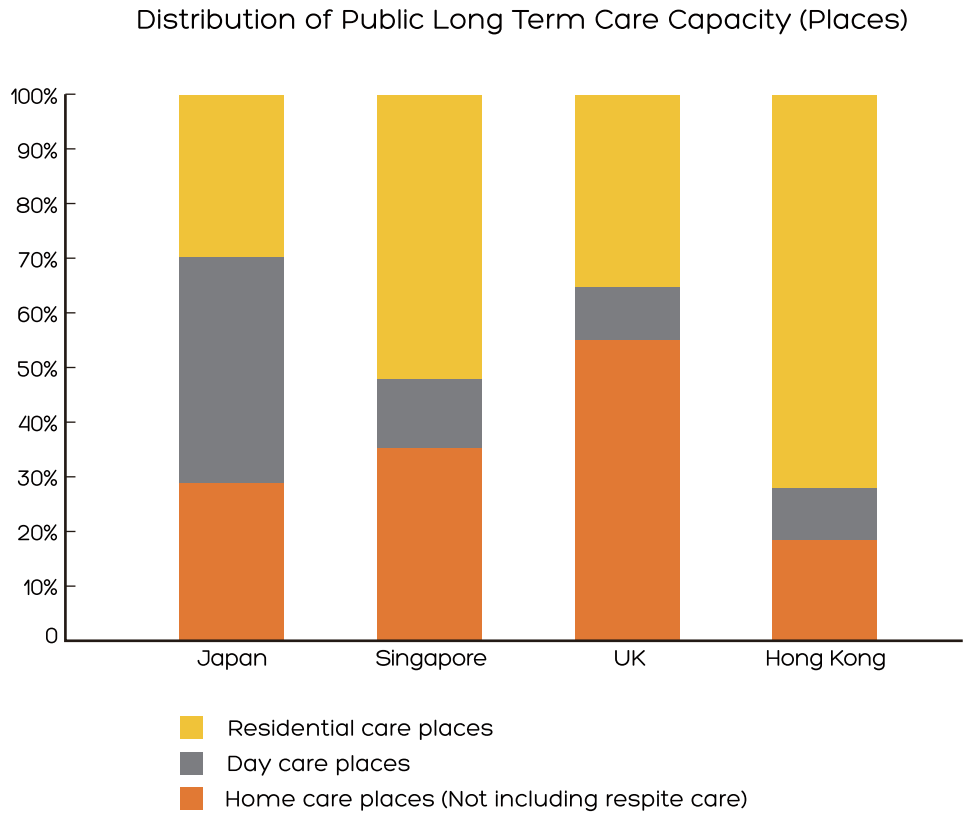
For preventive care, the nationwide Integrated Screening Programme (ISP) has been implemented by the Singapore government to offer screenings for high blood cholesterol, high blood pressure and diabetes, as well as breast, cervical and colorectal cancers to residents who fall within the recommended age groups. For those aged at least 40, Singapore residents are invited to visit GP clinics for various ISP screenings. Rescreen invitations in subsequent years are sent according to recommended intervals based on results from the initial screening. Wide screening accessibility is achieved through the partnerships that the Health Promotion Board (HPB) has created with the People's Association and private enterprises.

3.4.2 Long Term Care for the Frail and the Functionally impaired

Long term care consists of nursing care and assistance with instrumental activities of daily living, such as washing, eating, and getting in and out of bed, provided to people with reduced functional and health status over an extended period of time (Tjadens & Colombo, 2011). In the past, most long term care services were provided by unpaid informal caregivers such as relatives, friends or volunteers. However, with decreasing family size, change in people's residential patterns and increased female participation in the labor market, informal caregivers are becoming less available (Colombo, Llena-Nozal, Mercier, & Tjadens, 2011). Formal long term care can include home-based care, center-based services and residential services. With population aging and availability of informal caregivers, demand for formal long term care services have been rising. While residential care is an option for older people who cannot take care of themselves, most countries advocate policies that facilitate aging in place to improve the quality of life of older people and to decrease long term care costs.

Figure 3.3 shows the distribution of public long term care capacity in the U.K., Japan, Singapore and Hong Kong. As illustrated, both the U.K. and Singapore adopt policies that encourage home as the hub of care and support while Japan uses a daycare center-based approach. Japan's high proportion of the older population and very low fertility rate creates a scarcity of family members as informal caregivers for home care. In Hong Kong, although the government has been advocating aging in place, residential care is still the major source of long term care for the frail and impaired. The long term care system of Hong Kong will be further discussed in Chapter 4.

Figure 3.3



Source: Ministry of Health, Singapore (2016); Gori, Fernadez & Wittenberg (2016); Audit Commission, Hong Kong (2014)
Note: Data of U.K. and Japan are based on 2012;
Data on Singapore and Hong Kong are based on 2014.

Demands for community care versus residential care are affected by the functional health of the population, price of care, proximity to services, living arrangement with caregivers and caregivers' employment status (Wittenberg, et.al, 2012). For example, when informal caregivers are unavailable, older people tend to seek formal care. When a government provides universal, high-quality, public long term care at low prices, older people tend to opt for public rather than private care even though the waiting time can be extremely long. If an older person lives close to community facilities, s/he may prefer to use community rather than residential services. Overall, to facilitate aging at home, analysis of the issue and policies that alter the determining factors are required. The following describes the long term care policies of the U.K., Japan and Singapore, and their implementation.

The United Kingdom. The U.K. advocates the sharing of responsibility between individuals and states in managing the long term care needs of older people, with the objectives of preventing the deterioration of physical capacity among older people, encouraging deinstitutionalization and promoting person-centered services (Select Committee on Public Service and Demographic Change, 2013). The provision of home care services was 1.6 times higher than residential care services, and that of direct cash benefits was 4.8 times higher than direct services (Gori, Fernadez & Wittenberg, 2016). Such distribution of resources demonstrates the philosophy of the system, which places primary responsibility of the non-health component of long term care on older people and their families (Comas-Herrera, Pickard, Wittenberg, Malley, & King, 2010).

While access to health care is universal in the U.K., eligibility for long term social care is largely needs- and means-tested. As a result, coverage of home and institutional care in the U.K. is relatively low compared to other OECD countries. Although the provision of overall institution and home care services has been decreasing over the years, the intensity of home care provided per household has increased significantly by approximately 4 times, suggesting that long term care services are offered to those in most need (Gori, Fernadez & Wittenberg, 2016).

Most long term care for older people living at home (approximately 85% of all older individuals with a functional disability) is provided by informal carers, while formal services are offered by local authorities, community health services and the for-profit and non-profit sectors, covering residential, nursing, home and day-care services (Comas-Herrera, Pickard, Wittenberg, Malley, & King, 2010). Those eligible for social care are responsible for copayments, with some people contributing almost all of their "assessed income," including pensions. Beneficiaries receive personal budgets to purchase their own care or opt to have arranged care by local authorities. Some additional allowances to users and carers, such as "attendance allowances," are exempt from means-testing.

Another available funding option is cash benefits, which are direct payments in lieu of social services for those who are in need of personal support and are eligible for publicly-funded services (Comas-Herrera, Pickard, Wittenberg, Malley, & King, 2010). Direct payments are often used by recipients to fund a helper or personal assistant who can provide support that recipients need. The Attendance Allowance scheme provides cash benefits to those eligible older adults with disabilities and is not means-tested. Since 2006, over 1 million persons have received the Attendance Allowance in England. Despite tight restrictions to the larger long term care system, many older people in the U.K. who receive cash allowances are able to receive extra support and age in place (Gori, Fernadez & Wittenberg, 2016).

Japan. Long term care in Japan emphasizes home- and community-based services, in part to reduce the burden on family caregivers, most of whom are women (Kujubu, 2013). The proportion of older people in Japan being cared for in institutions is low compared to other OECD countries, with the respective rates of 3% versus 4% (OECD, 2013). This low rate is made possible by the continuum of care provided by the system, ranging from in-home services to assisted living and skilled nursing facilities. Services are coordinated by accredited case managers and include assis-

tance with household chores and activities of daily living, respite care, domiciliary care, disability equipment, assistive devices and home modification (Liu & Haseltine, 2015).

The micro-multifunctional facility was introduced in 2006 as a day care hub to provide continuous and one-stop services. Given the large number of services available, the facility is operated by multiple organizations. Each facility caters to a maximum of 25 older people who are charged a monthly fee to receive an inclusive and comprehensive package of core day care provision, together with regular and on-demand healthcare, personal care, domestic support and respite care in close conjunction with medical care. Each facility has one care coordinator responsible for individual care plan implementation and monitoring, and for supporting family carers. These facilities are often attached to community centers to provide education and training in dementia awareness and care strategies. They are considered community hubs for total care for the 'registered eligible' people and for the entire local older population. A monthly fee is charged for the services.

Prevention is another feature of long term care in Japan. In 2006, the Long Term Care Insurance (LTCI) system was revised to include a LTCI prevention project targeting people aged 65 years and older who are at high risk of needing future care or support. The system aims to improve the health and quality of life of these people, using community-based exercise as the medium of intervention. It involves three steps: detection of frail seniors, provision of the community-support program, and program evaluation. The primary goal of this prevention program was to decrease the use of more expensive services while keeping the population healthier (Fukutomi, Kimura, Wada, Okumiya & Matsubayashi, 2013). Healthy living and 'well-being' programs, often within an array of preventive education modules, were available to the wider community through micro multi-functional facility hubs. In some instances, the proposed care provision includes children's nurseries as well as after-school activity clubs attached to and incorporated into the micro-multifunctional facilities, all of which contribute to an intergenerational foci for enhancing well-being (Hayashi, 2014).

Singapore. Taking a patient-centric view to long term care, Singapore supports the notion that family is the first line of support. The frail and impaired are encouraged to be taken care of by the family at home for as long as possible, with institutionalization as the last resort. While Singapore's investment in residential care is proportionally higher compared to the U.K. and Japan, the country spends a relatively large proportion of resources in home care, supporting the policy agenda of aging at home. In 2014, the Ministry of Health pledged to increase the capacity of long term care services by increasing nursing beds by 75%, the capacity of center-based services by 121%, home care medical services by 85% and home-based personal care by 5 times (Ministry of Health, Singapore, 2014). To promote aging at home, the government plans to invest aggressively in home-based and center-based services.

The Singapore government also emphasizes caregiver support to promote aging at home. The Caregivers Training Grant, launched by the Agency for Integrated Care, offers an annual subsidy for caregivers to attend approved training courses on caring for older adults or persons with disability. A monthly Foreign Domestic Worker Grant is available for hiring a foreign domestic helper to care for the frail elderly or individuals with at least moderate disability (Ministry of Health, Singapore, 2015c). In addition to financial subsidies, a telephone hotline is available for older people and caregivers to call for assistance (Ministry of Health, Singapore, 2014). Respite care is available in nursing homes to provide temporary relief for caregivers who may need to attend to other family members and work responsibilities (Ministry of Health, Singapore, 2014).

Another focus of Singapore's long term care policy is the integration of care (Ministry of Health, Singapore, 2014). The government supports the provision of transitional care from the hospital to the community. Transitional Convalescent Facilities were established to provide lower intensity rehabilitation or transitional care for the frail and impaired after hospital discharge. Multidisciplinary teams were also established to provide transitional care

in hospitals for comprehensive discharge planning. Additionally, the government supports the provision of health and social care for the frail and impaired under one roof. Senior care centers have been developed to provide integrated eldercare facilities with social and healthcare services, such as dementia, rehabilitation and nursing care. Nursing homes will also be transformed into eldercare hubs that offer a rich portfolio of services, such as day care, home care and caregiving community services.

To enhance the quality of care, the Singapore government worked with the industry and general public to co-develop a set of Enhanced Nursing Home Standards (Nursing Home Standards Workgroup, 2014) with key clinical, social and organizational enhancements in 2014. The Ministry of Health and the Agency for Integrated Care help each nursing home identify needs and areas for improvement, and offer training and learning platforms to share best practices (Ministry of Health, 2015b). The Ministry also worked with the long term care industry to develop the Guidelines for center-based care (Centre-based Care Workgroup, 2015) and the Guidelines for home-based care (Home Care Workgroup, 2015). They articulate expected outcomes in four broad domains in these services-- provision of holistic care services; safety and quality of care; dignity of care and informed and enabling care; and organizational excellence and sustainable care.

The Singapore government also focuses on manpower planning, recruiting and training for the aged care sector. Apart from financial incentives such as scholarships, sponsorships and competitive wages, branding and marketing efforts are made to attract Singaporeans to join the nursing and allied health professions. Refresher courses and training allowances are provided to support re-entry of those who have left the practice. Funding is provided to institutions to purchase technological equipment or re-design work processes to enhance productivity of healthcare workers.

Finally, utilizing public-private partnerships when implementing long term care policy is a key strategy for the Singapore government. Voluntary welfare organizations (VWOs) provide services, while the government formulates measures for financing and regulation. The arrangement of VWOs as service providers promotes collaboration between public and private sectors and encourages voluntary community support. Most services are provided by VWOs with the remaining from the private for-profit sector. To better understand the issues faced by VWO operators and to develop innovative services, the Ministry of Health plans to operate three to four nursing homes on its own (Goy, 2014).

3.4.3 Looking Forward to Integrated Person-Centered Care

The United Kingdom. In the U.K., as the major health needs of populations change from acute episodic disease to complex chronic conditions, the structure of general practice changes. A significant percentage of GP workload relates to management of long term conditions in those aged 65 or above. Approximately 60% of older patients have more than 12 GP visits per year and require complex case management by primary care teams that include pharmacists, dentists and opticians (Thorlby, 2013). The NHS calls for the development of a new primary care model to cope with the severe strain on the health care system due to the increasing demand for general practice (NHS, 2014). To provide new funding for general practice, public education and the training of new GPs, the NHS also encourages the implementation of new models to expand the variety of services available at primary care settings as a way of horizontal integration and build better vertical linkage between the primary, secondary and tertiary care services.

A new primary care model is the Multispecialty Community Provider (MCP) vanguard. It aims at expanding the leadership of community care centers to include specialists to provide a wider scope of services for patients with complex needs. MCPs are envisioned to partner with consultants, senior nurses and other specialists to form a network to provide continuous services in a catchment area, taking over the role of its main district general hospital. In addition, Primary and Acute Care Systems (PACS) deliver vertically integrated primary and acute care systems by allowing single organizations to provide general practice and hospital services as

well as community care and mental health services. The PACS model aims to shift outpatient consultations and ambulatory care to out-of-hospital settings. Furthermore, the "enhanced health in care homes" model features a partnership between the NHS and local authority social services departments to develop new models of in-reach support that includes medical reviews, medication reviews and rehabilitation services in care home settings for the frail and impaired. Finally, urgent and emergency care networks feature a re-organization and simplification of the emergency care system to decrease the demand for accident and emergency services. Some actions include ensuring access to GPs and nurses in community sites during evenings and weekends, empowering ambulance services in decision-making, leveraging greater use of pharmacists and developing hospital networks for better referrals to specialist services.

For the integration between health and social services, recent policy developments have sought to encourage collaborations between health and social sectors. In 2004, a single assessment process was introduced for older persons across health and social care. In hospitals and acute medical units, comprehensive geriatric assessments are conducted by dedicated teams to evaluate individuals' physical and mental health and to generate individual health and social care plans and recommendations. In 2008, the Care Quality Commission was set up to regulate health and social care for safe and high quality services (Department of Health, UK, 2008). In 2009, a green paper was published to propose a radical reform of the care and support system, emphasizing coordinated work among various services and aiming for the arrangement of having one comprehensive assessment of people's care needs (HM Government, 2009). National guidelines with support for implementation were published to integrate health and social care for older people with complex conditions (NICE, 2016). Lastly, the government has established a single-pooled budget, the Better Care Fund (BCF Taskforce, 2014) , to support collaboration of health and social care services in local areas.

Japan. With rising multimorbidity rates, fiscal pressures and increasing hospital readmission rate, the Japanese government recognizes the need for a strong primary care system in the community. The ongoing revamp of the healthcare system includes the creation of a distinct and specialist primary care workforce by 2017. The aim is to provide patients with a consistent point of care over time, to tailor and co-ordinate care for those with multiple health care needs, and to support patients in self-education and self-management (OECD, 2015). For preventive care, in 2012, the Ministry of Health, Labour and Welfare announced the 2nd Healthy Japan 21 (2013-2022), a revitalized version of the national health promotion framework, Healthy Japan 21, originally launched in 2000. 2nd Healthy Japan 21 features the extension of promoting a healthy life and reducing health inequalities in Japan.

Singapore. Considering the aging population together with increasing and shifting healthcare needs, the Singapore government has proposed healthcare reform plans in order to improve healthcare services. The Healthcare 2020 Masterplan focuses on improving effectiveness and quality of care for patients, expanding capacity through building up manpower and infrastructure, as well as tapping into resources available in the private sector and enhancing healthcare financing. To enhance healthcare services, the government has invested in improving the primary care system. Initiatives include collaborating with GPs to set up Family Medicine Clinics (FMC) which provide patients with team-based care; establishing Community Health Centres to provide allied health services for patients; enhancing Medical Centres to deliver community-based services for patients in need of day surgery and outpatient specialist services; and providing additional subsidies to patients under the Community Health Assist Scheme (CHAS) to encourage them to utilize services provided by private GPs and FMCs.

A longer term and more aggressive policy action is the reorganization of the country's healthcare system. The health care system of Singapore will be reorganized into Regional Health Systems for integrated and continuous services. Each individual system in a geographical region will have an acute

general hospital working closely with community hospitals, nursing homes, home care and day rehab providers, polyclinics and private GPs. Providers in each region collaborate to provide better healthcare experiences for patients, so that they receive good care from diagnosis and treatment to post-discharge follow-up (Ministry of Health, Singapore, 2012). Also, the National Electronic Health Records (NEHR) system has been rolled out to all public healthcare institutions and six community hospitals to support the reorganization (Ministry of Health, Singapore, 2012).

For capacity building, the government pledges to invest in increasing hospital beds and training healthcare professionals. Short term solutions include tapping into the resources in the private sector, as private hospitals currently have an average bed occupancy rate of 55%. The public sector has begun renting private hospitals' spare capacity to treat subsidized patients.

The government also introduced preventive care to promote the health of the general population. The Healthy Living Master Plan (Ministry of Health, Singapore, 2014) identified major challenges to healthy living in Singapore, including a lack of a balanced diet, regular physical activity and regular health screenings as well as increasing smoking prevalence. The Plan aimed to promote healthy behaviors through building an environment conducive to healthy living, promoting a socially inclusive community and making healthy options affordable. Health promotion has shifted from awareness campaigns to modifying environmental contexts and behaviors. In addition, Health Choice (Health Promotion Board, Singapore, 2012), a practice manual for healthcare professionals, was developed to assist providers in guiding patients in changing lifestyle-related behaviors. It has been estimated that a tremendous economic return of 102 million Singapore dollars could be generated in 2020 just by investment in a obesity control strategy (World Economic Forum, 2015).

3.4.4 Health and Long Term Care Financing

The expenditure on health and social services is expected to increase as the population ages. According to the OECD (2013), the major determinants of health and long term care expenditure are age structure, health by age and income. Relative prices, technology, and health policies and institutions most likely also explain health care expenditure. Regardless, with an aging population, the cost of health and social services will increase. Governments have developed innovative ways to reform their funding arrangements for health and social care, so that public funding can be used effectively to promote the population's quality of life.

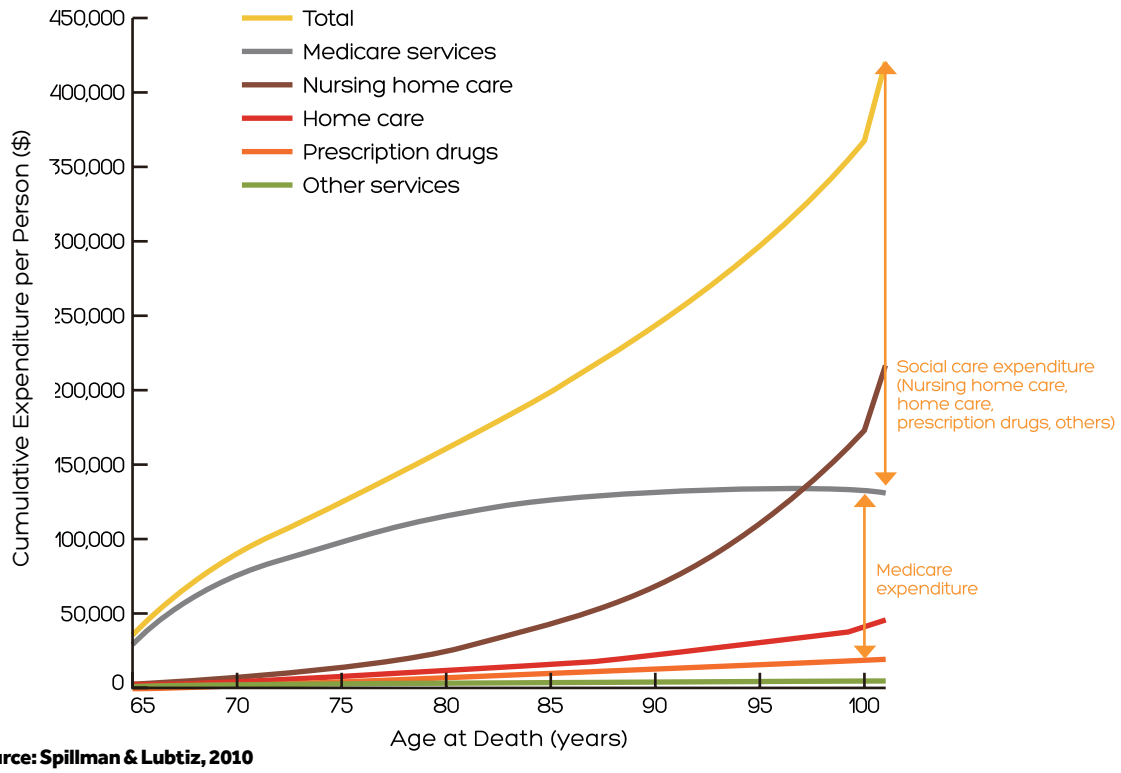
Regarding funding allocation, as the health needs of the general population shifts from acute episodic diseases to chronic conditions, resources should be invested in primary care for prevention and health maintenance so that the cost of treating complex diseases can be contained in the long run. In addition, while many believe that an aging population means greater medical burden, research has shown that as people age, expenditures on social care will exceed medical care, and in effect, the government needs to invest in resources to develop social care needed for older people to lead meaningful lives (Figure 3.4a-b).

Whether services should be universally or selectively available through means-testing has been a topic of controversy. Focus is needed on how to support the provision of the most resources to those at the bottom to relieve health inequities. In support of the latter view, diverse outcomes observed in older age are not random-- wealth, lifestyles and the external environment all have impacts on individuals' health, with people living in wealthier neighborhoods enjoying longer life expectancy (WHO, 2015; Marmot, 2010). To narrow the health gap, resources need to be allocated to those with the great need due to their financial or physical circumstances. As such, we advocate that funding for health and social care should be based on means- and needs-testing.

Sources of funding also deserve attention in systems primarily funded through general taxation. Because of rising health and social care costs, countries are examining other funding mechanisms. Some jurisdictions, including Hong Kong, have been advocating shared responsibility in which individuals' contribute to their own health and social care expenditures. Other countries, such as the United States, are heavily dependent on private insurance. All funding mechanisms have their pros and cons and decisions must be made in the context of the jurisdiction, health and social care service systems, and the socio-economic environment. Strategic planning is critical to ensure the quality, efficiency and affordability of health and social care

Figure 3.4.a

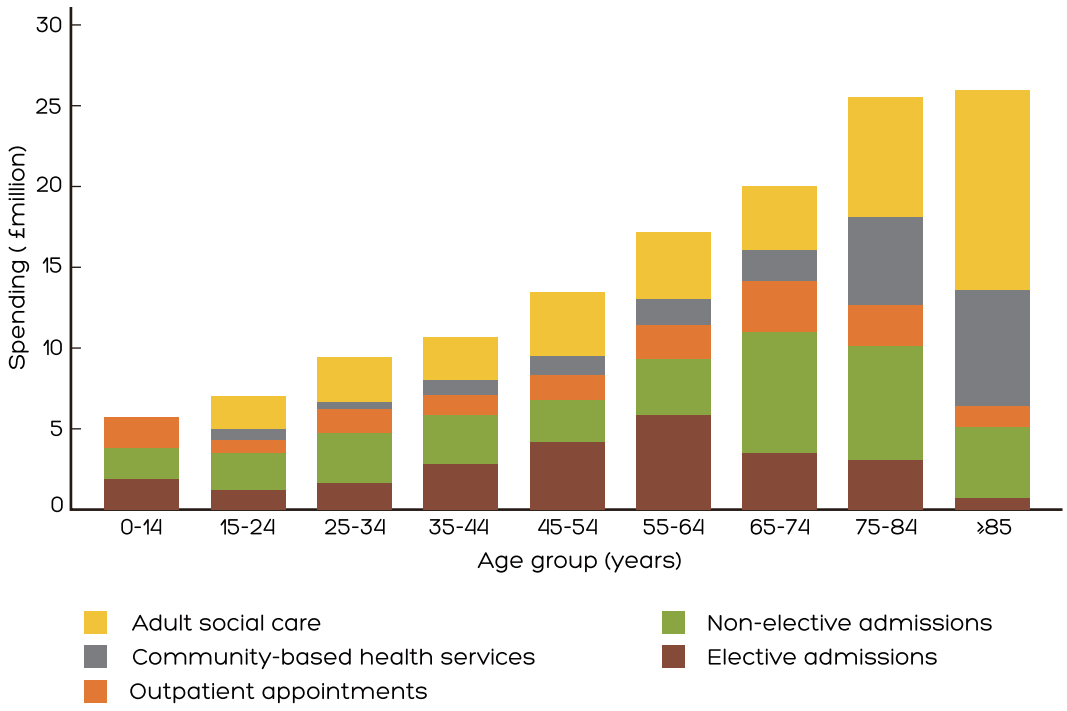
Expenditure on Medicare and Social Care Services by Age at Death



Source: Spillman & Lubtiz, 2010

Figure 3.4.b

Annual Cost of Health-care Services, by Age Group and Type of Service, Torbay (Population, 145000), England, 2010-2011



Source: Oliver, Foot& Humphries (2014)

services. The following describes healthcare and long term care financing in the U.K, Japan and Singapore.

3.4.4.1 Healthcare Financing

In terms of funding for healthcare, the U.K. adopts a universal coverage plan, Japan has a national insurance scheme, and Singapore implements an innovative savings program for healthcare where funding comes from patients' designated savings accounts. Figure 3.5 illustrates the sources of healthcare expenditure in the three countries. While most healthcare spending is from public sources in both Japan and the U.K, nearly 60% of healthcare contributions come from private funding in Singapore, which has a relatively low percentage of health care expenditure to total GDP. Another observation is the comparatively large contributions of social security funds to the public healthcare expenditure in Japan: while Japan has implemented the compulsory health insurance scheme since the early 1960s, the Singapore medical savings scheme was only introduced in the 1990s. In addition, the U.K. healthcare system is heavily funded by taxes, with its National Insurance Scheme contributing to about 17% of the public health expenditure. The following describes the healthcare funding mechanisms of these three countries in detail.

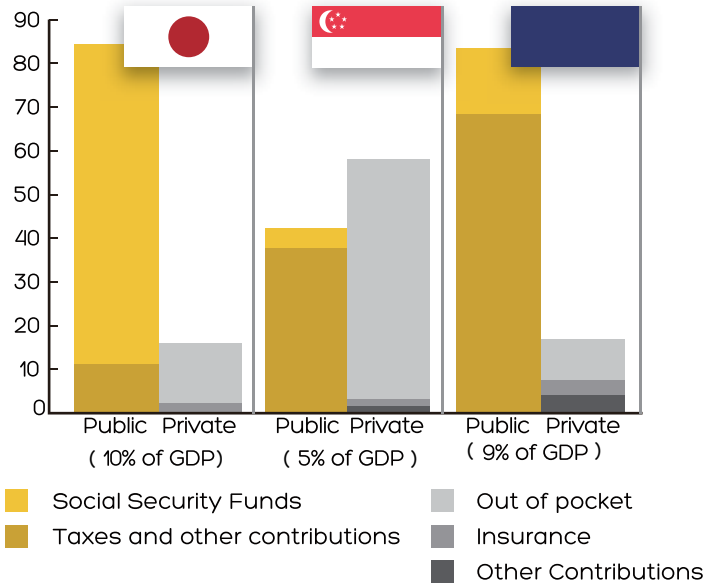
The United Kingdom. The U.K. emphasizes universal and equal access to health care. The healthcare system is primarily funded by general tax revenues with an element of national insurance contributed by both employers and employees. Funding also comes from copayments from users of private NHS services. Private health expenditures are mostly covered by out-of-pocket spending, while some people have supplementary private medical insurance. Private health insurance does not usually cover primary healthcare. Private care is covered by medical insurances, either through employment or self-funded insurance plans, or via out-of-pocket payments (Doyle & Bull, 2000).

All citizens have equal access to services provided by the NHS at all levels from primary to tertiary care. Although most NHS services are free at the point of use, nominal fees are charged for some services, such as prescription drugs, ophthalmic services and dental services. Some patients, namely minors, social welfare recipients, pregnant women and new mothers, and people with specified medical conditions, qualify for an exemption (Arora & Thorby, 2015).

Although a national wealth system funded by general taxation ensure that everyone has access to healthcare, such a system may be vulnera-

Figure 3.5

Contributions to Total Expenditures on Health Care (%)



Source: Office of Health Economics, UK (2011), WHO (2011, 2014)
Notes: Data from U.K. are based on year 2011 obtained from Office of Health Economics and WHO Global Health Expenditure Data Base (http://apps.who.int/nha/database/ViewData/Indicators/en). Data from Singapore and Japan are based on year 2014, obtained from WHO Global Health Expenditure Data Base only.

ble to underfunding (Food and Health Bureau, 2008). In view of the economic climate in England, budget cuts in healthcare spending are expected (Boyle, 2011). In this regard, the government has implemented new initiatives to manage the quality of service by introducing competition. Under the new initiative of 'Payment by Results,' healthcare providers are to be paid for the activity that they undertake, instead of receiving block grants from the government (Department of Health, UK, 2012). The government considered rewarding efficiency, supporting patient choice and encouraging providers to reduce waiting times. Another program, 'Patient Choice,' offers NHS patients a choice of at least four hospital providers for the top 14 specialties at the point of referral (Food and Health Bureau, 2008a). The arrangement encourages providers to be more responsive and improves standards through competition (Food and Health Bureau, 2008a).

The U.K. also practices the model of public-private partnerships to meet the high demand of public health care services by allowing the NHS to contract with private practices. Most private care is for specialist referrals; the NHS GP remains the point of first contact for most patients. Because the private sector now does some subcontracting work for the NHS, an NHS patient can be treated in the private sector if a partnership between the NHS and the hospital exists. Although the volume of care purchased from private providers by the NHS has increased in areas outside of mental health, NHS use of private hospitals remains low at less than 4% (Ismail, Thorlby, & Holder, 2014). As such, the private sector is still complementary to NHS care (Doyle & Bull, 2000).

Japan. Healthcare services are funded by the National Health Insurance (NHI) scheme, in which all Japanese citizens, permanent residents and non-Japanese people legally allowed to reside in Japan for three months or more are required to enroll in. The NHI covers the self employed, unemployed, employees in small businesses, and retirees (Food and Health Bureau, 2008b). The other major health insurance scheme is the Employee Health Insurance, which consists of two parts known as Kumiai and Seikan. Kumiai refers to a corporate managed program in which employees of large corporations and their dependents are provided coverage, while Seikan is a government-managed program that covers workers of small and medium-sized firms and their dependents.

Primary care is mainly funded by a complex national fee-for-service schedule, set by the government with common prices for defined services such as consultations, examinations, laboratory tests, imaging tests, and defined chronic disease management (Liu & Haseltine, 2015). Fees for different medical services are set out in the fee schedule announced by the government and revised every two years (Food and Health Bureau, 2008a). Hospital service and primary care service providers receive payment from the same set of mandatory social insurance funds. They are reimbursed through a mixture of fee-for service and a case-mix adjusted payment per each in-patient day (Liu & Haseltine, 2015).

Singapore. Singapore's healthcare financing system is based on two approaches: engraining personal responsibility to its citizens and relying on a co-payment system. The idea that health is an individual responsibility is apparent in schemes such as the ISP, which charges most Singaporeans for screenings, except for those from lower- to-middle income households and the "Pioneers" (those aged 65 and above by 2014 and obtained citizenship on or before 31 December 1986), who only have to pay GP consultation fees and are waived screening fees (Ministry of Health, Singapore, 2013). However, charges on preventive services have been criticized for deterring uptake (Lim & Tan, 2011) -- screening coverage was low for certain cancers (breast: 38% , cervical: 53% and colon: 34%) that involve unpleasant procedures and higher charges (Health Promotion Board, Singapore, 2012). To increase accessibility and coverage of ISP screenings, a 2014 enhancement allowed CHAS patients to receive fully subsidized ISP screenings at accredited GP clinics. In addition, GP consultation charges of up to $18.50 related to an ISP screening and follow-up consultations up to 2 times a year are also covered. Nevertheless, incentives are necessary to further engage older people in health screenings.

Singapore's unique healthcare financing

system integrates a medical savings account program within the national health financing structure. The system includes a three-tiered package: Medisave, Medishield and Medifund. Medisave is a national healthcare savings scheme, Medishield is a catastrophic risk pooling scheme and Medifund is a means-tested safety net for the poor. The '3Ms,' as they are known, are supported by government financing of supply side subsidies to public providers. This type of financing aims to lower the net prices charged to patients.

In addition, the Singapore government facilitates the use of the private general practitioner networks for the economically disadvantaged, those with specified chronic illnesses, and older citizens. The CHAS was introduced in 2012 to provide portable subsidies to Singaporeans from lower- to middle- income households (means-tested) and older citizens (non means-tested). The scheme subsidizes visits to a participating private clinic for acute conditions, specified chronic illnesses, specified dental procedures, and recommended health screenings. There are about 720 participating medical clinics and about 460 dental clinics (Liu & Haseltine, 2015). With the launching of the Chronic Disease Management Programme in 2006, the Ministry of Health allowed the use of Medisave to pay part of the outpatient costs, and reduce out-of-pocket payments for patients with specified chronic conditions (Ministry of Health, Singapore, 2015b).

3.4.4.2 Long Term Care Financing

Long-term care was initially excluded from the public health financing schemes, even though the financial risks for households with chronically ill patients are high (WHO, 2015b). However, as chronic conditions began to dominate the global health burden, many countries began to include long term care in their health financing schemes or set up special publicly financed schemes to cover long term care. Some countries, like Singapore, leverage public-private partnerships to finance long term care (PPP knowledge lab, 2016). Long term care insurance is an example of public-private partnership to mobilize resources in the private sector to deliver and finance public services. The long term care insurance program implemented by the Japanese government and Eldershield in Singapore are two examples. With a rapidly aging population, it is increasingly difficult for a society to meet the demand for subsidized long term care services through general taxation.

Long Term Care Insurance in Japan. Japan adopts a mandatory long term care insurance in year 2000 program to finance care for older people, independent of the healthcare financing system. Funding is raised through taxation and premiums. Service providers are dominated by the private market, enhancing market competition. Citizens aged 40 and older pay income-related premiums along with private health insurance premiums. Employers and employees pay the same amount of premium.

Premiums for those aged 65 and older, also income-based (including pensions), and set by municipalities based on estimated expenditures, are paid only by the beneficiaries. An additional copayment is charged for bed and board in institutional care; however, this is waived or reduced for low-income persons. All costs for those with means-tested social assistance are paid from local and national tax revenue (Colombo, Llena-Nozal, Mercier, & Tjadens, 2011). Service eligibility is assessed through a standardized procedure implemented by the government. Insufficient funds and high utilization costs have been identified as the key problems with this program (Food and Health Bureau, 2008a).

ElderShield in Singapore. ElderShield is a long term care insurance program that is regulated by the Singapore government but run by private insurers. ElderShield makes monthly direct cash payouts to those who have severe disability and are unable to care for themselves (Ministry of Health, Singapore, 2015b; Liu & Haseltine, 2015). Seniors and their families can choose the type of care most suitable for their needs. Singapore citizens and permanent residents with Medisave accounts are automatically enrolled in ElderShield when they reach the age of 40, and they are given the option to opt out. Policy-holders pay a yearly contribution of about 0.4% to 6.7% of their income, dependent on age of entry (Ministry of Health, Singapore, 2016). Once in the scheme, premiums do not increase as one ages. Successful claimants receive a monthly cash

payment to pay for any expenses, such as home nursing services, day rehabilitation, medical bills, household expenses or a stay in a nursing home. It appears that Singaporeans show increasing confidence in this scheme, as evidenced by the reduced opt-out rate from 38% to 14% in the first five years of the program (SCOR, 2012). Since ElderShield is a relatively new scheme and most policy holders are comparatively young, the rate of claim is low at only 8% in 2015 (States Times Review, 2016). The Singaporean government is closely monitoring the performance of the scheme.

Long Term Care Funding in England. As nearly 83% of the U.K.'s older population resides in England, England accounts for most of the long term care service use and expenditure (OECD, 2011). Individual responsibility and government funding are key elements in the funding of care. Publicly-funded long term care in England is subject to means-testing. It is delivered by local authorities, who decide how the finite amount they receive from the Government for long term care services should be distributed. Funding is received through local council taxation and user charges for social care services The cost of user charges depends on the financial means of an individual. Currently, those with capital and savings between £14,250 to £23,250 are eligible to receive financial state support, depending on their income and level of need. However, with the Care Act of 2014, funding for social care, including the means-testing criteria, has been changed. Under this Act, by April 2020, the means-test criteria will be changed to a lower limit of £17,000 and an upper limit of £118,000. Qualified individuals will receive social care financial support according to a sliding scale. In addition, a lifetime cap of £72,000 on care costs will be set for care recipients who receive care in a care home or their own home. It does not include hotel costs or bed and board costs for a care home, which has a separate cap of £12,000 per year (AgeUK, 2015).

3.4.4.3 Vouchers as a Funding Mechanism

A voucher system provides subsidies to eligible recipients to trade a voucher in return for specific goods or services. Its principal advantages are the freedom of choice of providers entitled to the recipient, its targeting ability, and its relatively simple administrative process (The World Bank, 2005).

The objectives of voucher programs vary across regions. In low and middle income regions with weak public health systems, the major initiative of a voucher program is to benefit vulnerable groups and enhance the capacity of private providers. It can be perceived as a policy for filling health service gaps and supporting private service providers.

In high income regions, vouchers can be used to empower recipients by providing more options rather than relying solely on direct public provision, thus supporting patient-centered care and decision-making. Voucher programs are feasible in developed regions because of the relatively high health literacy of patients and the availability of a relatively comprehensive system for patients to choose health and social services to suit their needs. In addition to meeting needs, providing direct subsidy to consumers is expected to increase service quality by introducing competition. Some advocates of voucher programs argue that a health care voucher is a tool to contain medical cost via greater consumer cost sharing. By putting a standard subsidized voucher amount, consumers will need to share the cost of services, thus possibly limiting their use of services and increasing their sensitivity to price differences.

Long term care voucher programs have been implemented in Nordic countries, where voucher holders can buy services to support themselves at home or in institutional settings from accredited providers. Recently, the U.S. has adopted long term care vouchers to encourage the use of personal assistance services (Meng, Friedman, Wamlesy, Mukamel & Eggert, 2005). Although voucher programs can improve the quality of care and contain costs, their adoption in Finland, Denmark, Sweden and the U.S. has been low, undermining their potential positive impacts (Marczak & Wistow, 2016).

A voucher program is generally favored by advocates of a free market economy because it leaves recipients with greater freedom to choose healthcare providers (Colombo, Llena-Nozal, Merci-

er, & Tjadens , 2011). However, some health economists argue that because of failures of the health care market, such as information asymmetry and moral hazard, the choices to patients should be restricted, which is what the public healthcare sector often does. In this regard, the efficiency and effectiveness of voucher programs depends on the extent to which the market for the services subsidized by vouchers is competitive. In other words, to ensure the cost-effectiveness of the investment in a voucher program, the market has to fulfill some preconditions, including a large number of suppliers, individuals' strong incentive to shop aggressively for services, individuals' good information about suppliers, and/or services that are relatively inexpensive and frequently purchased so that users can learn about them by experience.

The HKSAR government is employing voucher services as a funding mechanism to bridge the private and public health sectors. Hong Kong is piloting phase two of the Community Day Care Voucher Services and planning to launch the first phase of residential care voucher services. Chapter 4 will discuss the use of vouchers as a funding mechanism in Hong Kong. Chapter 5 will discuss facilities essential to make voucher services an effective financial tool to improve the health of the population.

3.5
Social Security

The U.K., Japan and Singapore all have pension systems that are contribution-based, meaning that they are funded by a mixture of contributions from individuals, the government and employers. To be eligible to receive pension in old age, individuals living in the U.K., Japan and Singapore will need to contribute while they are in the workforce.

The United Kingdom. U.K. pensions can be saved in three ways. The three basic pillars of U.K. social security for retirees are state pensions, supplementary state and private pension funds. The pensions are provided by the state and funded by a mixture of contributions from employees, employers, and the government (Napier & Spencer, 2013). All workers, employees and self-employed people living in the U.K. have to contribute to the National Insurance Fund (NIF) as long as they have a certain minimum income. There are different classes of contribution in the NIF, depending on employment status, income level, and whether there are any gaps in NIF records. Contributions can be adjusted annually and are automatically deducted from an employee's salary. They are used, among other things, to finance U.K. pensions that are provided by the state.

The current pension age is 65 for men and 60 for women; however, it is expected to rise to 68 in the coming years (Napier & Spencer, 2013). Previously, the U.K. public pension system is a two-tier one, with a basic plan and an earnings-related supplementary plan (Napier & Spencer, 2013). Employees can choose to opt out of the supplementary plan and establish contracted-out occupational pension plans (OECD, 2008). The newly introduced pension system in 2016 is single-tier; it combines the basic and supplementary plans, with a flat-rate pension set above the basic level of means-tested support for pensioners (Crawford, Keynes & Tetlow, 2013). The full State Pension amount is currently £155.65 per week and is payable provided that 35 qualifying years of NIF contributions have been made (Napier & Spencer, 2013). For older people with a low income and without an NIF account, they will receive means-tested universal-credits.

The State Pension system is complemented by a private pension fund offered by employers. From October 2012, the U.K. began to roll out an automatic enrollment program into workplace pensions. Employers are required to enroll all eligible job-holders aged between 22 and state pension age into a workplace pension (Napier & Spencer, 2013).

Japan. The pension system in Japan is one of the only social insurance systems of the country that all registered residents of Japan are required to enroll in (Japan Pension Service, 2016). The pension includes a flat-rate National Pension System and an employment-related pension insurance system for public and private sector employees (Japan Pension Service, 2016). There is also public assistance for older people who live in low income households which is independent of the social insurance system (Inoguchi & Purendra, 2011).

All persons aged 20 to 59 years with an address in Japan participate in the National Pension, a public pension system that provides "Basic Pension" benefits for old age, disability or death. If qualified, people aged 65 and above will receive "Old-age Ba-

sic Pension" or apply for "Early Payment" or "Delayed Payment" as appropriate.

The Employees' Pension Insurance System is earnings-related, purchased for each business entity. Business owners share the cost of premiums with their employees and must pay premiums and purchase policies for their employees. Salaried employees whose income exceeds a certain level must participate in this plan (Inoguchi & Purendra, 2011). Contributions vary based on the field of employment, but the range is between 13.58% to 14.96%, with a maximum monthly income of ¥ 1,500,00 subject to such contribution. If qualified, employees can receive the specially-provided Old-age Employees' Pension from the pensionable age (currently, age 60) to age 65.

Singapore. All working Singaporeans and their employers are required to make monthly contributions to a compulsory savings scheme called the Central Provident Fund (CPF), a public pension system similar to the Mandatory Provident Fund of Hong Kong. In addition, some categories of civil servants enjoy the Government Pension Scheme, and certain categories of armed forces personnel enjoy the Savings and Employees scheme. The Supplementary Retirement Scheme, a voluntary private pension scheme without employer involvement, completes Singapore's pension landscape.

The CPF includes three accounts: Ordinary Account (OA) for housing, CPF insurance payments, investment and education; Special Account (SA) for old age and investment; and Medisave Account (MA) for hospitalization and medical insurance. After age 55, a Retirement Account (RA) will be created using the savings in OA and SA to meet basic needs in old age. Moreover, the CPF LIFE Scheme helps participants convert their savings in the Retirement Account into annuities so that they can receive a monthly payout after retirement. The CPF savings earn a minimum risk-free interest of 2.5% guaranteed by the Government. To encourage enterprises to hire older workers, the contributions for both employees and employers to the CPF decrease with age.

Singapore does not have social risk pooling and redistribution, nor a comprehensive social security system. Individuals rely exclusively on defined contribution funds accumulating in individual CPF accounts. There is a call for greater redistribution and risk-pooling to finance retirement expenditure (Asher & Bali, 2014).

3.6 Conclusions

Population aging is a global phenomenon, and various countries are actively adopting different strategies to respond to it this demographic transition. Following WHO's Healthy Aging framework, this chapter reviewed the age-enabling policies, healthcare policies, long term care policies and mechanisms for financing these policies in the U.K., Japan and Singapore. The following summarizes key concepts and the implications for Hong Kong:

Collaborative governance and Age-enabling Policies. Aging policies within each of these countries are based on coordinated governmental efforts to place aging at the forefront of policymaking. However, as one of the first countries to introduce coordinated aging policies as early as 1995 with its Basic Law on Measures for Aging Society, Japan was forward-thinking in developing and implementing aging policies across government, business and civil society sectors. Promotion of healthy aging across sectors heightens society's awareness of the needs of the older population, thus effectively creating a paradigm shift to advance the celebration of aging. While the U.K. has only recently been active in promoting age-enabling policies and initiatives, their success so far shows that it is not too late for countries to begin active efforts. Coordination between the government, business sector and civil society in these countries can be a useful reference for how Hong Kong can become an age-friendly city.

Engagement and collaboration are key elements that the government can consider to enable the building of an age-enabling environment. Hong Kong can benefit from engaging the general public, especially the older generation, in the formulation of age-enabling policies (WHO, 2015a). The community and older people themselves may take ownership in designing aging-related policies, and the government can adopt a participatory approach in the formulation of age-enabling policies. Based on the U.K. experiences of the Toilet Map project, collaborating across disciplines to develop innovative services for older people can help revitalize the image of the aged community. For example, when designing social services for older people, collaborations with specialists from various universities in design and architecture schools or geography departments, in addition to specialists in social work and healthcare disciplines, would be helpful. Multi-disciplinary knowledge is needed for establishing an age-enabling society.

Social Institutions and Social Capital . The U.K., Japan and Singapore have taken active measures to extend the traditional retirement age. As employment of older workers can reap economic benefits amidst a declining younger workforce, policies to extend the retirement age and/or incentivize entrepreneurial work in older age can contribute to the economic sustainability of an aging society. Socio-economically, Hong Kong has particularly low labor participation rate (7.2%), compared with the rest of Asia and the world. Comparatively speaking, both Japan and Singapore have higher labor participation rates (Japan: 21% ; Singapore: 25.4%). The common ingredient is the proactive stance taken by their governments to work with employers to remove barriers in recruiting older workers, investing in training, and adapting job and workplace design for older workers. Hong Kong's Labor Department disseminates guidelines on best practices for eliminating discrimination for employers to follow on a

voluntary basis. As the Hong Kong government plans to promote the participation of older people in the labor market, these enabling factors could be considered.

Considering the long life expectancy of older people and low fertility rate in Hong Kong, policies that support intergenerational caregiving programs have been considered. In fact, Hong Kong provides housing priority for those who live with their parents (See Chapter 4). Society needs more innovative solutions to conceptualize intergenerational caregiving from a broader perspective. First, based on the experiences of Japan, intergenerational caregiving can be bi-directional and the younger generation can benefit from the older generation. Second, intergenerational caregiving does not necessarily need to be confined within family structures. Appropriate supportive policies can be used to promote mutual care across generations outside of the family.

Urban Design and Aging Technology. Hong Kong is seeking to improve its accessibility and urban layout, as evidenced by measures to improve wheelchair accessibility. Much of the current inaccessibility may be due to Hong Kong's unique geography and high density, distinct from more expansive countries like the U.K. Nevertheless, initiatives for redesigning homes and public facilities with retrofitted hand rails, ramps and other assistive infrastructures can affect whether older people feel comfortable or have the ability to function in their own personal living space and community. The government may benefit from creating a taskforce to enhance senior housing with retrofitted items.

In Hong Kong, evidence-based research is encouraging the development and use of innovative aging technology. Telecare services could be improved and marketed more effectively to the older population so that they can benefit from convenient services like telehealth doctor appointments and fall prevention sensors. Development of these tele- services requires collaboration across the government, the business sector and the civil society. In order to get more stakeholders involved, a culture for socially innovative technology systems needs to be bred. To accomplish this, the government can provide funding for technological projects with the objective of improving the lives of subpopulations. In addition, cross-collaboration with universities and the business sector in technology research and development needs to be mutual.

Health and Long Term Care Policy. Hong Kong can learn from the strong primary care healthcare services of the U.K. and develop innovative solutions to strengthen its own primary care system. Although Hong Kong has an efficient healthcare system, it focuses on prolonging lives but not improving the quality of life. To promote the health of older people, preventive care and health promotion are two essential targets. To minimize future morbidity, England and Japan adopt population-based preventive care while Singapore uses community-wide public health measures coupled with supporting healthcare professionals to provide lifestyle advice for patients at risk for chronic conditions. Hong Kong has been taking an opportunistic approach towards preventive care and offering limited screening services. Strengthening primary care is one way to promote preventive care for the aging population of Hong Kong.

Long term care service provision must strike a right balance between home care and institutionalized care. A needs-test approach can be used to avoid underutilization of resources and to provide services to frail adults as necessary. Long term care delivery by the government is a common approach in the U.K., Japan and Singapore; however, NGOs and private enterprises are also involved in the implementation of care services. Also, it is important for the older population to be encouraged to take responsibility for their health by maintaining healthy lifestyles. Approaches in the U.K. and Singapore can be useful references as examples of ways to encourage individuals to take ownership of their long term health. In addition, it is crucial that home care includes the provision of proper support, training and counseling to caregivers to relieve their physical or mental burden, thus benefitting caregivers and care recipients.

Integrative care is another component to consider in policies for improving the health of older people. In the U.K. and Japan, integrative care is delivered through combining health and social sec-

tors under one governance. While having a single agency to oversee the health and social sectors can enhance collaboration and integration, other elements such as comprehensive assessment and discharge planning, shared values, case management, communication and multi-disciplinary care are also important. These key elements of integrated care should be considered in the development of an integrated services delivery model for Hong Kong.

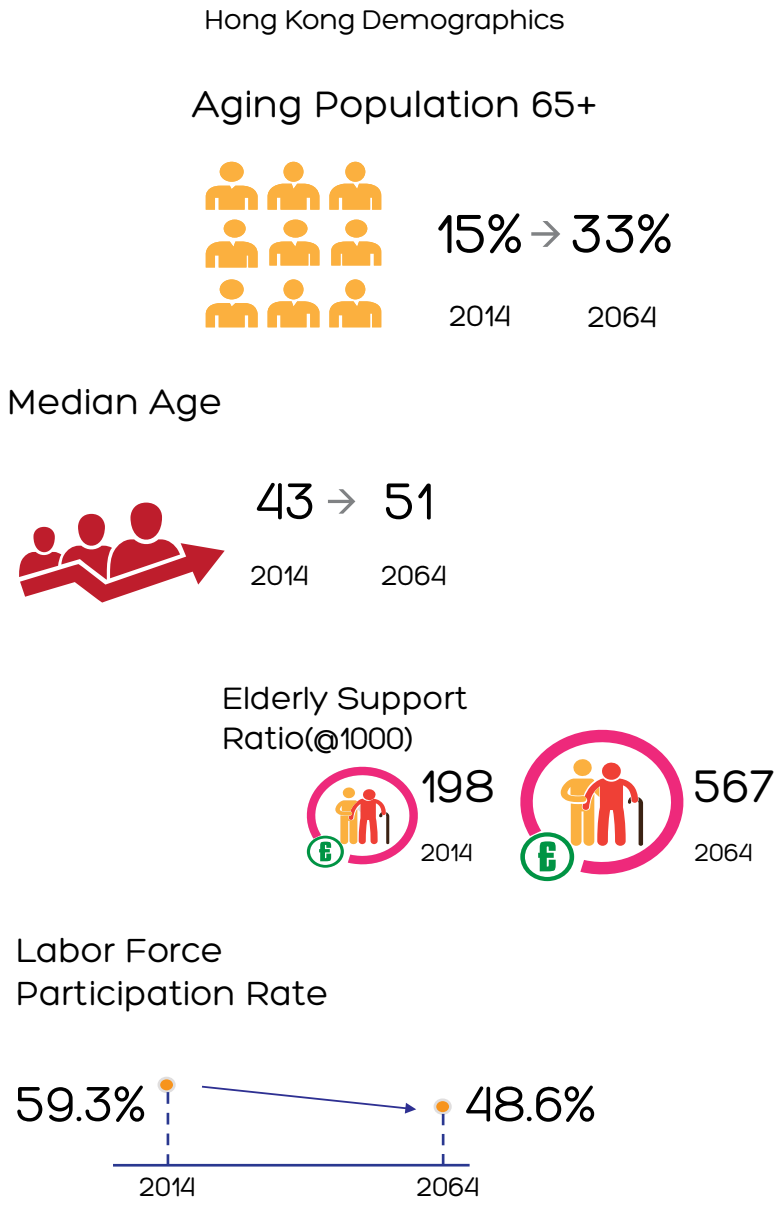
Health and Long Term Care Financing. Methods for financing health and long term care can be largely based on cultural norms and acceptance of certain practices. Whereas U.K.'s healthcare system is primarily publicly-funded care through general taxation, Singapore's healthcare system is a national financing framework based on individual responsibility and supported by government subsidies. The U.K. example shows how universal coverage may lead to problems of underfunding for care, possibly resulting in lower quality of care. In addition, its means-test approach to long term care may lead to many older people in need of care falling through the cracks. In comparison, Singapore's healthcare for seniors is ensured through significant government subsidies. ElderShield in Singapore, an insurance scheme to cover severe disabilities especially in old age, is a rather successful example. It shows that a well thought-out subsidized long term care model can be effective for those who need care and a good investment for both the government and the relevant stakeholders.

New ways of mobilizing resources, such as manpower shifting and refinancing methods, to provide additional support to health and long term care have been used worldwide with different degrees of success. In Hong Kong, healthcare vouchers for older people have been used for some time and the voucher system is to be extended to cover long term care. On the other hand, recent public consultation to introduce private insurance (the Voluntary Health Insurance Scheme) in healthcare financing has not been met with warm reception and was put on hold. The mixed feedback on the voucher system indicates a need to reform the current system. Also, innovations are needed to broaden revenue sources for health care and long term care, and to make sure that the solutions are acceptable to the general public.

Chapter 4:
Aging in Hong Kong

The population of Hong Kong is aging fast, with longer life expectancy and lower fertility rate. According to projections by the Census and Statistics Department in 2015, the median age of the Hong Kong population will reach 51 years by 2064. By 2064, two working adults may be supporting one older people. An aging population could also mean a shrinking population. Hong Kong labor force participation rate peaked in 2015, and is on a steady declining rate (Figure 4.1). Such a shrinking labor force, if not accompanied by adjustments in public policy, may mean slower economic growth and increasing health and social care expenditure.

Figure 4.1



Source: Census and Statistics Department (2015a)

4.1 Implications of Aging in Hong Kong

The challenges of such an unprecedented change in the population structure requires the society to consider transformations in our socio-economic policies and systems to meet the new demands of the demographic transition. If no actions are taken to bring changes to the city, the economy will stop growing and the health and social expenditures will skyrocket. This chapter presents the various projected aging-related costs. We will review studies conducted to understand the economic, health and social care implications of having an aging population in Hong Kong. Scenarios are simulated to understand the potential costs associated with aging in the current policy environment

4.1.1 Projected Economic Cost

The International Monetary Fund estimated that the real GDP and real GDP per capita would decrease by 21% and 10% respectively by 2050 if no policy actions were taken in response to the changing population dynamics (Leigh, 2006). Increasing labor productivity through importing young skilled labor and raising retirement age can ameliorate the negative impact by almost half in the real GDP; however, these measures alone cannot fully offset the situation (Leigh, 2006). The study further estimates the healthcare expenditure of Hong Kong assuming the government to be the main provider of healthcare services. Even with an increase in labor productivity, age-related healthcare spending is projected to increase to 6% of GDP in 2050, which is 1% higher than that in 2005. Results of this simulation study suggest that a comprehensive policy plan is necessary to change the social, political and physical infrastructure of Hong Kong to prevent the projected impact on the economy. Merely raising the retirement age and importing skilled labor will be insufficient. We need to consider innovative policies to increase labor productivity and greater participation of the older workforce. It will also be important to improve the health of the population by reducing disability and engaging and enabling older people to participate and contribute to the society.

4.1.2 Projected Long Term Care Cost

A projection study on long term care cost suggests that if our society continues to see institutionalization as the main source of caregiving to the frail and impaired with the government being the major tender of services, long term care spending could be as high as almost 5% of the city's GDP by 2036, which tops all OECD countries (Chung, et al., 2009). These findings reinforce an urgent need to operationalize the paradigm of aging in place and to use innovative ways to finance Hong Kong's long term care system.

4.1.3 Projected Health Cost

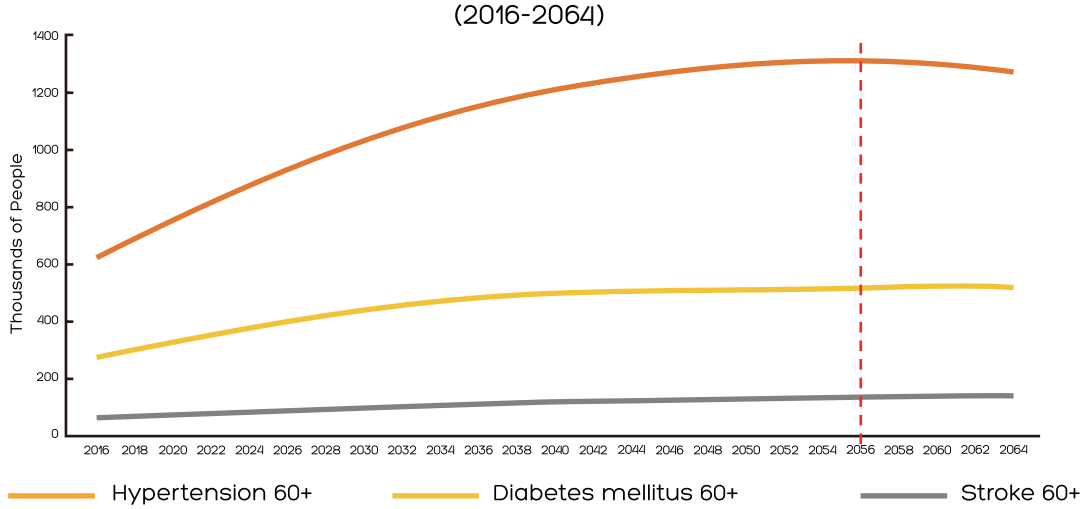
Maintaining the health, preventing disease and reducing disability of the general population is crucial in decreasing health and long term care cost. Using the data on population projection in 2015 and the prevalence rate of older people with various types of chronic diseases in 2013 published by the Census and Statistics Department, we estimated the number of people with three different types of the more common chronic disease between 2016 and 2064. Figure 4.2 illustrates the estimated number of people over 60 years old with hypertension, diabetes mellitus and stroke. The number of older people with different types of chronic disease will

continue to rise until 2056. Because of a decline in the number of older people, the prevalence of hypertension and diabetes mellitus will start slowing down in 2040 and eventually decrease. The number of people having stroke tends to plateau after 2030.

The rise in the number of people with hypertension, diabetes and stroke will inevitably increase health and social care costs. Figure 4.3 shows the estimated total cost of treating these three types of diseases. The estimated cost of all three kinds of disease will increase by more than 2 fold by 2056, if nothing is done to prevent the prevalence of these diseases. The costs are approximate for hypertension and diabetes based on the cost of providing care for these conditions in the Hospital Authority (HA) based outpatient clinics for relatively stable conditions and does not include costs of subsequent progression of diseases nor complications that may result from uncontrollable disease.

Figure 4.2

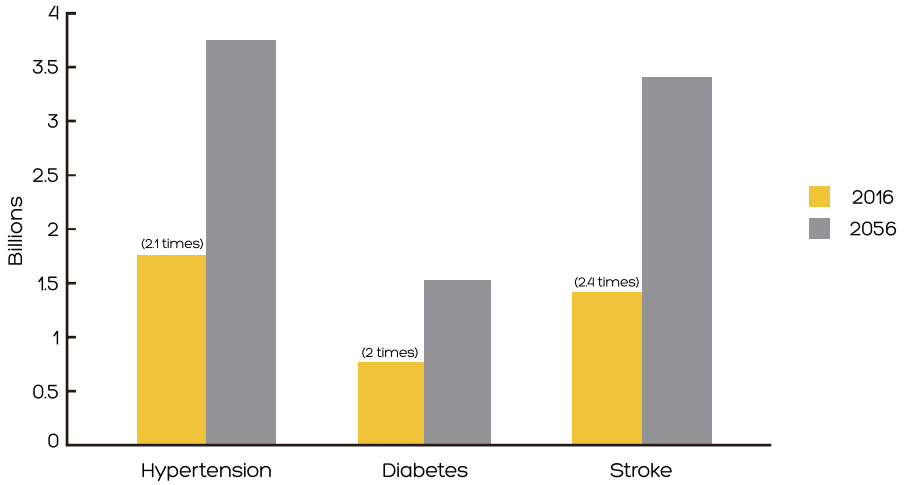
Estimated Number of People with Various Types of Chronic Disease (2016-2064)



Data Source: Census and Statistics Department (2013); Our Hong Kong Foundation
Note: The estimation is done by multiplying the age-specific prevalence rates of the selected chronic diseases in 2013 to the projected population in the respective age groups, then taking a summation.

Figure 4.3

Estimated Cost of Different Types of Chronic Disease (2016 v.s. 2056)



Data Source: Census and Statistics Department (2013); Our Hong Kong Foundation
Note: Cost of treating hypertension and diabetes: Information obtained from the Hospital Authority GOPC-PPP program, which provides a total of HK$3,034 per year per patient to visit a selected general practitioner for the management of hypertension. The cost of HK$3,034 is then multiplied by the projected prevalence of hypertension in 2016 and 2056 to deduce the cost of treating hypertension. The projected cost of diabetes is calculated similarly using the same cost figure of HK$3,034.
Cost of treating stroke (Direct Medical Services): Information obtained from a research published by Cadenza (Yu et al., 2012). The estimated direct medical care cost amounts to about HK$27,500 per year per patient in 2016 dollars (Yu et al., 2012). This cost is then multiplied by the projected prevalence of people having stroke in 2016 and 2056.

4.2 Older People in Hong Kong

Knowledge about several aspects of older people's lives and functioning are particularly important for policy making. This section will present current knowledge about the health, socio-economic status, residence, social participation, intergenerational solidarity, and technological literacy of older people in Hong Kong.

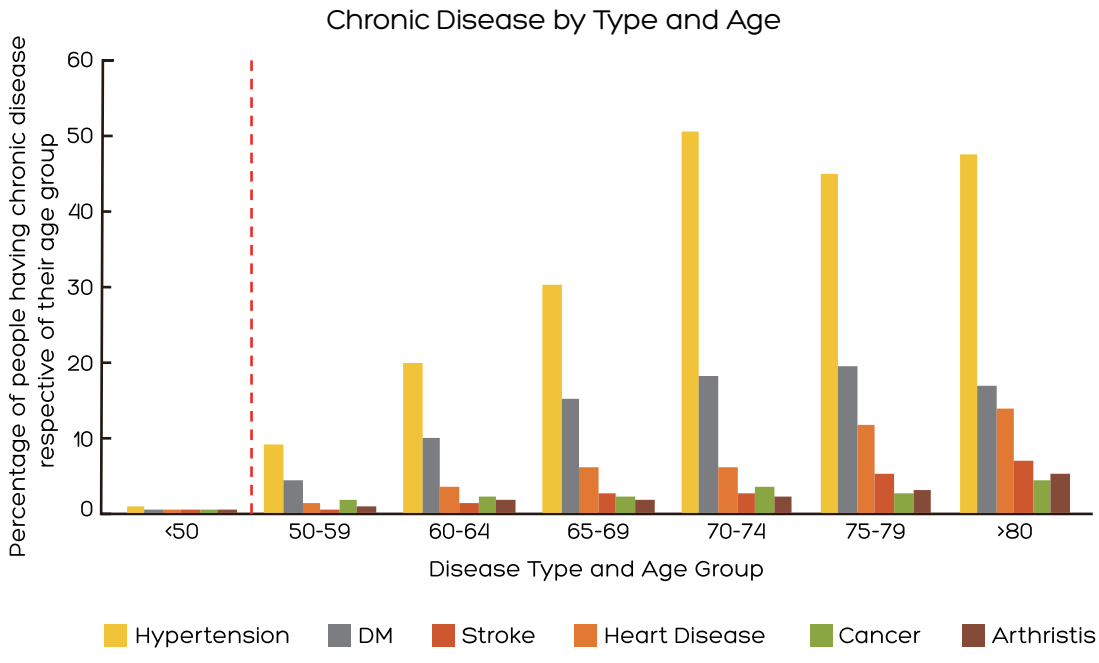
4.2.1 Are We Healthy Enough to Combat Aging?

Physical Health. In Hong Kong, 19.2% of the total population suffers from a chronic disease (Census and Statistics Department, 2015b). Of this subpopulation, 52% of those aged 60 and 76% of those aged 70 or over suffer from one or more chronic condition, including hypertension, diabetes, heart diseases, stroke, cancer and arthritis (Census and Statistics Department, 2014b).

Figure 4.4 shows that hypertension and diabetes are the two most prevalent diseases followed by heart diseases. What is more significant is the sharp increase in the percentage of people having various types of chronic disease after 50 years old, and another jump in hypertension as the population reaches 70 years old.

Figure 4.5 also demonstrates the sharp increase in the rate of people with at least one type of chronic disease when the population reaches 45 years old. Those below 25 years old have a steady rate of approximately 10%, and the numbers start increasing among those between 25 and 45 years old.

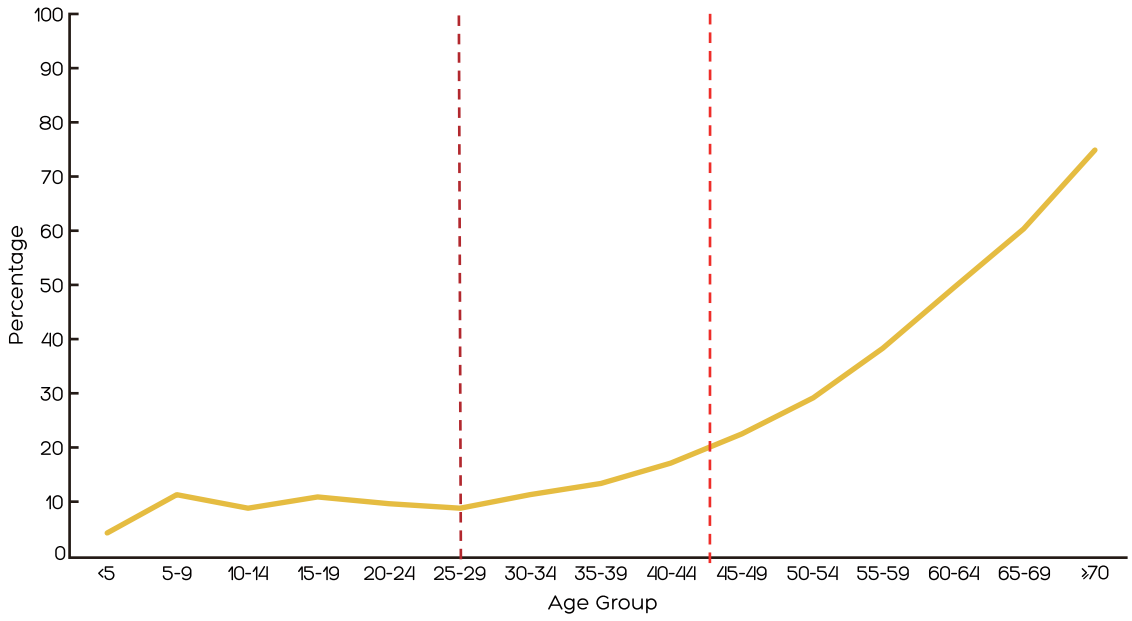
Figure 4.4



Data Source: Census and Statistics Department (2013); Our Hong Kong Foundation

Figure 4.5

Percentage of people of having at least 1 chronic conditions



Data Source: Census and Statistics Department (2013)

A recent study conducted by the Chinese University of Hong Kong on the social determinants of multimorbidity showed that those aged between 45 and 64 years are 6 times more likely to have multimorbidity compared to those aged between 15 to 24 years (Chung et al., 2015). In addition, health inequality exists. Those earning less than HK$14,000 per month are more likely to have more chronic diseases (Chung et al., 2015).

The findings suggest that preventive measures need to be taken earlier and certainly before 45 years old to lower the prevalence of chronic disease. In fact, the window between 25 and 45 years old may be an approximate time period to prevent the occurrence of chronic diseases in later life. Chronic disease management programs need to launch as early as 45 years old to prevent the further progression of diseases, especially for hypertension and diabetes. Furthermore, to narrow the health gap between different socio-economic groups, healthcare policy needs to ensure that everyone, especially the more vulnerable members of the community, have access to appropriate healthcare services.

Box 4.1

Health Literacy of People in Hong Kong

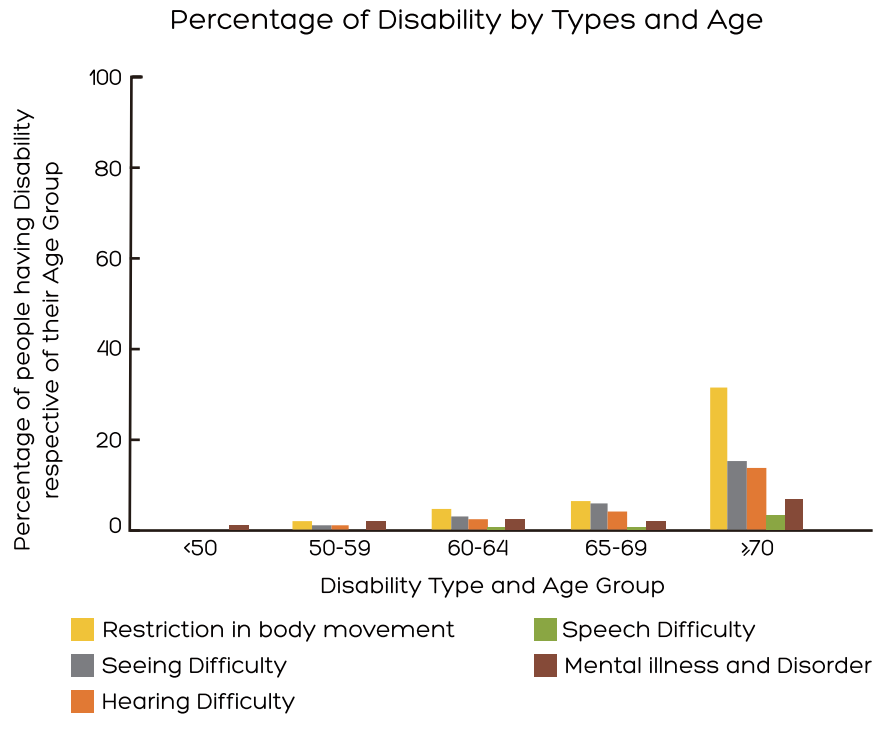
Health literacy plays an important role in preventive care and chronic disease management. People who are aware of their health status, have knowledge about the services available and are empowered in managing their own chronic disease are more likely to have better health outcomes. However, earlier research conducted by the Chinese University of Hong Kong showed that health literacy is inadequate among the general public of Hong Kong (Woo, Chau, & Mak, 2012). Survey results on 2,694 people showed inadequate health knowledge, such as poor awareness on health services available, lack of confidence in coping with chronic disease, poor awareness of environment risk for older people, unrealistic expectations of medical technology in prolonging life, and poor awareness regarding end-of-life issues. Results suggested that community education and public health programs are necessary to increase health knowledge, so that people will be equipped with adequate information to make smart health choices.

Another chronic disease, which has become increasingly prevalent in older age, is dementia in the community. Dementia, a disease in which there is gradual deterioration of a person's cognitive functions, has no known cure and its prevalence increases with age (Yu, et al., 2012). Among community-dwelling people aged 60 and above in Hong Kong, nearly 1.1 percent live with dementia and the prevalence rate is expected to increase by twofold by 2036 (Yu, et al., 2012) .Within residential elder care institutions, nearly 31 percent of people aged 60 and above suffered from dementia (Yu, et al., 2012). Furthermore, the percentage of people with dementia doubled every five years in age groups up to the age of 90 (Yu, et al., 2012). Recognizing this, dementia supplemental services have been added to residential care services and some day care centers provide dementia-related services. In addition, the government pledges to provide services for older people with dementia to prevent further deterioration of functioning, such as medical-social collaborative services at local DECC for older people with mild or moderate dementia (Policy Address, 2016).

Functional Health and Disability. Functional health refers to older people's ability to manage daily activities related to mobility and self-maintenance. It largely depends on whether the external environment supports independence (Collier, 2005; WHO, 2015a). Presence of a disability can prevent older people from performing daily tasks independently and participating in activities they enjoy, thus affecting their functional health. However, depending on the external environment older people are situated in, their disability does not necessarily result in poor functional health. For example, an older person with moderate level of disability can still enjoy a high level of functional health if the person lives in a home which is designed or adapted to enable better and more age-friendly environment equipped with disable toilets and infrastructures that promote wheelchair accessibility. As such, the decline of functional ability also varies from one person to the other, depending on environmental factors (Morris J. N., Berg, Fries, Steel, & Howard, 2013; WHO, 2015a).

According to the Census and Statistics Department, nearly 42.6% of local people aged 70 years or over live with one type of physical disability (Census and Statistics Department, 2014). As illustrated in Figure 4.6, the data show that disability among older people in Hong Kong tends to be age-related. A significantly higher percentage of older people aged 70 years or above suffer from various types of disability compared to those who are between 60 to 70 years old (Census and Statistics Department, 2014b).

Figure 4.6



Data Source: Census and Statistics Department (2014)

Mental Health. The mental health of older people is poorer than their younger counterparts, with 7.3% of older people over 70 years old suffering from mental illness or mood disorder, compared to 2.8% and 2.9% of those between 60 and 64 years old and 65 to 69 years old, respectively. Depression, in particular, is associated with significant morbidity among older people in Hong Kong, especially for those with other chronic conditions (Tam, 2011). Deteriorating physical health is shown to be associated with greater risk of committing suicide among older people aged 60 or above (Yip, Chi, & Chui, 2002). Those who suffer from constipation are 30 times more likely to commit suicide, whereas those who live with pain and cancer are 24 times and 9 times more likely, respectively (Yip, Chi, & Chui, 2002). Those aged 60 or above with multiple diseases are 2 times more likely to commit suicide (Yip, Chi, & Chui, 2002). These studies suggest that the mental health of older people are associated with their physical status and perhaps functional health. When health professionals work with older people, a person-centered approach may be necessary to tackle their multiple and related health issues.

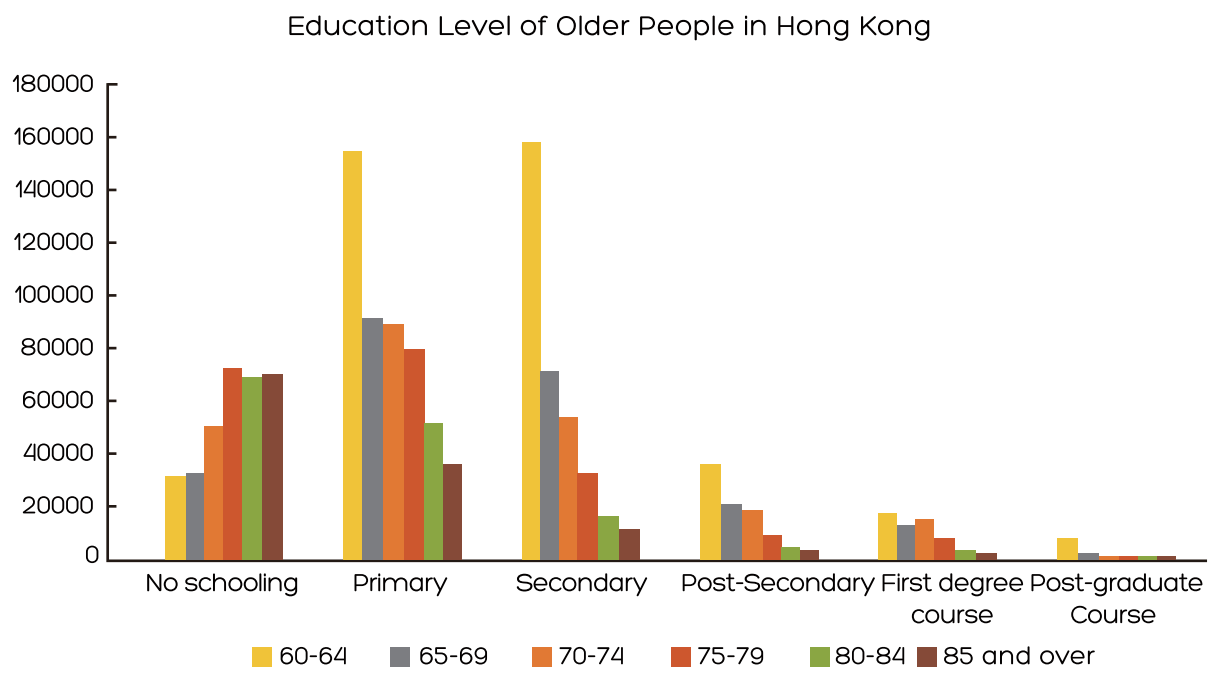
4.2.2 Socio-Economic Status of Older People in Hong Kong

The economic growth experienced by Hong Kong after the second world war contributed to the rise of education level of the cohorts of older people born in the post-war period. As illustrated in Figure 4.7a, there is a larger proportion of "young old" (i.e., aged 60-64) having higher level of education compared to their older counterparts. The rise in education level of the "young old" is an indication of the abundant human capital embedded in society. For employment status, 63.3% of people aged 50-59 are engaged in paid work, compared to 27.9% of those in their 60s and 5.1% of those in their 70s (Census and Statistics Department, 2011). Although labor participation rate decreases as the population ages, it does not necessarily mean that the productivity of the society will be on a decline. Policies that offer a platform to transfer resources from the educated and experienced older generations to the younger generations can help the society unleash the human capital among the older people, especially for those who are not already economically active.

Despite the rising socio-economic status of "younger old", poverty among older people has been a growing concern in Hong Kong. The median monthly income of working population aged 60 and above ranges from HK$8,000 to HK$10,000, and only one third of them earn over HK$15,000, (Figure 4.7b). Moreover, the poverty rate of all older people in Hong Kong is 30.1% compared to 10.2% of people aged between 18 and 64 years old (Census and Statistics Department, 2011) . Older people who had retired and lost their source of income may experience downward social mobility and economic hardships if they have limited assets and savings.

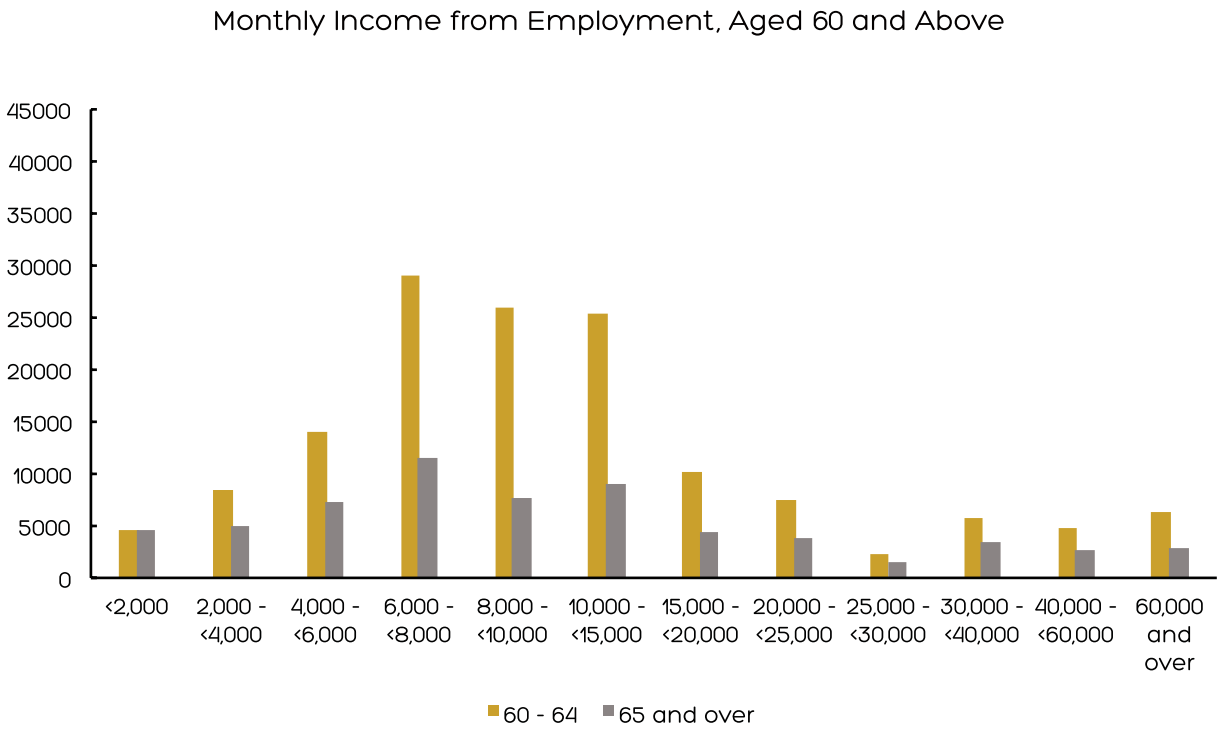
Policy intervention is necessary to pull these older people out of poverty and to prevent the future older population from having to suffer these hardships. Existing interventions focus on cash handouts, offering different amounts of cash allowances to older people according to their income and asset. Currently, 97.5% of the older people living in poverty in Hong Kong receive at least one type of cash benefits from the government. Details of various social security schemes will be discussed in a later section. In addition to providing older people with direct cash allowances, the government can also strengthen labor policies to make older people stay economically active for as long as possible. Reverse mortgage and silver bonds are existing policy measures enacted to help middle-class older people to be self-sustainable after retirement. Current policy interventions to prepare for the economic need of the future aging society includes the Mandatory Provident Fund.

Figure 4.7.a



Data Source: Census and Statistics Department (2011)

Figure 4.7.b



Data Source: Census and Statistics Department (2011)

4.2.3 Where Do Older People Live?

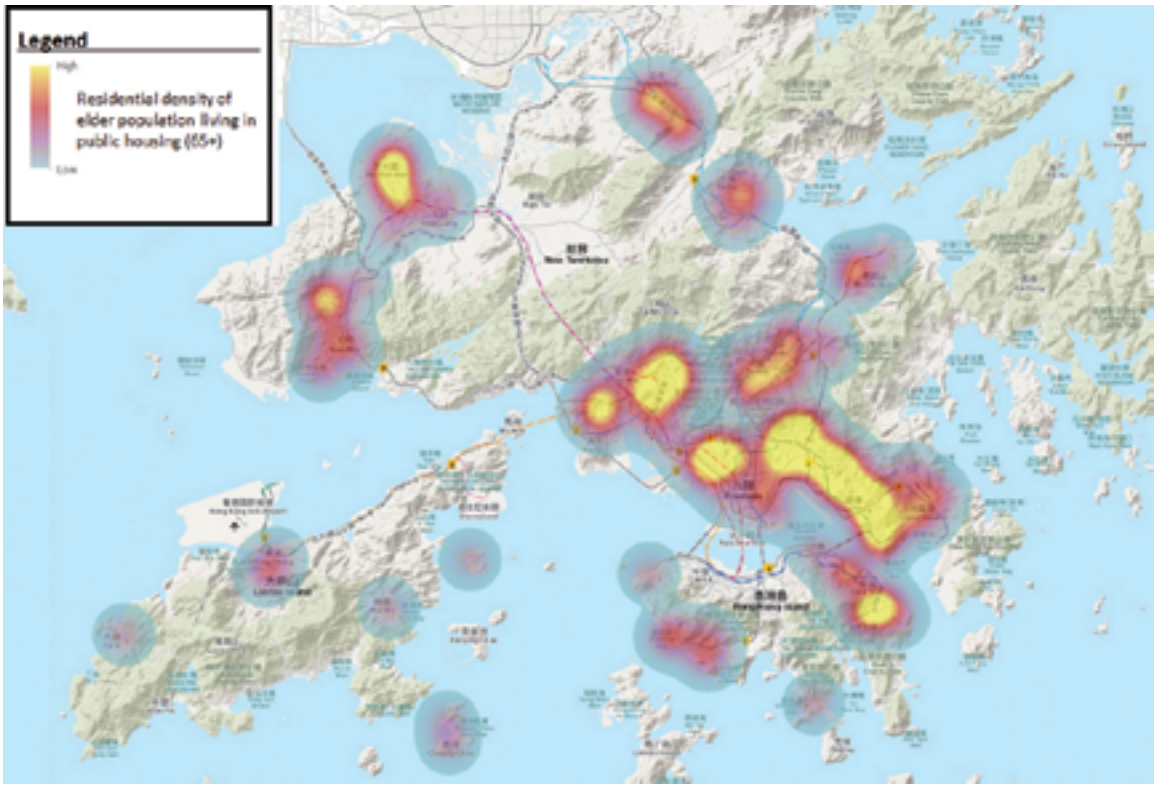
Kwai Chung and Kwun Tong are the two areas in Hong Kong with the highest residential density of older people aged 65 and above. Figure 4.8 illustrates the residential density of older people living in public rental housing as mapped by ArcGIS. In the heat map, the areas in yellow represent districts with the highest density of older people, the areas in red lower density, and the areas in greyish blue the lowest density.

As shown in the map, public housing clusters where many older people live are located in previously major industrial districts, located in the belt between Kwai Chung and Kwun Tong. As the first public housing estate was pioneered in Shek Kip Mei, it is not surprising that most older people cluster in the Shek Kip Mei area. In addition, most older people, when they were young, were the major pillars of the secondary industries in Hong Kong. Therefore, they worked in the industrial areas and lived in the nearby public housing.

The map provides an overall view of the distribution of older people living in public housing. Such information is useful as service planning information for institutions providing elderly care services. In addition, the map also allows us to understand more the residential density of older people and the impacts on the accessibility to public primary healthcare and social services of Hong Kong. Both of these will be discussed in Section 4.3.

Figure 4.8

Residential Density of Older Population (65+)



Data Source: Census and Statistics Department (2011); Housing Authority (2015)

4.2.4 Importance of Social Participation to Older People in Hong Kong

Because of the growth of the older population and the higher socio-economic status that young-olds enjoy, older people in general have been becoming more politically active. The percentage of people aged 66 years and above who are registered voters has been on a rising trend between 1991 and 2014, jumping from 46.76 % to 72.77% (Social Indicators of Hong Kong, 2016).

According to studies of older people in the U.S., those who feel that their existence in the society is still valuable and that they have a social role have been shown to be healthier (Ryan, 1995; Bengtson, Elder Jr, & Putney, 2012). According to studies of older people in Hong Kong, those who become socially disengaged have higher levels of depression (Lou, Chi, Kwan, & Leung, 2013; Chen, et al., 2016; Wong, et al., 2014). Also, cognitive and social activities positively affect physical functioning, demonstrating the importance of social participation (Cheung, Ting, Chan, Ho, & Chan, 2009). As such, policies that encourage social participation of older people are important for the health of older people.

4.2.5 Intergenerational Solidarity to Enhance Social Capital in Hong Kong

In Hong Kong, the rates of older people living with their grandchildren and children are approximately 53% and 57% respectively (Lou & Tong, 2015). The high rate of intergenerational living arrangement, the norm of intergenerational caregiving, and the traditional culture of filial piety in Hong Kong may facilitate the implementation of aging in place policies. Research also showed that older persons receiving informal support, especially from the family, had higher psychological well being (Phillips, Siu, Yeh, & Cheng, 2008). Older people who receive support from friends or neighbours are less likely to suffer from depression and other mental illnesses (Chen, et.al, 2016).

Co-residence is an important factor that affects intergenerational caregiving. Research suggests that those with intergenerational living arrangement have lower preference for public community care services (Lou, et.al., 2011). Although family members need to take more responsibility in caring for older family members when they live together, the arrangement can benefit both older people and their caregivers. A case study in Hong Kong shows that co-residence is associated with more perceived daily living, emotional and financial support from older people (Ng, Phillips, & Lee, 2002). Co-residence also encourages caregiving from grandparents to young children via providing discipline, emotional support, advice and instrumental support, which is a form of resource transfer from the older to the younger generation (Lou, 2010).

In Chinese families, females play a key role in caregiving. Research suggests that daughters are better connected with older parents than sons (Ng, Phillips and Lee, 2002). However, a study conducted in Hong Kong showed that family caregivers may suffer from heavy stress as they have higher risks of chronic diseases and poorer health compared with non-caregivers, especially among female caregivers (Ho, Chan, Woo, Chong, & Sham, 2009). These findings suggest that while women are good candidate for informal caregivers, aging policy should target support to female caregivers. Additional exploratory study is necessary to understand the linkage between caregiving and caregivers' health, both in terms of physical and mental health, in order to formulate appropriate policies for intervention.

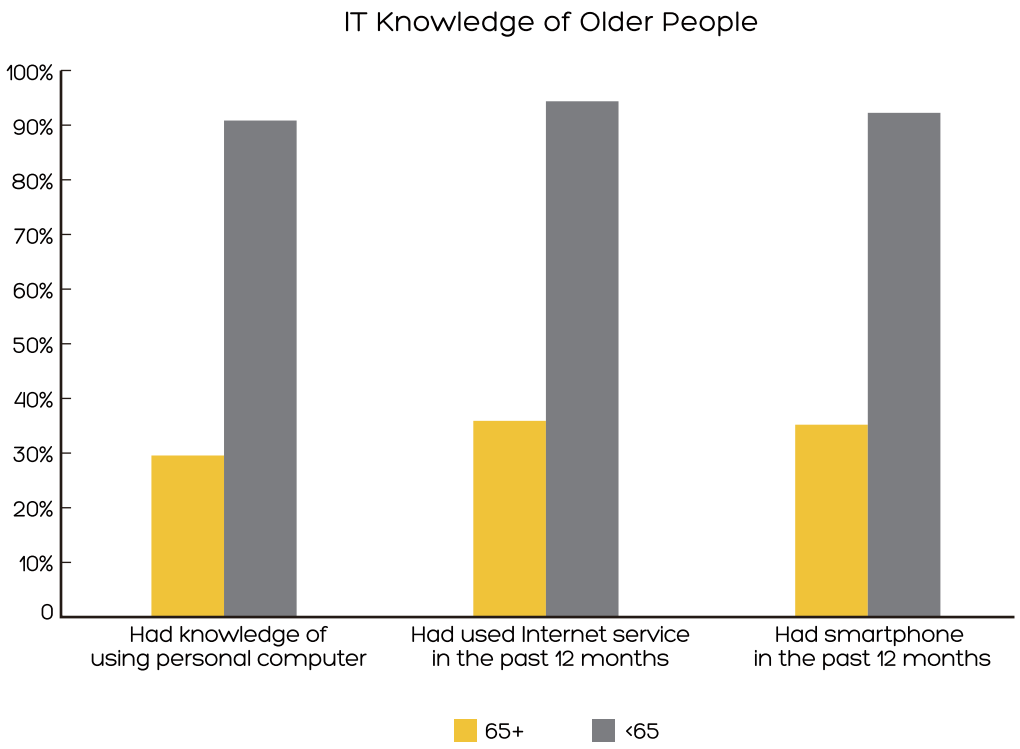
The research perspectives regarding intergenerational caregiving are evolving. First, apart from instrumental support, respect and emotional support are associated with higher life satisfaction and better psychological well-being among older people (Cheng & Chan, 2006). Second, intergenerational caregiving involves a bi-directional rather than uni-directional relationship in Hong Kong. Grandparents engage in parenting and caring of young children; they also receive informal support from their children (Lou & Tong, 2015). As such, resources are transferred from the older to the younger generations and vice versa (Fried, 2016). We can consider intergenerational caregiving on a broader context. Currently, the caregiving culture in Hong Kong is mainly within families, with only approximately 10% of older people interviewed considered giving help to relatives and friends and 5% engaging in volunteering activities (Lou, 2014). High intergenerational solidarity at the community level will uncover resources from intergenerational relationships for positive aging attitudes and the transfer of wisdom and knowledge from older to younger generations (Fried, 2016).

4.2.6 Technological Literacy of Older People in Hong Kong

Information technology (IT) knowledge among older people is indicated in Figure 4.9, based on data from the Thematic Household Survey Report No.52 (Census and Statistic Department, 2013). In "knowledge of using personal computer", "usage of internet" and "usage of smartphone", people aged 55-64 showed greater IT knowledge when compared to people aged 65 and above, suggesting that older people's IT knowledge has been increasing over time. In fact, the percentage of older people using the internet has increased from 0.8% in 2001

to 24% in 2015 (Census and Statistic Department, 2001 & 2015b). The increase in IT use in the older population suggests the opportunity of using information and communication technology as a tool to promote health and facilitate aging in place.

Figure 4.9



Data Source: Census and Statistics Department (2013)

4.3 Policy for Aging

Aging policies involve consideration of the governance, social institutions, physical infrastructure, and social security for older people in Hong Kong. We will review the background and important issues to be considered for formulating appropriate future aging policies in Hong Kong.

4.3.1 Governance

"Ageing in place as the core, institutional care as back-up" is the objective of elderly care policy in Hong Kong (Policy Address, 2015). It aims at enabling all senior citizens to live in dignity and to promote their sense of belonging, security and worthiness (Policy Address, 1997). The government also promotes the concept of shared responsibility among individuals, families and community to provide older people with more care options (Policy Address, 2015). Since 1997, the government has implemented a number of initiatives and services to promote active aging and the health of older people (Figure 4.10). The aging-related policies implemented by the government are not only limited to healthcare and social welfare. They also cover housing, transportation, education and urban design and education .

In budget year 2014-15, the government has devoted approximately 19% of the total expenditure to the provision of elderly services. Figure 4.11 shows the distribution of the funding.

The issue of an aging society covers multiple facets that require cross-departmental and cross-sectorial collaboration. Hong Kong needs a better governance system to enable the development, coordination and implementation of aging-related policies and programs to meet the challenges. Responsibilities fall on various governmental bureaus, of which the key ones include the Food and Health Bureau (FHB), the Labor and Welfare Bureau (LWB), and the Transport and Housing Bureau, with each bureau implementing different age-related policies. The Elderly Commission, placed under the LWB, is the advisory body to provide advice to the Government in the formulation of a comprehensive policy in caring for the elderly. Two task forces directly under the Chief Secretary, namely the Steering Committee on Population Policy and the Commission on Poverty, are also accountable for some policies associated with the elderly (Figure 4.12).

Apart from cross-level alignment and coordination within the public sector, cross-sector collaboration is also critical. Because aging is such a huge topic that touches every aspect of individuals' life and has great implication to the development of a society, no single institution alone can prepare the SAR for such an unprecedented change. The government has been developing comprehensive plans to transform Hong Kong into a city suitable for the aging population, such as the Elderly Services Programme Plan and Hong Kong 2030+. Cross-departmental efforts are required to realize the vision.

In recent years, the business sector and civil society have been actively launching various projects and services for the aging market. Products featuring health screening and assistive technology have been developed. Social enterprises that target to meet the special needs of older population have been established. Tertiary institutions, the government, and the philanthropic sector have been conducting action research to understand the needs of

Figure 4.10

Key Policies and Consultation Document and Programs Introduced between 1997 and 2016

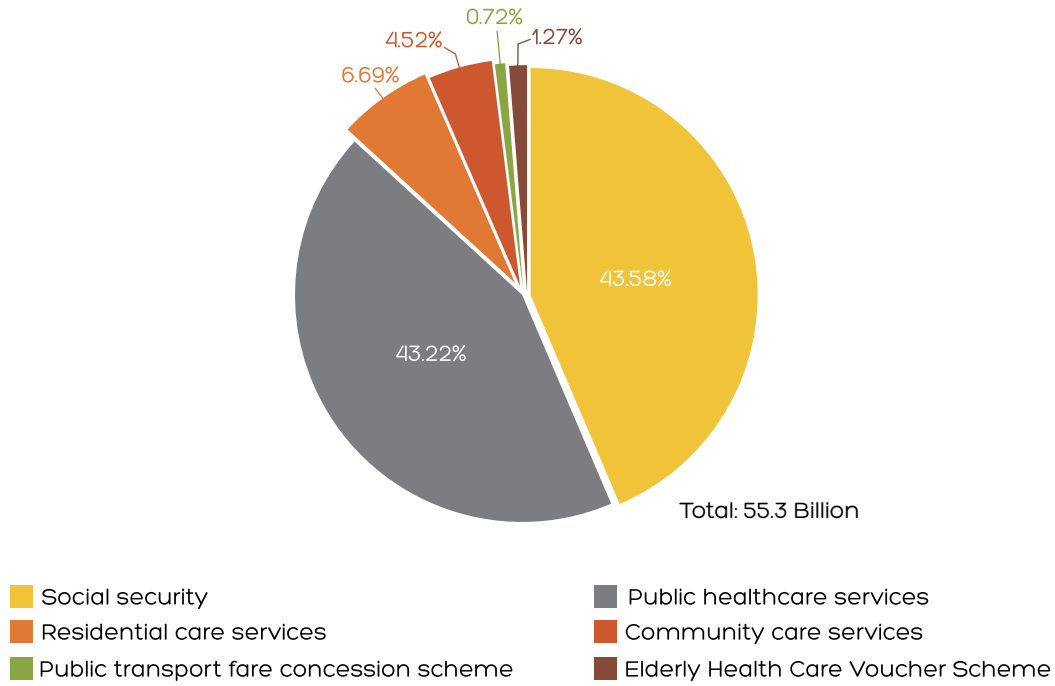
Note: *Community Geriatric Assessment Teams (CGATs) regularly visited subvented RCHE since 1994

****The Residential Care Homes (Elderly Persons) Ordinance (RCHE Ordinance) (Cap. 459) came into full operation in June 1996. Code of Practice is issued by the Director of Social Welfare under Section 22(1) of the Ordinance, to be reviewed and updated from time to time by SWD.**

older people and to implement intervention to enhance the age-friendliness of the city. Nevertheless, more inter-sectoral collaboration and longer-term partnership between the government, business sector and the civil society is necessary to meet the daunting challenges in an aging society.

Figure 4.11

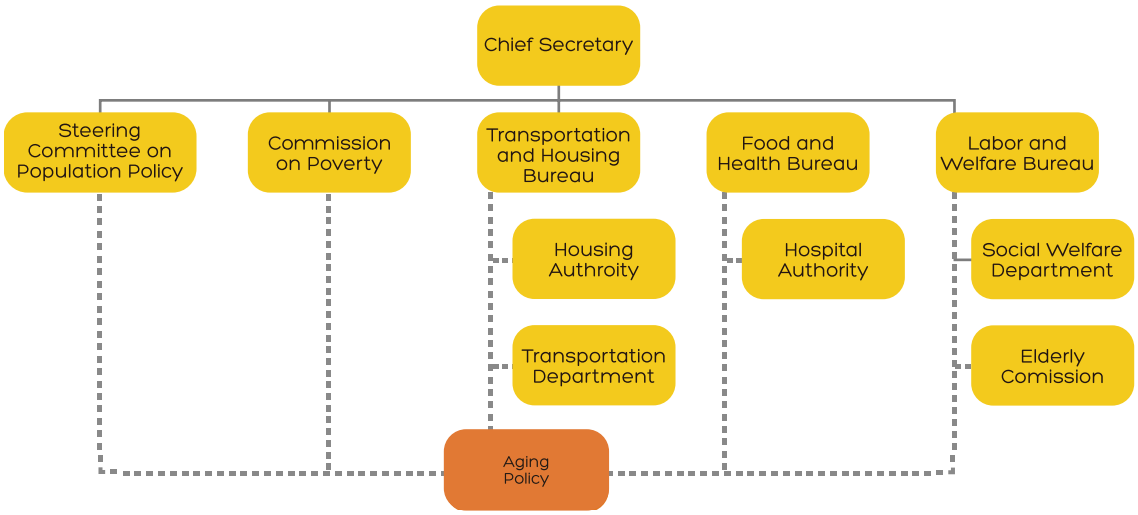
Distribution of Expenditure on Older people (2014-2015)



Data Source: Commission on Poverty (2015)

Figure 4.12

Governance of Aging Policy in Hong Kong



Box 4.2

Comprehensive Policy Plans: ESPP & Hong Kong 2030+

Elderly Services Programme Plan (ESPP). In 2014 Policy Address, the Chief Executive announced the idea to prepare a two-year Elderly Services Programme Plan. The Department of Social Work and Social Administration at the University of Hong Kong was appointed as the consultant to assist the Elderly Commission and the Working Group of ESPP to come up with a set of comprehensive social services for older people and to make Hong Kong into an age-enabling city. Three stages are involved in the ESPP, namely, Scoping Stage (2014), Formulation Stage (2015-2016) and Consensus Building Stage (2016).

"The Scoping Stage of ESPP defined the scope of the ESPP and identified the key issues associated with older people in Hong Kong. Based on findings of the qualitative study, the government, together with the University of Hong Kong, formulated the service plan for older people and is currently in the Consensus Building Stage (ESPP, 2016). Findings of the Scoping Stage provided qualitative information on issues related to elderly services. Six major themes that need to be tackled emerged based on the findings:

Elderly Issues of Hong Kong

Areas	Proposed issues for further discussion
Definition of elderly people and target service users of elderly services	· Designate uniform age for elderly services · Services need to be needs-based but not age-based
Existing social services for older people	· Redefine retirement; Lifelong learning; volunteerism · Reposition community services to assist in providing continuity of social services from prevention to intervention · Enhance the system of Long Term Care service allocation · Possibility of applying Public Private Partnerships in RCS and CCS · Carer Support · Role of case management · Transitional services from hospital to community · Monitoring and quality control mechanism · End of life
Manpower and Training	· Manpower shortage because of inadequate supply of professionals and lack of a career prospect in elderly service field · Incentive to attract staff in the elderly care industry · Enhance flexibility and capacity of service providers for recruitment · Labor importation · Informal non-paid workers · Education on aging society in curriculum
Premises and Space	· Project and meet demand for elderly services · Explore public-private partnerships
Financing Elderly Services	· Means-testing · New funding mode: Vouchers; expand tax base; insurance etc.
Interface and other issues	· Promote a coordinated governance, sharing of resources and information ex change · Engage older people in the planning of person-centered elderly services · Develop technology and enhance IT literacy to facilitate aging in place · Services for people with dementia · Special needs of underprivileged older people as well as those belonging to mi nority groups · Involvement of philanthropy in providing elderly services

Based on findings from the Scoping Stage, preliminary recommendations were made in the Formulation Stage. The Report on Formulation Stage provided 20 initial recommendations grouped under 4 key strategic directions: (1) achieve "aging in place" and reduce institutionalization rate through significantly strengthening CCS; (2) enable informed choices and timely access to quality services; (3)

further streamline and promote integrated service delivery; and (4) ensure financial sustainability and accountability of elderly services.

Hong Kong 2030+. The public engagement exercise for "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030" (Hong Kong 2030+) was launched in October 27th and scheduled for completion by 2018. The Hong Kong 2030+ is a strategic plan to promote the sustainability of development and fulfill the social, environmental and economic needs of society at present and in the future. It is an outcome of joint efforts of various government bureaus and departments in response to the challenges and opportunities in Hong Kong, with an emphasis on city planning, land and infrastructure development, and the shaping of the built and natural environment. The vision of Hong Kong 2030+ is to enable Hong Kong to become a livable, competitive and sustainable "Asia's World City".

For aging, the Hong Kong 2030+ proposes to promote an age-friendly environment for "ageing in place", "active ageing", and "inter-generational support".

The proposed strategies to achieve "aging in place" include providing housing for older people in public and private sectors; adopting universal design in private residential developments; and providing land and space for elderly care facilities, preferably on estate basis, complemented by district and community based services. "Active ageing" involves bringing in different sectors to enable older people with health, and to encourage older people to participate in activities in the community and businesses. "Inter-generational support" emphasizes bi-directional support between older and younger generations so that their relationships can be mutually beneficial. Inter-generational support can be promoted at the family and the community levels.

4.3.2 Social Institutions

The Elderly Commission, set up in 1997, is the key advisory body in the government administration to create a supportive social institution for aging in Hong Kong. Over the years, the Elderly Commission has initiated various programs to promote positive attitudes towards aging and to introduce active aging activities. One example is a three-year public health campaign Healthy Ageing launched in 2001; it featured public education and intersectoral partnerships. Also, it provides advice on the formulation of comprehensive aging policies. It is currently responsible for the two-year Elderly Service Program Plan. Additionally, it oversees aging policy research projects conducted by tertiary institutions in Hong Kong, such as a feasibility study on the voucher scheme for residential care services (2016), as well as studies on residential care services (2009) and community care services (2011). The Commission is involved in creating lifelong learning and volunteering opportunities for older people.

4.3.2.1 Life-long learning

Launched in 2007 by the Elderly Commission, the Elderly Academy Scheme (EA) offers elders with continuing education opportunities. Initially, EA courses were offered in primary, secondary and tertiary institutions. There are currently seven university institutions that offer Elder Academy courses. Not only are a variety of courses available to elders, a teaching assistant "buddy scheme" is also offered-- younger university students are paired with elders to assist them to adapt to the campus environment. Today, there are 108 EAs throughout the territory.

4.3.2.2 Social Inclusion

The Social Welfare Department (SWD) launched the Opportunities for the Elderly Project (OEP) in 1999, which was one of the first programs to promote active aging through community services and wellness activities such as volunteering, health seminars and crafting (Legislative Council Panel on Welfare Services, 2015) . Interested parties apply for funding on projects that promote opportunities for older people via the SWD. The Project aims to promote a sense of worthiness in the older population.

The LWB and the Elderly Commission also jointly launched the "Neighborhood Active Ageing Project" (NAAP). It aims to encourage older people to participate in community affairs and build an age-friendly community. A new phase of NAAP started in 2012 to include older

people's family members and promote family responsibility. A total of 75 district projects were carried out between 2008 and 2011, and another 69 district projects between 2012 and 2014. Similar to OEP, interested parties were invited to apply for funding to develop NAAP projects. Because OEP and NAAP serve relatively similar functions, the Government merged them in 2016.

The Senior Citizen Scheme managed by the SWD aims to facilitate older people's participation in the society. Older people are eligible to concessions, discounts or priority services offered by Government departments, public companies, private and commercial establishments. Currently 2,428 companies and organizations participate in the scheme.

4.3.3 Physical Infrastructure

4.3.3.1 Housing

The Housing Authority, a non-public organization, currently provides two types of special housing for older people in public rental estates, namely Housing for Senior Citizens (HSC) and Self-Contained Small Flats. HSC is designed for single older people with communal space and under the care of a warden. Over the years, as Public Rental Housing (PRH) applicants preferred self-contained flats, the Housing Authority stopped the HSC in 2000. Flats under the Self-Contained Small Flats scheme have age-friendly design, such as non-slippery floor tiles and single lever switches at lower heights.

Priority schemes for public rental housing are offered to older people through the Housing Authority, including the Single Elderly Persons Priority Scheme, the Harmonious Families Priority Scheme, and the Elderly Person Priority Scheme. The latter two schemes promote intergenerational caregiving, or care from persons who are willing to live with two or more older persons, and families who wish to live close to or with their older relatives are given priority housing.

The Housing Society also partners with the government to advance aging-in-place initiatives. Projects include the Elderly Resources Centre, the Elderly Safe Living Scheme, the Universal Design Guidebook for Residential Development in Hong Kong, and an online portal for elderly services. One of the bigger ongoing projects provides special housing for high-functioning older people. The Society is currently collaborating with the University of Hong Kong to evaluate a 4-year Ageing-in-Place Scheme in its rental estates. This scheme targets older people from low-income families living in rental estates of the Society. It aims to improve their living environment by providing them with housing, health and social care support in their neighborhoods. Housing support includes adding barrier free access. Healthcare support includes health screening, psychosocial support groups and mobile clinic. Social care support includes social activities and neighborhood support encourages inclusion and participation. The first phase of the study was completed in mid-2016 and the second phase is ongoing. By providing one-stop, holistic, person-centered services for older people in their community, the scheme envisions to improve the well-being of older people in the low-income group.

Housing options are also available to the middle- and high-income groups. The Senior Citizen Residence Scheme provides life-long rental for middle-income older people with a lump sum entry fee. The scheme is means-tested and land premium is exempt. The residence project combines specially-designed residential flats and incorporates recreational club facilities, residential and respite care services, rehabilitation and polyclinics. The goal of the senior citizen residence scheme aims to provide continuous services for middle income older people.

For the high-income group, the recently developed Tanner Hill project offers older people with housing options that feature a high-quality lifestyle. Similar to the Senior Citizen Residence Scheme, the Tanner Hill project aims to offer continuous aging services. Applicants are required to pay a full land premium and the scheme is not means-tested. A special feature of the scheme is the installation of a smart home care support system, featuring an emergency call response system, health data collection and monitoring, entrance door contact tracking, and non-motion response detection that tracks the functional and physical health of residents.

4.3.3.2 Transportation

The Government Public Transport Fare Concession Scheme for the Elderly and Eligible Persons with Disabilities also encourages older people to travel around the city. Older people over the age of 65 can enjoy concessions from Mass Transit Railway, franchised buses, ferries and Green Minibuses. The scheme has contributed to improving the quality of life of older people. An in-house qualitative research study on quantifying the social benefits of this transportation scheme (Chan, Wong, Tse, & Cheung, 2016) found that the scheme increased the social connectedness of older people. The scheme increases their frequency of travelling and at the same time allows them to go to places further away from home. Older people can then visit their friends and relatives more frequently. The preliminary findings show that the Public Transport Fare Concession Scheme for the Elderly and Eligible Persons with Disabilities improves the social well-being of the participants.

Box 4.3

Older people's feedback on the Public Transport Fare Concession Scheme for the Elderly and Eligible Persons with Disabilities

"I am retired now and I like to go around. Before the concession scheme, I seldom went out. Now, I go out more often ... I go for Chinese opera. When I was young, I do not have time to go to different places; now I have the time. The concession scheme makes me much happier than before."

©HKSAR, 2012

©HKSAR, 2012

"..... I cannot walk comfortably and I need crutches to go out. I can use the concessions to take transportation to go around. I need to take a bus even going to nearby places."

4.3.3.3 Universal Urban Design with High Accessibility

In the 2016 Policy Address, the Chief Executive expanded the Universal Accessibility Programme originally introduced in 2012, by drafting plans for improving community facilities, such as adding chairs and priority seats as well as non-slippery surfaces and handrails in public toilets, which support older people to reach out (Policy Address, 2016). Introduced in 2012, the Universal Accessibility Programme has pushed for more barrier-free access facilities in public areas, including subways, footbridges and elevated walkways. By the end of 2016, development of three lift and pedestrian walkway systems will begin in Tsing Yi, Kwai Chung and Kowloon City. In addition, an elevated walkway in Tseung Kwan O and a footbridge in Tsuen Wan will be constructed. Within the next 3 years, 80% of these projects are planned to be completed.

4.3.3.4 Technology, Innovation and Aging

Information and communication technology, robotics and biomedical technology have assisted older people in a number of ways, such as health maintenance and monitoring, ensuring an optimal level of independent functioning and engaging them in society. Technology is also envisioned to become a solution to the shrinking workforce related to population aging. Technology can replace a labor intensive workload that is necessary to ensure a better quality of life for the frail and impaired. Considering such potential, the government, business sector and the civil society of Hong Kong are actively investing in technology to improve the quality of health and long term care for current and future older people as well as to transform Hong Kong into an age-enabling city.

The establishment of the Innovation and Technology Bureau in 2015 demonstrates the government's determination in formulating holistic policies relating to innovation and technology. The Bureau also serves as a coordinator between the government, industry, academia and research sectors for the development of innovation and technology in Hong Kong. The Bureau also oversees the operation of the Innovation and Technology Commission, which manages the Innovation and Technology Fund as well as five research and development sectors. The establishment of holistic innovation and technology policies will provide insight for rethinking the concept of aging and how we can integrate technology into the everyday lives–in particular, the aspects of health and social care, housing, the transportation system, and information and communication–of older people today and in the future.

The Office of the Government Chief Information Officer has also been promoting the adoption of information and communication technology among older people. Since 2012, the Office has been providing funding to support projects to improve older peoples' access, knowledge, skills and receptiveness on the use of information and communication technology. The service scope of these projects covers older people receiving subvented long term care services as well as those who are isolated from their communities. In 2015 to 2016, the projects have served over 2,000 older people and have taught them how to use technology to stay connected with society.

The government also supports the business sector in developing new technological products. For instance, in the 2016 Policy Address, the government affirmed that the Hong Kong Science and Technology Park Cooperation (HKSTP) will continue to serve as a regional hub of innovation and technology. Healthy Ageing is one of HKSTP's technology platforms. By bringing together different kinds of technology, the science park aims to use technology to prepare Hong Kong for its population change. As an incubation hub, the park has encouraged the development of various kinds of technology that can change Hong Kong into a healthy and age-friendly city. Some of the preventive healthcare products developed in the park include (i) HK i-cap, which is a cloud based online game for screening cognitive impairment; (ii) Kiss and Tell, a portable device that uses saliva to test glucose levels; (iii) Hand of Hope, a robotic hand that aims to help stroke patients regain hand mobility through motor relearning; and (iv) B-free wheelchair, a wheel chair that can climb stairs.

The government also stated in the 2016 Policy Address that the Hong Kong Productivity Council will support industrial upgrading and transformation. The aim is to enable enterprises to move towards high value-added production. Measures will be introduced to facilitate laboratory activities for product advancement in industrial buildings. This policy action will assist in the development of aging-related products that enhance older people's quality of life.

Box 4.4

Social Innovation Initiative: The Blending of Technology into LTC Services
Personal Emergency Link Service (平安鐘)

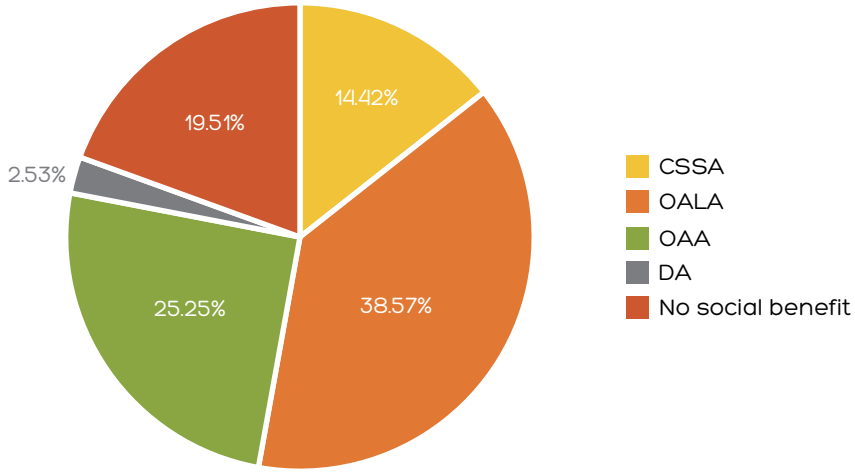
A successful age-friendly innovation has to be accepted by older people. The Personal Emergency Link Service (平安鐘), provided by the Senior Citizen Home Safety Association, is a good example. This emergency service device is a portable and waterproof remote control button that connects with a 24-hour call center. The device is designed to be easy to use specifically for older people. If an emergency arises, older people will be linked with trained social workers who can immediately send help to the individual in need. Emergency care using the Personal Emergency Link Service is particularly helpful in satisfying both the medical and social needs of older people who live alone.

4.3.4 Social Security for Older People in Hong Kong

Social security available for older people in Hong Kong includes the Comprehensive Social Security Assistance (CSSA) and the Social Security Allowance Scheme (SSA). SSA is a multi-level scheme that includes the Normal Old Age Allowance (OAA), Old Age Living Allowance (OALA) and Disability Allowance (DA). Figure 4.13 shows the coverage of all social security schemes of Hong Kong:

Figure 4.13

Social Security Coverage (2015)



Data Source: Hong Kong Poverty Situation Report (2014)

Overview of CSSA and SSA as Social Security for Older People in Hong Kong

Social Security Scheme	Income limitation	Assets limitation	Age limitation	Heath needs	Allowances (HK$)	Older people 65+ benefiting from the scheme (%)
CSSA	Yes	Yes	No	No	Standard Rates (average allowances for each old age case): 5548 Long term supplement: 2090 - 4185 Community Living: 315 Residential care: 315	13%
OAA*	No	No	70	No	1235	19%
OALA	Yes	Yes	65	No	2390	37%
DA	No	No	No	Yes	High disability : 3160 Normal disability: 1580	1%-2%

Data Source: Social Work Department (2016)
Note: *People aged 65-70 are mean-tested

4.3.4.1 Comprehensive Social Security Scheme

The CSSA provides a safety net for Hong Kong residents who cannot financially support themselves. According to information from the SWD in 2015, almost 60% of CSSA cases are old age cases (i.e., cases with family member of 60 or above). Applicants must pass both income and asset tests.

Assistance is provided in the form of direct cash allowances. For people aged 60 and above, the standard rate of assistance per month starts from HK$3,340 for a single older person with no disability, HK$4,040 for those who are 100% disabled and HK$5,690 for those who require constant assistance. For older people living with their families, assistance starts from HK$3,150 per able-bodied or 50%-abled older person per month to HK$5,220 per older person who require full assistance.

In addition, a monthly long term supplement is payable to families with immediate family members who are old, disabled or medically-certified to be in ill-health. The cash allowance for having a single member in need is about HK$2,000, and about HK$4,000 for having two or more members in need. In addition, a monthly community living supplement of HK$315 is provided to those who are old, disabled or medically-certified to be in ill-health and who are staying in the community under the CSSA. CSSA recipients who are living in non-subsidized residential care settings are also provided with a monthly supplement of HK$315. CSSA recipients may also be eligible to receive an additional special grant on a monthly or one-off basis depending on their special needs. Applicants need to contact the SWD for information on application eligibility and the amount of allowance they can receive.

Because the monthly charges of some private residential homes can be as low as HK$6000, the system of direct cash allowances may create an incentive for some families to use CSSA assistance, together with the supplements, to subsidize their older family members to stay at private residential homes. This may contribute to the high institutionalization rate in Hong Kong. Moreover, poor quality services that are provided at a low rate in order to match the financial needs of CSSA households may lead to poor quality of life among the frail and impaired.

4.3.4.2 Social Security Allowance Scheme

The first level of the SSA is the OAA. The OAA is offered as a living allowance for older people aged 65 and above who are in need of financial support. The scheme is not means-tested and a monthly allowance of HK$1,290 is provided.

The second level is the OALA. The OALA was introduced in 2013 to supplement the living expenses of Hong Kong residents aged 65 years and above and living right above the poverty threshold. The monthly allowance is HK$2,495. While the scheme is means-tested, the income and asset limits are set at a higher level than the CSSA, where eligible OALA recipients are those with assets valued up to HK$219,000 for a single person and HK$332,000 for a married couple. The income limitation per month is HK$7,580 for a single person and HK$12,290 for a married couple. Eligible recipients of OALA cannot be excluded from receiving the OAA, Disability Allowance or assistance from the CSSA.

The Disability Allowance is a needs-based scheme for those with poor functional health. An applicant's disability level needs to be certified by the Director of Health or the Chief Executive of the HA, or under exceptional circumstances by a registered medical practitioner of a private hospital. The scheme is available to all residents of Hong Kong as long as a health need is identified. The allowance provided depends on the disability level of the applicant: those with a 'normal disability' receive HK$ 1,650, and those with a 'high disability' level receive HK$3,300.

4.3.4.3 Carer's Allowances

In 2014, the SWD's Community Care Fund (CCF) launched the two-year Pilot Scheme on Living Allowance for Carers of Elderly Persons from Low Income Families. The aim of the Pilot Scheme is to promote aging in place as a

policy initiative. The Pilot Scheme provides direct financial support to full-time informal caregivers– those who care for one frail older person are provided HK$2,000 and HK$4,000 for two. By providing financial support, the government hopes to relieve some of the burden that full-time carers experience while also enabling older people with long term care needs to age in their community. An eligible recipient must be a full-time caregiver, from a low-income family, and living with an older person who has been assessed by the SWD to have long term care needs. The older person must be living in the community and should not be receiving residential services or be placed under long term hospitalization.

4.3.4.4 Reverse Mortgage and Silver Bonds

For more well-off older people, they can participate in the Reverse Mortgage Programme, which is offered by the Hong Kong Mortgage Corporation Limited. Reverse mortgages enable participants to use his or her's residential property as security in order to borrow from a bank and receive monthly and lump-sum payouts. The borrower can choose to receive monthly payouts for a fixed period of 10, 15 or 20 years or throughout his or her's entire life based on one's needs. Alternatively, the borrower can switch to a lump-sum payout, if needed.

The monthly payout amount is determined by the value of the property, the age of the borrower at the time of formal application and the length of payment term. For example, monthly payout (per HK$1 million of specified property value) for a 55 year old single borrower on a 10-year payment term will amount to HK$3,200 (Table 4.1). Eligible recipients need to be over the age of 55, have a valid Hong Kong ID card and the residential property needs to be less than 50 years of age, under the borrower's name and not subjected to any resale restrictions, excluding the alienation restrictions of subsidized sales flats.

Moreover, alongside the residential property, the borrower may also choose to include his or her's Life Insurance Policy as extra collateral. The additional collateral increases the amount of monthly and lump-sum payouts of the reverse mortgage loan (Table 4.2).

Table 4.1

Monthly Payout Amount (Per HK$1 Million of Specified Property Value)

Entry age	55 years old			60 years old			70 years old		
Payment term	One borrower	Two borrowers	Three borrowers	One borrower	Two borrowers	Three borrowers	One borrower	Two borrowers	Three borrowers
10-year	$3,200	$2,800	$2,500	$3,700	$3,300	$3,000	$5,100	$4,600	$4,200
15-year	$2,400	$2,150	$1,900	$2,800	$2,500	$2,250	$3,800	$3,500	$3,200
20-year	$2,050	$1,800	$1,600	$2,400	$2,100	$1,900	$3,300	$3,000	$2,700
Life	$1,650	$1,450	$1,250	$2,000	$1,800	$1,550	$3,100	$2,800	$2,400

Source: The Hong Kong Mortgage Corporation Limited(2016)

Table 4.2

Indicative Monthly Payout Amount (Per HK$1 Million of Specified Property Value plus HK$1 Million of Cash Surrender Value)

Entry age	55 years old		60 years old		70 years old	
Payment term	One borrower	Two borrowers	One borrower	Two borrowers	One borrower	Two borrowers
10-year	$5,520	$4,800	$6,500	$5,780	$9,100	$8,200
15-year	$4,160	$3,670	$4,920	$4,340	$6,840	$6,220
20-year	$3,570	$3,080	$4,200	$3,700	$5,860	$5,320
Life	$2,850	$2,490	$3,520	$3,080	$5,500	$4,960

Source: The Hong Kong Mortgage Corporation Limited(2016)
Note: The monthly payout amounts are solely determined by the HKMC on a case-by-case basis and may be different from the indicative levels.

Apart from participation in the Reverse Mortgage Programme, older people over the age of 65 can also subscribe to government bonds with a higher rate of return. Dubbed 'silver bonds' and announced in the 2016-17 Budget, the key feature of this 3-year retail bond is its semi-annual interest payment, which is linked to average annual inflation and is subject to a minimum interest rate of 2%. Thus, the relevant per annum interest rate on each interest determination date is the higher of i) the floating rate, or the mean average of the year-on-year rates of change in the Composite Consumer Price Index, and ii) the fixed interest rate of 2%. At maturity the principle will be repaid in full. Initial reception of the first batch of silver bonds were warm; however, when applications for the bond closed in mid-August 2016, the total value of subscriptions reached HK$9 billion, three times the maximum lot size of HK$3 billion. Silver bonds, though, cannot be sold in the open market.

4.3.4.5 Mandatory Provident Fund

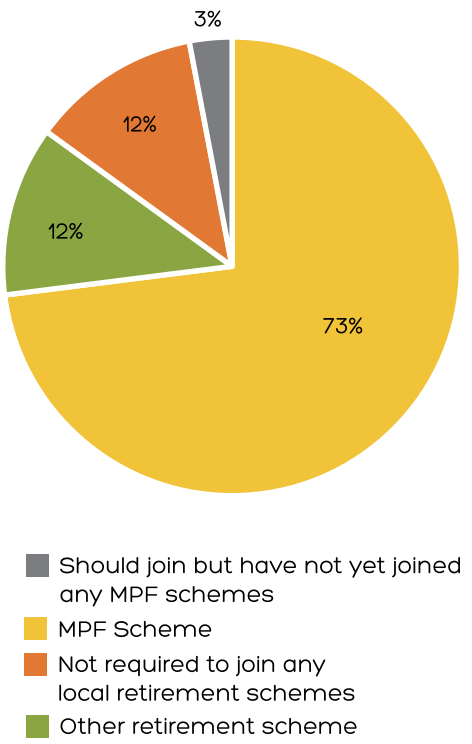
In December 2000, the Mandatory Provident Fund (MPF) was launched with the objective of providing a long term solution to finance old age by encouraging the workforce to save for their retirement. The MPF is a mandatory, privately-managed, fully funded contribution scheme that has three schemes: i) the Master Trust Scheme ii) the Employer Sponsored Scheme and iii) the Industry Scheme. Membership of each scheme depends on the type of job of the employee.

Both the employer and employee contribute a sum equal to 5% of the employee's income to funds with maximum contribution capped at HK$1,500. Since the MPF is privately-managed, employers have the sole discretion of choosing the MPF provider. Since mid-2016, MPF coverage extends to 73% of the working population (Figure 4.14).

Despite the good intentions of the MPF, public criticism claims that the fund creates unfairness due to an offset mechanism, which allows employers to use their portion of MPF contributions to cover severance and long service payments to employees. Some have argued that this erodes retirement plans of employees.

Figure 4.14

Employed population by type of retirement schemes, end-June 2016



Source: Mandatory Provident Fund (2016)

4.3.5 Health and Long Term Care Services for Older People

Health and long term care services are mainly provided by the HA, Department of Health (DoH) and SWD under two separate bureaus– the Food and Health Bureau (FHB) and Labour and Welfare Bureau (LWB). The HA and DoH provide primary, secondary and tertiary healthcare services, while the SWD focuses on the provision of social and welfare services.

This section first describes the healthcare services of Hong Kong, followed by the long term care services. Then, we will describe programs that have been launched with the aim of providing integrated services. Lastly, we will present the qualitative and quantitative research we conducted to provide insights for policy recommendations on integrated person-centered services in healthcare and long term care.

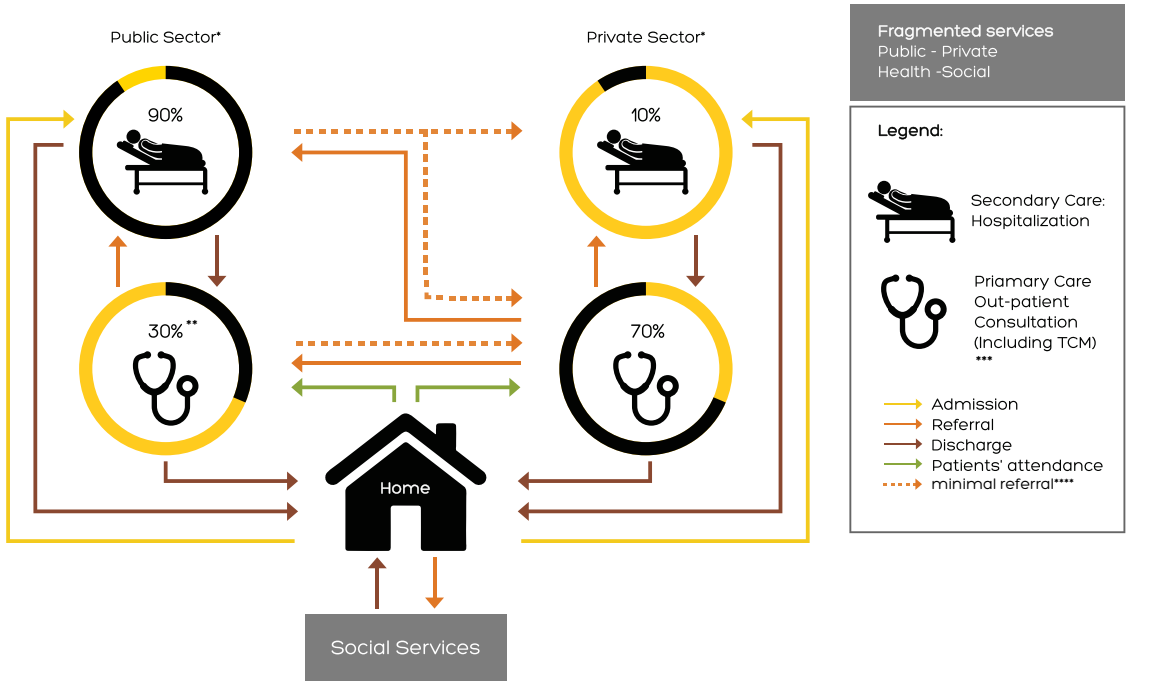
4.3.5.1 Healthcare Services for Older People

The Hong Kong healthcare system is characterized by a dual-track system, with 70% of primary care services delivered by the private sector and 30% provided by the public sector, and 90% of inpatient services provided by the public sector and the remaining 10% by private hospitals (Lee, Chui, Chiu, Gin, & Ho, 2012 ; Ko, 2013). The issue of segregation between private and public healthcare services and the relatively low promotion of primary care and community-based medicine in the public sector has been widely discussed.

Figure 4.15 illustrates the healthcare system of Hong Kong and the limits of the referral systems that contributes to the compartmentalized provision of health and social care services for older people. As shown in the figure, patients can go directly to a private specialist or hospital without consulting a primary care service provider. In addition, there are issues in the interfaces of services between the health and social services sectors.

Figure 4.15

Health Care and Social Care System of Hong Kong



Note: *** Public sector expenditure as GPD share: 2.5%; private sector expenditure as GPD share: 2.7%**

**** Including specialist out-patient consultation and AED services. Patients cannot go directly to public specialist out-patient consultation without referral.**

***** TCM: Traditional Chinese Medicine**

****** While a referral system exists from the public to private sector, the provision of referral is less than that from the private to public sector.**

In response to the private-public split and the relatively weak primary healthcare services provided by the public sector, two working groups were set up in early 2000s under the leadership of Former Chief Executive Tung Chee Hwa. One focuses on secondary and tertiary services and the other on out-patient services in the community. Both working groups have common goals of i) promoting a private-public healthcare interface, with the private sector taking responsibility as the service provider of primary care, and ii) targeting public funding to those with high health risks and high financial needs as well as providing preventive health, community education and research (Fang, 2006).

In order to maintain the sustainability of public healthcare in Hong Kong, the government has been advocating for the concept of public-private partnerships (PPPs) within the primary care sector. In 2003, the Efficiency Unit of Hong Kong first published a guide to implementing PPPs entitled Serving the Community By Using the Private Sector: An Introductory Guide to Public Private Partnerships (PPP). According to the Efficiency Unit, the value of PPPs lies in bringing together resources and skills of the public and private sectors to deliver better services for the general public. In particular, with the involvement of the private sector, public agency can concentrate on its core competencies, and the skills and experiences of the private sector can be utilized in the public sector. In regards to the healthcare system of Hong Kong, PPPs allow for the development of primary care through bringing

in private general practitioners into the public sector. The public sector, thus, can devote greater resources in developing the more expensive tertiary and secondary care, and provide better hospital and specialist services to the general public.

In March 2008, the FHB released a set of healthcare reform proposals in Your Health, Your Life: Healthcare Reform Consultation Document. In the Document, the FHB states that primary care is the foundation of healthcare systems. Later that year, the Working Group on Primary Care under the Health and Medical Development Advisory Committee of the FHB was reconvened to develop primary care in Hong Kong. The Primary Care Office (PCO), a joint office comprising professional and administrative staff from the FHB, DoH and HA, was then set up in 2010 to provide secretarial support for the Working Group as well as to foster better coordination on the development and implementation of primary care initiatives **(Box 4.5)**.

Box 4.5

The primary care initiatives put forth by the Primary Care Office include:

1. Primary Care Directory: an online information portal for the general public to easily locate a primary care provider of their choice

2. Reference frameworks for management of various chronic disease and different age groups

3. Community Health Centres to provide comprehensive one-stop primary care services

4. Elderly Health Care Voucher Scheme

5. Vaccination schemes

6 Chronic Disease Management Projects coordinated by the HA, including the Multi-disciplinary Risk Factor Assessment and Management Programme, Nurse and Allied Health Clinics, the Patient Empowerment Programme, the Tin Shui Wai Primary Care Partnership Project, and the General Outpatient Clinic Public Private Partnership Programme

Promoting PPPs, strengthening preventive care and chronic disease management on the primary care level, and providing integrated services are identified as the key goals of the government's Elderly Health Service (Hospital Authority, 2012; Policy Address, 2014; Legislative Council, 2016). Table 4.3 lists the elderly healthcare programs in primary care that are implemented by the DoH and the HA and which cater to the heterogeneous needs of the older population. Table 4.3 heterogeneous needs of the older population. Figure 4.16 shows the location of DoH and HA primary care services in the community mapped onto the residential density of older people living in public housing.

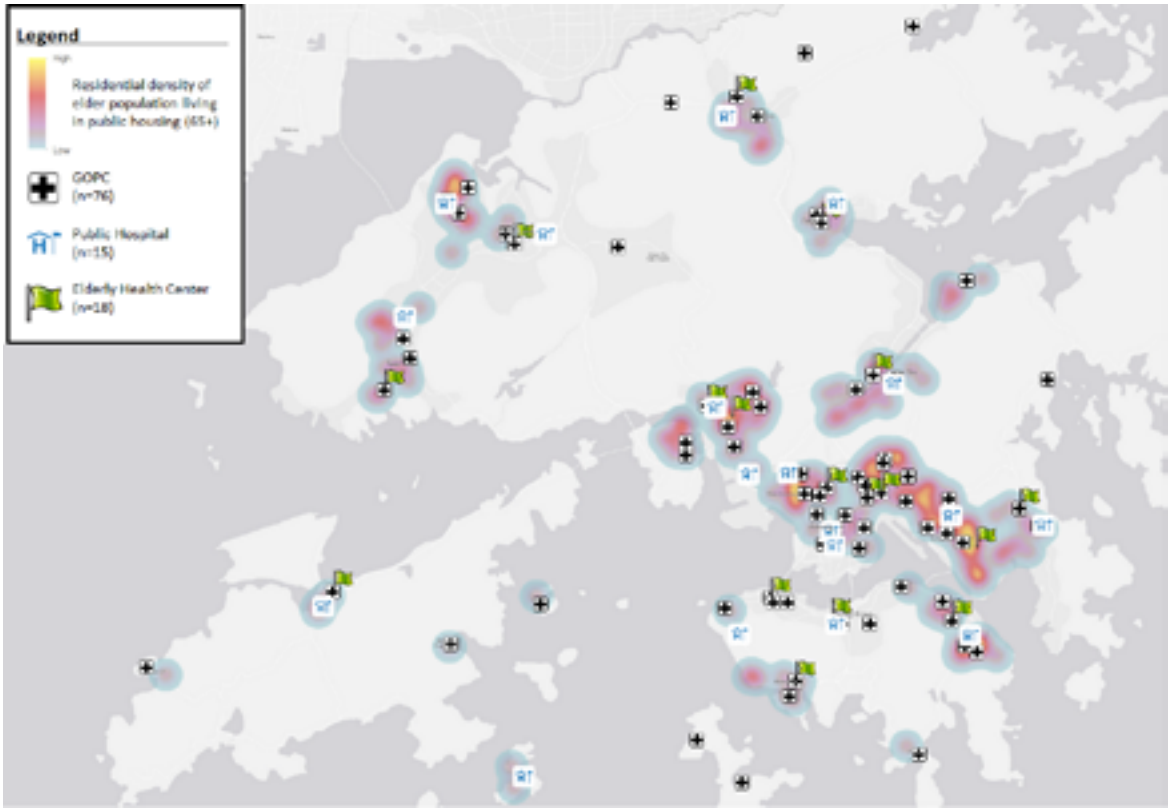
Table 4.3

List of Services Provided by the HA and the DoH

Program Aim(s)	Department	Name	Details
Strengthen primary care Promote on-going doctor-patient relationship	DoH	Elderly Health Care Voucher Scheme (EHCVS)	Details provided in text.
Preventive Care	DoH	Vaccination schemes	Details provided in text.
Manage service demand Enhance patients' access to services	HA	Public-Private Partnerships initiatives	Initiatives under PPPs include: Cataract Surgeries Programme; Haemodialysis PPP; Patient Empowerment Programme; Pilot Project on Enhancing Radiological Investigation Services through Collaboration with Private Sector; the General Out-patient Clinic PPP Programme (GOPC-PPP) and Tin Shui Wai Primary Care Partnership Project (TSW PPP). Under the PPPs initiatives, HA directly subsidized participating medical doctors with a fixed fee according to the treatment pertinent to the disease. Patients will need to copay (with a maximum limit) according to the PPPs initiatives they are enrolled in. GOPC-PPP and TSW PPP are described in detail in Chapter 4.
One-stop primary care services	HA	Community Health Centres	CHCs aim to offer the public one-stop, coordinated and comprehensive primary care services. The centers are each staffed with a multidisciplinary team of healthcare professionals.
Transitional care	HA	Integrated Discharge Support Programme	Details provided in text.
Disease management and transitional care	HA	Community Health Call Centre (CHCC)	Details provided in text.
Chronic disease management	HA	General Out-patient Clinic Services (GOPC)	GOPCs are community-based primary care service facilities targeted to serve older people, low-income individuals and patients with chronic disease. There are currently 74 GOPCs under the HA.
	HA	Specialist Out-patient Clinic Services (SOPC)	SOPCs provide specialist consultations, treatments and investigations. Referrals are needed from GOPCs or private primary healthcare service providers.
	HA	Nurse and Allied Health Clinics	Nurse and Allied Health Clinics are located in selected GOPCs of the HA in all clusters to provide more focused care for high risk chronic disease patients, including those who require specific care services for health problems or complications. Services include fall prevention, handling of chronic respiratory problems, wound care, continence care, drug compliance and supporting mental wellness.
	HA	Multi-disciplinary Risk Factor Assessment and Management Programme (RAMP)	Multidisciplinary teams of healthcare professionals are set up at selected GOPCs of the HA in all clusters to provide structured risk assessment and targeted interventions for patients with diabetes mellitus and hypertension.
Self-management Preventive medicine	HA	Patient Empowerment Programme	Details provided in text.
	DoH	Elderly Health Centres	The DoH has established 18 Elderly Health Centres in Hong Kong. Elderly aged 65 and above can be enrolled as members of Elderly Health Centres. Services include annual health check, chronic disease management, and walk in services for episodic illness.
	DoH	Visiting Health Teams (VHTs)	VHTs reach out to the community to deliver health and self-care promotion programs for older people. Using the train-the-trainer approach, VHTs provide training programs for caregivers to enhance their health knowledge and skills.
Rehabilitation	HA	Geriatric Day Hospital	Geriatric Day Hospitals provide multidisciplinary assessment, continued care and rehabilitation to geriatric patients. They are staffed by multidisciplinary teams aiming to prolong independent living and enable older people to age in the community.

Figure 4.16

Location of DoH and HA Primary Care Service Facilities (Including Major Hospitals) in the Community Versus the Residential Density of Older People in Public Housing



Data Source: Census and Statistics Department (2011); Housing Authority (2015)

I.Primary Care: Public-Private Partnerships

Considering the government's focus on developing PPPs on the primary care level, the following describes four of the programs implemented by the DoH and HA for promoting PPPs that target older patients or those with chronic diseases. Examples of PPP programs can be found in Table 4.4. The following will discuss four PPP programs, namely the General Outpatient Clinic-PPPs (GOPC-PPP), the Patient Empowerment Programme (PEP), the vaccination schemes, and the Elderly Health Care Voucher Scheme (EHCVS).

i.General Outpatient Clinics-PPP (GOPC-PPP)

The GOPC-PPP was first initiated in 2008 and GOPC-PPP has been piloted in three districts, namely Kwun Tong, Wong Tai Sin and Tuen Mun since 2014. Initial, patients with stable chronic disease, namely hypertension with or without hyperlipidemia, taken care of by public GOPCs at least 12 months are invited to participate in the program. Each patient will receive a total of 10 subsidized consultations, including consultations for chronic conditions and episodic illness treatment, drugs for treating their chronic conditions and episodic illnesses from the private doctors at their clinics immediately after each consultation, and relevant laboratory and x-ray services provided by HA upon referral by the participating private doctors.

Participating PMPs can receive up to $3,034 service fee per patient per year for providing up to 10 subsidized consultations. The service fee subsidized include the direct payment by HA and a cop-payment by each patient for each visit. For older patients over 70 years old, they can use the subsidized amount from the EHVCS to pay for top up treatments. GOPC-PPP currently has a total of 90 participating medical practitioners and 7,287 enrolled patients and 47067 consultations delivered (Hospital Authority, 2016). HA is will extend GOPC-PPP to the remaining 15 districts in phases and also to patients with diabetes.

GOPC-PPP is a modified version of pilot PPP programs of Tin Shui Wai Primary Care Partnership Project and Shared Care Program launched by HA in 2008 and 2010 respectively. Under the Tin Shui Wai Primary Care Partnership Project HA pays a fixed fee of 125 dollars per consultation for up to 10 consultations, with participating patients co-paying 45 dollars for each visit. HA provides participating doctors with relevant drugs in advance. According to HA (Legislative Council Panel on Health Services , 2014), about 90% of the patients were satisfied with the program, while private doctors considered the drugs dispensing program too complicated. The program will be modified and subsequently be merged into the GOPC PPP launched in Yuen Long District in 2016.

For the Shared Care Program piloted in Shatin and Tai Po, a subsidized amount of HK$1,200 per year was given directly to patients covering at least 4 consultations and drugs, with an incentive up to HK$200 if they meet targeted health outcomes. The participating private doctors also received an incentive of up to HK$200 each year for each participating patient under their care if they meet the specified health indictors. Patients were required to copay according to the fees set upfront by individual participating doctors, which could range from HK$150 to HK$1,200 per consultation. The Shared Care Program was terminated in 2014 and integrated with GOPC-PPP.

ii.Patient Empowerment Programme (PEP)

The PEP was launched as a PPP initiative managed by the HA in 2010. The PEP aims at delivering chronic disease knowledge to stable patients living in the community and promoting their self-management skills. Hypertension and diabetes are very often lifestyle diseases, and many lifestyle programs have proven to successfully decrease the incidence of stroke (Lee & Paffenbarger, 1998; Lee, Folsom, Blair, 2003; He, Nowson & MacGregor, 2006). Because of this, the HA launched the PEP for the management of diabetes.

Partnerships were established between non-profit organizations and the HA, where the HA develops the training materials and procures the services of non-profit organizations to deliver them.

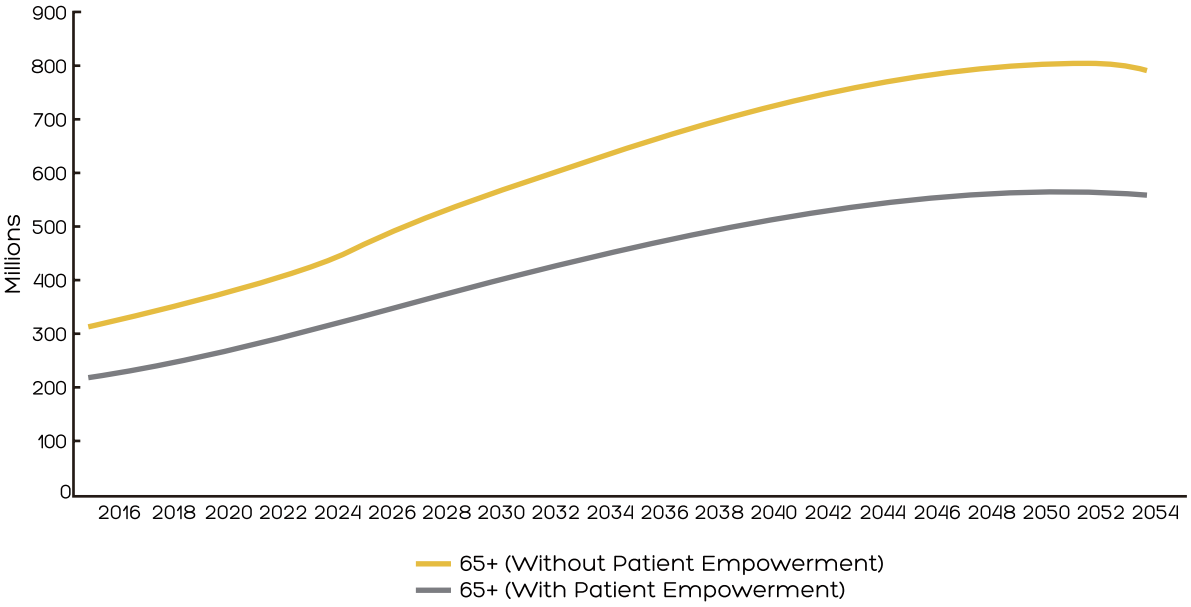
In return, patients pay a nominal fee to the non-profit organizations. The program has been implemented in all clusters and as of 2011, approximately 21,490 patients have participated in the program, accounting for 95% of the take-up rates (Audit Commission, 2012).

Findings of related intervention research show that the PEP can decrease the incidence rate of stroke by 30% (Wong, et al., 2015). Incidence rate refers to the number of new cases of a disease or illness, which is important for risk estimates. According to a CADENZA study (Yu, et al., 2012), the age-adjusted incidence rate of first-ever stroke among people aged 65 and above was 10.5 per 1,000 population in 2006-2007. Using age-specific incidence rates from this same study, our team estimated the monetary amount saved if large scale lifestyle management programs are implemented to prevent the development of stroke (Figure 4.17). The direct medical costs per capita of stroke, estimated to be HK$24,451 (Yu, et al., 2012), was multiplied with the incidence rate of having stroke before and after the implementation of the PEP (Wong, et al., 2015).

Figure 4.17

Estimated Cost of Stroke for Treating Older People (65+)

(Without PEP vs. With PEP)



Data Source: Census and Statistics Department, Wong et al. (2015), Yu et al. (2012), Our Hong Kong Foundation

Note: The estimated costs are the sum of products of the constant age-specific incidence rates of stroke, the projected population in respective age groups and the per person cost of treating stroke in the first year of incidence (HK$24,451).

As illustrated, the saved medical costs of implementing PEP is estimated to be HK$100 million in 2016, and by 2054, the gap will widen to reach a difference of about HK$220 million. The estimation provides a rationale for implementing city-wide lifestyle intervention programs for chronic disease management. Recommendations for using vouchers as a funding tool for preventive care and chronic disease management to improve the health status of future olds will be discussed in Chapter 5.

iii. Vaccination Subsidy Scheme and Residential Care Home Vaccination Programme

The Scientist Committee of on Vaccine Preventable Diseases under the Centre for Health Protection (CHP) has recommended a number of vaccinations for certain high risks groups to minimize the likelihood of hospitalization and infection. Older people are considered a high risk group; thus, several vaccination schemes implemented by the government have targeted the older population. Under the Vaccination Subsidy Scheme, legible individuals, including older people aged 65 and above, are provided with a fixed amount of HK$190 to receive a dose of the seasonal influenza vaccine from a private doctor, and another HK$190 to receive the pneumococcal vaccine. Under the Residential Care Home Vaccination Programme, residents of Residential Care

Homes for the Elderly (RCHEs) and of Residential Care Homes for Persons with Disabilities (RCHDs) who are aged 65 years and above who have never received the pneumococcal vaccine are eligible for one free dose of the pneumococcal vaccination provided by a visiting medical officer in RCHEs.

iv. Elderly Health Care Voucher Scheme

The launching of the Elderly Health Care Voucher Scheme (EHCVS) by the DoH in 2009 was the government's attempt to reallocate unmet demand from the public primary care sector to the private market by providing older people a direct subsidy. This type of approach is known as the 'Money Follows the Person' framework. The government's objective for the EHCVS is to provide financial incentives that encourage older people to use more primary care services and to have regular family doctors within their local communities (Food and Health Bureau, 2011) .

An annual amount of HK$2,000 is given directly to older people aged 70 and above with an unutilized accumulation unit of HK$4,000. A range of healthcare professionals who are registered in Hong Kong are eligible to participate in the EHCVS, including medical practitioners, Chinese medicine practitioners, dentists, chiropractors, registered nurses and enrolled nurses, physiotherapists, occupational therapists, radiographers, medical laboratory technologists (the use of services provided by allied health professionals and laboratory test services is subject to the current referral arrangement) and optometrists.

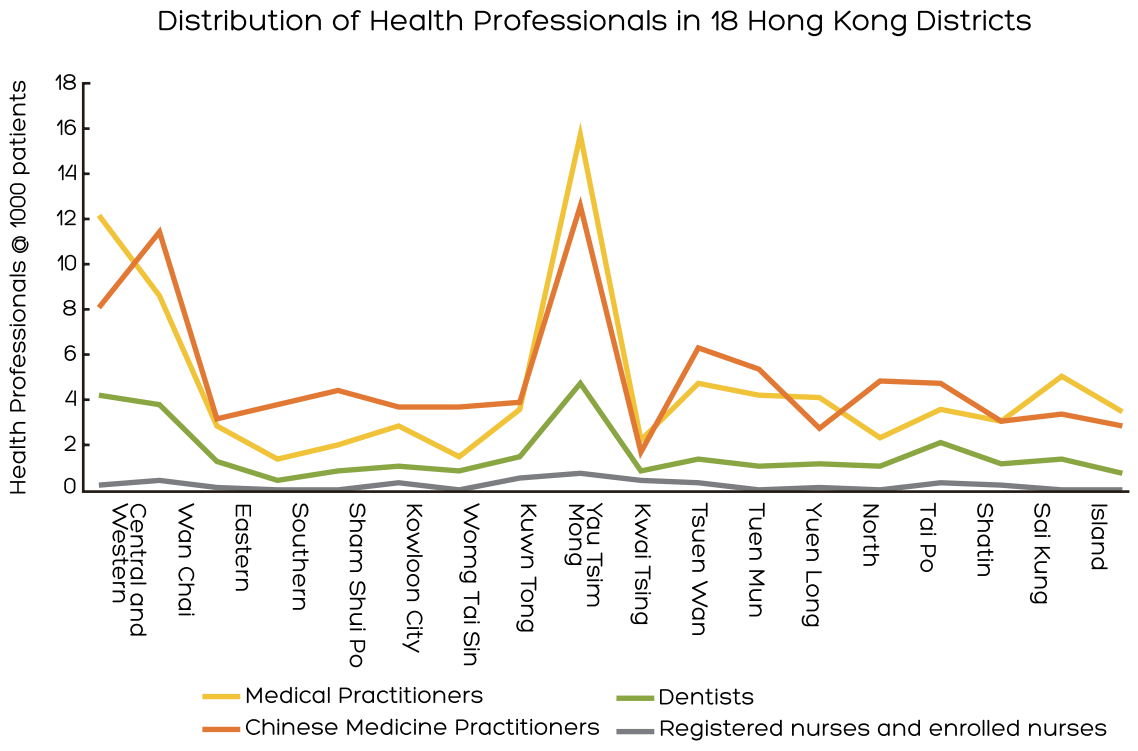
Several studies have reviewed the effectiveness of the EHCVS. The first is an interim report published by the FHB on the EHCVS in 2011 (Food and Health Bureau, 2011) , the second is a research study conducted by the Chinese University of Hong Kong (CUHK) (Yam, Liu, Huang, Yeoh, & Griffins, 2011) and the last is a survey administrated by the Hong Kong Medical Association in 2015 (HKMA, 2015). The Jockey Club School of Public Health and Primary Care at CUHK (JCSPHPC) is currently conducting a second evaluation study on the voucher scheme for the government and results have not been released. Existing studies suggest that while the use of the EHCVS is considered an innovative idea based on the idea of "Money Follows the Person," the scheme has been ineffective in achieving its goals of promoting on-going doctor-patient relationships and promoting preventive care. The following summarizes the findings:

High Enrollment Rate Among Older People. According to a study entitled the Survey on Elderly Health Care Voucher Scheme (EHCVS) (HKMA, 2015) and an interim report published by the FHB (Food and Health Bureau, 2011) , there is relatively high usage of the services, with approximately 80% of the respondents indicating that they had used health care vouchers. According to unpublished data provided by the JCSPHPC, the current voucher take-up rate is as high as 90%.

Low Enrollment Rate Among Medical Practitioners. According to the report released by the FHB (2011), estimates show that nearly 34.1% of the medical practitioners participated in the program. The survey conducted by the HKMA (2015) also found a relatively low enrollment rate among private doctors, with only 32.4% of the practice practitioners enrolling in the scheme. According to Wong, et al. (2015), reasons for the low enrollment rate can be explained by the length of the registration process, tedious logistic arrangements, the government's non-responsiveness to the private sector's needs, and the absence of a platform for installing the IT infrastructure necessary to enroll in the program.

Uneven Distribution of Enrolled Healthcare Providers. The geographical distribution of enrolled private healthcare providers is expected to be uneven among different districts according to the distribution of all medical practitioners in Hong Kong (eHealth System, 2016) . According to Figure 4.8 & Figure 4.18, the densities of healthcare providers do not match with the residential densities of older people in Hong Kong. Most of the districts in the New Territories are facing an obvious insufficiency of healthcare practitioners to meet the needs of local older people. The uneven distribution of healthcare providers can affect equitable access to healthcare. Older people living in Hong Kong Island and Kowloon have easier access to healthcare providers in their neighborhood than those living in the New Territories. Additional effort is necessary to encourage enrollment of private practitioners in the New Territories.

Figure 4.18



Data Source: eHealth System(2016)

Vouchers Mainly Used for Management of Acute Episodic Conditions. The majority of older people (82.4%) use the vouchers to manage acute episodic conditions (Yam, Liu, Huang, Yeoh & Griffins, 2011). Similarly, only 16% of these older people use the vouchers for preventive medicine (HKMA, 2015). According to the Thematic Household Survey (Census and Statistics Department, 2015a), only 41.3% of the respondents expressed that they have regular doctor check-ups, suggesting that there is a general lack of patient-doctor relationships. Results suggest that the EHCVS was not achieving the DoH's objective of promoting preventive healthcare and establishing ongoing doctor-patient relationships. The HKMA (2015) further suggested that public education was necessary to enhance the effectiveness of EHCVS in promoting preventive medicine and creating doctor-patient relationships.

Inability to Change Demand for Health Services from the Public to Private Sector. Despite the goal of the EHCVS to strengthen primary healthcare services and lessen the burden on public services, findings of Yam, et al.'s study (2011) showed that 66.2% of the respondents agreed that the vouchers did not change their health seeking behaviors. One of the key reasons was the insufficient subsidy, which was about HK$250 per year when the study was conducted in 2010 (Yam, et al., 2011).

High Level of Awareness Yet Inadequate Knowledge on the Usage of the EHCVS. The program managed to achieve a high level of public awareness, with 71% of the interviewed older people indicating that they were aware of the scheme in 2011, three years after it was launched. Yet, only 46.8 % of the respondents expressed that the available information about the scheme was sufficient (Food and Health Bureau, 2011) .

Lowering Age Eligibility. As for implementation of the EHCVS, results from the HKMA study showed that 70% of the older people support reducing the eligible age for the services, from age 70 to 65, and increasing the accumulation limit to HK$6000 (HKMA, 2015). Likewise, 74% of the respondents in the FHB study (Food and Health Bureau, 2011) also wish to have the age eligibility lowered.

Unclear Evaluation Criteria. As stated by the government, the principal objectives of EHCVS are to strengthen primary care services for older people and promote continuity of care of older people with their chosen healthcare service providers. However, to date, the DoH has yet to publish any evidence suggesting the positive outcome of the EHCVS. In recent years, the annual voucher amount for each eligible older people scaled up several times from HK$250 per year in 2009 to HK$2,000 per year in 2014. The government did not provide details for the policy decision of scaling up the program, and now the design of the EHCVS would be able to achieve its primary objectives.

The government has invested billions of dollars into the EHCVS, and with our society's aging population, the expenditure is expected to grow exponentially in the coming years. Goal-oriented evaluation criteria is necessary to inform cost-effectiveness of the investment. Questions such as "Has the program been effective in ensuring long term doctor-patient relationships? Has the voucher program improved the health of the older population? Does the voucher program alleviate the pressures on the public sector?" are important questions that need to be addressed.

II. Secondary and Tertiary Services of Hong Kong

i.Inpatient Service Quality

As previously mentioned, about 90% of in-patient services are managed by the public sector and are provided by the HA. To further understand the quality of in-patient services, CUHK conducted a study using data from the Census and Statistics Department to examine factors associated with patients' satisfaction towards hospital services (Wong, et al., 2011). The Picker Patient Experience Questionnaire-15 was used for measuring patient perceived quality of hospitalization. Results showed that the mean satisfaction scores showed that both private and public services receive a score of 7.3 and 7.8 over 10, respectively. Further regression analysis showed that a desire to be involved in the decision making process, respect for patients' dignity and communication with doctors affect patients' perceived satis-

faction of services. Results suggest the importance of patient-doctor relationships in hospital services.

Data also showed that only 38% of the patients admitted to public hospitals reported having good health status versus 55% admitted to private hospitals, suggesting that people using public services have poorer health than those using private services. Those who have the ability to pay for their own healthcare expenses are likely more well off than those using public services, and thus enjoy better health. These findings imply the existence of health inequality in Hong Kong. In addition, the results suggest that preventive and health promotion services need to target the major users of public healthcare services so that they can stay healthy for as long as possible and avoid being hospitalized.

ii.Geographical Variation on Service Utilization

Levels of healthcare service utilization not only vary according to socio-economic status, but also geographical factors. A study on the geographic variation on the use of hospital services shows that statistically significant differences in the usage of hospital services occur across different districts in Hong Kong (Wong, Chau, Goggins, & Woo, 2009). Using data from the HA, the study explores the geographical variation on the use of various hospital services, namely, length of stay, inpatient admissions, SOPD services and AED attendances. For length of stay, older people living in Southern, Central, Western and Tsuen Wan Districts have the longest stays. For inpatient admissions, Southern, Tai Po and Eastern Districts have the highest number of admissions. For SOPD visits, utilization was highest in Eastern, Southern and Shatin Districts. Last, for AED attendance, the highest attendances were located in North, Tsuen Wan and Tai Po Districts.

The utilization of in-patient service does not correlate with the residential density of older people in Hong Kong. Based on our map describing the residential density of older people in public housing (see Figure 4.8), the most densely population areas are Kwai Chung and Kwun Tong; yet, these two districts do not have the highest usage of hospital services. One explanation to account for the mismatch could be related to the location of long term residential care homes. The demographic profile from the Thematic Household Survey only covers the resident population living in the community. Further studies in the area may be worthwhile to understand the mismatch. Nevertheless, results of the same study show that increased patient admissions and AED attendance are associated with advancement in age, which imply that as the population gets older, the use of hospital and specialty service tends to increase.

iii.Shortage of Resources in Public Hospitals

The capacity of public hospitals is another critical factor for healthcare system development for the aging population in Hong Kong. In 2013, the number of public sector hospital beds per 1,000 persons aged 65 and over was 28.1, lower than other aged developed economies, like Germany (39.6) and Japan (53.2). Recent figures from the HA reveal that demand for public hospital bed resources among persons aged 80 and over is 17 times higher than among young persons. Factoring in the rapidly growing aged population, the public sector hospital resources would be exhausted in the foreseeable future. The HA has projected Hong Kong will need an additional 8,800 hospital beds by 2031 (Food and Health Bureau, 2015).

The aging population also pressures healthcare manpower. In 2013, there were only 12.7 licensed doctors per 1,000 older persons in Hong Kong, lower than that in the United States (23.6) and Germany (27.7). The situation is worse in the public sector hospitals, which were served by about 40% of licensed doctors. By 2020, there will be a shortfall of 330 doctors in the HA.

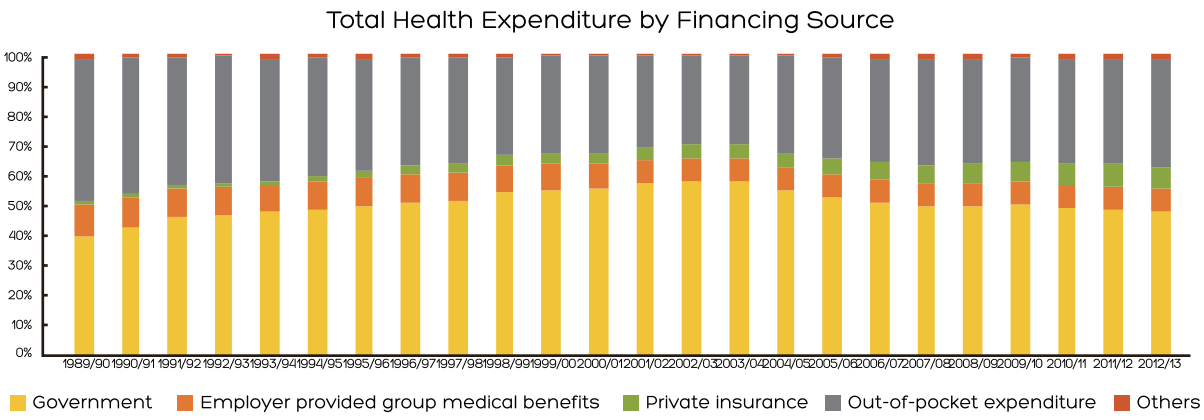
The FHB set up the Steering Committee on Strategic Review on Healthcare and Manpower Planning and Professional Development in 2012 in order to explore ways to relieve the healthcare supply shortage. Any expansion in capacity would be welcome. However, given the extreme shortage of healthcare capacity both in terms of hardware (hospital beds) and software (healthcare professionals), current projections by the HA concerning the future

shortfall in healthcare capacity require critical and rigorous review. It is clear significantly more work is necessary in this field to meet the increase in demands for healthcare and long-term care services

III.Financing Healthcare

In Hong Kong, healthcare services are mainly funded by three sources: government funding, out-of-pocket payments and private insurance premiums (Figure 4.19). As illustrated, government funding contributes the largest part and accounts for over 40%.

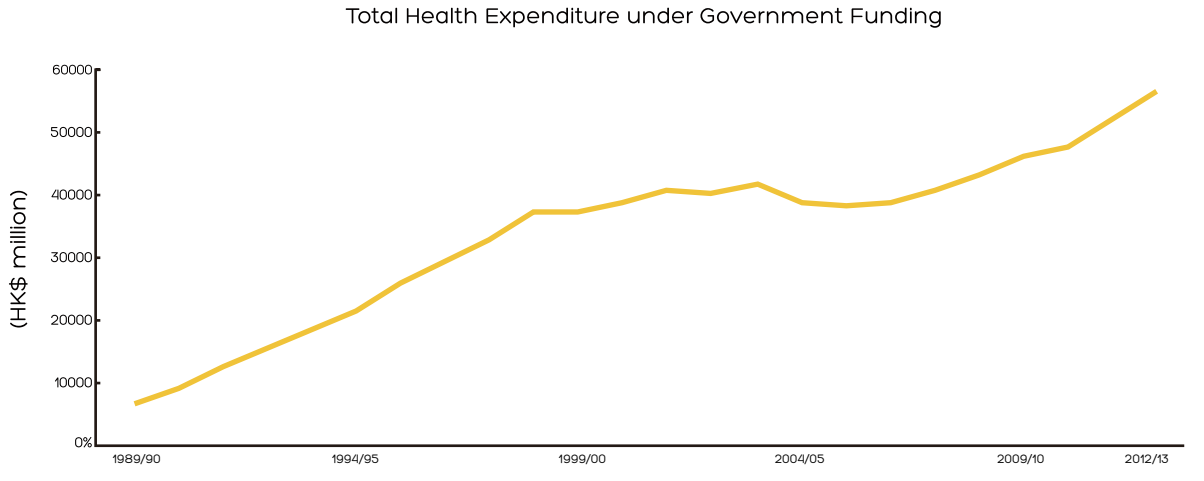
Figure 4.19



Data Source: Food and Health Bureau (2016); Hong Kong's Domestic Health Accounts(1989-2013)

Since Hong Kong's government revenue relies significantly on direct tax revenue, including profits tax, salaries tax and property tax, the amount of government revenue every year may be influenced by the overall socio-economic environment. During fiscal year 2003/04 to 2005/06, the government reduced the recurrent expenditure of the HA due to the sluggish economy of Hong Kong, which was also accompanied by a decrease of total public sector health expenditure (**Figure 4.20**). The experience highlights one of the issues of a tax-funded healthcare financing system; unless the government commits adequate resources to provide quality care that meets the needs of the population, alternative funding mechanisms may need to be explored.

Figure 4.20

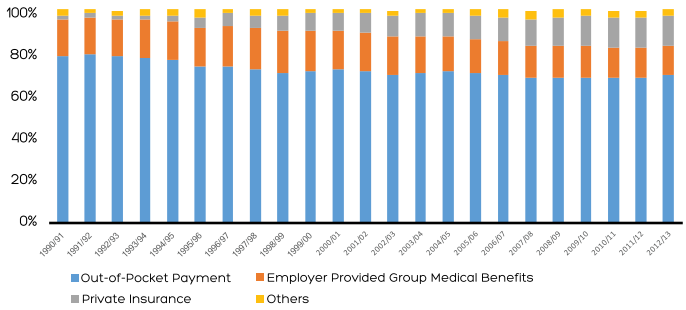


Data Source: Food and Health Bureau (2016); Hong Kong's Domestic Health Accounts(1989-2013)

Out-of-pocket payments are another major financing source, contributing to around one third of Hong Kong's total health expenditure and over 60% of Hong Kong's private health expenditure (**Figure 4.21**). Out-of-pocket payments refer to the direct, non-reimbursable payments at point of service, mostly exchanged in the private market (Leung & Bacon-Shone, 2006). Private insurance plans include those that are purchased by individuals or by corporations for employees.

Figure 4.21

Private Health Expenditure by Financing Source

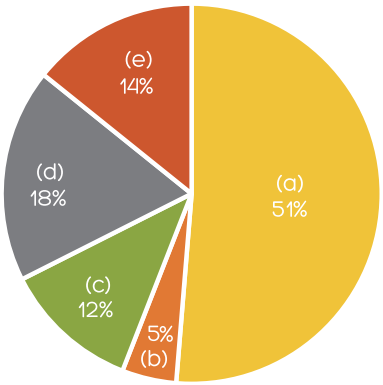


Data Source: Food and Health Bureau (2016); Hong Kong's Domestic Health Accounts(1989-2013)

In 2014, the Census and Statistics Department conducted a Thematic Household Survey on the provision of medical benefits by employers or companies, or both, and coverage of medical insurance purchased by individuals (Figure 4.22). The results show that almost half of the Hong Kong population is not covered by any form of insurance or medical benefits. Among those who have private insurance or benefits schemes coverage, the proportions of employment-based and individual purchased plans are similar.

Figure 4.22

Percentage distribution of persons by whether entitled to medical benefits provided by employers / companies and / or covered by medical insurance purchased by individuals



(a) Without any medical insurance / benefits;

(b) Only with medical benefits provided by Civil Service / Hospital Authority;

(c) With medical benefits provided by employers / companies in the private sector, irrespective of whether with medical benefits provided by Civil Service / Hospital Authority;

(d) Only covered by medical insurance purchased by individuals;

(e) Entitled to medical benefits provided by employers / companies and covered by medical insurance purchased by individuals concurrently.

Data Source:
Census and Statistics Department (2015)

In addition, some private medical insurance packages did not seem to effectively shift demand for health services from the public to private sector. For example, an Income Protection Plan, which charges a small premium but only pays out a fixed amount per day of hospitalization in cash with no coverage for the actual medical expense, became a popular form of "insurance" in Hong Kong (Leung & Bacon-Shone, 2006). However, these plans do not perform a proper insurance function, and therefore, encourage insured individuals to continue to use hospital services in the public sector (Leung & Bacon-Shone, 2006).

To ensure the sustainability of the healthcare service system in Hong Kong, the government has made attempts to reform the healthcare financing system. In November 1997, the government commissioned a team from Harvard University to assess Hong Kong's healthcare system and propose different strategies to improve financing of healthcare services (The Harvard Team, 1999) . The Harvard Report proposed two complementary financing strategies: the Health Security Plan and the Long Term Care Savings Accounts (MEDISAGE) (Leung & Bacon-Shone,

2006). Based on the Harvard Report, the consultation document entitled Lifelong Investment in Health, was released by the government in 2001. The Health Security Plan was introduced as a supplementary source of funding, in which a mandatory contribution of 1.5% to 2% of salaries from the working population aged 40 and above would be used for medical expenses. The government also proposed to study the MEDISAGE scheme. However, the public expressed strong reservations regarding these approaches; thus, the government started exploring alternative options to fund health and social care.

The Health Protection Scheme (HPS), a voluntary and government-regulated health insurance scheme, was proposed by the government as part of the healthcare reform consultation document "My Health, My Choice" in 2010. Given the diversity in public opinions, the government has yet to work out any detailed proposals for the HPS.

4.3.5.2 Long Term Care Services for the Frail and Impaired

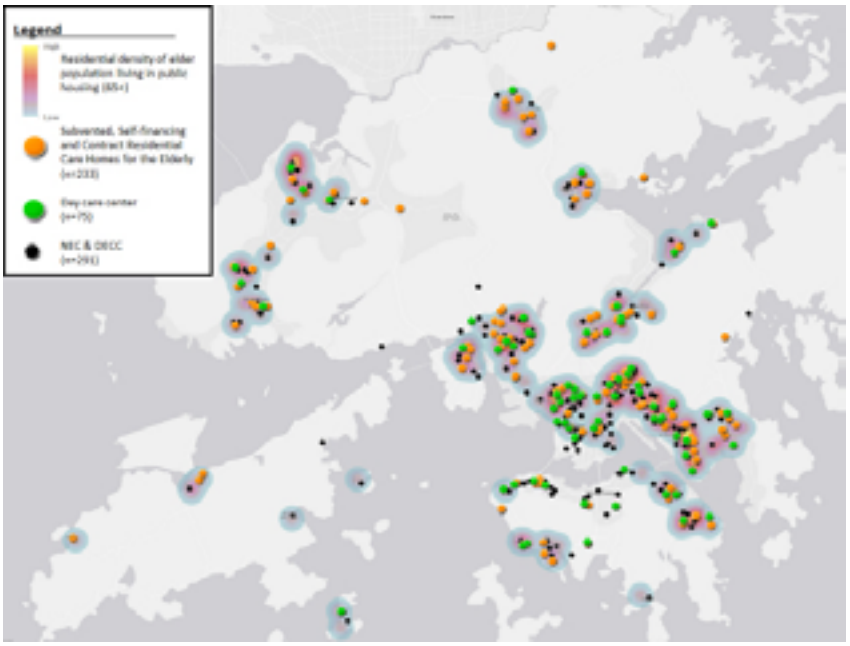
Public long term care services are funded and managed by the SWD under the LWB, and provided through non-profit organizations and private for-profit organizations. They encompass three categories of service: residential care services and residential care homes for the elderly (RCS/RCHE), community care center-based services, and community care home-based services. In addition to services directly provided to the older people, the SWD also recognizes the importance of providing support to their caregivers; as such, carer-support programs are included in some of these long term care services. Despite the various names for programs as described by the SWD on the bureau's website, all programs serve to provide social services to older people at the home level, community level and institutional level.

RCS aims to provide residential care and facilities for older people aged 65 and above who, for personal, social, health and/or other reasons, cannot adequately be taken care of at home. Persons aged between 60 and 64 may apply if there is a proven need (Social Welfare Department , 2015). There are a total of four types of RCS: hostels, Homes for the Aged, Care and Attention Homes (C&A), Nursing Homes and contract homes. Hostels and Homes for the Aged are gradually being phased out and converted into Care and Attention Homes in order to provide a continuum of care.

Community center-based services for frail older people are a relatively new concept compared to RCS. These services, known as Day Care Centres (DE/DCUs), provide a range of daytime care for older people suffering from moderate or severe level of impairment so that they may continue to live in their own homes wherever feasible and possible.

Figure 4.23

Distribution of Long Term Care Services Versus Residential Density of Older People



Data Source: Social Work Department(2016); Housing Authority(2015); Census and Statistics Department(2011)

Integrated Home Care Services (IHCS) and Enhanced Home and Community Care Services (EHCCS) are designed to meet the nursing and care needs of frail older people so that they can age at home in a familiar environment. The service package includes care management, basic and special nursing care, personal care, rehabilitation exercise, nursing care, counseling services, 24-hour emergency service, day respite services and other home help services. Services are also provided for older people with no or mild level of impairments (ordinary cases); such services for ordinary cases are not included as part of government subsidized long term care services. A total of 60 and 34 IHCS and EHCCS teams, respectively, are serving 7056 older people in Hong Kong (Social Welfare Department, 2016).

Social services on the community level also cater to those who are healthy with low impairment level. Services for the healthier group aim at offering older people a venue to socialize and participate in community activities. Seminars on aging and healthcare are occasionally delivered by professionals at these centers, which make them good venues for healthcare promotion work. An annual membership fee is applied at an affordable rate and on-site meal services are available with an additional fee. Currently, the District Elderly Community Centres and Neighborhood Elderly Centres are venues for healthy older people to continue their social lives.

Figure 4.23 shows the distribution of subvented RCS, subvented Community Care Center-based Services (including Day Care Services, District Elderly Community Centres and Neighborhood Elderly Centres). These facilities are mapped onto the residential density of older people living in public housing estates in Hong Kong.

I.Public and Private Market of Long Term Care Services

The provision of long term care services in Hong Kong can be described as a public and private mix that heavily depends on RCS. There are approximately 73,000 residential care places versus some 7,000 community care places. The imbalanced system results in an institutional rate of 6.8%, which is relatively high compared to other developed cities in the world (Sau Po Centre on Ageing and Department of Social Work and Social Administration, 2011). Considering this, long term care policy needs to aim at rebalancing the system by enhancing the community capacity to provide services and ultimately encourage aging in place.

For RCS in Hong Kong, there is a total number of 923 public and private residential care homes for older people, with 73,372 residential care places as of March 2016. Nearly 75% of these places are in private homes, while the remaining are managed by non-profit organizations or contract homes.

As for residential places, since 1998, the SWD has provided the Enhanced Bought Place Scheme (EBPS), which purchases additional residential care places from private homes. As such, approximately 37% of all residential care places, including the private homes participating in the EBPS, receive subsidies from the government, while the remaining 63% are non-subsidized residential care places. Among all residential places, 92.3% are provided by Care and Attention homes, targeting older people with moderate level of impairment.

For community day care services, about half of these facilities are self-financing, while the for-profit market is still at the developing stage. Among all 154 day care centers for older people, about 47% are operated by non-profit organizations with subventions or service fees from the government, providing 3,039 subsidized places. The remaining community day care places are self-financing.

II.Demand for Long Term Care Services

The high demand for public long term care services is characterized by its long waiting time for services. In 2016, a total of 33,531 eligible applicants have been waitlisted for subsidized RCS in the Central Waiting List: 82% are waiting for C&A places and 18% for Nursing Home Places. The average waiting time for subsidized RCS ranges from 9 months for private homes participating in the EBPS to 35 months for subvented homes and contract homes.

For community care services (CCS), there are a total of 6,226 applicants being waitlisted for various types of services. The average waiting time for subsidized CCS in the past three months is 8 months for Integrated Home Care Services (Frail cases)/Enhanced Home and Community Care Services and 9 months for Day Care Centers/Units services as of 31 May 2016 (ESPP, 2016).

Box 4.6

Central Waiting List

In 2003, the SWD implemented the Central Waiting List (CWL) for the registration and allocation of long term care services. Older people may apply for long term care services through authorized referring units in the SWD, non-profit organizations and the HA. They need to undergo a standardized assessment test (SCNAMO(ES)s) to determine their eligibility for receiving services. Services are allocated based on health and social needs. Eligible older people are triaged to three different options: Residential Care Services (RCS) only, Community Care Service (CCS) only and RCS or CCS (dual option). Because the waiting time for RCS is much longer than CCS (Legislative Council Panel on Welfare Services, 2015), older people who are assessed as "RCS only" or "dual option" are given the choice of receiving CCS while waiting for RCS. Those assessed as RCS only can use CCS while continuing to wait for RCS places. Those given the dual option can opt for CCS first while continuing to wait for RCS.

III.Investment to Expand Long Term Care Services

In response to the increasing demand for long term care services, the government of Hong Kong has allocated additional funds to cater to the needs of older people. The government also pledges to allocate a recurrent provision of HK$140 million from 2016-17 onwards to provide more subsidized residential care places, enhance existing RCS and upgrade 1,200 places under the EBPS.

In 2015-16, the government provided 1,600 additional places for the Enhanced Home and Community Care Services, and the government further pledges a recurrent provision of HK$17 million allocated to provide 160 additional day care places for older people starting from fiscal year 2016-17. In the long run, the government is planning 15 development projects or vacant buildings for the provision and conversion of existing facilities into residential care homes and day care centers for the older population.

IV.Competencies of Long Term Care Services Workers

The quality of RCS provided by RCHEs has been called into question, with obvious disparities in their space and staffing **(Figure 4.24)**. The poor service quality of private homes leads to their high vacancy rate and the high percentage of warning letters on non-compliance with licensing requirements issued against them (Audit Commission, 2014). In addition, 7% of the EBPS places operated under private homes remained vacant, reflecting older people's lack of trust with the private sector. In response to the deteriorating quality, the SWD had upgraded the quality standards of private RCHEs though the EBPS program (Audit Commission, 2014).

Figure 4.24

Spacing and staffing provisions in RCHEs providing C&A places

	RCHEs offering subsidised places			RCHEs not offering subsidised places	
	Subvented RCHEs	Contract RCHEs	Private RCHEs in EBPS	Private RCHEs not in EBPS	Self-financing
Average net floor area per resident	17.5 m^2	20.8 m^2	8.9 m^2 (EA1: 9.9 m^2 EA2: 8.3 m^2)	7.5 m^2	17.1 m^2
Average number of staff per 100 residents					
Nurse	5.1	7.7	2.6	0.2	3.2
Health worker	2.8	4.6	5.8	3.4	4.6
Care worker	16.8	18.7	14.7	8.4	15.2
Ancillary worker	12.8	8.7	7	3	9.8
Other staff	3.2	2.6	1.9	1.3	2.2
Total	40.2	42.3	32	16.3	35

Source: Audit Analysis of Social Work Department Records (2014)

V. Vouchers as a Funding Mechanism for Long Term Care

The financing of long term care in Hong Kong is heavily subsidized by the government. In view of the increasing expenditure, the government is exploring the use of vouchers to shift demand for RCS to CCS. As such, the government launched the Pilot Scheme on Community Care Service Voucher for the Elderly (CCSV), which encourages the use of community day care services and promotes aging in place.

The CCSV with HK$1 billion from the Lotteries Fund, was launched in 2013. The first phase of the scheme was completed and evaluated by the University of Hong Kong (Sau Po Centre on Ageing [COA], 2015) . Based on the results of the mid-term evaluation, the pilot scheme was modified and will be extended to all 18 districts in the territory this year, with the number of service vouchers being increased to 3,000. The preliminary considerations identified in the mid-evaluation report of the CCSV include the following:

Lack of Flexibility in Voucher Service Provision. The services for the voucher are currently delivered in two modes. Voucher holders can either choose to enjoy part time day care services or a part time day care mode plus home-based services. According to the COA (2015), caregivers of voucher holders expressed that the modes of services offered are limited, especially for elders with cognitive impairments who need full-time and multiple types of care. The inflexible service mode makes it difficult for caregivers who work full time to participate in the program.

Inadequate Service Units. With reference to the COA (2015), some caregivers expressed that there were no service units near their homes; hence, it was difficult for them to utilize the day care services. A comprehensive service allocation analysis can provide information for the government to decide on the most suitable locations to establish new day care service units. In addition, the quality of services also vary. Some of the day care centers did not offer services for elders with cognitive impairment. Other caregivers expressed that they needed to pay a top up fee in order to receive personalized care for their parents.

Limited Information Sharing. Accessibility to information is necessary for voucher holders to choose the type of services that best fit their needs. Having access to information will also increase competition among service providers. As a result, voucher holders can enjoy personalized and good quality services at a relatively low cost. According to the COA (2015), voucher users expressed that they had limited information and knowledge regarding the services provided by the community day care centers. Others expressed that they found the information packet too difficult and complicated to digest.

Low Incentive to Purchase Community Care Services in the Private Sector. In the first phase of the CCSV pilot program, voucher receivers may have had a low incentive to use CCS in the private sector because of the copayment system, ranging from HK$500 to HK$2,500 dollars per month. While copayments are necessary and promotes a culture of independence, external factors may affect the vouchers' ability to reallocate demand from the public to private sector. The current monthly charges for subvented Care and Attention Homes can be as low as HK$1,605. The fee is so low that it creates a large demand even with a waiting time of nearly 3 years. Because of this, people will prefer to wait for around the clock care in residential homes with a payment of less than HK$2,000 per month than to receive part time day care services for HK$500 per month. Because of this, a holistic policy plan and incentives for people to opt for community care services must be considered.

VI. Criticism towards Current Long Term Care Systems

The long term care system in Hong Kong, responsible for the provision of social and healthcare services for older people, has been described as a "sporadic" and "patchwork" of services instead of a comprehensive and coordinated care system (Chung, et al., 2009). The system is also criticized for its high institutionalization rate (6.8%), which tops all OECD countries (Sau Po Centre on Ageing and

Department of Social Work & Social Administration, The University of Hong Kong, 2011) . In addition, although there are many resources for older people in Hong Kong, they are provided by separate departments and organizations that lack good continuity and coordination, resulting in ineffective care (Chung, et al., 2009).

Ineffective care is evident in 40.8% of avoidable unplanned readmissions (Yam, et al., 2010). Latest information from the HA also suggests that 26.9% of hospital admissions were unplanned, according to unpublished data from the JCSPHPC. These avoidable readmissions were associated with the fragmentation between the social and healthcare sectors, including a low threshold for admission and pre-mature discharge, inadequate discharge support planning and lack of support and community services (Yam, et al., 2010). For the frail and impaired, 34.5% of all unplanned admission are from Care and Attention Homes. In regards to end-of-life care, 33.5% of RCHE residents die in hospitals, in which 34.7% are those with two admissions into the department of medicine and geriatrics during the last six months of their life (Shum, 2014).

If adequate healthcare services are provided in the social settings of RCHEs, many frail older people can receive medical care in residential care homes. That would help prevent further deterioration of their health and minimize the unnecessary and undesirable experience of their getting in and out of hospitals. Again, the problem seems to stem from interface issues in the provision of care between the social and healthcare systems. Considering this disconnect between the social and healthcare services, the current report suggests policy options for the government to build an integrated person-centered care system.

4.3.5.3 Integrated Services for Aging in Place

Aging in place has been adopted as a major policy direction by the government of Hong Kong. An earlier survey also showed that older people who belong to the low-income group also prefer aging in place (80.4%) (Lum, et al., 2014). In particular, those who have medical facilities within reach and who live near an Elderly Health Centre show a higher likelihood of aging in their community (Lum, et al., 2014). Findings suggest that living in a supportive neighbourhood with medical and social facilities is associated with higher preferences for aging in place. In fact, several programs have been launched by the government to facilitate integrated services. The following describes a discharge program that aims to provide a continuum of services, promote the use of technology to support service integration and introduce a pilot program that mobilizes community resources to provide primary care.

I.Integrated Care and Discharge Support for Elderly Patients: Transition from Hospital to Community

The Integrated Care and Discharge Support for Elderly Patients (ICDS) program establishes partnerships between the HA and non-profit organizations vertically, to ensure patients who are discharged from in-patient units will receive necessary medical and social care once they re-enter the community. The ICDS, originally named Integrated and Discharge Support for Elderly Patients (IDSP), was first launched in three hospitals, the United Christian Hospital, Princess Margaret Hospital and Tuen Mun Hospital, between 2008 and 2009.

The program aims to reduce the risk of AED attendance and hospital readmission through providing better transition care from the hospital to the community. Enrollees in the program include older patients who are at high risk of hospital readmission and with poor home support. Issues associated with the implementation of the initial program launched between 2008 and 2009 were identified in a qualitative study interviewing the HA service providers (Wong et al., 2011). Based on findings of this study, it seems that (a) increasing manpower, (b) introducing social care elements during the assessment and discharge planning process, (c) strengthening community support and (d) enhancing patient literacy can increase the effectiveness of the hospital discharge programs.

According to Wong et al., (2011), manpower shortage is a common problem discussed among

healthcare providers. The issue may lead to premature discharge from hospital, which lowers the effectiveness of ICDS even if a seamless discharge program is implemented.

Interviewees also expressed that assessment and discharge planning is carried out by clinical professionals, who do not feel competent enough to make referrals for social services upon discharge because they are not trained in the area. Healthcare interviewees suggested that assessment and discharge planning be carried out by a multidisciplinary team with specialists for medication reconsiderations and facilitating psychosocial support. This type of support can enhance the effectiveness of the program.

The study also highlighted issues with service accessibility once patients are discharged. Typical problems encountered by patients include a time gap between patient discharge and social services provided by the social sector. The gap existed because patients need to have their needs reassessed by the SWD for suitable social services after they are discharged. Having professionals from the SWD participating in assessment and discharge planning in the in-patient ward may help avoid duplicated assessment and shorten the time gap of service provision. Another problem is the lack of transportation services that hindered patients from receiving necessary social support in the community to prevent unnecessary readmission to hospital. The research suggested that the government consider strengthening community support to ensure a smooth transition from hospital to the community.

Service providers participating in Wong's study also pointed out a lack of knowledge in medication treatment among older patients, resulting in their strong desire of staying in the hospital. This may reflect a dependency culture among older people toward the healthcare system and a need to have better programs for patient education and empowerment. While changing such an attitude and increasing the health literacy of older patients is a longer term goal, investing in health promotion and disease promotion is worthwhile because it can decrease A&E and inpatient hospitalization in the long run.

Based on outcomes of the evaluation study, a new case management approach, the Integrated Care Model, was later adopted after the launch of the IDSP. In additional to the original home support services, enhanced components, namely Rehabilitation, Intense Home Nursing Care and Intervention and Community Nurse Service Enhanced Support Services are included in this new model for patients with more complex and social problems. After the program was renamed, it was then regularized in 2011.

Under the protocol of the revised ICDS, older people being admitted to hospital will be first screened for their likelihood of hospital readmission upon discharge. Older people with a High Admission Rick Reduction Program for Elderly (HARRPE) score that is over 2.0 upon admission or those with clinical recommendations will be referred to ICDS for comprehensive risk assessment and discharge planning. This process, coordinated at the in-patient wards, is performed by link nurses. The patients will then be triaged to various services in the community based on their needs. Once discharged, services for the older people will be coordinated by case managers in the community, which include respite and outpatient services (e.g. Patient Support call Center, Specialists Out-patient Department and Geriatric Day Hospital), case management for specific diseases, and community nurse services provided by the HA, and Home Support Services provided by partnering non-profit organizations.

Based on research findings of the program's initial launch at the three hospitals, the IDSP reduced A&E attendance (-40%) and acute hospital admissions (-47%) and hospital bed days (-31%) (Lin, Lik, Chan, Mok, & Chan, 2015). The functional outcome and health related quality of life of participants of the program also increased (Lin, Lik, Chan, Mok, & Chan, 2015).

II.Community Health Call Center and eHRSS: Integration of Technology and Health Services

Specific to healthcare, the government

has introduced information and communication technology in the healthcare system to drive up the health of the general population and at-risk patients. For instance, the launching of the Electronic Health Record Sharing System (eHRSS) in 2016 allows information exchange between the private and public healthcare sector, and thus serves as the technological infrastructure supporting the PPP initiative.

The establishment of telephone call centers by the HA is another example. Community Health Call Centre (CHCC) services were introduced in 2009 as a means of delivering healthcare advice via telephone from trained nurses to targeted patients through a system of information and communication technology, statistical modeling and the Electronic Patient Record (ePR) system. One facility of the CHCC is the Patient Support Call Centre (PSCC), targeting high-risk older patients with diabetes mellitus who have recently been discharged from public hospitals.

III.Pilot Scheme on Dementia Community Support Services for the Elderly: Re-discovering Community Resources for Primary Care

In the review of existing dementia care services by the Review Committee on Mental Health under the FHB, the Chief Executive announced in the 2016 Policy Address that a pilot scheme would be launched to enhance the dementia support services in the community setting through a medical-social collaboration model. Through this pilot scheme, older people aged 60 and above who suffer from mild or moderate dementia will be provided support services through District Elderly Community Centres (DECCs) subvented by the SWD.

Based on the care plans formulated jointly by the HA and the SWD, the DECCs will provide suitable care, training and support services to older people with dementia at the community level. Eligible non-profit organizations are given a lump sum to hire general practitioners from the private sector, nursing officers, occupational therapist, physical therapists or social workers to provide additional healthcare services to the older people. In addition, carers will be provided with knowledge of care, stress management training, counseling services and other supports.

Besides, through cross-sector collaboration, older people attending the DECCs for dementia services will be referred to fast track specialist services for dementia by the HA. This two-year pilot scheme will start in February 2017 in Kwan Tung, Sha Tin and Tseung Kwan O with a total provision of HK$98.88 million and is expected to benefit about 2,000 older people in the first phase.

4.4 Hong Kong as an Age-Enabling City: Summary of Existing Research

This section reviews two studies on the age-friendliness of Hong Kong. The Age Watch Index Project was led by the CUHK Jockey Club Institute of Ageing, and the Jockey Club Age-Friendly City Project was led by the Hong Kong Jockey Club Charities Trust in collaboration with aging institutes and centers in four universities in Hong Kong.

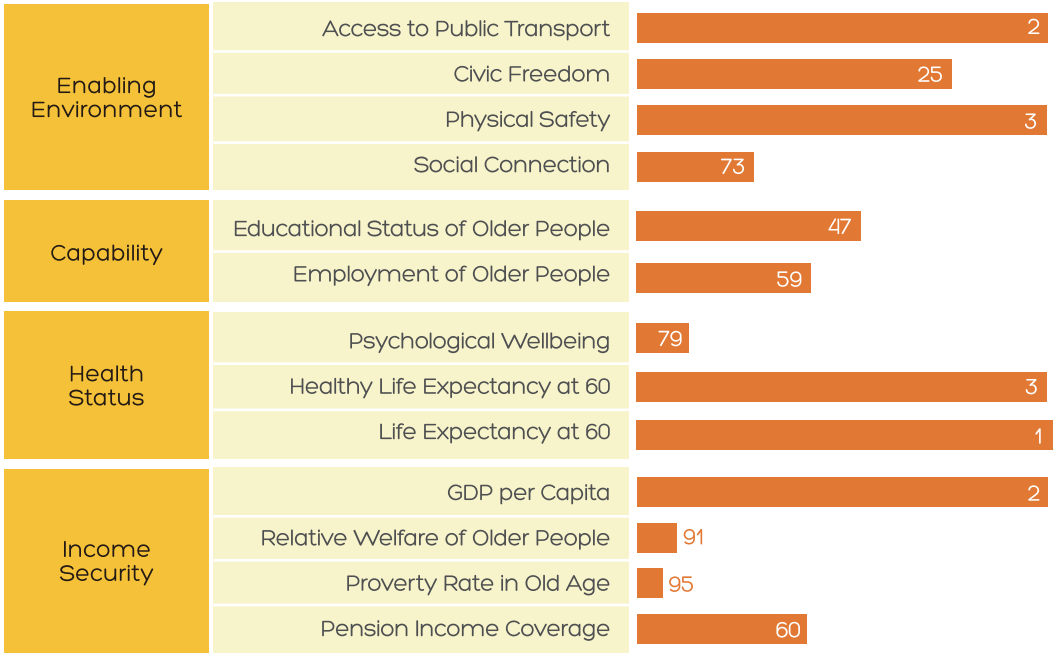
4.4.1 Age Watch Index for Hong Kong 2014

The Age Watch Index evaluates the various dimensions of older people's well-being, such as income security, health status, capability and enabling environment, in a country and compares how it has performed among other countries. In 2014, the CUHK Jockey Club Institute of Ageing compiled the Age Watch Index for Hong Kong using various data sources to assess the well-being of older people in the city compared to other countries.

Findings show that, overall, Hong Kong is ranked 24th among 97 global territories on its age-friendliness. A closer look in the rankings suggests that Hong Kong is ranked lower compared to other OECD countries (e.g., Japan ranked 9th and the U.K. ranked 11th). However, Hong Kong is performing quite well in the health status (9th) and the enabling environment (4th) domains. However, there is room for improvement in the capability (33rd) and income security (75th) domains. **Figure 4.25** shows the ranking of Hong Kong among the 13 indicators of the Index.

Figure 4.25

Rankings of Hong Kong in the 13 indicators of Global Age-Watch Index
(Out of 97 countries/ territories)



Source: CUHK Jockey Club Institute of Ageing (2014)

Hong Kong is ranked high in its accessibility to public transportation and physical safety, yet extremely low in social connection. Similarly, for health status, Hong Kong's older people are ranked high in their physical well-being, yet extremely low in psychological aspects. In regards to income security, the sharp contrast in rankings of high GDP per capita (2nd), relative welfare (91st) and poverty rate (95th) shows the wide income gap experienced by older people in the city. Findings suggest that poverty among older people is an important issue, and that helping future older people build economic capital is necessary. Additionally, it would be important to focus on the psychological and social well-being of older people and establish social capital for them to lead fruitful and meaningful lives.

4.4.2 Jockey Club Age-Friendly City Project

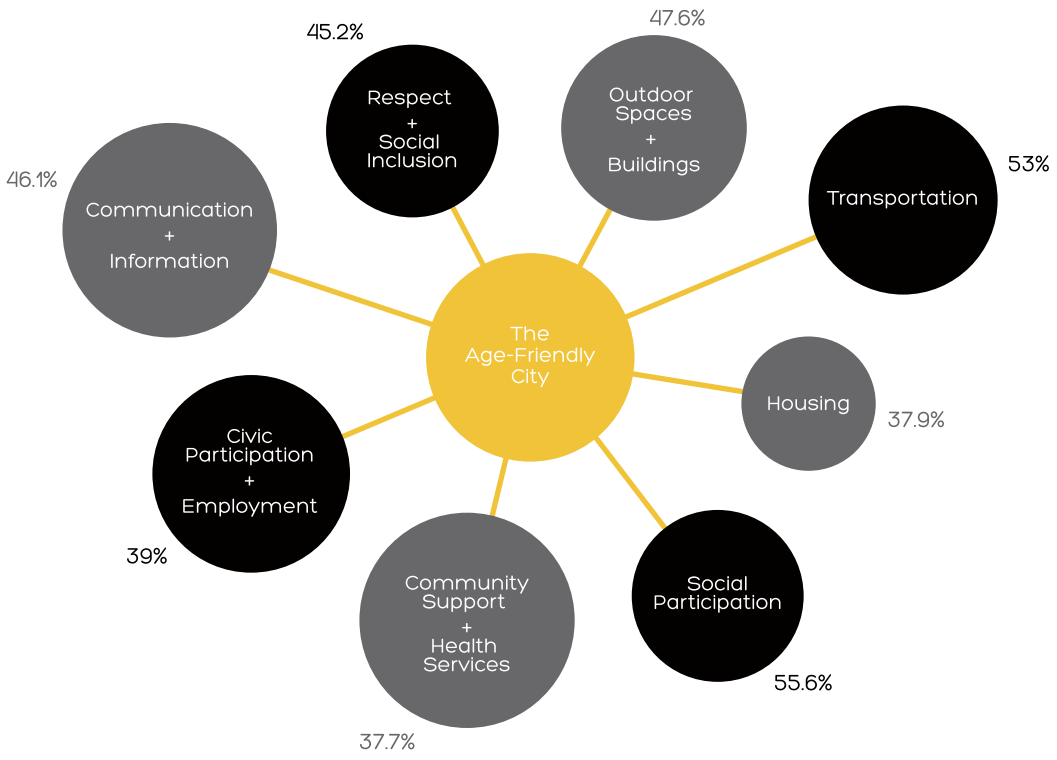
The Jockey Club Age-Friendly City Project evaluates the age-friendliness of different Hong Kong neighborhoods based on the WHO Age-Friendly City Guide. Participants' opinions on age-friendly city domains such as the health, social and physical infrastructures of the city in meeting the needs of older people were examined.

In 2016, the first round of results were released. Using the eight criteria of the WHO (see Chapter 3 for details), the Project surveyed 4,274 participants and interviewed 347 adult participants in Hong Kong (Group 1: Aged 50 or below, Group 2: Aged 50 to 64; Group 3: Aged 65 to 79 and Group 4: Aged 80 or above). Results showed that, in general, only half of the respondents agree that Hong Kong is an age-friendly city **(Figure 4.26)**. In particular, less than 40% are satisfied with Hong Kong's community and health services, housing, and civic participation and employment for older people.

Unfortunately, a standardized mean on the level of age friendliness across the globe is not available; as such, a full picture of where Hong Kong ranks internationally is unavailable. Nevertheless, this study helps identify areas of improvement for Hong Kong, especially in regard to civic participation and employment, housing, and community and health services, to establish a city that truly embraces and respects older people.

Figure 4.26

Percentage of Respondents Agreeing to Different Aspects of Age-friendly City



Source: CUHK Jockey Club Institute of Ageing (2016)

4.5 Towards Integrated and Person-Centered Services: Results from Primary Research

Based on results of the secondary research mapping the landscape of aging in Hong Kong, we conducted primary research to further understand the provision of health and social care services in Hong Kong from the perspectives of professional stakeholders and older people. Both qualitative and quantitative methods were employed. We collected qualitative primary data using one-on-one interviews and focus groups to understand the perspectives of health and social care professionals in the elderly care sector and the perspectives of older people towards primary healthcare services in Hong Kong. We used quantitative secondary data from the Social Work Department to examine the health and social profiles of older people who are matched with long term care services. The following describes results of these research.

4.5.1 Perspectives of Health and Social Care Professionals on Elderly Care

To further understand the aging culture and the governance of aging policies in Hong Kong, we interviewed frontline workers, healthcare policy advisors and aging experts. Fifteen participants were interviewed via one-on-one meetings or telephone conversation. Of the 15 representatives, 7 were from the public sector, 6 were academics, and 2 were in the philanthropic field. Their views, experiences, concerns and recommendations on healthcare services for older people were explored. The findings are summarized into 3 categories encompassing 8 themes (Table 4.4):

Table 4.4

Categories	Theme
Issue with health and social care culture among older people in Hong Kong	1. Medicalization of social problems, because of, (i) Dominance of the medical professions (ii) Lack of health knowledge and competency among social and health workers
	2. Dependency Culture, because of (i) Extremely good public services (ii) Dominance of the medical professions (iii) Poor health literacy among older people
	3. Lack of departmental collaboration results in waste of resources
	4. Misallocation of resources
Solution to promoting health and quality of life of older people	5. Promoting Self-Management and De-medicalization culture.
	6. Establish partners in the community
Key elements in establishing a coordinated governances for aging policy	7. Overarching policy with shared values
	8. Trust, mutual interests and communication

4.5.2 Voices of Older People on Health Services

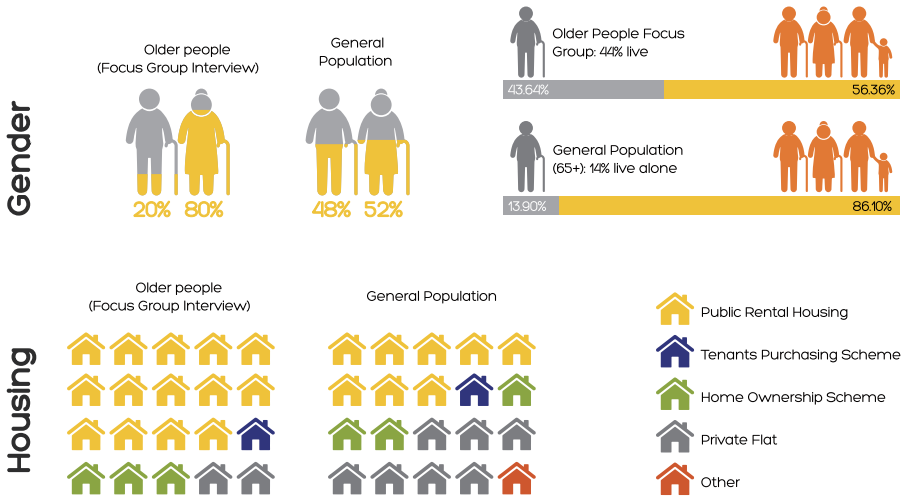
Public-private partnership have become a key government initiative in delivering healthcare services for people with chronic diseases. As discussed in Section 4.4, GOPC-PPPs and the Elderly Health Care Voucher Scheme (EHCVS) are some of the programs launched by the FHB. In order to further understand factors that affect older people's satisfaction towards public and private health services in Hong Kong, we conducted a series of focus group interviews. 55 older people were interviewed in 8 focus group interviews conducted in 7 different Neighbourhood Elderly Centres (NECs) **(Box 4.7)**. The findings reveal the pros and cons of the public and private primary healthcare sectors in Hong Kong. They can guide us in the development of improved implementation strategies, policies or programs for bridging the sectors to provide better health services for older people in Hong Kong.

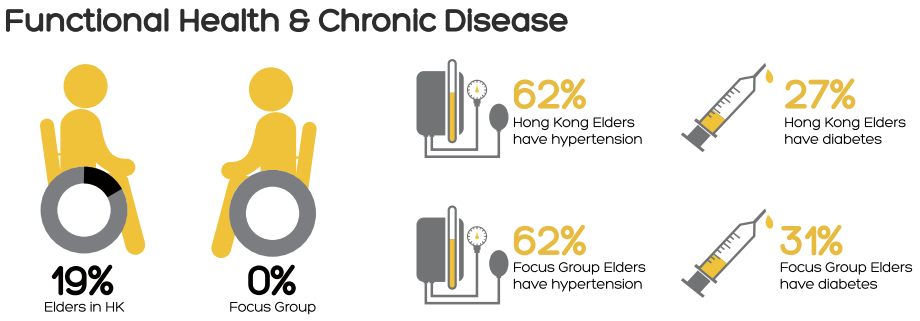
Older people from Tin Shui Wai and Kwun Tong districts were interviewed. These districts were selected because they host two of the three Community Health Centres (the remaining one is situated in North Lantau) proposed by the FHB as one of their primary care initiatives in 2010. In addition, Kwun Tong has the highest density of older people, and Tin Shui Wai is a relatively new town with housing estates networked with various social facilities. Interviewees were referred by local NECs and district counselors.

Box 4.7

Who are the Older People in the Focus Group Study?

Particular characteristics of the interviewees (n=55, aged between 61 and 94) were compared with those of the general population obtained from Census data to understand the sample's representativeness. Compared to the general population, the interviewees had a greater representation of females, those who lived alone, those who lived in public housing estates, and those who had high levels of physical mobility. They also had a high percentage of diabetes.



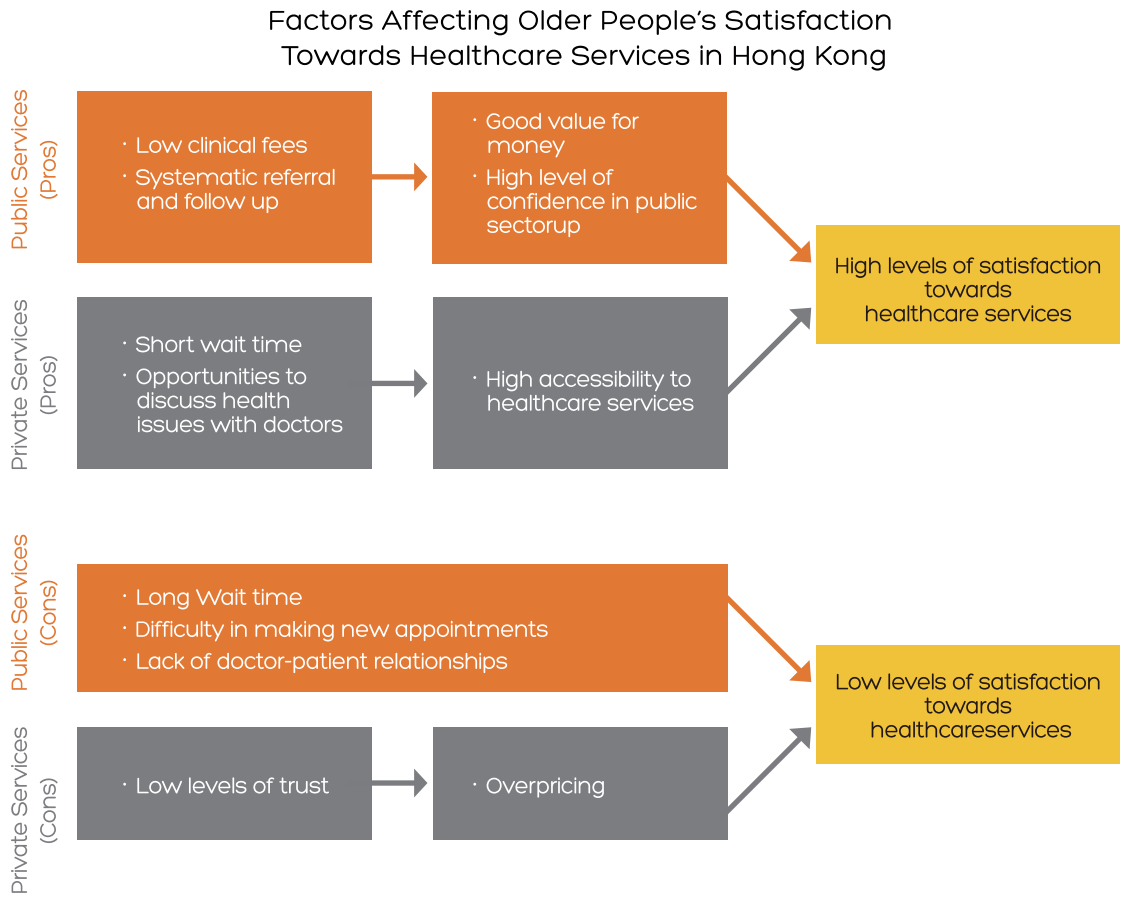


Data Source: Census and Statistics Department (2011, 2014, 2015 & 2016); Our Hong Kong Foundation

4.5.2.1 Determinants of Older People's Satisfaction towards Health Services

Based on results of the focus group interviews, we identified attributes of the public and private healthcare services that affect older people's satisfaction level. **Figure 4.27** illustrates the pros and cons of the public and private primary healthcare services. Given that the public sector charges low clinical fees and offers a systematic and transparent follow-up and referral procedure for disease management, older people in general perceive public healthcare services as good value for money and have a high level of confidence in the sector. These factors seem to outweigh the cons of long waiting time and the lack of doctor-patient relationship, resulting in their preference for the public over the private sector.

Figure 4.27



Categories emerged from the focus group interviews are grouped into 2 major areas: Older people's perspective towards public healthcare services, and older people's attitudes towards private healthcare services. The following discussed the 8 themes emerged from the focus group interviews (Table 4.5):

Table 4.5

Categories	Themes
Perspective towards public healthcare services	Low Clinical Fees
	Systematic follow up and referral procedures
	Long Wait Time for specialist services
	Difficulty in making new appointments
	Inadequate knowledge in using the telephone appointment system
	Lack of doctor patient relationship
Perspective towards private services	Short Wait Time
	Opportunities of establishing doctor-patient relationships
	Private practitioners are profit maximizers

4.5.2.2 Perceptions towards the Elderly Health Care Voucher Scheme

During the interviews, we also explored older people's perception towards the Elderly Health Care Voucher Scheme (EHCVS). The interview data can give us some perspectives of the policy and identify the areas for improvement to ensure the smooth implementation of existing and future voucher services. Based on older people's accounts, vouchers improve the quality of healthcare services for older people because they are given the opportunity to choose services from the private market. However, the EHCVS does not seem effective for achieving its original goal of shifting healthcare service demand from the public to private sector, promoting preventive services and building doctor-patient relationship. Even with a direct subsidy from the government, the high clinic fees charged by private doctors and the lack of trust in the private sector among older people discouraged them from purchasing healthcare services from private medical practitioners, especially for the management of chronic disease. The following are the themes that emerged from the interview:

Vouchers improve the quality of healthcare services because they increase accessibility to services, in terms of shorter wait time and wider scope of services. Some older people expressed that with direct subsidy from the government, they were able to use healthcare vouchers to seek help from the private sector immediately, especially when they suffered from acute episodic illnesses (e.g. cold and fever).

In addition, some older people said that having the vouchers allowed them to purchase services that would be otherwise unavailable in the public sector. Participants mentioned 14 types of medical services they have obtained from using the vouchers, such as health checks, X-rays, vaccinations, or dental services etc.

Vouchers fail to establish continuous doctor-patient relationship. Vouchers also allow older people to see private doctors, who tend to be more patient and have more time to discuss their health issues. Unfortunately, while some participants mentioned that seeing a private doctor allows them to discuss their problems in detail with a practitioner, none of them expressed having a permanent relationship with a designated doctor. One participant expressed that he would go back to the same doctor only if they got along. The process of picking a suitable doctor and establishing a doctor-patient relationship usually takes a long time, for which many participants do not have the time and monetary resources.

Information transparency and the feedback of private practitioners in the neighborhood may be useful for helping voucher recipients to initially screen for suitable doctors.

EHCVS does not create enough incentive for older people to use services from the private sector because of perceived insufficiency of the subsidy amount, few services providers to choose from, and satisfaction with public services. The major complaint about the implementation of the EHCVS is the insufficient subsidy provided by the program, which deterred many older people from seeking services from the private market. However, another explanation could be that it is not the voucher amount; rather, it is related to the issue of better targeting of voucher services. If the vouchers were targeted for screening and initial management of chronic conditions of primary care services in addition to episodic acute illness, this could provide a feasible basis for older people to plan usage.

Another complaint includes not having enough private healthcare services providers accepting voucher services in the market. Insufficient providers may negatively affect the quality of the services and drive up pricing of the services.

The positive attitudes that older people have towards the public healthcare system also keep them within the public healthcare system and lower the effectiveness of EHCVS in reallocating demand from the public to private sector. Some potential explanations for older people's preferences could be the large discrepancy between the charged fees between the private and public sector and the high levels of trust that the general population have towards the public healthcare sector.

Older people perceive the EHCVS as a social welfare policy. The perception of the EHCVS as a social welfare policy is seen as the older people's reason for lowering the age eligibility of the EHCVS from 70 years old to 65 years old. Because it is seen as a social welfare policy, instead of a preventive healthcare policy, many older people prefer to save the voucher up for treatment rather than health maintainance, rendering the EHCVS ineffective.

4.5.3 Unmet Needs of People Applying for Long Term Care Services

Long term care services in Hong Kong are provided to older people based on their health and social needs. Considering the long waiting time for both subvented Community Care and Residential Care services in Hong Kong, we hypothesized that there were unmet health and social needs among older people in the community who are waiting for long term care services because of inadequate supply of it. In an effort to study the needs of these older people waiting for long term care services, we acquired data from the SWD for analysis. Findings lead relevant policy recommendations that will be discussed in Chapter 5.

The quantitative study implemented used secondary de-identified data from an original assessment conducted by the SWD from October 2013 to September 2014. Data was obtained under the Standardized Care Need Assessment Mechanism for Elderly Services (SCNAMO(ES)), which administers the internationally recognized Minimum Data Set-Home Care (MDS-HC) questionnaire to evaluate whether or not applications are eligible for long term care services. For those who are eligible, results of the assessment also match the clients with specific options of long term care services: Community care services only (CCS); Community care or residential care services (Dual Option); and residential care services only (RCS).

The MDS-HC questionnaire consists of several sections with questions regarding demographic information, referral items, physical health impairments, mental health needs, social functioning, functional health needs, disease diagnoses, preventive health measures, nutrition, dental health, medications, service utilization, informal support services and other environment-related questions. Assessors are trained professionals from various disciplines, such as social work, nursing, occupational therapy and physiotherapy. Assessments can be conducted at specific units of the SWD, the HA or accredited non-governmental organizations. Accredited assessors visited households throughout the territory and gathered data from 23,652 older adults aged 50 and above. Referral from a social worker is necessary in order for applicants to be assessed by SCNAMOES.

4.5.3.1 Socio-Demographics of Long Term Care Services Applicants

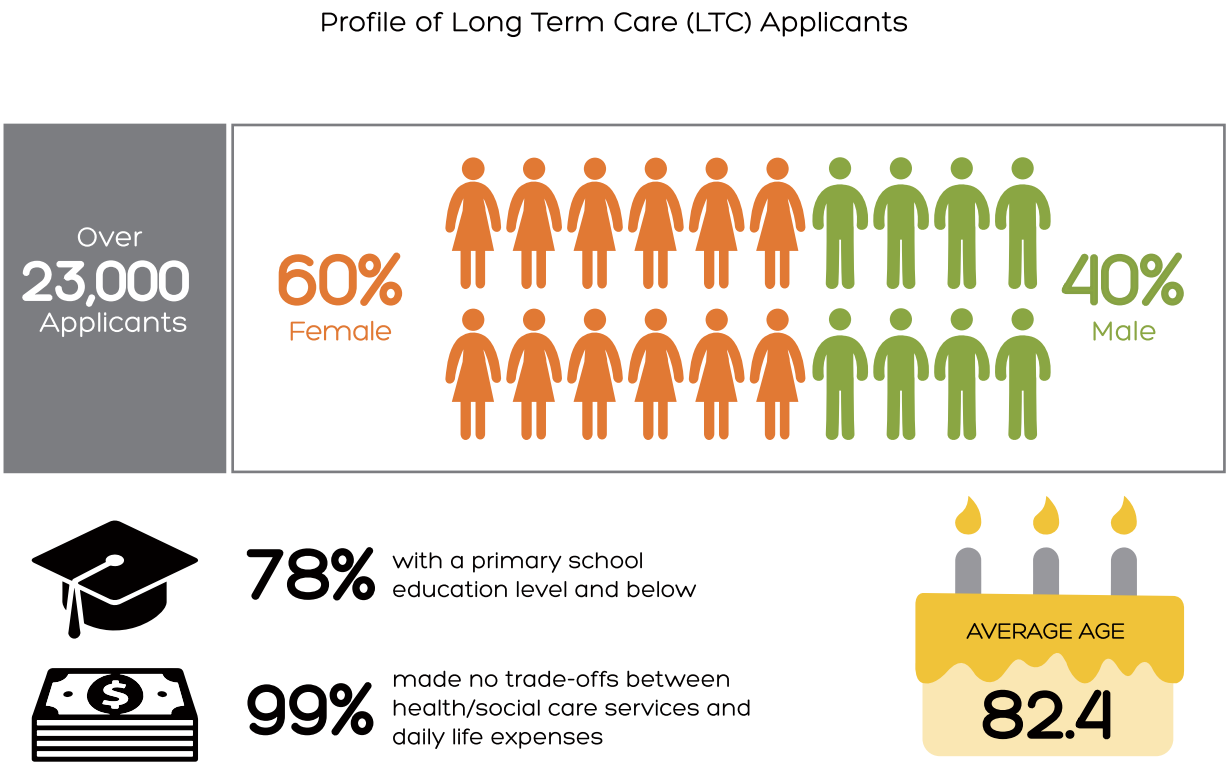
Socio-demographic characteristics of the sample set were first analysed. More than half of people in the data set are female and the average age is 82. In addition, the majority have a primary school level of education or below. As information on the income level of subjects was not collected during the time the survey was taken, a question asking whether or not an applicant is inclined to make trade-offs between paying for health or social care services with daily life expenses was used as a proxy indicator. Our analysis showed that almost no applicant experienced making trade-offs **(Figure 4.28).**

4.5.3.2 Health Characteristics of Older People Applying for Long Term Care Services

Here, we examined the health characteristics of older people who are applying for long term care services. Studying the needs of those admitted into CCS or RCS provides key information into the level of frailty and care needs of these groups waiting for services in the community. Those who were not admitted into the system should also not be left out, as any unmet needs may continue to be untreated or unresolved, resulting in frailty and impairment at later stage in life. **Figure 4.28** illustrates the health characteristics of those matched into CCS and RCS as well as those who are rejected from services. The research team also carried out logistic regression comparing the differences in health status of the applicants matched with different long term care services, and the psychological and social health of their caregivers.

In terms of physical health, the RCS group has the highest number of chronic conditions, followed by the CCS group. The no service group also suffer from an average number of 2.8 chronic conditions. The prevalence of diabetes ranges from 29% to 36%, with the CCS only group having the highest percentage of people suffering from the disease. For hypertension, the prevalence rate is similar for all groups, which ranges from 70% to 73%. While those older people eligible for long term care services clearly have high chronic health needs, those who are not eligible for long term care services also suffer from multimorbidity. Hence, while primary care is necessary in the community to meet the needs of those in line for long term care services, the care system should also allocate resources to target at those who are not eligible for long term care services in the community.

Figure 4.28



For health services utilization, among nearly all older people who are assessed as not being eligible for long term care, half reported to have been hospitalized within the past 6 months. For the CCS group, 87% indicated using scheduled general practitioners' services and 12% of the RCS group used unscheduled medical services, including AED **(Figure 4.29). The** results, again, indicated that all older people have health needs, regardless of their eligibility for long term care services. Additional resources are needed to provide accessible healthcare services for the most frail group waiting for long term care services in the community as they tend to have more complicated health situations that require immediate care.

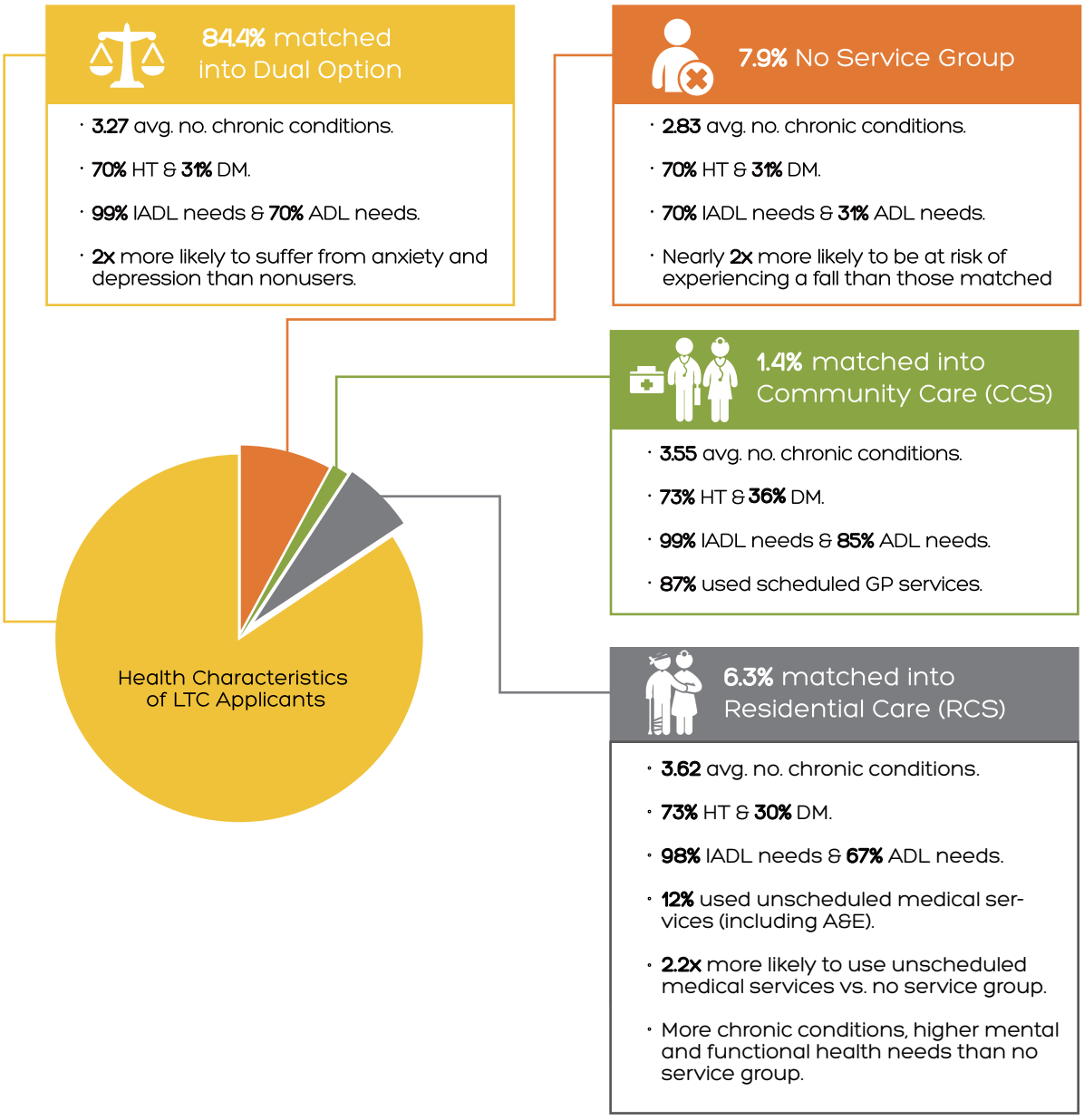
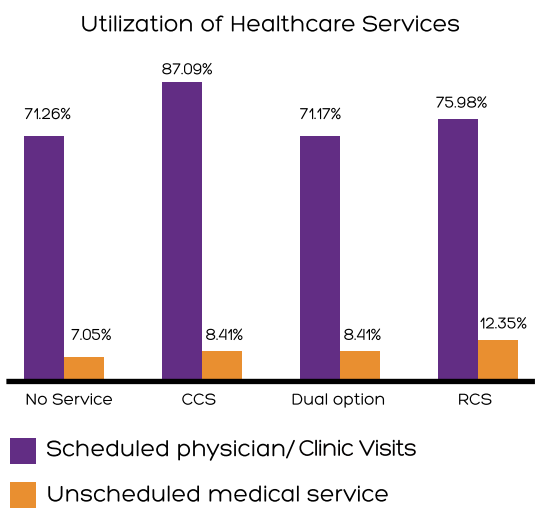


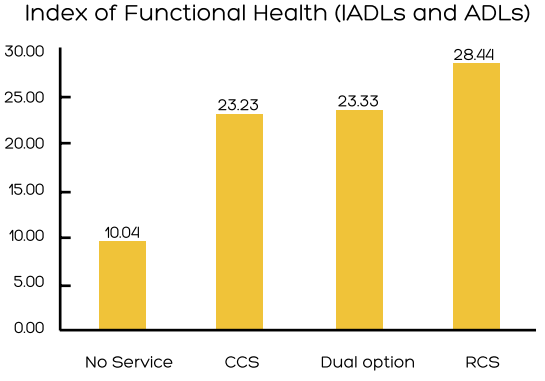
Figure 4.29



Data Source: Social Work Department (2013-2014); Our Hong Kong Foundation

For functional health, according to the Index of Functional Health constructed by the in-house research team, those admitted to RCS have the highest functional needs score, followed by the CCS and dual option group, while the no service group scored the lowest **(Figure 4.30)**. While approximately 99% of the CCS only, dual option and RCS only groups have IADL needs (i.e., doing housework, taking medicine, and managing money independently), 74% of the non-eligible service users have a significant need for more formal IADL care. For ADL needs (i.e., eating or showering), 85% of the CCS only group, 70% of the dual option and 67% of the RCS group are in need of ADL help. As for the no service group, still 31% of them indicated having ADL needs. Findings suggest a need to expand home-based care services, even for those assessed to be ineligible for long term care services, in the community.

Figure 4.30

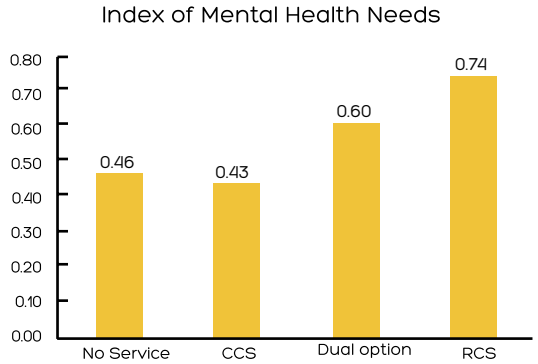


Data Source: Social Welfare Department (2013-2014); Our Hong Kong Foundation

In regards to fall risk, 36% of older adults who are ineligible for a service group had experienced a fall within the past 90 days and are 2 times more likely to experience another fall compared to those admitted into RCS. Similar figures for fall risk were shown among those who had been admitted into either CCS or RCS. Older people are also dealing with persistent pain, with more than half of the no service group reported having experiencing chronic pain. Results suggest the need for expanding rehabilitation services in the community.

Finally, unmet mental health needs were also studied. The Index of Mental Health Needs, constructed by the in-house research team, shows that those waiting for RCS and dual option receive relatively high scores, while the CCS only group scores lower than the no service group **(Figure 4.31)**. Among those who were not admitted into long term care services, 87% reported having cognitive-related issues, such as decision-making and short term memory problems. In addition, 7% are considered to have a mood problem that requires intervention, such as severe depression or anxiety, and 3% report behavioral symptoms that are distressful to either themselves or others, such as verbal or physical abuse, wandering and resisting care. Thus, these findings show that those who are not admitted into the long term care system are also in need of health and social care services.

Figure 4.31



Data Source: Social Welfare Department (2013-2014); Our Hong Kong Foundation

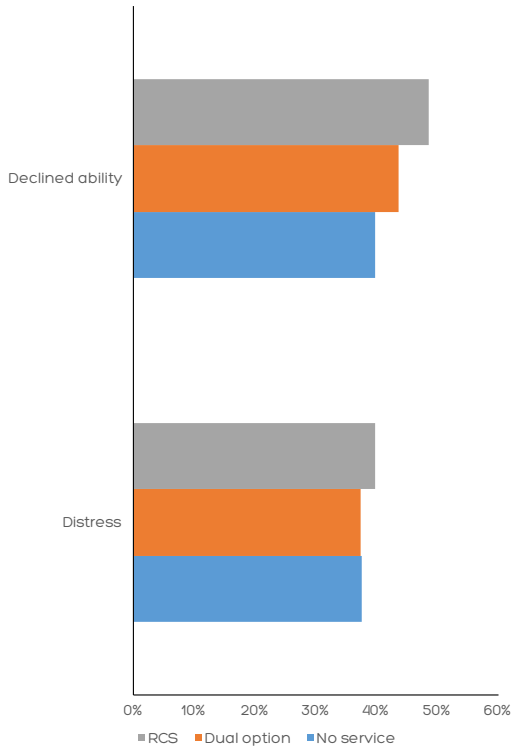
4.5.3.3 Primary Caregivers of Older People Applying for Long Term Care Services

The status of these older people's primary caregivers was also studied **(Figure 4.32)**. Results of the descriptive statistics show that primary caregivers of all groups complain about experiencing distress and de-

clined ability, with a higher percentage of primary caregivers indicating these negative feelings. In particular, among older people who were not granted long term care services, 38% expressed feelings of distress, anger or depression and 40% felt that they were unable to continue in their caring abilities. These results, again, show that primary caregivers' burden were similar across all groups of older people, regardless of their eligibility of long term care services.

Figure 4.32

Psychological Status of Primary Caregivers of Older People



Data Source: Social Welfare Department (2013-2014); Our Hong Kong Foundation

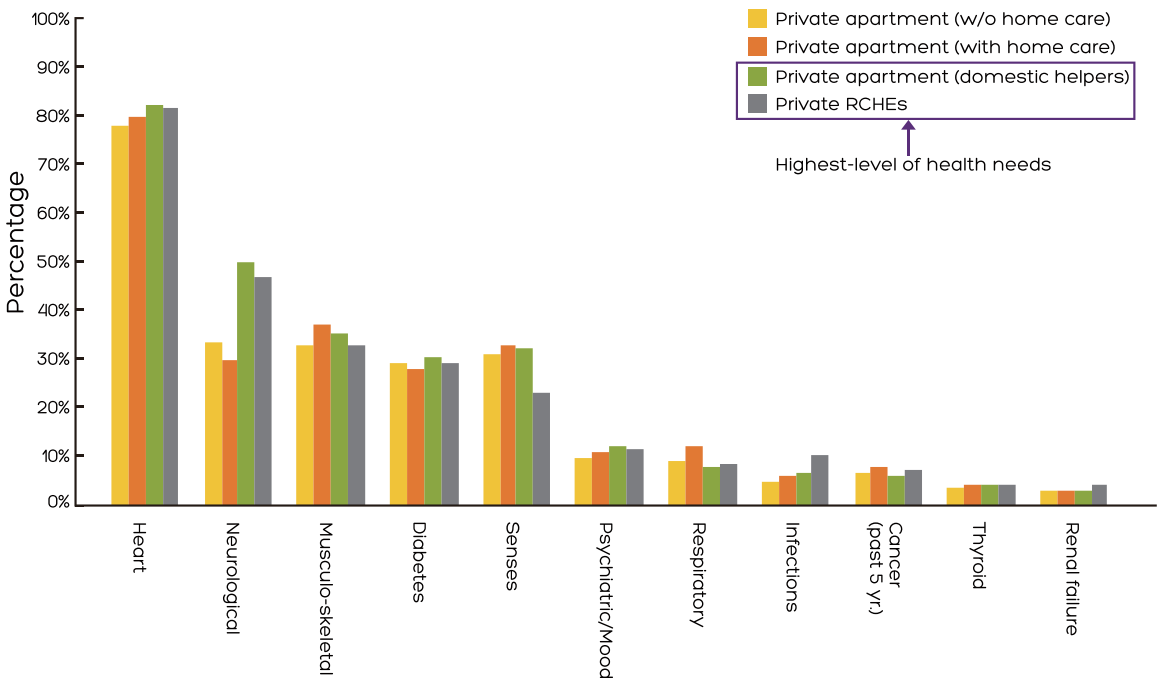
4.5.3.4 Health Needs of Older People with Different Living Arrangements

We also studied the health characteristics of long term care applicants based on their housing arrangements. Among all applicants seeking long term care services in the dataset, 36% are living in private residential care settings, 32% are living in their own apartment with no home care services, 17% in private apartments with home care services and 12% in private apartments with domestic helpers.

Figure 4.33 shows their different health needs. As predicted, older people living in private residential care homes are those with the highest percentage of various kinds of diseases. Interesting findings were seen among those older people reported to be living in private apartments with domestic helpers. Their health needs are similar to those living in private residential care settings. Although this group of older people receives care from their domestic helpers, they need professional healthcare help. Considering the findings, providing healthcare services conveniently in community settings and institutional settings is necessary for the frail and impaired.

Figure 4.33

Health Needs in Applicants for Long Term Care with Different Living Arrangements



Data Source: Social Welfare Department (2013-2014); Our Hong Kong Foundation

Chapter 5:
Investing for the Celebration of Aging

Population aging is a global phenomenon and addressing the unprecedented challenges requires us to rethink and reexamine our socio-economic systems. The diversity of individuals in older age groups is demonstrated by the wide range of physical capacity in a population after the age of 65 from individuals who have limited physical capacity to those with a full range of it. Older people's ability to contribute socio-economically is not primarily determined by the intrinsic capacity of older people but by socio-economic policies and social norms and practices.

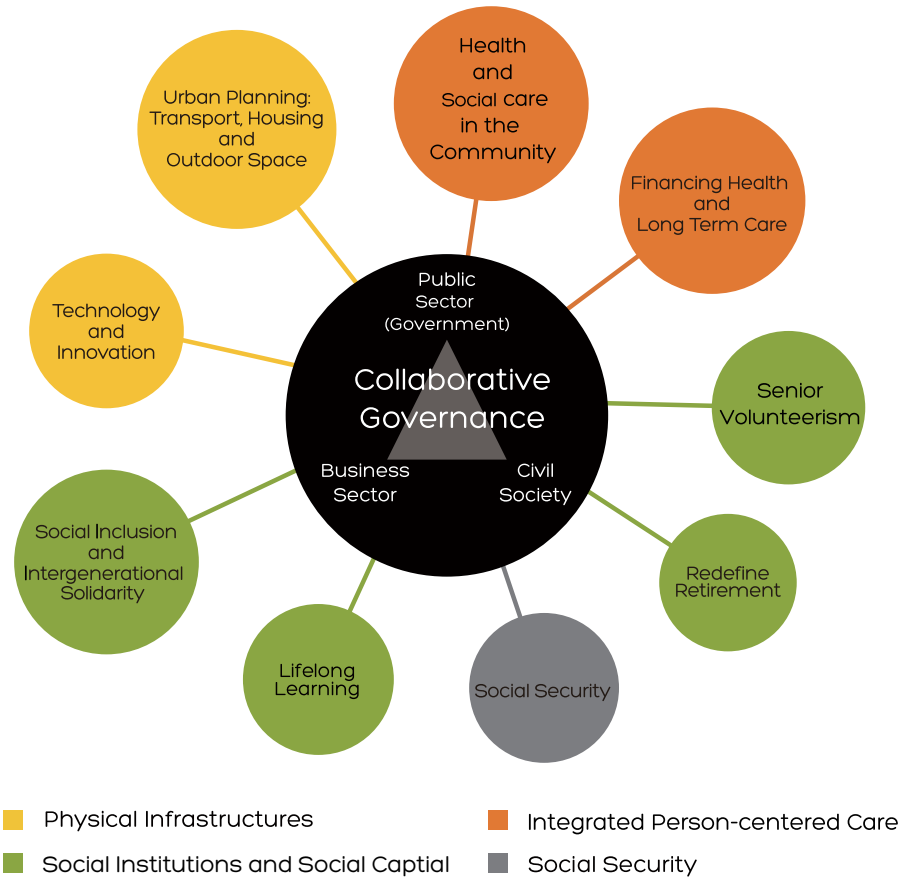
The population of older persons who have lost most of their intrinsic capacity can be reduced substantially through health policies and programs that i) reduce prevalence of chronic diseases which are lifestyle related–previous studies suggest that 70% of chronic disease are lifestyle related, ii) detect early chronic diseases to enable better management of it, which will reduce disease progression and prevent health deterioration and iii) improve physical and social infrastructures to enable better functioning of people who have compromised intrinsic capacity.

Investments have to be made not only in health and social welfare systems but also in our social institutes to yield benefits that could accrue from the 2nd and 3rd demographic dividends, which are derived from the socio-economic contributions of an older population in the demographic transition and the social capital which could accrue. These investments will generate a return in sustainable aging societies through recognizing the value and cumulative contributions of every member of the society regardless of age or physical health, enabling their engagement and participation in social life. Investments are required for the celebration of aging.

An aging population has important implications on the policy design of the city, including healthcare policy, long term care policy and policy for an age-enabling environment. To address the challenges of aging societies and maximize the opportunities of a growing older population, a collaborative governance system is required, which steers the policy design for an age-enabling society by investing in 9 critical pillars in health and social care systems, social protection, social capital, and physical infrastructures (Figure 5.1).

Figure 5.1

Elements of an Age-Enabling City



Source: WHO (2015)

The development of a comprehensive policy design for an age-enabling city will require considerable research and discussion, and will evolve as knowledge and inputs accrue. Therefore, the intention of this report focuses on the criticality of beginning process of Hong Kong's aging policy from a paradigm of investment. The report also catalyzes this protracted process by providing a framework of 10 critical elements of an age-enablting city with the objectives to inform policy and the ensuing deliberations for identifying more detail and specific research (Figure 5.1). We recommend that the government considers commissioning further research to study how these investments will be able to generate the 2nd and 3rd demographic dividends. The subsequent sections of this chapter deliberate these key elements of integrated health and social care, collaborative governance, redefining retirement, social inclusion and intergenerational solidarity, lifelong learning, senior volunteerism, technology and innovation, social security and financing health and long term care. This policy report recommends policies for considerations to strengthen integrated person-centered care for healthy aging and advocates investments in an age-enabling city for sustainability. Specific programs for integrated person-centered care include the Chronic Disease Management Voucher Scheme and a Health-Enabling Network. The study of the experiences of the United Kingdom (U.K.), Japan and Singapore in Chapter 4 will be referenced with the key findings to match with our recommendations.

5.1 Integrated and Person-Centered Care

This first part of the report's policy recommendation supplements the ongoing research of the Jockey Club School of Public Health and Primary Care (JCSPHPC) at the Chinese University of Hong Kong in building an integrated and person-centered care system for older people in the community. In 2014, the JCSPHPC was commissioned by the government to conduct a study entitled : Quality of healthcare for the Ageing - Health system and service models to better cater for an ageing population. The project aims to firstly develop service models for improved elderly care across the health and social care system in Hong Kong and implement and evaluate key interventions in the service models.

The team at JCSPHPC identified local service gaps and barriers to care, which include insufficient geriatric-specific services and fragmentation between and within health and social care services. This fragmentation means that transitions between specialist hospital care and primary care and medical and social care are a major challenge in Hong Kong's care system. The major challenges of this fragmentation include:

i. Transitions between the accident and emergency department (AED) and primary community-based healthcare and social welfare services when patients are assessed to not require treatment in hospital but instead need primary healthcare and social support services in the community;

ii. Transfer from inpatient beds to sub-acute care services where patients require both medical and social support in the community setting;

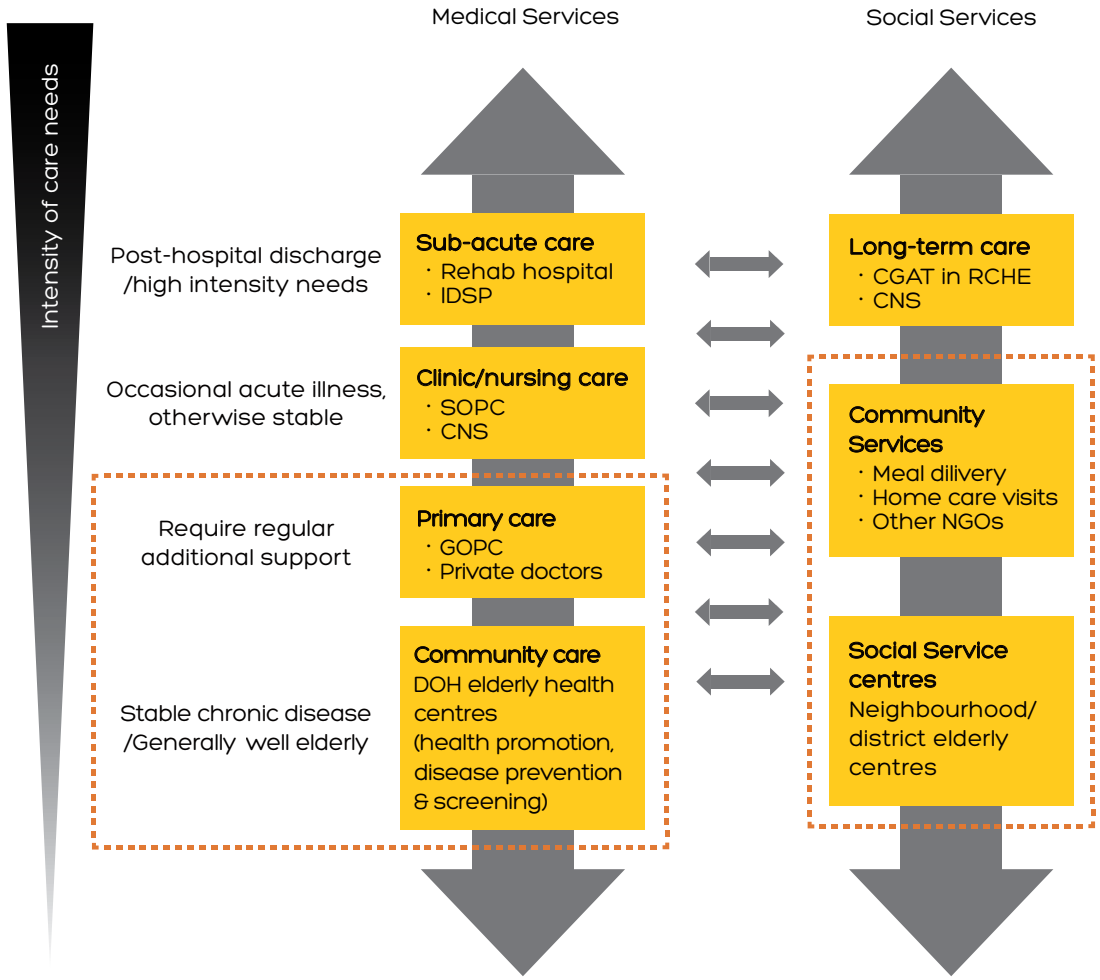
iii. Coordinating care for patients in the community setting and two-way referrals between social service programs and primary care and medical services.

As JCSPHPC's work focuses on the first two challenges of coordination, the proposed Chronic Disease Management Voucher Scheme and Health-Enabling Network are policy options to tackle the third challenge of coordinating care for patients in the community setting. Figure 5.2 shows the conceptual model for a community medical and social services system proposed by the JCSPHPC. The dotted line boxes highlight the areas that the recommended Chronic Disease Management Voucher Scheme and Health-Enabling Network fall in.

According to the JCSPHC, patient needs should determine service 'mix and match' to ensure that patient needs are met irrespective of whether they are 'generally well elders' or whether they require intensive support, such as with the Integrated Discharge Support Programme (IDSP) or Community Geriatric Assessment Team (CGAT) services. While the proposed Chronic Disease Management Voucher Scheme focuses on maintaining the health of people with stable long term conditions in the community, the Health-Enabling Network is envisioned to be person-centered, and to meet the heterogeneous needs of older people who are i) in good health, ii) have minor stable health problems, or iii) have major life limiting illnesses.

Figure 5.2

Conceptual Model for Integrated Community Medical-Social Services



Source: The Jockey Club School of Public Health and Primary Care (JCSPHPC) at the Chinese University of Hong Kong (2016)

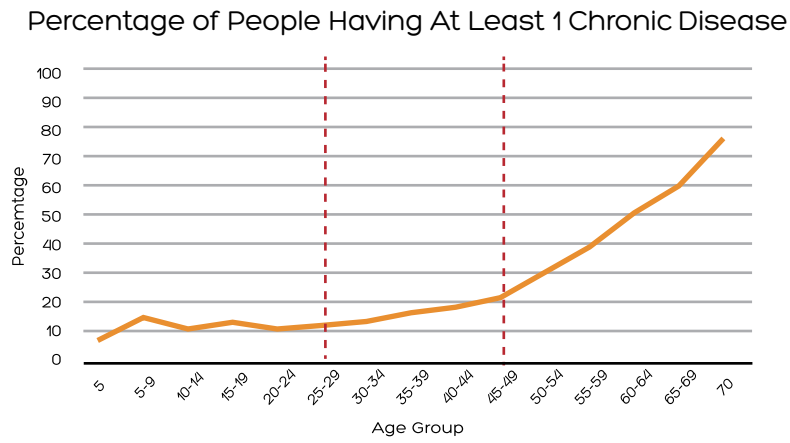
5.1.1 Chronic Disease Management Voucher Scheme

Our research team has investigated a needs-tested healthcare voucher scheme for chronic disease management, which could be targeted at low-income individuals aged 45 and above. The primary goal of the Voucher Scheme is to detect chronic disease and provide a chronic disease management program to prevent disease progression and health deterioration. With better health, the productivity of the workforce can be enhanced and demand for health services can be lowered in the long run. The Chronic Disease Management Voucher Scheme should enable both integration of the public and private sector in delivering health services as well as enhance the linkage between primary care and specialists services.

In addition to stabilizing chronic disease, the proposed Voucher Scheme is also envisioned to help reallocate demand from the public to private sector and to mobilize private primary care services in the community to meet the health needs of the older population. At the primary care level, 70% of consultations are being met by the private sector and the rest is provided by the public sector's overburdened hospitals. The Voucher Scheme can help distribute some of the demand from the public sector to the private market instead of adding to the burden on public services.

Based on analysis of statistical information obtained in the Thematic Household Survey conducted by the Census and Statistics Department in 2013, the percentage of Hong Kong people having at least one chronic condition rises sharply once the population reaches the age of 45. and that the likelihood of those aged 45 to 64 years old suffering from multimorbidity is 6 times more likely than those aged between 14 and 25. For those who aged 65 years old and above, the likelihood of having multimorbidity is 18 times more (Chung et al., 2015, Census and Statistics Department, 2013). The prevalence of chronic diseases rises gradually after the age of 25. These evidences suggest there is a 20 year window for those aged between 25 and 45 to prevent the incidence of chronic disease through lifestyle changes. Once the population reaches the age of 45, healthcare work should focus more on disease detection and management. (Figure 5.3).

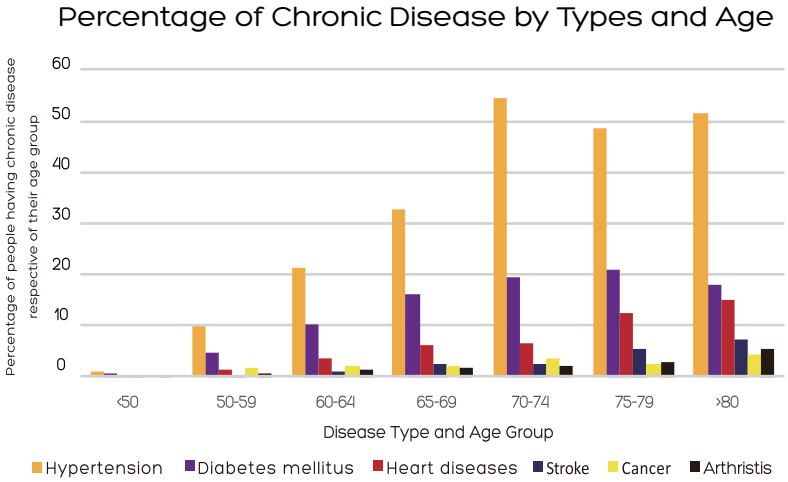
Figure 5.3



Source: Census and Statistics Department (2013)

Chronic disease detection and management is essential to prevent progression of disease and deterioration of health. The proposed Chronic Disease Management Voucher Scheme aims to maintain the health of those who are aged 45 and above with chronic diseases. Initially, those with hypertension and/or diabetes will be subsidized. The current report focuses on hypertension and diabetes because Census data suggests that hypertension and diabetes are the two most prevalent chronic diseases in Hong Kong, and the percentage of the population having these two diseases increases sharply once the population reaches the age of 50, increasing relentlessly thereafter (Figure 5.4). Programs to include a more comprehensive range of chronic diseases should be considered at a later date, requiring substantial epidemiological, interventional and implementation research and experience with this initial scheme.

Figure 5.4



Source: Census and Statistics Department (2013)

One policy option is for the proposed Voucher Scheme to be means-tested, with only those from low-income households being eligible for the services. Such a policy option is based on an existing study showing that those with a household income of less than HK$15,000 per month are 1.4 times more likely to have multimorbidity than those with a household income of over HK$40,000 per month (Chung et al., 2015). By providing an annual voucher to low-income individuals identified with hypertension and/or diabetes, these individuals are subsidized with a consequential voucher to see a private general practitioner in their neighborhoods, so that their chronic conditions can be managed and controlled.

In order to capture those over the age of 45 with hypertension and/or diabetes, an initial HK$1000 voucher will be given to all people from low-income households once they reach the age of 45. The 1000 dollar voucher is expected to encourage them to visit a private general practitioner for a designated program to detect chronic disease(s) and assess risks. Those who have been diagnosed with hypertension and/or diabetes will then be given a consequential voucher of HK$3,040 annually for disease management purposes. The voucher value of HK$3,040 is a notional one, based on the subsidy provided for patients joining GOPC-PPP under the Hospital Authority (HA) to manage hypertension and diabetes. It provides a useful reference for indicative financial implications of the scheme.

For illustration purposes, a Dyslipidemia and Diabetes Mellitus Screening Pilot Program can also be considered. The aim of the Pilot Program would be to attain early detection of diabetes and lipid disorders, two of the commonest diseases in the population. The program will run for a period of 36 months, targeting Hong Kong residents aged 45 years old and above. People who do not have i) previous diagnosis of diabetes or lipid disorders; or ii) symptoms suggestive of these disorders will be eligible for the program. The program will recruit eligible participants in 3 consecutive phases: (Phase I) individuals aged 65 and above; (Phase 2) individuals aged 55-64; and (Phase 3) individuals aged 45-54, and will engage and be in collaboration with Primary Care Practitioners (PCPs) in the private sector. The screening tests used in the Pilot Program are Fasting Plasma Glucose Test (FPG) (for diabetes mellitus) and Fasting Lipid Profile (FLP) (for lipid disorders). Eligible subjects will be entitled to receive a voucher for free screening tests from private PCPs who have enrolled in the program. If the FPG/FLP is negative, participants will be given repeat screening, advice on disease prevention and suggestions for sequential test. If the FPG/FLP is positive, they will continue to be followed-up by the same PCP for chronic disease management. Both the screening costs and treatment costs will be subsidized by the government.

5.1.1.1 Quantification of Voucher Scheme for Hypertension

A cost projection is carried out to provide an initial estimate of the financial implications for the Chronic Disease Management Voucher Scheme in managing hypertension among individuals living under the poverty line as an example. The voucher will be issued in 3 phases to different target age groups to manage the volume of patients eligible for the vouchers when the scheme is launched in order to match the capacity of the private sector. We propose to target the population aged 65 and above in the first year, then aged 55-64 in the second year and those aged 45-54 in the third year. Starting from the fourth year, we can focus on those aged 45 in that year since those aged above 45 have already been screened. For the fifth year onwards, the scheme will only manage the population aged 45. The cost is only for illustrative purposes and does not represent the costs likely to be incurred as other variables determined by policy and the number and nature of chronic conditions included will affect how the scheme is designed and the consequential cost. All variables will need to be incorporated and the assumptions will need to be validated or modified with further research and actual cost data.

We have made the following assumptions while calculating the costs:

- People aged 45, 55 and 65 shared the same hypertension prevalence rate of those aged 45-54, 55-64 and 65-74 respectively.
- The age-specific real household income distribution is being kept constant in the future;
- The age-specific proportion of the older popu-

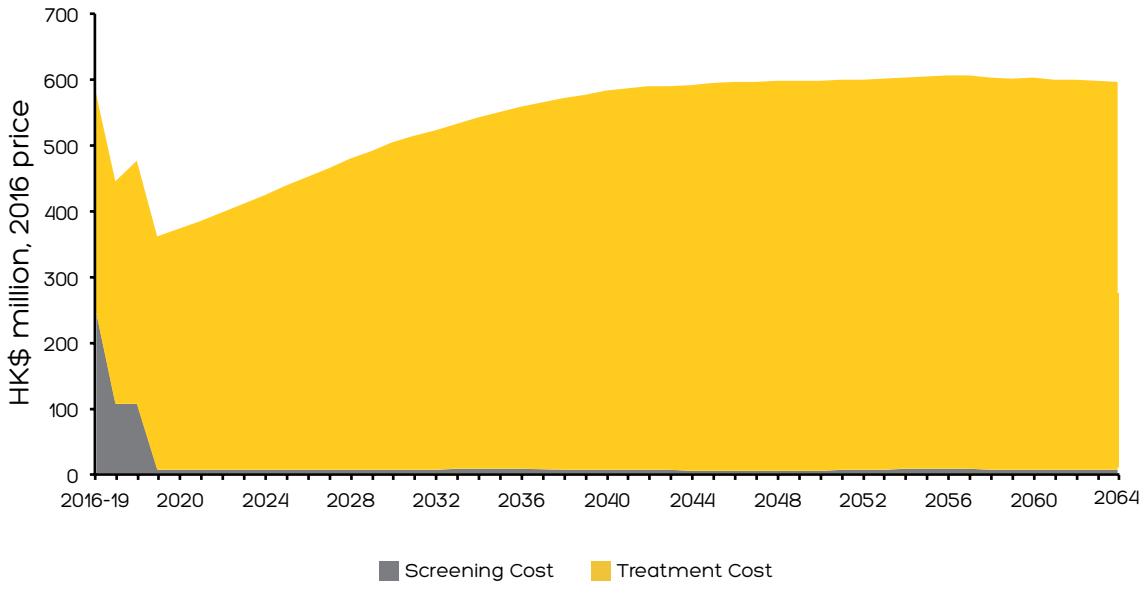
lation living under the poverty line is being kept constant in the future

- The age-specific prevalence rate of hypertension is being kept constant in the future, at the level of 2015 from the Department of Health;
- Poorer people have the same prevalence of hypertension with richer people; and
- Only 90% of the undiagnosed patients will use the voucher for screening and only 90% of these patients identified with hypertension will use the voucher for treatment. This assumption is made based on unpublished data provided by the JCSPHPC showing that approximately 90% of the recipients of the Elderly Health Care Voucher Scheme used the subsidy for healthcare services.
- Only 50% of the people who were previously diagnosed with hypertension will use the voucher for screening and 31% of them will use the voucher for treatment. This assumption is made based on the report published by the Audit Commission on Public-Private Partnership Program in 2012, stating that the take up rate of the GOPC-PPP was 31%.

We use the projected population by age group until 2064 from the Census and Statistics Department (Census and Statistics Department, 2015). From the assumed household income distribution, we obtain the size of the eligible population for the initial screening voucher. Then, based on published data from the Primary Care Office of the Department of Health (DoH) in 2013, we apply the prevalence parameters of hypertension and estimate the population size of those without hypertension and those who are already diagnosed to have hypertension who will still come forward for screening. We set the eligibility of the voucher to persons living under the poverty line. Subject to the outcome of the pilot program, the program could be expanded to persons in other income groups. The value of the screening voucher is set at HK$1,000 and the consequential voucher at HK$3,040. Figure 5.5 is the estimated projected cost of the Voucher Scheme over the next 50 years.

Figure 5.5

Estimated Projected Cost of Chronic Disease Management Voucher Scheme



Source: Census and Statistics Department (2015); Social Welfare Department (2015); Commission on Poverty (2016); Our Hong Kong Foundation

5.1.1.2 Implementation of the Voucher Scheme

In implementing the Voucher Scheme, there is a need to ensure the use of the voucher is only for specific programs developed for chronic disease management and to establish doctor-patient relationships. We also need to ensure doctor supply, enhance information transparency, and increase health literacy of the voucher users. If considered desirable, this scheme could be piloted before full implementation. Further evaluation of the implementation process, international clinical and health outcomes, and cost-benefit analysis research is also needed to inform the design of the Voucher Scheme.

Targeted Voucher Services. The proposed Voucher Scheme is targeted at chronic disease management only. The restriction will encourage people to seek help from the private primary care sector for health maintenance and disease management purposes, for services that are inadequate in the public sector. Furthermore, measures to avoid doctor shopping are essential to encourage voucher users to establish long term relationships with their doctors. A positive doctor-patient relationship allows joint decision-making in health management between patients and their doctors. With enhanced doctor-patient relationships, private general practitioners may gradually become patients' established first contact point for healthcare services and serve as gatekeepers for referrals on more serious conditions to the public sector for specialized services.

Increase the Supply of Doctors in the Private Sector. The success of the Voucher Scheme depends on the mechanism of the market and individual choice, where price and quality of care are influenced by demand for and supply of healthcare services. Hence, the government needs to ensure that there are enough reasonably priced high-quality services for service recipients to choose from in the private market.

The market of primary care services is, however, not perfectly competitive because of the barrier of entry. Primary care service providers may require incentives to control their prices. Based on findings of our focus group interviews with older people, the extra administrative costs incurred by the Elderly Health Care Voucher Scheme was sometimes shifted from the private healthcare service providers to the voucher users, leading to more expensive services. The fee-for-service (FFS) payment method provides incentives for supplier-induced demand to occur, which may result in unnecessary treatments.

Increasing the supply of private doctors with the appropriate credentials in the market will motivate healthcare service providers to offer desired services at an appropriate price, consequentially creating an incentive for voucher recipients to switch to use private sector services.

Increase Transparency of Market Information. Theoretically, the introduction of the Chronic Disease Management Voucher Scheme will create competition and revitalize the private market. However, there is a phenomenon of market failure related to information asymmetry. Information on primary care services needs to be made easily available and accessible, so that consumers will have enough knowledge to shop for services according to their needs. By establishing a portal for free flow of information (e.g., reviews of services of participating private healthcare providers), voucher users will be given more information to make better health choices for themselves.

Increase Education of Self-Management of Chronic Disease. Apart from increasing the flow of information, public education on self-management of disease and appropriate usage of vouchers are also essential. Ignorance can lead to rejection of well-intentioned and well-designed public policy. For example, some older people in our focus group interviews did not fully understand the idea of an electronic transaction as employed by the currently implemented Elderly Health Care Voucher Scheme. As a result, they did not trust the system and were not willing to use it. In addition, without a proper idea on how to manage their own chronic disease with the healthcare vouchers, many older people may misuse the vouchers, which would compromise the effectiveness of the scheme.

In another example, which highlights the importance of preventive care in the management of chronic diseases, a survey conducted by the Hong Kong Medical Association in 2015 shows that only 16.1% of the elderly respondents used vouchers for preventive care, e.g. vaccination and medical checkup. Another ongoing study conducted by the JCSPHPC on the Elderly Health Care Voucher Scheme also shows that only about 20% of the older people use the vouchers for preventive care. A lack of understanding of the importance of preventive care hinders older people from voluntarily consuming relevant services. Because screening for chronic disease is a preventive program for the population who has no symptoms and is generally well, it is essential to improve the health literacy of the population in order to ensure the effectiveness of the recommended Voucher Scheme.

Goal-Oriented Evaluation and Cost-Benefit Analysis. Goal-oriented evaluation criteria and cost-benefit analysis are needed to evaluate the performance and cost-effectiveness of this investment program. Criteria should include: Can the program help people develop long term relationships (interpersonal continuity of care) with private healthcare providers? Can the Voucher Scheme maintain the health of those enrolled? Can the Voucher Scheme encourage the use of private sector services and does it decrease demand in the public sector? Evidence-based decisions on program effectiveness shall be made based on the evaluation and results of the cost-benefit analysis.

5.1.2 Health-Enabling Network

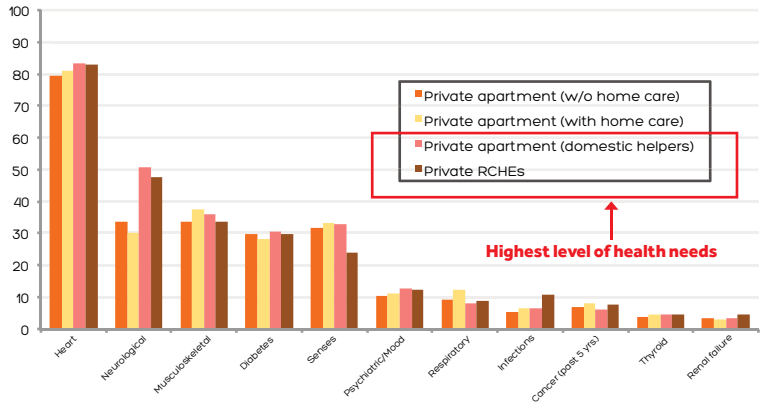
Our research team proposes the establishment of the Health-Enabling Network, which features partnerships among the Department of Health (DoH), the Hospital Authority (HA), the Social Welfare Department (SWD), non-profit organizations and private sector in establishing a district-based network for older people with unmet health needs in collaboration with the community. The notion is similar to the Pilot Scheme on Dementia Community Support Services for the Elderly recently proposed by the government.

Under the proposed Health-Enabling Network, Elderly Health Centres managed by the DoH and Community Health Centres managed by the HA can serve as major health and social care hubs in all 18 districts, while local District Elderly Community Centres (DECCs), Neighborhood Elderly Centres (NECs) and private elderly services centers can serve as community partners to provide health promotion and primary care and social services for older people.

Using secondary data provided by the SWD in year 2013-2014, we identified the health needs of people applying for long term care services in the community of Hong Kong. We categorized applicants of subvented long term care services into 4 groups: Not eligible for long term care services; waiting for community care services only; waiting for community care or residential care services; or waiting for residential care services only. We found that all 4 groups of older people have varying degree of physical, functional and mental health needs. In addition, long term care services applicants with different living arrangements have a variety of health conditions. Those living in private apartments with domestic helpers and those living in residential care settings seem to have worse physical health conditions compared to those living in private apartments with or without home-based care (Figure 5.6). These results support the creation of a Health-Enabling Network, which is necessary to improve and maintain the functional, mental and physical health of older people in the community.

Figure 5.6

Health Needs in Applicants for Long Term Care With Different Living Arrangements



Data Source: Social Work Department(2013-2014) ; Our Hong Kong Foundation

5.1.2.1 Goals and Scope of Services

The proposed Health-Enabling Network aims to meet the health and social needs of older people with different health conditions in the community. The goal is to prevent the older people's health from deteriorating, thus, allowing them to age in place with appropriate support. With the Network, older people with varying degrees of capacity, i) high physical and functional ability, iii) declining ability and iii) frail and impaired, will be matched with services that meet their needs in their neighborhoods.

For high functioning older people some of whom may have stable chronic diseases, the Health-Enabling Network can maintain their health through providing health education and preventive care services at subvented NECs and DECCs located in public housing estates. The Elderly Health Centres managed by the DoH can serve as the backbone and provide training and health promotion materials to the local elderly social centers (i.e., DECCs/NECs or even private service providers). The purpose of this Network is to deliver health promotion workshops and seminars for older people living in public housing estates. Basic health checks, namely measurement of blood sugar levels and blood pressure or eye examinations, and primary care services delivered by medical professionals can also be carried out at these health centers for chronic disease detection and management. Rather than having older people go to designated Elderly Health Centres or General Out-patients Clinics (GOPCs) to receive services, the current recommendation brings healthcare services to older people in the community, which echoes the policy direction of aging well in place.

For those with declining health and functional ability and those who are frail and impaired, CHCs managed by the HA and local elderly care providers (e.g., DECCs/NECs or even private service providers) can create partnerships to offer more advanced health and social care. Local elderly service providers (private or subvented) in the community can provide home help and home-based rehabilitation services, with the support of CHCs. In addition to the services provided by the Community Call Centers of the HA, local elderly service centers can take an active role, with input and training from health professionals in elderly care, in identifying older people in need and teach them self-management techniques to prevent unplanned hospital readmissions or deterioration of health conditions.

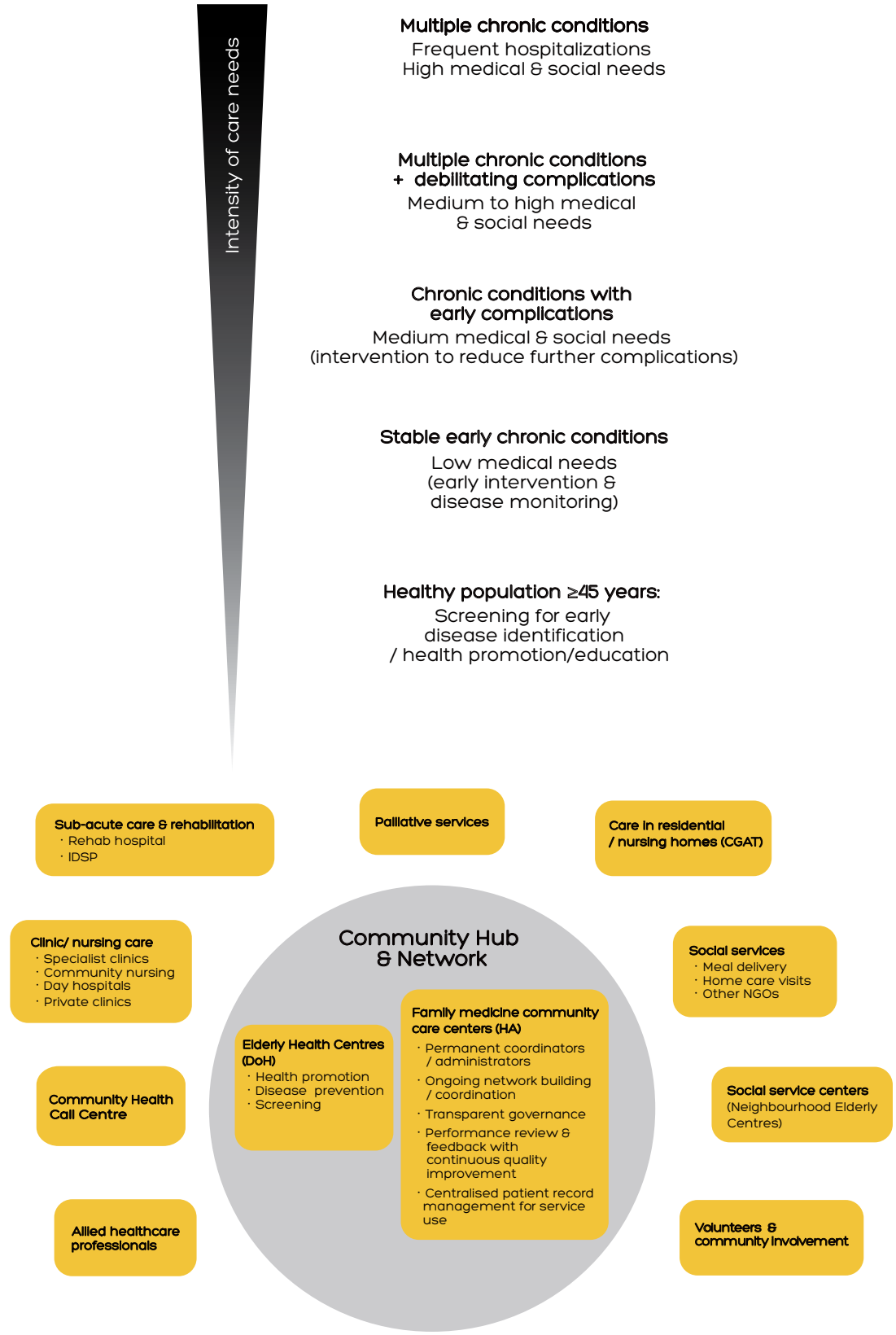
Most importantly, healthcare services can also be provided for the frail older people who are in the Central Waiting List for long term care services through the Health-Enabling Network (Figure 5.6). For those in private residential care homes, partnerships can be created between healthcare service providers (public or private) and residential care homes to provide one stop integrated person-centered services. Considering the relatively high unplanned hospital readmission rate of 26.9% among older people in residential care settings (unpublished data from CUHK, 2016), strengthening the linkage between health and social care services in institutional settings is necessary. In additional, according to HA statistics in 2012, there is a relatively high percentage (33.5%) of older people residing in Residential Care Homes for the Elderly (RCHEs) dying in hospitals, in which 34.7% are people with 2 previous admissions to the department of medicine and geriatrics during the last six months of their lives. The experience of being admitted into hospitals is not usually preferred by older people. Because of this, enhancements are necessary to bridge health and social care services in residential care settings.

The network can also be extended to older people residing in private housing estates. Our findings suggest that older people residing in private apartments, especially those with domestic helpers, have the highest health needs (Figure 5.6). In order to provide primary care services for the frail and impaired in the community, the JCSPHC is currently working on the design and implementation of a primary care model with reference to the existing CGAT services (Figure 5.7). One of the ideas is to provide primary care doctors with geriatric training, who could be one of the key players in the primary care model to meet the specific health needs of the frail and impaired and to coordinate the appropriate services in the community within a primary care led elderly team.

Figure 5.7

Primary Care-led Community Hub and Network

A physical focal point for community integrated and coordinated medical and social services



Existing services may 'feed into' the hub, use the hub for coordination and eventually some services will be co-located within the hub for improved service integration and coordination.

Source: The Jockey Club School of Public Health and Primary Care (JCSPHPC) at the Chinese University of Hong Kong (2016)

5.1.2.2 Geographical Feasibility

Spatial analysis using ArcGIS were conducted to visualize the locations of various health and social care facilities versus the residential density of older people in public housing estates[1]. Figure 5.8a-b shows the location of Elderly Health Centres managed by the DoH, CHCs and hospitals managed by the HA and subvented DECCs and NECs of the SWD. Figure 5.8a-b illustrates the proposed Health-Enabling Network in Tin Shui Wai as an example.

Results of the spatial analysis show that existing public elderly services subvented by the SWD and the Elderly Health Centres of the DoH and CHCs of the HA are located conveniently near each public housing estate and match well with the residential density of older people. There are currently three CHCs in Hong and developing primary care hubs for improved coordinated services is one of the major on-going primary care initiatives as stated in the Primary Care Initiatives of the DoH.

Figure 5.8a

Health - Enabling Network

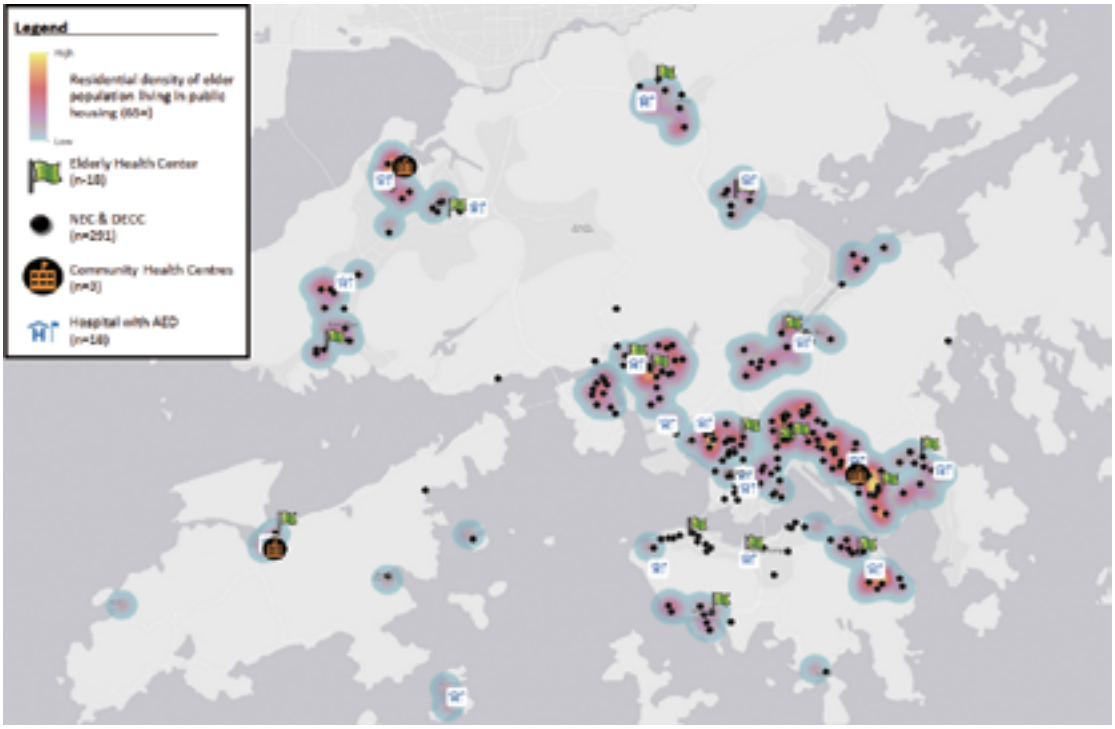
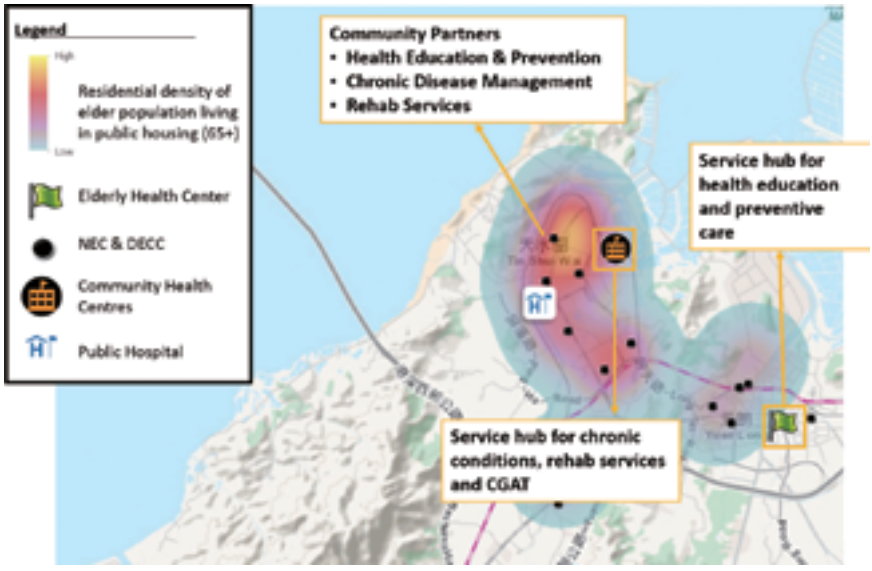


Figure 5.8b

Health-Enabling Network Illustration



Data Source: Housing Authority (2015); Census and Statistics Department (2011); Social and Welfare Department (2016); Department of Health 2016 and Hospital Authority (2016)

1. The number of persons aged 65 and above residing in Public Rental Houses was collected from the Housing Authority and Census and Statistics Department. The number of people aged 65 and above in each of the Public Rental Housing Estates was estimated by multiplying the proportion of older people in each district (Census and Statistics Department, 2011) with the total number of people in corresponding PRH (Housing Authority, 2015).

5.1.2.3 Implementation of the Health-Enabling Network

We acknowledge that the introduction of the Health-Enabling Network requires existing community service providers, including subvented, self-financed and private, to expand their services scope. Additional resources to be provided to local community partners are needed to support this concept. Based on our review on the quality of long term care services in Chapter 4 of this report, in order to develop a Health-Enabling Network that can meet the needs of older people, the government will have to explore strategies to increase manpower capacity through establishing career prospects for elderly service workers, offering supplementary training for existing workers, and using assistive technology and healthcare technology in elderly care settings. We recommend the government should commission research to study how the Health-Enabling Network can be realized to better serve the health needs of an aging society. Innovative strategies will also be needed to supply additional space for services expansion. Further in-depth studies on enhancing services capacity in long term care settings are also necessary.

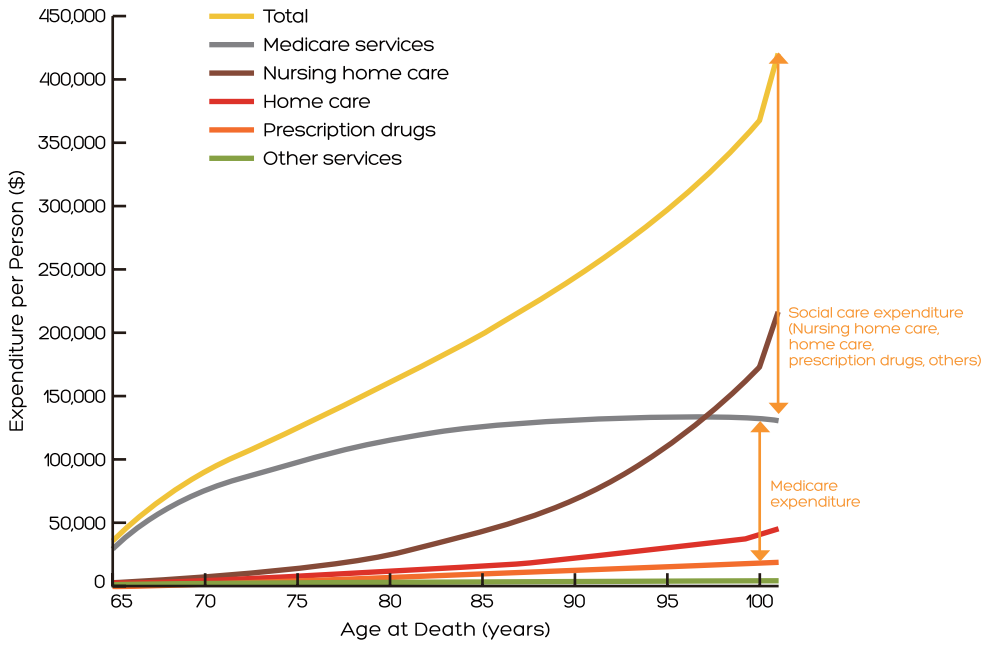
The proposed Health-Enabling Network has a similar conceptual underpinning with the Regional Health Systems of Singapore, where each individual system within a geographical region of the country will have an acute general hospital working closely with community hospitals, nursing homes, home care and day rehab providers, polyclinics and private GPs. Various providers within each region collaborate together to provide a better healthcare experience for patients from diagnosis and treatment to post-discharge follow-up (Ministry of Health, 2012).

5.1.3 Financing Integrated Person-Centered Care for Health and Long Term Care Services

Expenditures on health and social care for older people will inevitably increase as the population ages. In order to deliver care that meets the needs of older people in Hong Kong, the government may need to consider increasing expenditures to provide long term care for older people, especially for the frail and impaired, while continuing to invest in developing an integrated person-centered care with health and social care. With reference to the experiences of the U.K. and the U.S., their public expenditures on social care increases as people ages, while expenditures on healthcare expenditures plateaued (Figure 5.9 a-b).

Figure 5.9a

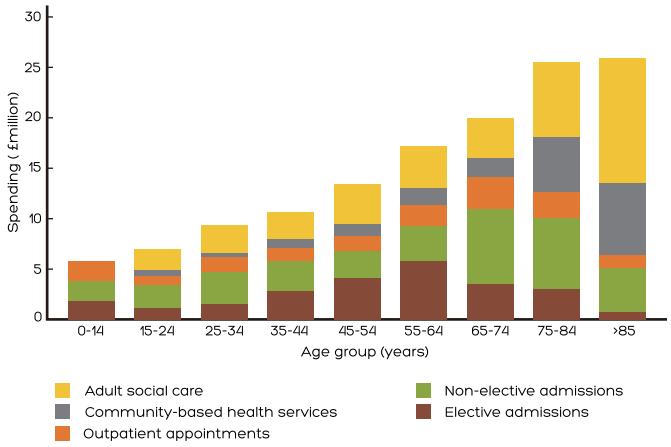
Cumulative Health Care Expenditure from the Age of 65 Years until Death, According to the Type of Health Service and Age at Death



Source: Spillman & Lubitz (2010)

Figure 5.9b

Annual Cost of Healthcare Services, by Age Group and Type of Service, Torbay (Population, 145000), England 2010- 2011



Source: WHO (2015)

In addition, because the projected cost of providing long term care in Hong Kong can be as high as 5% of the total GDP if no policy is implemented to change the current situation (Chung et al., 2009), the government may also need to come up with innovative ways to establish a sustainable system for financing long term care in Hong Kong. The government can study the feasibility of integrated funding of medical and social services for older population. International experience can be referenced to consider the most appropriate approach for financing long term care that fits the socio-economic context of Hong Kong.

The experience of Singapore, a jurisdiction with a comparative economic size as Hong Kong, would provide insights to stimulate deliberations. ElderShield is a long term care insurance program that is regulated by the Singapore government but run by private insurers. ElderShield makes monthly direct cash payouts to those who have severe disability and are unable to care for themselves (Ministry of Health, Singapore, 2015b; Liu & Haseltine, 2015). Seniors and their families can choose the type of care most suitable for their needs. Singapore citizens and permanent residents with Medisave accounts, a national healthcare savings scheme, are automatically enrolled in ElderShield when they reach the age of 40, and they are given the option to opt out. Policy-holders pay a yearly contribution of their income, dependent on age of entry (Ministry of Health, Singapore, 2016). Once in the scheme, premiums do not increase as one ages.

Successful claimants receive a monthly cash payment to pay for any expenses, such as home nursing services, day rehabilitation, medical bills, household expenses or a stay in a nursing home. Since ElderShield is a relatively new scheme and most policy-holders are comparatively young, the rate of claim is low (States Times Review, 2016). The Singaporean government is closely monitoring the performance of the scheme.

5.1.4 Key Determinants of Integrated Person-Centered Care

Both the Chronic Disease Management Voucher Scheme and the Health-Enabling Network are policy initiatives for bridging health and social care with the ultimate goal of integrating and providing person-centered care to those in need in the community. Improved community care will enable those with long term chronic conditions to better manage their health and to age in place, allowing people to live and receive care in the location of their choice. An integrated person-centered care system will require collaboration and communication within and between services and sectors, and an over-arching policy to enable changes to be implemented.

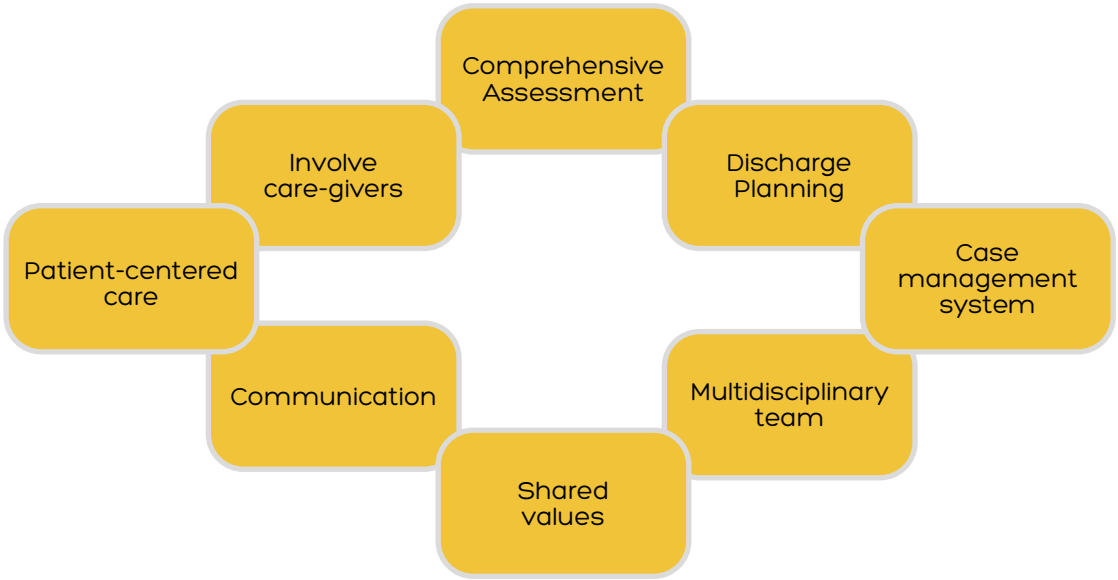
In order to achieve positive change and improve care, different groups within and between systems will need to be proactive and work together. In addition, a top-down approach may not be the best strategy for facilitating integration. Rather, a bottom-up approach aiming at improving service delivery can often be more effective, because national policy priorities may not reflect the priorities of the frontline workers. In order to scale up local bottom-up projects, research evidence for program effectiveness, sustainability and generalizability is needed. Furthermore, a suitable policy context that provides

legal and financial support to the project can facilitate its growth and continuation.

The JCSPHPC team identifies 8 key components of integrated person-centered care: comprehensive assessment, discharge planning, case-management system, a multidisciplinary team, shared values, communication, patient-centered care, and the involvement of caregivers in the service planning process (Figure 5.10). Here, we elaborate on the key determinants of patient-centered care, communication, a multidisciplinary team and shared values.

Figure 5.10

Key Components of Integrated Person-Centered Care



Source: The Jockey Club School of Public Health and Primary Care (JCSPHPC) at the Chinese University of Hong Kong (2016)

Patient-centered care services are more effective than physician-centered care in coordinating care management across providers and care settings. In order to promote patient-centered care services, a paradigm shift in the health and social care culture is necessary. Direct engagement of patients, instead of having a traditional model of medical clinicians as the sole managers of patients' health, can empower patients to take more responsibility for their health, eventually leading to patient-centered care services. Furthermore, with the increased level of educational attainment by baby boomers who will become the elderly population in the near future, older people in the future will have the ability to manage their own health with the help of healthcare professionals and enhanced health information technologies.

In regards to communication, while the exchange of information and communication across the team is essential in all integrated person-centered care projects, different modes of communication can be used. At times, personal interaction may be better than virtual exchange because greater trust can be established in the former process. With reference to literatures on collaborative governance, integration can be carried out on the information exchange level (e.g., linking data of the HA and the SWD as a start).

Lastly, a multidisciplinary team with shared values is crucial in the successful delivery of integrated person-centered care. A review of existing studies in Hong Kong shows that the health of older people is multidimensional, and consists of physical, psychosocial and functional well being and their respective needs. As such, a multidisciplinary team is needed to deliver holistic care for older people. According to the stakeholders' interviews, experts from multiple fields will have to work together with respect, trust and aligned interests to formulate the best care plan for their patients, and ultimately create a collaborative and integrated service delivery model to address older people's complex social and healthcare needs.

5.2 Social Security

Protecting against poverty in old age is one of the pillars in enabling continuing meaningful lives health and well being. The commission on poverty in government under the leadership of the Chief Secretary has been examining poverty in old age and has implemented policies to alleviate this. The more fundamental solution, the option of an old age pension is being studied for an income protection in old age and will be considered by the commission early next year.

5.3 Age-Enabling City

The process of transforming Hong Kong into an age-enabling city requires a joint effort of all entities in the city and we acknowledge that this current report will not be able to cover the entire topic. Based on the World Health Organization's Healthy Ageing framework, we propose the community as a whole to adopt a new lens for reviewing the political, social and physical environments of Hong Kong. At this initial stage of building an age-enabling city, we recommend the establishment of collaborative governance for cross-sector collaboration, promotion of social capital to encourage transfer of resources and the use of technology to create a city that is age-enabling. A substantial amount of work needs to be done and should be supported by research in the process of continuing engagement with the community,

5.3.1 Collaborative Governance

Aging policy encompasses a number of disciplines and impacts the everyday lives of the general public. No single institution alone can formulate a comprehensive plan for aging, and collaboration is necessary between the government, business sector and civil society to establish Hong Kong as an age-enabling city. This societal collaboration helps prevent the older generation from feeling left behind.

With reference to international experiences, collaboration with local universities is a policy strategy adopted by the U.K. government. The creation of the independent and government-funded Centre for Ageing Better in 2014 brings together evidence on older people and provides community-based solutions to the challenges and opportunities of aging. In addition, the U.K. government also announced funding for Fulfilling Lives: Ageing Better, which focuses on supporting non-profit organizations to implement and design programs that improve the lives of older people (Big Lottery Fund, U.K., 2016). These initiatives are governmental efforts for establishing partnerships with the civil society in order to design comprehensive, person-centered aging policies.

Inter-university transdisciplinary programs also bring together experts from different fields and are examples of collaborative governance. The New Dynamics of Ageing (NDA) Programme is the largest research program implemented in the U.K. It involves four cross-discipline publicly funded research councils, covering the fields of behavioral, biological, social, economic and technological sciences. The NDA program has not only influenced policies and practices in aging sciences, but has also created new products that assist older people (Economic and Social Research Council, 2015).

The experiences of Singapore may also be compatible to those of Hong Kong. The Inter-Ministerial Committee on the Aging Population (IMC) was set up in 1999 under the Ministry of Health to coordinate efforts of multiple governmental departments in order to meet the challenges of aging. In 2014, the IMC engaged with the general public in formulating an action plan for successful aging (Khor, 2015). Based on the discussions, the Ministry of Health published the "Action Plan for Successful Aging" report, outlining areas

that the government will act on with the goal of building an age-friendly city : lifelong employability; health and wellness; senior learning; senior volunteerism; community building; inter-generational harmony; aged care; active aging and assisted living; and transport and research (Ministry of Health, 2016).

5.3.2 Social Capital to Encourage Transfer of Resources: Intergenerational Solidarity, Redefine Retirement, Senior Volunteerism and Lifelong Learning

Information from the Census and Statistics Department in 2011 shows that the education level of older people in Hong Kong has been on the rise, while other sources show that older people contribute to Hong Kong's economy. For instance, the average age of a Hang Seng Index constituent company director is 58, with 12% of these directors aged 70 and above (HKICS, 2012). The economic contribution of volunteers in Hong Kong aged 60 to 79 was valued at US$117 million in 2007, and was estimated to be 0.55% of GDP (Leeson & Harper, 2007).

Considering the rich experiences of older people, it makes sense to establish platforms to facilitate the transfer of their resources from the older to younger generations. The following first describes how the social capital of intergenerational solidarity can be established for the transfer of resources across generations and yield the 3rd demographic dividend. We also discuss the options of redefining retirement, supporting senior volunteerism and advocating lifelong learning to unleash the potentials of older people and allow them to continue to contribute meaningfully and economically to society. Relevant experiences of the U.K., Japan and Singapore will be reintroduced as examples.

5.3.2.1 Intergenerational Solidarity

Building the social capital of cross-generational solidarity is one way of tapping into the resources of the older population through encouraging the flow of resources across generations (Fried, 2016). Research indicates older adults have accrued knowledge, problem solving capabilities, judgement and optimism which are unique assets which could be a source of social capital to be tapped for generative returns. In previous years, the Hong Kong Government, academic institutions and third sector organizations have been promoting intergenerational cohesiveness, with the Elderly Service Program Plan being one example. Additional efforts are needed to launch a city-wide campaign to promote the culture of positive intergenerational relationships not only within families, but also in the workplace and in the community as a whole.

Recent studies in Hong Kong show that perspectives toward intergenerational caregiving are evolving. Apart from instrumental support, respect and emotional support are associated with higher life satisfaction and better psychological well-being among older people (Cheng & Chan, 2006). Intergenerational caregiving is also becoming a bi-directional relationship rather than a uni-directional one. Grandparents have been engaging in parenting and caring of young children while receiving informal support from the younger generation (Lou &Tong, 2015). As such, the younger ones are also benefiting from their aging parents (Fried, 2016). These findings further support the need to establish desirable intergenerational relationships for the well-being of both the younger and older generations.

How can intergenerational solidarity be fostered? An intergenerational program, called REPRINTS, sponsored by the Ministry of Health, Labour and Welfare in Japan is a successful example. REPRINTS engages senior citizens to work in the education of young children (Fujiwara et al., 2009). A review on this program suggested improvements in the physical and psychological functioning of older adults as well as a healthier upbringing of children involved in the program (Yasunaga et al., 2016). REPRINTS reminds policymakers that intergenerational caregiving does not necessarily need to be a one-way process. A bidirectional, mutual relationship can also be embraced.

Apart from launching cross-generational programs, intergenerational solidarity can also be established through adopting a positive attitude toward the older population. Policies for older people in Hong Kong are framed as social welfare programs, which is evident in public expenditure spent on older people: The majority of public money spent on older people in Hong Kong aims at providing direct assistance to them, such as social security, day care services, and residential care services (Commission on Poverty, 2015). Although the government has initiated some active aging policies, such as the Public Transport Fare Concession and the Elder Academy, resources invested into developing these directives are proportionally less compared to that spent on offering older people direct assistance (Commission on Poverty, 2015). The perception that older people are vulnerable and need assistance does not match with the current and future needs of older people. Future olds need a supportive environment to engage in productive activities and to create positive images for themselves, which can result in an intergenerational cohesive society that encourages the transfer of resources for economic growth.

Furthermore, intergenerational solidarity can be created with the co-creation of space in a community (Forth & Yip, 2016). The Beacon Hill initiative in New York City is an example of using school premises to provide social services to the community before, during and after school hours. By using local residents as volunteers and employees of the service programs, the newly introduced social services do not add a burden on school staff and administrators. Rather, it supports the local economy with new job opportunities and provides a space for people in their neighborhoods to strengthen bonds with one another. While the financial input incurred to develop these school-based social programs is minimal, studies show that the Beacon Hill initiative results in lower crime rates, enhanced health outcomes and an increased positive perception toward the city they live in among local residents. Forth and Yip further state that the concept of transforming school premises into a community's central hub requires commitment and ownership from various stakeholders in the society, which echoes with the idea of collaborative governance.

5.3.2.2 Redefine Retirement

While intergenerational solidarity facilitates the transfer of resources across generations, a reconstruction of specific social conventions, such as redefining retirement, also encourages the intergenerational flow of resources for economic growth. The Prince's Initiative for Mature Enterprise (PRIME), launched by the U.K. government, is an innovative example of providing job opportunities for older people. The program utilizes two key methods for encouraging entrepreneurship: i) campaigns and lobbies targeted at those aged 50 and above to consider self-employment and business start-ups, and ii) loans and counseling services to the unemployed (Kautonen, Down, South, 2008).

Another more traditional way to tap into the resources of older people is to extend the retirement age. In Japan, the Law Concerning Stabilization of Employment of Older Persons was amended in 2006 to secure jobs to employees until age 65. In 2007, small or medium-sized companies that welcome employees to work until age 70 are given varying financial aids, driving up job opportunities for older people (APO, 2011).

Although extending retirement age in the workplace provides an interaction opportunity between the older and younger generations, merely placing the two generations in the same environment will not enhance positive relationships. Both generations need to employ new perspectives in understanding and respecting each other. Such an attitude is the key to creating intergenerational cohesiveness in the workplace, which encourages transfers of resources, thus maximizing the benefits of delaying retirement age.

5.3.2.3 Senior Volunteerism

In the U.K., older people's societal contribution through unpaid work is valued. In monetary terms, their impact on social care and voluntary work is estimated to be worth 44 billion (Cook, 2011). The Australian government also estimates that women aged between 65 and 74 contribute AUD $16 billion per year in unpaid caregiving and volun-

tary work (Vaus, Gray & Stanton, 2013). Considering the economic value of social services and voluntary work generated by older people in other countries, policies can be formulated to encourage senior volunteerism and unleash the potential of older people.

Japan was one of the first movers in Asia to implement senior volunteering programs. The nationally subsidized Silver Human Resources Centers (SHRCs) have helped a total of 760,000 old age volunteers to look for meaningful work on a part-paid voluntary basis. The aim of the network is to tap into the expertise of the older generation, promote healthy lifestyles and well being as well as establish social connectedness (National Silver Human Resource Center Corporation, 2006). In 2003, SHRC chapters throughout Japan introduced a Senior Work Program, by which members could further receive free skills training and job interview counseling with the assistance of business owners and public employment institutions. Research shows that active male volunteers of the network tend to enjoy a greater sense of well-being than inactive members (Weiss, Bass, Heimovitz & Oka, 2005).

Another innovative senior volunteerism initiative in Japan offers assistance and support to the frail while at the same time providing a platform for healthy older persons to engage in productive activities (Hayashi, 2015). This initiative is run in 1,700 municipalities as part of the country's long term care system. One scheme under this initiative, the Volunteer Support with Reward Scheme, showed positive evidence-based results. The scheme rewards senior volunteers for providing peer support to frail older adults with points they can use to pay for long term care insurance premiums. Through providing long term care support to others and receiving points to fund one's own long term care in the future, older people have a heightened bond with their community and the long term care system. Preliminary results show that participants' perceived health and volunteers' activity levels have improved.

5.3.2.4 Lifelong Learning

In addition to providing a platform for older people to participate through paid jobs and volunteering, improving the skills of the general population, especially among the older generations, is another way to ensure sustainability in the midst of the demographic shift. The establishment of the Elder Academy in Hong Kong provides a variety of courses for older people for lifelong learning. The Mini-U for the Third Age Program at the Institute of Active Ageing in the Polytechnic University of Hong Kong also offers learning opportunities for senior students. For older people who wish to obtain a certificate in a specific area, they can also take credit-bearing courses via the Institute.

The U.K. and Japan consider lifelong learning as one of their major policy initiatives. In the U.K., the Department of Education and Skills published a Skills Strategy White Paper in 2005, setting out targets and strategies to ensure that individuals will have necessary skills not only for employment, but also for continually improving one's quality of life. Strategies include providing better information on learning opportunities, tackling obstacles that people face in assessing jobs and encouraging employers and trade unions to meet skills and training needs (Hughes, 2005). In 2010, a strategy document on skills for sustainable growth was published by the Department for Business Innovation and Skills as a guide for developing a long term adult learning and skills policy that supports economic development (Department for Business Innovation and Skills, 2010).

In Japan, the Lifelong Learning Policy Bureau, established in 2001, is the central organization responsible for the coordination of policies that promote lifelong learning. The government is expanding education opportunities by delivering classes through radio and television as well as setting up an online university in the country. However, despite the centralized effort of promoting lifelong learning, traditional Japanese culture, which emphasizes formal education and professionalism, makes it difficult for lifelong learning to become a part of mainstream education. Lastly, there is also limited access to higher education because local universities generally offer few opportunities for adults to participate in non-degree or degree programs. The experiences of Japan suggest that despite centralized efforts, a paradigm shift is necessary to encourage lifelong learning.

5.3.3 Technology to Create an Age-Enabling City

With the establishment of the Innovation and Technology Bureau and the promotion of the Healthy Ageing platform initiated by the Hong Kong Science and Technology Park Cooperation (HKSTPC), Hong Kong is ready to leverage on innovative technology to transform the city into an age-enabling one. Here, we will discuss the development of biotechnology in building health and delaying aging, the implementation of assistive technology and the establishment of big data for an age-enabling city.

5.3.3.1 Biotechnology to Delay Aging

Biotechnology has allowed for the extension of healthy life years through delaying biological aging rather than the traditional way of managing specific diseases (Olshansky, Perry, Miller & Bulter, 2007). Investment in research on understanding how genetic mutations influence the basic rate of aging may be worthwhile because it helps scientists develop preventive measures against individual conditions related to old age (e.g., development of type 2 diabetes, heart failure, dementia or cancer) (Olshansky, 2008). The Chinese University of Hong Kong (CUHK) has joined hands with Jinan University to establish the Ministry of Education Key Laboratory for Regenerative Medicine. The joint laboratory aims to develop various innovative techniques for regenerating tissues and organs. These techniques may one day be the solution for curing certain degenerative diseases.

5.3.3.2 Assistive Technology

Developing and implementing assistive health technologies that allow older people to live independently and productively is also necessary. Assistive health technologies remove some environmental barriers for older people in order to promote their independent and autonomous living (Agree, 2014; Garcon et al., 2016). For example, in Japan, the use of robots as household helpers for older adults has greatly improved the well being of older populations (Wagner, 2009). The reinvention of manual wheelchairs, such as adding the features of stair-climbing or allowing people to stand upright, has assisted many older people with limited mobility to continue to participate in society (Castillo, 2012; Modak & Bhoomkar, 2009). The Healthy Ageing technology platform of HKSTPC has also been facilitating the development of assistive technology, installed in the living environment of older people to facilitate independent living.

The integration of information technology and assistive technology has opened a platform for the development of increasingly individualized tools for independent living on the global platform. For example, Smart Homes, with sensors and an information technology platform, allow constant monitoring of the health and functional abilities of older people

and the real time detection of emergency situations for safety (Rantz, et al., 2013). For those with declining physical abilities, sensor technology together with a coordinated care system is found to improve clinical outcomes because of the possibility of early intervention (Rantz, et al., 2013).

However, merely investing in the development of technology without considering the users' perspective will deter many older people from fully utilizing these technologies (Agree, 2014; Schulz, 2015; Garcon et al., 2016). For example, older people may have difficulties in understanding or utilizing high-tech products because of a low level of technological literacy or lack of financial means (Agree, 2014). Ensuring that older people have access to a wide selection of customizable devices requires a thorough understanding of the latest technological solutions and sufficient funding for the initial acquisitions and continuous maintenances of devices, which are key policy implications to be considered (Agree, 2014; Schulz, 2015; Garcon et al., 2016). In Japan, for example, older people with disability can lease assistive products from the government or purchase from designated provider. The provision of assistive products is based on the country's Long Term Care Insurance Act and Services and Supports for Person with Disabilities (PWDs) Act.

5.3.3.3 Big Data to Build Age-Enabling City

Big data analytics have become a popular global trend. Big data is essential to understanding the everyday lives of people and facilitates the process of building a city that caters to the population's needs. For example, the use of big data will help public health professionals establish predictive models of disease trajectories as well as identify health and social drivers of diseases, which allows for early diagnosis or prevention (Schadt & Chilukuri, 2015). The use of cloud technology in wearable health monitoring devices also helps the instant transmission and storage of data for health management and disease prevention purposes.

To establish a big data platform, data linkage is necessary among all government departments, and the participation of academic institutions in the process is critical. Generating quantitative information is a pre-requisite for the success of establishing a city that is genuinely age-enabling. We acknowledge that one of the first issues that needs to be tackled is privacy protection. However, the notion of privacy should not hinder our way towards building such a platform that can better the lives of the general population. In 2014, Singapore launched the Smart City Initiative, which aims to collect data on the behavioral patterns of the general population, comprehend the needs of Singaporeans and redevelop the city into one that is suitable for the future population. With collaborative governance, Hong Kong will become a Smart City and an age-enabling city.

Selected Bibliography

Age UK. (2010). Technology and Older People Evidence Review. Age UK.

Age UK. (2015). Age UK, Love later life. Retrieved from Telecare and telehealth: http://www.ageuk.org.uk/home-and-care/adapting-your-home/telecare/telecare-and-telehealth/

Agree, E. M. (2014). The potential for technology to enhance independence for those aging with a disability. Disability and health journal, 7(1), S33-S39.

Akker, v. d., Buntinx, F. M., & Knottnerus, A. J. (1996). Comorbidity or multimorbidity: what's in a name? A review of literature. The European Journal of General Practice, 2.2 (1996): 65-70.

Amin-Chaudhry, A. (2016). SUSTAINABILITY IN SARAWAK: EXPLORING EXISTING SUST. Corporate sustainability assessments.

Arora, S., & Thorlby, R. (2015). 2014 International Profiles of Healthcare Systems. The Commonwealth Fund.

Asher, M. G., & Bali, A. S. (2014). Financing social protection in developing Asia: Issues and options. Journal of Southeast Asian Economies (JSEAE), 31(1), 68-86.

Asian Productivity Organization. (2011). Population Aging and Productivity in Asian Countries. Asian Productivity Organization.

Audit Commission. (2012). Food and Health Burea - Hospital Authority: Public-private partnership (PPP) programmes. Hong Kong: Audit Commission.

Audit Commission. (2014). Labour and Welfare Bureau Social Welfare Department - Provision of long-term care services for the elderly. Hong Kong: Audit Commission.

Bailey, A., & Ngwenyama, O. (2011). The challenge of e-participation in the digital city: Exploring generational influences among community telecentre users. Telematics and informatics, 28.3: 204-214.

Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist, Vol 37(2), 122-147.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran, Encyclopedia of human behavior (pp. 71-81). New York: Academic Press.

Banks, J., Blundell, R., Bozio, A., & Emmerson, C. (2008). Releasing Jobs for the Young? Early Retirement and Youth Unemployment in the United Kingdom. ESRC.

Banks, J., Blundell, R., Bozio, A., & Emmerson, C. (2010). Releasing jobs for the young? Early retirement and youth unemployment in the United Kingdom. In Social security programs and retirement around the world: The relationship to youth employment (pp. pp. 319-344). University of Chicago Press.

Barnett, K., Mercer, S. W., Norbury, M., Watt, G., Wyke, S., & Guthrie, B. (2012). Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. The Lancet, 380(9836), 37-43.

BCF Taskforce. (2014). Better Care Fund Policy Framework. gov.uk.

Beales, S. (2012). Empowerment and older people: Enhancing capabilities in an ageing world. Promoting people's empowerment in achieving poverty eradication, social integration and productive and decent work for

all, (pp. 10-12).

Belli, D. K. (2013, September 5). American Society on Ageing. Retrieved from Can Japan serve as a model for US Health and Long Term Care System: http://www.asaging.org/blog/can-japan-serve-model-us-health-and-long-term-care-systems

Bengtson, V. L., & Allen, K. R. (2009). The Life Course Perspective Applied to Families Over Time. In Sourcebook of Family Theories and Methods (pp. 469-504).

Bengtson, V. L., & Oyama, P. S. (2007). Intergenerational solidarity: Strengthening economic and social ties. New York: United Nations Headquarters.

Bengtson, V. L., Burgess, E. O., & Parrott, T. M. (1997). Theory, explanation, and a third generation of theoretical development in social gerontology. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 52(2), S72-S88.

Bengtson, V. L., Elder Jr, G. H., & Putney, N. M. (2012). The life course perspective on ageing: Linked lives, timing, and history. Adult lives: A life course perspective, 9-17.

Beswick, A. D., Rees, K., Dieppe, P., Ayis, S., Gooberman-Hill, R., Horwood, J., & Ebrahim, S. (2008). Complex interventions to improve physical function and maintain independent living in elderly people: a systematic review and meta-analysis. The Lancet, 371.9614: 725-735.

Big Lottery Fund. (2016). Fulfilling Lives: Ageing Better. Big Lottery Fund.

Bloom, D. E., Canning, D., & Fink, G. (2011). Implications of Population Ageing for Economic Growth. Cambridge: National Bureau of Economic Research.

Bloom, D. E., Canning, D., & Sevilla, J. (2004). The Effect of Health on Economic Growth: A Production Function Approach. World Development, Volume 32, Issue 1, Pages 1-13.

Boudiny, K. (2013). 'Active ageing': From empty rhetoric to effective policy tool. Ageing and society, 33(06), 1077-1098.
Boulware, L. E., Marinopoulos, S., Phillips, K. A., Hwang, C. W., Maynor, K., Merenstein, D., . . . Daumit, G. L. (2007). Systematic review: the value of the periodic health evaluation. Annals of Internal Medicine, 146(4), 289-300.

Boyle, S. (2011). United Kingdom (England), Health system review. Health Systems in Transition.

British Geriatrics Society. (2012). Quality care for older people with urgent and emergency care needs. UK.

Bureau, F. a. (2011). Interim Review of Elderly Health Care Voucher Pilot Scheme. Food and Health Bureau & Department of Health.

Castillo, M. (2012, March 22). Turkish "robotic" device helps paraplegics stand: Could it replace wheelchairs? Retrieved from CBS News. Retrieved from: http://www.cbsnews.com/news/turkish-robotic-device-helps-paraplegics-stand-could-it-replace-wheelchairs/

Census and Statistics Department. (2011). Thematic Report : Older Persons. Hong Kong: Census and Statistics Department, Hong Kong Special Administrative Region.

Census and Statistics Department. (2013). Thematic Household Survey Report No.52. Hong Kong: GovHK.

Census and Statistics Department. (2014a). Hong Kong Poverty Situation Report 2014. Hong Kong: The Census and Statistics Department.

Census and Statistics Department. (2014b). Persons with disabilities and chronic diseases Special Topics Report No.62. Hong Kong: The Census and Statistics Department.

Census and Statistics Department. (2014c). Special Topics Report No.62 - Persons with disabilities and chronic diseases. Hong Kong: Census and Statistics Department, HKSAR.

Census and Statistics Department. (2015a). Hong Kong Population Projections 2015-2064. Hong Kong: The Census and Statistics Department.

Census and Statistics Department. (2015b). Thematic Household Survey Report No. 58 Health status of Hong Kong residents - Doctor consultation - Hospitalisation. Hong Kong: The Census and Statistics Department.

Centre For Ageing Better. (2016). Contributing to communities.

Centre for Suicide Research and Prevention. (2015, July 31). The Hong Kong Jockey Club Centre for Suicide Research and Prevention (CSRP). Retrieved from Statistics: http://csrp.hku.hk/statistics/

Centre-based Care Workgroup. (2015). GUIDELINES FOR

CENTRE-BASED CARE. Centre-based Care Workgroup.

Cervical Screening Programme. (2016). Hong Kong SAR, Department of Health. Retrieved from http://www.cervicalscreening.gov.hk/eindex.php

Chan, A. (2005). Formal and informal intergenerational support transfers in South-Eastern Asia. n Proceedings of the United Nations Expert Group Meeting on Social and Economic Implications of Changing Population Age Structures.

Chan, B. C., Wong, S., Tse, K.-K., & Cheung, A. (2016). Social Innovation For A Better Hong Kong. Hong Kong: Our Hong Kong Foundation.

Chan, W. C., Kwan, C. W., Chi, I., & Chong, A. M. (2014). The Impact of Loneliness on the Relationship between Depression and Pain of Hong Kong Chinese Terminally Ill Patients . Journal of Palliative Medicine, 17(5): 527-532.

Chan, W., Woo, J., & Hui, E. (2012). The Role of Empowerment in the Management. In J. Woo, Aging in Hong Kong: A Comparative Perspective (pp. 183-210). Springer Science & Business Media.

Chang, K. C.-M., Lee, J. T., Vamos, E. P., Soljak, M., Johnston, D., Khunti, K., . . . Millett, C. (2016). Impact of the National Health Service Health Check on cardiovascular disease risk: a difference-in-differences matching analysis. CMAJ .

Chatterji, S., Byles, J., Cutler, D., Seeman, T., & Verdes, E. (2015). Health, functioning, and disability in older adults–present status and future implications. The Lancet, 385(9967), 563-575.

Chen, Y.-Y., Wong, G. H., Lum, T. Y., Lou, V. W., Ho, A. H., Luo, H., & Tong, T. L. (2016). Neighborhood support network, perceived proximity to community facilities and depressive symptoms among low socioeconomic status Chinese elders. Aging & mental health, 423-431.

Chen, Y.-Y., Wong, G. H., Lum, T. Y., Lou, V. W., Ho, A. H., Luo, H., & Tong, T. L. (2016). Neighborhood support network, perceived proximity to community facilities and depressive symptoms among low socioeconomic status Chinese elders. Aging & mental health, 423-431.

Cheng, S.-T., & Chan, A. C. (2006). Filial piety and psychological well-being in well older Chinese. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 61(5): P262-P269.

Cheung, M. C., Ting, W., Chan, L. Y., Ho, K. S., & Chan, W. M. (2009). Leisure participation and health-related quality of life of community dwelling elders in Hong Kong. Asian Journal of Gerontology and Geriatrics, 4(1), 15-23.

Chung, R. Y., Tin, K. Y., Cowling, B. J., Chan, K. P., Chan, W. M., Lo, S. V., & Leung, G. M. (2009). Long-term care cost drivers and expenditure projection to 2036 in Hong Kong. BMC health services research, 172.

Civic Ventures. (2013). Encore Career Choices: Purpose, Passion, and Paycheck in a Tough Economy. The MetLife Foundation and Civic Ventures.

Collier, E. (2005). Latent age discrimination in mental health care. Mental Health Practice, 8, 6, 42-45.

Collinson, P. (2010). Solving Japan's age-old problem. The Guardian, 6-8.

Colombo, F., Llena-Nozal, A., Mercier, J., & Tjadens, F. (2011). Where To? Providing Fair Protection Against Long-term Care Costs and Financial Sustainability. In F. Colombo, A. Llena-Nozal, J. Mercier, & F. Tjadens, Help Wanted? Providing and Paying for Long-Term Care (pp. 263-293). OECD.

Comas-Herrera, A., Pickard, L., Wittenberg, R., Malley, J., & King, D. (2010). The English Long-Term Care System. ANCIEN project report, PSSRU Discussion paper 2685, Personal Social Services Research Unit, London.

Connelly, K., Mokhtari, M., & Falk, T. H. (2014). Approaches to Understanding the impact of technologies for aging in place: a mini-review. Gerontology, 60(3), 282-288.

Cook, J. (2011). The socio-economic contribution of older people in the UK. Working with Older People, 15(4), 141-146.

Coughlin, J. F. (1999). Technology needs of aging boomers. Issues in science and technology, 16(1), 53-60.

Coughlin, J. F. (1999). Technology needs of aging boomers. Issues in science and technology, 16(1), 53-60.

Coulmas, F. (2007). Population decline and ageing in Japan-the social consequences. Routledge.

Coyte, P., Goodwin, N., Laporte, A., & Wodchis, W. (2014). Providing integrated care for older people with complex needs. Lessons from seven international case studies. London: The King's Fund.

CPRE London & Neighbourhoods Green . (2014). All London Green Grid: Review of Implementation. Neighbour-

hoods Green .

Crawford, R., Keynes, S., & Tetlow, G. (2013). A single-tier pension: what does it really mean. IFS Report, 82.

CSTP. (2010). Japan's Science and Technology Basic Policy Report. Council for Science and Technology Policy.

Cutler, D. M., & Lleras-Muney, A. (2006). Education and health: evaluating theories and evidence. National Bureau of Economic Research.

Davis, K., Stremikis, K., Squires, D., & Schoen, C. (2014, June). The Commonwealth Fund. Retrieved from Mirror, Mirror on the Wall, 2014 Update: How the U.S. Health Care System Compares Internationally.: http://www.commonwealthfund.org/publications/fund-reports/2014/jun/mirror-mirror

Decision, C. (2010). On the New Growth Strategy. Ministry of Economy, Trade & Industry.

Department for Business, Innovation & Skills. (2009). Digital Britain. Department for Business, Innovation & Skills;.

Department for Business, Innovation & Skills. (2010). Skills for Sustainable Growth. Department for Business Innovation & Skills.

Department for Business, Innovation & Skills. (2011). Economic Opportunities and Challenges of Ageing. Department for Business Innovation & Skills.

Department for Innovation, Universities and Skills. (2009). The Learning Revolution. Department for Innovation, Universities and Skills.

Department for Work & Pensions. (2014). Fuller Working Lives - A Framework for Action. Department for Work & Pensions, UK.

Department of Health, England. (2010). the National Archives. Retrieved from Secondary care: http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Healthcare/Secondarycare/index.htm

Department of Health, UK. (2008). Putting quality into the Care Quality Commission in England. Royal College of Nursing.

Diggs, J. (2008). The Cognitive Theory of Aging. Encyclopedia of Aging and Public Health, 216-218.

DOH. (2010). The National Archives,Secondary care . Retrieved from Department of Health, England: http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Healthcare/Secondarycare/index.htm

Dorling, G., Fountaine, T., McKenna, S., & Suresh, B. (2015). The evidence for integrated care. Healthcare Practice.

Doyle, Y., Bull, A., & Keen, J. (2000). Role of private sector in United Kingdom healthcare system/Commentary. British Medical Journal, 321(7260), 563.

eHealth System. (2016). List of Enrolled Healthcare Service Providers. Retrieved from eHealth System: https://apps.hcv.gov.hk/SDIR/main.aspx?lang=en

Elderly Services Programme Plan (ESPP). (2016). About ESPP. Retrieved from Department of Social Work & Soical Administration, HKU: http://espp.socialwork.hku.hk/index.php/en/home-en-gb/introduction

Equal Opportunity Commission. (2016). Exploratory Study on Age Discrimination in Employment. Hong Kong: Consumer Search Hong Kong Limited (CSG).

Everard, K. M., Lach, H. W., Fisher, E. B., & Baum, M. C. (2000). Relationship of activity and social support to the functional health of older adults. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 55.4: S208-S212.

Fang, D. (2006). The Private-Public Interface. In G. M. Leung, & J. Bacon-Shone, Hong Kong's Health System: Reflections, Perspectives and Visions (pp. 199-208). Hong Kong University Press.

Farrelly, M. C., Pechacek, T. F., Thomas, K. Y., & Nelson, D. (2008). The impact of tobacco control programs on adult smoking. American Journal of Public Health, 98(2), 304-309.

Feinstein, L., Sabates, R., Anderson, T. M., Sorhaindo, A., & Hammond, C. (2006). What are the effects of education on health? In R. Desjardins, & T. Schuller, Measuring the effects of education on health and civic engagement.
Fenton, K., Kelly, M., Newton, J., Patrick, Z., & Richards, M. (2013). NHS Health Check: our approach to the evidence,. Public Health England.

Fong, B. (2016, January 11). Public Private Partnership in Health Care in Hong Kong. Retrieved from http://healthconf2016.cpce-polyu.edu.hk/wp-content/uploads/2016/01/E4-Public-Private-Partnership-in-Health-

Care.pdf

Food and Health Bureau. (2008a). Synopsis of Healthcare Financing Studies: Healthcare System and Financing: Overseas Experience. Hong Kong.

Food and Health Bureau. (2008b). Your Health, your life: Health reform consultation document. Hong Kong.

Food and Health Bureau. (2011). Interim Review of Elderly Health Care Voucher Pilot Scheme. Hong Kong: Food and Health Bureau & Department of Health.

Forbes. (2016a). The World's Billionaires list. Retrieved from http://www.forbes.com/billionaires/list/

Forbes. (2016b). Hong Kong's 50 Richest People. Retrieved from http://www.forbes.com/hong-kong-billionaires/list/#tab:overall

Forth, M., & Yip, P. (2016, November 13). How schools can be a hub of the community in space-scarce Hong Kong. Retrieved from SCMP: http://www.scmp.com/comment/insight-opinion/article/2045168/how-schools-can-be-hub-community-space-scarce-hong-kong

Freedman, V. A., Kasper, D. J., Cornman, J. C., Agree, E. M., Bandeen-Roche, K., Mor, V., . . . Wolf, D. A. (2011). Validation of new measures of disability and functioning in the National Health and Aging Trends Study. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 66(9), 1013-1021.

Fried, L. (2016). Investing in health to create a third demographic dividend. The Gerontologist, 56(Suppl 2), S167-S177.

Fujiwara, Y., Sakuma, N., Ohba, H., Nishi, M., Lee, S., Watanabe, N., & Amano, H. (2009). Effects of an Intergenerational Health Promotion Program for Older Adults in Japan. Journal of Intergenerational Relationships, 7.1: 17-39.

Fukutomiemail, E., & Kimura, Y. (2013). Long-term care prevention project in Japan. The Lancet, 116.

Fukutomiemail, E., Kimura, Y., Wada, T., Okumiya, K., & Matsubayashi, K. (2013). Long-term care prevention project in Japan. The Lancet, 116.

Garçon, L., Khasnabis, C., Walker, L., Nakatani, Y., Lapitan, J., Borg, J., & Berumen, A. V. (2016). Medical and Assistive Health Technology: Meeting the Needs of Aging Populations. The Gerontologist, 56(Suppl 2), S293-S302.

Gijsen, R., Hoeymans, N., Schellevis, F. G., Ruwaard, D., Satariano, W. A., & van den Bos, G. A. (2001). Causes and consequences of comorbidity: a review. Journal of clinical epidemiology, 54(7), 661-674.

GLA Business Plan. (2015). The Greater London Authority's Business Plan. GLA Business Plan.

Glynn, L. G., Valderas, J. M., Healy, P., Burke, E., Newell, J., Gillespie, P., & Murphy, A. W. (2011). The prevalence of multimorbidity in primary care and its effect on health care utilization and cost. Family practice, 28(5), 516-523.

Goodwin, N., Dixon, A., Anderson, G., & Wodchis, W. (2014). Providing integrated care for older people with complex needs: lessons from seven international case studies. London: The King's Fund, 201(4).

Goh, O. (2006). Successful Ageing – A Review of Singapore's Policy Approaches. Ethos, Issue 1, October.

Gonseth, J., Guallar-Castillón, P., Banegas, J. R., & Rodríguez-Artalejo, F. (2004). The effectiveness of disease management programmes in reducing hospital re-admission in older patients with heart failure: a systematic review and meta-analysis of published reports. European Heart Journal, 25(18), 1570-1595.

Gori, C., Fernández, J.-L., & Wittenberg, R. (2016). Conclusion: looking ahead in long-term care policies. In Long-term Care Reforms in OECD Countries. Policy Press.

GovHK. (2015). Hong Kong Annual Reports. GovHK.

Goy, P. (2014). More nursing home beds by 2020; 6% may be run directly by Health Ministry. Retrieved from The Straits Times: http://www.straitstimes.com/singapore/health/more-nursing-home-beds-by-2020-6-may-be-run-directly-by-health-ministry

Guardian, T. (2014, November 19). UK public toilets mapped: where's your nearest? Retrieved from The Guardian: https://www.theguardian.com/uk-news/2014/nov/19/uk-public-toilets-mapped-wheres-your-nearest

Handler, S. (2015, 12 1). A Research & Evaluation Framework for Age-friendly Cities. UK Urban Ageing Consortium. UK Urban Ageing Consortium. Retrieved from UK Urban Ageing Consortium.

Harris, M. (2008). The role of primary health care in preventing the onset of chronic disease, with a particular

focus on the lifestyle risk factors of obesity, tobacco and alcohol. Canberra: National Preventative Health Taskforce, 1-21.

Haseltine, W. A. (2013). Affordable Excellence: The Singapore Healthcare Story. Ridge Books & Brookings Institution Press.

Hayashi, M. (2014). Japan's search for a seamless care package: Is the micro-multifunctional community facility providing total care for older people the answer? And would it meet the needs of an ageing population in the UK- Housing Learning & Improvement Network.

HDB. (2015). Enhancement for Active Seniors (EASE). Retrieved from Housing & Development Board: http://www.hdb.gov.sg/cs/infoweb/residential/living-in-an-hdb-flat/for-our-seniors/ease

HDB. (2016). Priority Schemes. Retrieved from Housing & Development Board: http://www.hdb.gov.sg/cs/infoweb/residential/buying-a-flat/new/eligibility/priority-schemes

He, F. J., Nowson, C. A., & MacGregor, G. A. (2006). Fruit and vegetable consumption and stroke: meta-analysis of cohort studies. The Lancet, 367(9507), 320-326.

He, Y., Wu, Y., Mishra, A., Acha, V., Andrews, T., & Hornsby, P. J. (2012). Biosensor technology in aging research and age-related diseases. Ageing research reviews, 11(1), 1-9.

Health and Social Care Act. (2012). Health and Social Care Act 2012. Retrieved from Legislation.Gov.UK: http://www.legislation.gov.uk/ukpga/2012/7/contents/enacted

Health Promotion Board, Singapore. (2012). HEALTH CHOICES For a Happy & Healthy Life, Practice Manual for Healthcare Professionals. Health Promotion Board.

Heaven, B. E., Brown, L. J., White, M., Errington, L., Mathers, J. C., & Moffatt, S. (2013). Supporting Well-Being in Retirement through Meaningful Social Roles: Systematic Review of Intervention Studies. Milbank Quarterly, 91.2: 222-287.

Heyn, P., Abreu, B. C., & Ottenbacher, K. J. (2004). The effects of exercise training on elderly persons with cognitive impairment and dementia: a meta-analysis. Archives of physical medicine and rehabilitation, 85.10: 1694-1704.

Hirakawa, Y., & Uemura, K. (2013). No Improvement in Metabolic Health Condition of 40-74-year-old Rural Residents One Year After Screening. Journal Rural Med, 8(2): 193-197

.

HKGolden 50. (2012). How to Create A World-Class Medical System. Hong Kong: HKGolden 50.

HKGolden 50. (2013). Happy Families, Vibrant World City: Opportunities and Demographic Threats facing Hong Kong in the Next 20 Years. Hong Kong : HKGolden 50.

HKICS. (2012). Diversity on the Boards of Hong Kong Main Board Listed Companies. Hong Kong: The Hong Kong Institute of Chartered Secretaries.

HM Government. (2009). The case for change - Why England needs a new care and support. HM Government.
Ho, S. C., Chan, A., Woo, J., Chong, P., & Sham, A. (2009). Impact of caregiving on health and quality of life: a comparative population-based study of caregivers for elderly persons and noncaregivers. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, glp034.

Holly, K. (2014, Jan 15). Why great entrepreneurs are older than you think. Retrieved from Forbes Tech: http://www.forbes.com/sites/krisztinaholly/2014/01/15/why-great-entrepreneurs-are-older-than-you-think/#41d347777d6a

Home Care Workgroup. (2015). GUIDELINES FOR HOME CARE. Home Care Workgroup.

Hong Kong Medical Association [HKMA]. (2015, April 20). Hong Kong Medical Association Press Release. Retrieved from Survey on Elderly Health Care Voucher Scheme: http://www.hkma.org/english/newsroom/news/20150420.htm

Hospital Authority. (2012). STRATEGIC PLAN . Hong Kong: The Hospital Authority.

Hospital Authority. (2016). General Outpatient Clinic Public-Private Partnership Programme (GOPC PPP). Hospital Authority.

Housing & Development Board. (2016). Housing & Development Board. Retrieved from Public Housing - A Singapore Icon: http://www.hdb.gov.sg/cs/infoweb/about-us/our-role/public-housing--a-singapore-icon

HPB. (2013). Health Behavioural Surveillance Survey. Singapore.

HPB. (2013). Health Choices, For a Happy & Healthy Life, Practice Manual for Healthcare Professionals. Singapore : Health Promotion Board, Singapore .

HSCIC. (2015a, October 29). Health & Social Care Information Centre. Retrieved from Quality and Outcomes Framework (QOF) - 2014-15: http://www.hscic.gov.uk/catalogue/PUB18887

HSCIC. (2015b). General and Personal Medical Services: England 2004-14. Health and Social Care Information Centre.

Hughes, D. (2005). Connexions: Developing options and opportunities. CeGS Occasional Paper. Derby: Centre for Guidance Studies, University of Derby.

ICRFOS Group. (1995). Effectiveness of health checks conducted by nurses in primary care: final results of the OXCHECK study. BMJ: British Medical Journal, 1099-1104.

Institute of Public Care, O. (2013). Evidence review - integrated health and social care. Oxford Brookes University.

Ismail, S., Thorlby, R., & Holder, H. (2014). Focus On: Social care for older people. Reductions in adult social services for older people in England. Nuffield Trust.

Japan Pension Service. (2016). Japan Pension Service. Retrieved from National Pension System: http://www.nenkin.go.jp/international/english/nationalpension/nationalpension.html

Japan, Ministry of Health, Labour and Welfare. (n.d.). Specific Health Checkups and Specific Health Guidance. Retrieved from Secondary Specific Health Checkups and Specific Health Guidance: http://www.mhlw.go.jp/english/wp/wp-hw3/dl/2-007.pdf

JIJI. (2013). Ministry to push nursing robots to aid caregivers. Retrieved from The Japan Times: http://www.japantimes.co.jp/news/2013/11/26/national/ministry-to-push-nursing-robots-to-aid-caregivers/#.WDrteLJ95EY

JTTA. (2013). Telemedicine in Japan. Japanese Telemedicine and Telecare Association.

Junicon. (2010). Retrieved from Junicon: http://www.junicon.com/

Katzman, R. (1993). Education and the prevalence of dementia and Alzheimer's disease. Neurology.

Kautonen, T., Down, S., & South, L. (2008). Enterprise support for older entrepreneurs: The case of PRIME in the UK. International Journal of Entrepreneurial Behavior & Research, 14(2), 85-101.

Keating, N., Kwan, D., Hillcoat-Nalletamby, S., & Burholt, V. (2015). Intergenerational relationships: Experiences and attitudes in the new millennium. Foresight,.

Kennedys. (2012, June 15). Health and Social Care Act 2012: an overview. Retrieved from Kennedys: http://www.kennedyslaw.com/da/article/healthsocialcare-act2012/

King's College London. (2015). Postgraduate Guide. King's College London.

Ko, W.-m. (2013, April 09). HK healthcare is a dual-track system. Retrieved from News.gov.hk: http://www.news.gov.hk/en/record/html/2013/04/20130409_190409.shtml

Krogsbøll, L. T., Jørgensen, K. J., Larsen, C. G., & Gøtzsche, P. C. (2012). General health checks in adults for reducing morbidity and mortality from disease: Cochrane systematic review and meta-analysis. BMJ, 345.

Kuh, D. (2007). A life course approach to healthy aging, frailty, and capability. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 62(7), 717-721.

Kujubu, D. B. (2013). Can Japan serve as a model for US Health and Long Term Care Systems? Retrieved from American Society on Ageing: http://www.asaging.org/blog/can-japan-serve-model-us-health-and-long-term-care-systems

Laclaustra, M., Stranges, S., Navas-Acien, A., Ordovas, J. M., & Guallar, E. (2010). Serum selenium and serum lipids in US adults: National Health and Nutrition Examination Survey (NHANES) 2003-2004. Atherosclerosis, 210(2), 643-648.

Lafond, S., Arora, S., Charlesworth, A., & McKeon, A. (2014). Into the Red? The State of the NHS' Finances. Nuffield Trust.

Lam, C., Leung, G., Mercer, S., Fong, D., Lee, A., Lam, T., & Lo, Y. (2011). Utlilisation patterns of primary health care services in Hong Kong: does having a family doctor make any difference? . Hong Kong Medical Journal, S28-S32.

Lam, S.-k. (1997). The Health of the Elderly in Hong Kong.

Hong Kong: Hong Kong University Press.

Lee, A., Chui, P. T., Chiu, C. H., Gin, T., & Ho, A. M. (2012). The cost-effectiveness of an outpatient anesthesia consultation clinic before surgery: a matched Hong Kong cohort study. Perioper Medicin, 1: 3.

Lee, D. C., Folsom, A., & Blair, S. (2003). Physical activity and stroke risk a meta-analysis. Stroke, 34(10), 2475-2481.

Lee, I. M., & Paffenbarger, R. S. (1998). Physical activity and stroke incidence the Harvard Alumni Health Study. Stroke, 29(10), 2049-2054.

Lee, I. M., & Paffenbarger, R. S. (1998). Physical activity and stroke incidence the Harvard Alumni Health Study. Stroke, 29(10), 2049-2054.

Lee, R., Lee, S. H., & Mason, A. (2014). Charting the economic life cycle. National Bureau of Economic Research. 34(Suppl 1): 208-237.

Lee, R. (2003). The demographic transition: three centuries of fundamental change. The journal of economic perspectives, 17(4), 167-190.

Lee, R., & Mason, A. (2010). Some macroeconomic aspects of global population aging. Demography, 47(1), S151-S172.
Lee, R., & Mason, A. (2011). Population aging and the generational economy: A global perspective. Edward Elgar Publishing.

Lee, R., & Mason, A. (2014). National transfer accounts and intergenerational transfers. In International Handbook on Ageing and Public Policy (p. 153).

Lee, S., Mason , A., & Park, D. (2011). Why does population aging matter so much for Asia? Population aging, economic security and economic growth in Asia. ERIA Discussion Paper Series, 4, 1-34.

Leeson, G. W., & Harper , S. (2007). The Global Ageing Survey (GLAS) - Ageing and later life, Hong Kong and Asia. Oxford Institute of Ageing, University of Oxford.

Legislative Council. (2014). Legislative Council Panel on Health Services - General Outpatient Clinic Public-Private Partnership Programme in Kwun Tong, Wong Tai Sin and Tuen Mun Districts and Progress of Other Public-Private Partnership Initiatives on Chronic Disease Management. Hong Kong.

Legislative Council. (2016). Subcommittee on Issues Relating to the Future Development of Elderly Services Schemes Background brief prepared by the Legislative Council Secretariat for the meeting on 15 January 2016 Policies and measures on elderly care services. Retrieved from http://www.legco.gov.hk/yr15-16/english/panels/ws/ws_fdes/papers/ws_fdes20160115cb2-631-1-e.pdf

Legislative Council Panel. (2015). Legislative Council Panel on Health Services Subcommittee on Health Protection Scheme - Manpower Projections for doctors, dentists and nurses. Hong Kong: Food and Health Bureau.

Legislative Council Panel on Health Services . (2014). General Outpatient Clinic Public-Private Partnership Programme in Kwun Tong, Wong Tai Sin and Tuen Mun Districts and Progress of Other Public-Private Partnership Initiatives on Chronic Disease Management. Retrieved from http://www.legco.gov.hk/yr13-14/english/panels/hs/papers/hs0217cb2-849-5-e.pdf

Legislative Council Panel on Welfare Services. (2015, March 9). Promoting Active Ageing. Retrieved from http://www.legco.gov.hk/yr14-15/english/panels/ws/papers/ws20150309cb2-947-3-e.pdf

Lehnert, T., Heider, D., Leicht, H., Heinrich, S., Corrieri, S., Luppa, M., & ... König, H. H. (2011). Review: health care utilization and costs of elderly persons with multiple chronic conditions. Medical Care Research and Review, 68(4), 387-420.

Leigh, L. (2006). Hong Kong Special Administrative Region: macroeconomic impact of an aging population in a highly open economy. IMF Working Papers.

Leung, D. Y., Leung, A. Y., & Chi, I. (2011). An evaluation of the factor structure of the instrumental activities of daily living involvement and capacity scales of the minimum data Set for home care for elderly Chinese community dwellers in Hong Kong. Home health care services quarterly, 30(3), 147-159.

Leung, G. M., & Bacon-Shone, J. (2006). Hong Kong's health system: reflections, perspectives and visions. Hong Kong University Press.

LI, A. W. (2006). Population Ageing in Hong Kong and Its Impact on Labour Force. Paris Group on Labour and Compensation Statistics. Budapest.

Li, Y., Baldassi, M., Johnson, E. J., & Weber, E. U. (2013). Com-

plementary cognitive capabilities, economic decision making, and aging. Psychology and Aging, 28(3), 595.

Lifetime Homes. (2010). Lifetime Home (LTH) Revised Criteria . Habinteg.

Lifshitz, H. (2000). Conceptualization of Age and Aging by Adolescents, Adult and Elderly People with Mental Retardation . Education and Training in Mental Retardation and Developmental Disabilities, 374-383 .

Lim, J., & Tan, C. (2011). Strategic Orientations in Singapore Healthcare. Ethos, 9. Retrieved from Strategic Orientations in Singapore Healthcare.

Lin, F. O., Luk, J. K., Chan, T., Mok, W. W., & Chan, F. H. (2015). Effectiveness of a discharge planning and community support programme in preventing readmission of high-risk older patients. Hong Kong Medical Journal , 21(3), 208-216.

Linertová, R., García-Pérez, L., Vázquez-Díaz, J. R., Lorenzo-Riera, A., & Sarría-Santamera, A. (2011). Interventions to reduce hospital readmissions in the elderly: In-hospital or home care. A systematic review. Journal of evaluation in clinical practice, 17(6), 1167-1175.

Leigh, A. (2006). Trust, inequality and ethnic heterogeneity. Economic Record, 82(258), 268-280.

Liu , P., Lam, J. K.-C., & Shui, K. (2016). iding on Mainland's Economic Development in a New Era. Hong Kong: Our Hong Kong Foundation.

Liu, C., & Haseltine, W. (2015). International Health Care System Profiles: The Singaporean Health Care System. The Commonwealth Fund.

Lo, Y., Lam, C., Mercer, S., Fong, D., Lee, A., Lam, T., . . . Chan, K. (2011). Patient morbidity and management patterns of community-based primary health care services in Hong Kong. Hong Kong Med Journal, 17(Suppl 3):S33-7.

Lou. V. W. (2010). Life satisfaction of older adults in Hong Kong: The role of social support from grandchildren. Social indicators research, 95(3), 377-391.

Lou. V. W. (2014). Mental Illness, Dementia and Family in China. Social Work Education, 33(2), 272-274.

Lou, V. W., Chi, I., Kwan, C. W., & Leung, A. Y. (2013). Trajectories of social engagement and depressive symptoms among long-term care facility residents in Hong Kong. Age and ageing, 215-222.

Lou, V. W., Chui, E. W., Leung, A. Y., Tang, K. L., Chi, I., Leung Wong, E. K., & Kwan, C. W. (2011). Factors affecting long-term care use in Hong Kong. Hong Kong Medical Journal

.

Lou, W. V., & Tong, H. (2015). Grandparenting and Volunteering Among Older Adults in Hong Kong: A Dilemma. Successful Aging , 199-207.

Loua, V. W., & Ng, J. W. (2012). Chinese older adults' resilience to the loneliness of living alone: A qualitative study. Aging & mental health, 16(8), 1039-1046.

Lum, T. Y., Lou, V. W., Chen, Y., Wong, G. H., Luo, H., & Tong, T. L. (2014). Neighborhood support and aging-in-place preference among low-income elderly Chinese city-dwellers. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, gbu154.

Lusardi , A., & Mitchell , O. (2007). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. Journal of monetary Economics, 54(1): 205-224.

Marczak, J., & Wistow, G. (2015). Commissioning long-term care services. Long-term Care Reforms in OECD Countries, 117.

Marengoni, A., Angleman, S., Melis, R., Mangialasche, F., Karp, A., Garmen, A., & Fratiglioni, L. (2011). Aging with multimorbidity: a systematic review of the literature. Ageing research reviews, 10(4), 430-439.

Marengoni, A., Angleman, S., Melis, R., Mangialasche, F., Karp, A., Garmen, A., . . . Fratiglioni, L. (2011). Aging with multimorbidity: A systematic review of the literature. Ageing Research Reviews, 430-439.

Marmot, M. (2010). The Marmot review final report: Fair society, healthy lives . University College London .

Mastsukura, R. (2014). Japan's Dark Demographic Reality and a Possible Ray of Light in the Future.

Matsuda, R. (2015). International Health Care System Profiles 2015: The Japanese Health Care System. The Commonwealth Fund. Retrieved from The Japanese Healthcare System.

May, M. (2016). Singapore: A Smart Nation. Scientific American.

Menec, V. H. (2003). The relation between everyday activities and successful aging: A 6-year longitudinal study. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences 58.2, 58(2), S74-S82.

Meng, H., Friedman, B., Wamsley, B., Mukamel, D., & Eggert, G. (2005). Effect of a consumer-directed voucher and a disease-management-health-promotion nurse intervention on home care use. The Gerontologist, Apr; 45(2):167-76.

Menotti, A., Mulder, I., Nissinen, A., Giampaoli, S., Feskens, E. J., & Kromhout, D. (2011). Prevalence of morbidity and multimorbidity in elderly male populations and their impact on 10-year all-cause mortality: The FINE study (Finland, Italy, Netherlands, Elderly). Journal of clinical epidemiology, 54(7), 680-686.

Mercer, S. W., Smith, S. M., Wyke, S., O' Dowd, T., & Watt, G. C. (2009). Multimorbidity in primary care: developing the research agenda. Family practice, 26(2), 79-80.

MetLife Foundation. (2008). Encore Career Survey. Civic Ventures.

MEXT. (2009). Higher Education in Japan. MEXT.

Ministry of Health, Labour and Welfare. (2007). Specific Health Checkups and Specific Health Guidance. Retrieved from Secondary Specific Health Checkups and Specific Health Guidance: http://www.mhlw.go.jp/english/wp/wp-hw3/dl/2-007.pdf

Ministry of Health, Singapore. (2012, March 7). Ministry of Health. Retrieved from MOH 2012 Committee of Supply Speech Healthcare 2020: Improving Accessibility, Quality and Affordability for Tomorrow's Challenges (Part 2 of 2): https://www.moh.gov.sg/content/moh_web/home/pressRoom/speeches_d/2012/MOH_2012_COS_Healthcare_2020_improving_accessibility_quality_affordability_for_tomorrows_challenges_part_2_of_2.html

Ministry of Health, Singapore. (2012). Press Room. Retrieved from MOH 2012 Committee of Supply Speech Healthcare 2020: Improving Accessibility, Quality and Affordability for Tomorrow's Challenges: https://www.moh.gov.sg/content/moh_web/home/pressRoom/speeches_d/2012/moh_2012_committeeofsupply-speechhealthcare2020improvingaccessibi.html

Ministry of Health, Singapore. (2013, October 21). Ministry of Health, Singapore, Press Room. Retrieved from Update on Ministerial Committee on Ageing: https://www.moh.gov.sg/content/moh_web/home/pressRoom/Parliamentary_QA/2013/update-on-ministerial-committee-on-ageing-.html

Ministry of Health, Singapore. (2014). Health Living Master Plan. Singapore: Ministry of Health and Health Promotion Board.

Ministry of Health, Singapore. (2014). Health Living Master Plan. Singapore: Ministry of Health and Health Promotion Board.

Ministry of Health, Singapore. (2015, January 19). Press Room. Retrieved from Implementation of the new Enhanced Nursing Home Standards: https://www.moh.gov.sg/content/moh_web/home/pressRoom/Parliamentary_QA/2015/implementation-of-the-new-enhanced-nursing-home-standards.html

Ministry of Health, Singapore. (2015a, January 2). Ministry of Health, Singapore. Retrieved from Primary Healthcare Services: https://www.moh.gov.sg/content/moh_web/home/our_healthcare_system/Healthcare_Services/Primary_Care.html

Ministry of Health, Singapore. (2015b, January 19). Implementation of the new Enhanced Nursing Home Standards. Retrieved from Ministry of Health, Singapore: https://www.moh.gov.sg/content/moh_web/home/pressRoom/Parliamentary_QA/2015/implementation-of-the-new-enhanced-nursing-home-standards.html

Ministry of Health, Singapore. (2015c, June 23). Costs and Financing. Retrieved from ElderShield: https://www.moh.gov.sg/content/moh_web/home/costs_and_financing/schemes_subsidies/ElderShield.html

Ministry of Health, Singapore. (2015d, May 16). Ministry of Health, Press Room. Retrieved from Speech by Dr Amy Khor, Senior Minister Of State for Health, at the Official Opening Ceremony of the 50plus Expo 2015, on 16 May 2015: https://www.moh.gov.sg/content/moh_web/home/pressRoom/speeches_d/2015/speech-by-dr-amy-khor--senior-minister-of-state-for-health--at-t3.html

Ministry of Health, Singapore. (2016). I feel young in my Singapore, Action Plan for Successful Ageing. Ministry of Health, Singapore.

Ministry of Justice, Japan. (2006). Japanese law Trans-

lation. Retrieved from Industrial Safety and Health Act: http://www.japaneselawtranslation.go.jp/law/detail/?id=1926&vm=&re=

Modak, G. S., & Bhoomkar, M. M. (2009). Review Article: Evolution of a Stair-Climbing Power Wheelchair. IOSR Journal of Mechanical and Civil Engineering, 36-41.

Moen, P., Dempster-McClain, D., & Robin M. Williams, J. (1992). Successful aging: A life-course perspective on women's multiple roles and health. American Journal of Sociology, 1612-1638.

Moritz, I., & Stein, C. L. (1999). A life course perspective of maintaining independence in older age. In A life course perspective of maintaining independence in older age (p. 19).

Morris, J. N., Berg, K., Fries, B. E., Steel, K., & Howard, E. P. (2013). Scaling functional status within the interRAI suite of assessment instruments. BMC Geriatrics, 13:128.

MSF. (2011). City for All Ages project to develop urban solutions for ageing. Ministry of Social and Familiy Development, Singapore.

Munakata, M., Honma, H., Akasi, M., Araki, T., Kawamura, T., Kubota, M., . . . Toyonaga, T. (2011). Repeated counselling improves the antidiabetic effects of limited individualized lifestyle guidance in metabolic syndrome: J-STOP-METS final results. Hypertension Research, 34, 612-616.

Muramatsu, N., & Akiyama, H. (2011). Japan: super-aging society preparing for the future. The Gerontologist, 51(4), 425-432.

Napier, A., & Spencer, J. (2013). The right to retirement pension information (Madrid, 02-03 July 2013). Peer Review on pension information, Spain 2013.

Narasimhan , K. (2013). General health checks for reducing morbidity and mortality. Am Fam Physician, Oct 1;88(7):432-3.

Narayana, M. R. (2011). Lifecycle deficit and public age reallocations for India's elderly population: evidence and implications based on National Transfer Accounts. Journal of Population Ageing , 4(4), 207-230.

National Health Service, UK. (n.d.). NHS Choices. Retrieved from Your health, your choices: http://www.nhs.uk/NHSENGLAND/Pages/NHSEngland.aspx

National Research Council. (2012). Aging and the macroeconomy: long-term implications of an older population. National Research Council of the National Academies.

National Silver Human Resource Center Corporation. (2006). Active Ageing - National Statistics. Retrieved from Active Ageing - National .

Naue, U., & Kroll, T. (2010). Bridging policies and practice: challenges and opportunities for the governance of disability and ageing. International Journal of Integrated Care, 10(2).

Newman, S., & Larkin, E. (2007). The importance of evaluation in intergenerational practice. In A. Kusano and M. Kaplan. Japan Conference to Promote Intergenerational Programs and Initiatives, (pp. 189-192).

Ng, A. C., Phillips, D. R., & Lee, W. K.-m. (2002). Persistence and challenges to filial piety and informal support of older persons in a modern Chinese society: A case study in Tuen Mun, Hong Kong. Journal of Aging Studies, 16(2), 135-153.

NHS. (2012). Long Term Conditions Compendium of Information, Third Edition. Retrieved from Department of Health, Gov, UK: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216528/dh_134486.pdf

NHS. (2014). FIVE YEAR FORWARD VIEW. UK: NHS.

NHS. (2015, July 14). NHS choices: Your health, your choices. Retrieved from NHS cancer screening: http://www.nhs.uk/Livewell/preventing-cancer/Pages/cancer-screening.aspx

NHS Choices. (2015). Your guide to care and support. Retrieved from Telecare and alarms: http://www.nhs.uk/conditions/social-care-and-support-guide/pages/telecare-alarms.aspx

NICE. (2016). National Institute for Health and Care Excellence. Retrieved from Guidance: https://www.nice.org.uk/guidance/ng32

Nursing Home Standards Workgroup. (2014). Enhanced Nursing Home Standards. Nursing Home Standards Workgroup.

Nuthon. (n.d.). Toilet Rush. Retrieved from http://www.nuthon.com/portfolio_toiletrush.html

OECD. (2003). Career Guidance: New Ways Forward. In Education Policy Analysis . OECD.

OECD. (2008). Annual Report 2008. OECD.

OECD. (2011). Health at a Glance 2011. OECD INDICATORS

OECD. (2013). OECD Health at a Glance 2013. Retrieved from Japan needs to improve the efficiency of its health care system, says OECD: http://www.oecd.org/japan/Health-at-a-Glance-2013-Press-Release-Japan.pdf

OECD. (2014). OECD Health Statistics 2014 . Retrieved from How does Japan compare? : http://www.oecd.org/els/health-systems/Briefing-Note-JAPAN-2014.pdf

OECD. (2015). OECD Reviews of Health Care Quality: Japan 2015. OECD.

OECD/European Commission. (2013, June). OECD Health Systems. Retrieved from Japan - A Good Life in Old Age: http://www.oecd.org/els/health-systems/Japan-OECD-EC-Good-Time-in-Old-Age.pdf

Ogden, A. C. (2010). A brief overview of lifelong learning in Japan. The Language Teacher, 36(4), 5-13.

Oliver, D. (2014). Re: Making Health and Care Systems Fit for and Ageing Population. Why We Wrote It, Who We Wrote It For, and How Relevant It Might Be to Canada. Canadian Geriatrics Journal, 136.

Oliver, D., Foot, C., & Humphries, R. (2014). Making our health and care systems fit for an ageing population. The King's Fund.

Olshansky, S. J., & Perls, T. T. (2008). New developments in the illegal provision of growth hormone for "anti-aging" and bodybuilding. JAMA, 299(23), 2792-2794.

Olshansky, S., Perry, D., Miller, R. A., & Butler, R. N. (2007). Pursuing the longevity dividend. Annals of the New York Academy of Sciences, 1114(1), 11-13.

Owuor, I. A. (2010). Socially excluded? Kenyan elderly and participation. A Case Study of Kolwa Division. Erasmus University.

Oxford Economics . (2013). The Longevity Economy, Generating economic growth and new opportunities for business. Oxford Economics.

Patterson, R. E., Frank, L. L., Kristal, A. R., & White, E. (27(5), 385-390). A comprehensive examination of health conditions associated with obesity in older adults. American journal of preventive medicine, 2004.

Phillips, D. R., Siu, O. L., Yeh, A. G., & Cheng, K. H. (2008). Informal social support and older persons' psychological well-being in Hong Kong. Journal of cross-cultural gerontology, 23(1), 39-55.

Policy Address. (1997). Policy Address. Hong Kong: GovHK.

Policy Address. (2014). Policy Address. Hong Kong: GovHK.

Policy Address. (2015). Policy Address. Hong Kong: GovHK.

Policy Address. (2016). Policy Address. Hong Kong: GovHK.

Poon, P. K.-k., So, A., & Loong, E. L.-C. (2014). Self-Management in Community-Based Rehabilitation Programmes for Persons with Chronic Diseases. In K.-w. TONG, & K. N.-k. FONG, Community Care in Hong Kong: Current Practices, Practice-research Studies and Future Directions (pp. 53-72). Hong Kong: City University of Hong Kong.

PPP knowledge lab. (2016). Retrieved from https://pppknowledgelab.org/

PPP Knowledge Lab. (n.d.). PPP Knowledge Lab. Retrieved from What is a PPP: https://pppknowledgelab.org/ppp-cycle/what-ppp

Prevent colorectal cancer. (2016). Hong Kong SAR, Department of Health. Retrieved from http://www.colonscreen.gov.hk/en/index.html

Primary Care Office. (2012). Hong Kong Reference Framework for Preventive Care for Older Adults in Primary Care Settings. Hong Kong: Department of Health.

Prince, M. J., Wu, F., Robledo, L. M., O'Donnell, M., Sullivan, R., & Yusuf, S. (2014). The burden of disease in older people and implications for health policy and practice. The Lancet, 549-562.

Public Accounts Committee. (2015). REPORT OF THE PUBLIC ACCOUNTS COMMITTEE ON THE REPORTS OF THE DIRECTOR OF AUDIT ON THE ACCOUNTS OF THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION FOR THE YEAR ENDED 31 MARCH 2014 AND THE RESULTS OF VALUE FOR MONEY AUDITS (Report No. 63). Hong Kong: Legislative Council of Hong Kong SAR - Public Accounts Committee.

Public Health England. (2013). NHS Health Check: our ap-

proach to the evidence. UK: NHS.
Purendra, J., & Inoguchi, T. (2011). Japanese Politics Today: From Karaoke to Kabuki Decmocracy. Pagrave Macmillan: New York.

Queiroz, B. L., Lee, R., & Mason, A. (2014). National Transfer Accounts and Generational Flows . International Policy Centre for Inclusive Growth.

RAND Europe, & Ernst & Young LLP. (2012). National Evaluation of the Department of Health's Integrated Care Pilots.

Rantz, M. J., Skubic, M., Miller, S. J., Galambos, C., Alexander, G., Keller, J., & Popescu, M. (2013). Sensor technology to support aging in place. Journal of the American Medical Directors Association, 14(6), 386-391.

Reste, J., Nabbe, P., Manceau, B., Lygidakis, C., Doerr, C., Lingner, H., . . . Lie, C. (2013). The European General Practice Research Network presents a comprehensive definition of multimorbidity in family medicine and long term care, following a systematic review of relevant literature. Journal of the American Medical Directors Association, 14(5), 319-325.

Robson, J., Dostal, I., A. S., Eldridge, S., Madurasinghe, V., Griffiths, C., . . . Hippisley-Cox, J. (2016). The NHS Health Check in England: an evaluation of the first 4 years. Cardiovascular medicine.

Rowe, J. W., & Kahn, R. L. (1997). Successful aging. The gerontologist, 37(4), 433-440.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. Journal of personality, 63(3), 397-427.

Salisbury, C., Johnson, L., Purdy, S., Valderas, J. M., & Montgomery, A. A. (2011). Epidemiology and impact of multimorbidity in primary care: a retrospective cohort study. Br J Gen Pract, 61(582), e12-e21.

Sau Po Centre on Ageing. (2015). Evaluation Study of the First Phase of the Pilot Scheme on Community Care Service Voucher (CSSV) for the Elderly. The University of Hong Kong.

Sau Po Centre on Ageing and Department of Social Work & Social Administration, The University of Hong Kong. (2011). Consultancy Study on Community Care Services for the Elderly: Final Report. Hong Kong: Elderly Commission.

Sayago, S., & Blat, J. (2010). Telling the story of older people e-mailing: An ethnographical study. International Journal of Human-Computer Studies, 68(1), 105-120.

Schadt, E., & Chilukuri, S. (2015, November). The role of big data in medicine. Retrieved from McKinsey&Company: http://www.mckinsey.com/industries/pharmaceuticals-and-medical-products/our-insights/the-role-of-big-data-in-medicine

Schulz, R., Wahl, H. W., Matthews, J. T., Dabbs, A. D., Beach, S. R., & Czaja, S. J. (2014). Advancing the aging and technology agenda in gerontology. The Gerontologist, gnu071.

Schwedler, J. (2011). Can Islamists Become Moderates?: Rethinking the Inclusion-Moderation Hypothesis. World Politics, 63(2), 347-376.

SCMP. (2014). iPhone application Toilet Rush puts the city's public lavatories on the map. Retrieved from SCMP: http://www.scmp.com/lifestyle/technology/article/1349862/iphone-application-toilet-rush-puts-citys-public-lavatories-map

SCOR . (2012). SCOR records net income of EUR 418 million. SCOR.

Select Committee on Public Service and Demographic Change . (2013). Ready for Ageing? HOUSE OF LORDS .

Sen, A. (2001). Development as freedom. Oxford University Press.

Sharma, M. K. (2014). The Impact on Consumer Buying Behaviour: Cognitive Dissonance. Global Journal of Finance and Management, 833-840.

Shibata, H. (2013). Effects of Productive Activities on Well-beings in Late-middle Aged and Aged People. Well-being in Ageing Societies: Perspectives from China, Germany and Japan.

Shum, S. N. (2014, 07 12). HKEC Symposium on Community Engagement IX 2014. Retrieved from End of life care in Residential Care Homes for the Elderly- challenges and rewards: http://www.healthyhkec.org/SCE9/presentations/seminar3-s_shum.pdf

Smart Nation . (n.d.). Smart Nation - Forbes. Retrieved 2016

Smart Nation, Singapore. (2016). Smart Nation, Singapore. Retrieved from Smart Nation, Singapore: http://www.smartnation.sg/

Smith, J., Holder, H., Edwards, N., Maybin, J., Parker, H., Rosen, R., & Walsh, N. (2013). Securing The future of general practice: New models of primary care. Nuffieldtrust.

Social Indicators of Hong Kong . (2016). Social Indicators of Hong Kong . Retrieved from Percentage of elderly (aged 66 and over) registered to vote: http://socialindicators.org.hk/en/indicators/elderly/31.4

Social Welfare Department. (2015, October 23). Social Welfare Department. Retrieved from RESIDENTIAL CARE SERVICES FOR THE ELDERLY- Introduction: http://www.swd.gov.hk/en/index/site_pubsvc/page_elderly/sub_residentia/id_introducti/

Social Welfare Department. (2016). Social Welfare Department. Retrieved from Community Care and Support Services for the Elderly: http://www.swd.gov.hk/en/index/site_pubsvc/page_elderly/sub_csselderly/

Southwood, S., Dixon, L., & Ruck, T. (2012). Developing functional skills: learning from the adult pilots. Leicester.

Spalding, M. C., & Sebesta, S. C. (2008). Geriatric screening and preventive care. American family physician, 78.2.

SPCA. (2015). Evaluation Study of the First Phase of the Pilot Scheme on Community Care Service Voucher (CCSV) for the Elderly. Hong Kong: Sau Po Centre on Ageing, The University of Hong Kong.

Spillman, B. C., & Lubitz, J. (2000). The effect of longevity on spending for acute and long-term care. New England Journal of Medicine, 342(19), 1409-1415.

Spring Singapore. (2016, November 18). Biomedical Standards Committee (BMSC). Retrieved from Standards Committees: https://www.spring.gov.sg/Building-Trust/Std/Pages/standards-committees.aspx

Stange, K. C., Breslau, E. S., Dietrich, A. J., & Glasgow, R. E. (2012). State-of-the-art and future directions in multilevel interventions across the cancer control continuum. Monographs-Journal of the National Cancer Institute, (44), 20.

States Times Review. (2016, April 4). States Times Review. Retrieved from Health Ministry: Singapore government made at least S$2 billion out of Eldershield since 2002: http://statestimesreview.com/2016/04/04/health-ministry-singapore-government-made-at-least-s2-billion-out-of-eldershield-since-2002/

Stathi, A., Fox, K. R., & McKenna, J. (2002, 10). Physical activity and dimensions of subjective well-being in older adults. Journal of Aging and Physical Activity, 76-92.

Steverink, N., Lindenberg, S., & Slaets, J. P. (2005). How to understand and improve older people's self-management of wellbeing. European Journal of Ageing, Volume 2, Issue 4, 235-244.

Strategic Planning Section. (2016). Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030.

Stuart, S. (2014). Board Index. Retrieved from Spencer Stuart Board Index: https://www.nyse.com/publicdocs/nyse/listing/Spencer_Stuart_Board_Index_2014.pdf

Sun, W., Schooling, C. M., Chan, W. M., Ho, K. S., & Lam, T. H. (2010). The Association Between Depressive Symptoms and Mortality Among Chinese Elderly: A Hong Kong Cohort Study. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 459-466.

Tam, S. K. (2011). Needs & Challenges in Caring of Elderly with Dementia . Retrieved from Hong Kong Alzheimer's Disease Association : http://www.hkada.org.hk/files/HKADA_AUAHK_520Symposium_Dr.%20Stanley%20Tam.pdf

The Economist. (2014, April 26). The Economist. Retrieved from Global ageing: A billion shades of grey: http://www.economist.com/news/leaders/21601253-ageing-economy-will-be-slower-and-more-unequal-oneunless-policy-starts-changing-now

The Harvard Team. (1999). Improving Hong Kong's Health Care System : Why and For Whom? Retrieved from http://www.fhb.gov.hk/en/press_and_publications/consultation/HCS.HTM

The Select Committee on Public Service and Demographic Change. (2013). Ready for Ageing? London: the Authority of the House of Lords.

The World Bank. (2005). A Guide to Competitive Vouchers in Health. The World Bank.

The World Bank. (2014). Health expenditure, total (% of GDP). Retrieved from The World Bank: http://data.world-

bank.org/indicator/SH.XPD.TOTL.ZS

The World Bank. (n.d.). Health Systems. Retrieved from Financing: http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTHSD/0,,contentMDK:22523961~menuPK:6485082~pagePK:148956~piPK:216618~theSitePK:376793,00.html#Top

Thomas, P., Meads, G., Moustafa, A., Nazareth, I., Stange, K. C., & Donnelly Hess, G. (2008). Combined horizontal and vertical integration of care: a goal of practice-based commissioning. Quality in Primary Care, 16(6), 425-432.

Thorlby, R. (2013). Reclaiming a population health perspective: Future challenges for primary care. Nuffield Trust.

Tjadens, F., & Colombo, F. (2011). Long-term care: valuing care providers. Eurohealth, 17(2), 13.

TODAY. (2015, September 4). TODAY. Retrieved from President's Challenge to champion national senior volunteerism movement: President's Challenge to champion national senior volunteerism movement

Tooth, L., Hockey, R., Byles, J., & Dobson, A. (2008). Weighted multimorbidity indexes predicted mortality, health service use, and health-related quality of life in older women. . Journal of clinical epidemiology, 61(2), 151-159.
Transport For London. (2014). Business Plan 2014:Transport for London's plans into the next decade. Mayor of London.

Tunstall-Pedoe, H. (2006). Preventing Chronic Diseases. A Vital Investment: WHO Global Report. International Journal of Epidemiology, 35(4), 1107-1107.

UNFPA, & HelpAge International. (2012). Ageing in the Twenty-First Century: A Celebration and A Challenge. UNFPA and HelpAge International.

United Nations. (2013). Measuring and Analysing the Generational Economy. New York: United Nations.

United Nations. (2015a). Department of Economic and Social Affairs, Population Division. Retrieved from World Population Prospects: The 2015 Revision: http://esa.un.org/unpd/wpp/DataQuery/

United Nations. (2015b). Department of Economic and Social Affairs, Population Division. Retrieved from Profiles of Ageing 2015: http://esa.un.org/unpd/popdev/Profilesofageing2015/index.html

URDT. (2014). Uganda Rural Development & Training Programme (URDT). Retrieved from http://urdt.net/

Valentijn, P. P., Schepman, S. M., Opheij, W., & Bruijnzeels, M. A. (2013). Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care. International Journal of Integrated Care, 13(1), 655-679.

Vaus, D. d., Gray, M., & Stanton, D. (2003). Measuring the value of unpaid household, caring and voluntary work of older Australians. Melbourne: Australian Institute of Family Studies.

Vernon, K. (2010). Ageing: Impact on Companies in Asia. Community Business.

Wagner, C. (2009). The Japanese way of robotics': Interacting 'naturally'with robots as a national character? In RO-MAN 2009-The 18th IEEE International Symposium on Robot and Human Interactive Communication (pp. pp. 510-515). IEEE.

Walker, P., & John, M. (2011). From Public Health to Well-being: The New Driver for Policy and Action. Palgrave Macmillan.

Weiss, R. S., Bass, S. A., Heimovitz, H. K., & Oka, M. (2005). apan's silver human resource centers and participant well-being. Journal of Cross-Cultural Gerontology, 20(1), 47-66.

WGA Pensioners. (2011). Valuing the Socio-Economic Contribution of Older People in the UK. United Kingdom: Women's Royal Voluntary Service.

WHO. (1998). The role of physical activity in healthy ageing. World Health Organization.

WHO. (2007). Global age-friendly cities: A guide. World Health Organization.

WHO. (2002). Active Ageing: A Policy Framework. Madrid, Spain: World Health Organization.

WHO. (2011, September 29). What are the public health implications of global ageing? Retrieved from Online Q&A: http://www.who.int/features/qa/42/en/

WHO. (2015a). World Report on Ageing and Health. World Health Organization.

WHO. (2015b, November). Draft global strategy and plan of action on ageing and health. Retrieved from http://www.who.int/ageing/ageing-global-strategy-revised-draft-for-who-eb.pdf?ua=1

WHO. (2016a). Global report on diabetes. World Health Organization.

WHO. (2016b). More Information on Primary Health Care. Retrieved from World Health Organizaiton: http://www.wpro.who.int/health_services/primary_health_care_more_information/en/

WHO/Europe. (2014). World Health Organization Regional Office For Europe. Retrieved from Primary health care Main terminology: http://www.euro.who.int/en/health-topics/Health-systems/primary-health-care/main-terminology

WHO/Western Pacific. (n.d.). World Health Organization Western Pacific Region. Retrieved from More Information on Primary Health Care: http://www.wpro.who.int/health_services/primary_health_care_more_information/en/

Wiles, J. L., Leibing, A., Guberman, N., Reeve, J., & Allen, R. E. (2011). The meaning of "ageing in place" to older people. The gerontologist, gnr098.

Williamson, J. B., & Higo, M. (2007). Older Workers: Lessons from Japan. Center for Retirement Research at Boston College.

Winkleby, M. A., Jatulis, D. E., Frank, E., & Fortmann, S. P. (1992). Socioeconomic status and health: how education, income, and occupation contribute to risk factors for cardiovascular disease. American journal of public health, 82(6), 816-820.

Wittenberg, R., Hu, B., Comas-Herrera, A., & Fernandez, J. L. (2012). Care for older people. London: Nuffield Trust.

Wolff, J. L., Starfield, B., & Anderson, G. (2002). Prevalence, expenditures, and complications of multiple chronic conditions in the elderly. Archives of internal medicine, 162(20), 2269-2276.

Wong, C. K., Wong, W. C., Wan, Y. F., Chan, A. K., Chung, K. L., Chan, F. W., & Lam, C. L. (2015). Patient Empowerment Programme in primary care reduced all-cause mortality and cardiovascular diseases in patients with type 2 diabetes mellitus: a population-based propensity-matched cohort study. Diabetes, Obesity and Metabolism, 128-135.

Wong, E. L., Leung, M. C., Cheung, A. W., Yam, C. H., Yeoh, E., & Griffiths, S. (2011). A population-based survey using PPE-15: relationship of care aspects to patient satisfaction in Hong Kong. International Journal for Quality in Health Care, 390-396.

Wong, M., Chau, P. H., Goggins, W., & Woo, J. (2009). A geographical study of health services utilization among the elderly in Hong Kong: from spatial variations to health care implications. Health Services Insights, 2, 1.

Wong, W. C., Lau, H. P., Kwok, C. F., Leung, Y. M., Chan, M. Y., Chan, W. M., & Cheung, S. L. (2014). The well-being of community-dwelling near-centenarians and centenarians in Hong Kong a qualitative study. BMC geriatrics, 14(1), 1.

Woo, J. (2007). Development of elderly care services in Hong Kong: challenges and creative solutions. Clinical Medicine, 548-550.

Woo, J. (2012). Aging in Hong Kong: A comparative perspective. Springer Science & Business Media.

Woo, J., Chau, P., & Mak, B. (2012). Elder-Friendly Service Delivery Models. In J. Woo, Aging in Hong Kong: A Comparative Perspective (pp. 211-234). Springer Science & Business Media.

Woodward, A. T., Freddolino, P. P., Blaschke-Thompson, C. M., Wishart, D. J., Bakk, L., Kobayashi, R., & Tupper, C. (2011). Technology and aging project: training outcomes and efficacy from a randomized field trial. Ageing International, 36(1), 46-65.

World Bank Group. (2016). World Bank East Asia and Pacific Regional Report. Retrieved from Live Long and Prosper: Aging in East Asia and Pacific: https://openknowledge.worldbank.org/bitstream/handle/10986/23133/9781464804694.pdf

World Economic Forum. (2015). Maximizing healthy life years: Investments that pay off. World Economic Forum.

WRVS. (2011). Gold Age Pensioners: Valuing the Socio-Economic Contribution of Older People in the UK.

Yam, C. H., Liu, S., Huang, O. H., Yeoh, E., & Griffiths, S. M. (2011). Can vouchers make a difference to the use of private primary care services by older people? Experience from the healthcare reform programme in Hong Kong.

BMC Health Services Research, 11:255.

Yam, C. H., Wong, E. L., Chan, F. W., Leung, M. C., Wong, F. Y., Cheung, A. W., & Yeoh, E. (2010). Avoidable readmission in Hong Kong - system, clinician, patient or social factor? BMC health services research, 10(1): 1.
Yasunaga, M., Murayama, Y., Takahashi, T., Ohba, H., Suzuki, H., Nonaka, K., & Kobayashi, E. (2016). Multiple impacts of an intergenerational program in Japan: Evidence from the Research on Productivity through Intergenerational Sympathy Project. Geriatrics & gerontology international, 16.S1: 98-109.

Yip, P. S., Chi, I., & Chiu, H. (2002). A Multi-Disciplinary Study on the Causes of Elderly Suicides in Hong Kong. Hong Kong: Health, Welfare and Food Bureau.

Yong, V., Minagawa, Y., & Saito, Y. (2015). Policy and Program Measures for Successful Aging in Japan. Successful Aging, 81-97.

Yu, R., Chau, P., McGhee, S. M., Cheung, W., Chan, K., Cheung, S., & Woo, J. (2012). Trends in Prevalence and Mortality of Dementia in Elderly Hong Kong Population: Projections, Disease Burden, and Implications for Long-Term Care. International Journal of Alzheimer's Disease.
Yuen, P. P. (2014). Financing Health Care and Long-term Care in a Rapidly Ageing Context: Assessing Hong Kong's Readiness. Public Administration and Policy, Volume 17, 56-64.

Yuen, R. M. (2014). The Challenges of an Ageing Society from a Health Care Perspective. Public Administration and Policy, Volume 17, 1-14.

Acknowledgement

This policy report would not have been a possible without the support of many people.

The research team would like to first thank Mr. C.H. Tung, the Chairman of Our Hong Kong Foundation, for his unwavering support to the research of this report.

We would also like to express our gratitude to the Foundation's Executive Director Mrs. Eva Cheng, and Deputy Chief Executive Director and Head of Public Policy Institute Mr. Stephen Wong as well as the following Foundation's Governors, members of Research Council and Advisors:
Dr. Edgar CHENG, Chairman of World-Wide Investment Company Limited
Prof. John LEONG, Chairman of Hong Kong Hospital Authority
Prof. Arthur LI, Member of the Executive Council, HKSAR
Mr. Bernard Charnwut CHAN, President of Asia Financial Holdings and Asia Insurance
Dr. John CHAN, Chairman and non-executive Director of RoadShow Holdings Limited
Prof. Hsin-Kang CHANG, Former President of City University of Hong Kong
Mr. Sew-Tong JAT, S.C., Chairman of Minimum Wage Commission
Mr. Franklin LAM, Founder of HKGolden50
Mrs. Fanny LAW, Member of Executive Council, HKSAR Prof.
Chack-Fan LEE, Chancellor of Chu Hai College of Higher Education
Mr. Antony LEUNG, Group Chairman and Chief Executive Officer of Nan Fung Group
Prof. Pak-Wai LIU, Research Professor of the Lau Chor Tak Institute of Global Economics and Finance and Emeritus Professor of Economics, CUHK
Prof. Chung-Mau LO, Head of the Department of Surgery, HKU
Prof. Francis T. LUI, Economics Professor and Director of the Center for Economic Development, HKUST
Prof. Richard WONG, Professor of Economics and Philip Wong Kennedy Wong Professor in Political Economy, and formerly the Deputy Vice-Chancellor, HKU
Prof. Suk-Ying WONG, Associate Vice-President, and Professor, Department of Sociology, CUHK
Mr. Peter WOO, Executive Chairman of Wheelock Holdings Pte Limited
Mr. Joseph YAM, The first Chief Executive of the Hong Kong Monetary Authority
Mr. Patrick CHEUNG, Founder and Chairman of Dialogues in the Dark Hong Kong Limited
Mr. Hoi-Wai CHUA, Chief Executive of The Hong Kong Council of Social Services
Dr. Joseph LEE, President of Wofoo Social Enterprises
Prof. Terry LUM, Head of the Department of Social Work and Social Administration, HKU
Mrs. Rebecca YUNG, Founder and Chair of Golden Age Foundation

In addition, we wish to express our deepest gratitude to the following professionals and researchers for their advice during the research process:
Prof. Alfred CHAN
Prof. Cecilia CHAN
Ms. Grace CHAN
Mr. Johnny CHAN
Dr. Yu CHAN
Mr. Vincent CHENG
Dr. Daisy DAI
Prof. Christine FANG
Dr. Ching-choi LAM
Dr. Edmund LEE
Ms. Doris LEUNG
Dr. Edward LEUNG
Mr. Ivan LIN
Dr. Vivian LOU
Prof. Joshua MOK

Mr. Chongshing OR
Mr. Tim PANG
Dr. Louis SHIH
Mr. Michael SOMERVILLE
Mr. Richard TSOI
Prof. Jean WOO
Dr. Chungpor WONG
Dr. Loretta YAM
Ms. Ellen YEUNG
Dr. Andrew YIP
Prof. Paul YIP

We would also like to thank the following government departments and organizations for their support:
Food and Health Bureau
Labour and Welfare Bureau
Social Welfare Department
Hospital Authority
Department of Health
Jockey Club CADENZA Hub
Caritas Elderly Centre (Kwun Tong)
Caritas Elderly Centre (Tin Yuet)
Caritas District Elderly Centre (Yuen Long)
CSBS Fong Wong Woon Tei Neighbourhood Elderly Centre
Kwong Tin Estate Kwong Ya House Mutual Aid Committee
Pok Oi Hospital Chan Ping Memorial Neighbourhood Elderly Centre Service

Furthermore, we are immensely grateful to the following friends for sharing their ideas towards elderly care services in Hong Kong with the research team:
區彩玉
歐陽儀
區婉貞
陳美霞
陳帶娣
陳惠容
鄭銀珍
張翠娟
周啟明
周李
朱歡潤
丁流德
馮偉
何麗珍
黎雙群
羅夢冰
李嬌
Liu Chun Wah
盧鋼霖
文麗容
梅樹堅
倪燕玉
岑玉霞
蘇巧玲

曾麗英
謝燕萍
蔡秀英
黃秀娘
葉大妹
葉瑞蓮
袁慧蘭

Special thanks go to the faculty and research members of the Jockey Club School of Public Health and Primary Care at the Chinese University of Hong Kong for their advice: Professor Martin Chi-sang Wong, Professor Stephen Chi-kin Law, Professor Samuel Wong, Ms. Diane Erin Threapleton, and Ms. Christine Ko.

In particular, we would like to express our gratitude to Dr. Ivy Cheung for her contribution in writing Chapter 3 and 4, Ms. April Yushan Wu, Ms. Carrie Yam and Ms. Annie Cheng for their research on voucher services, and Mr. Kailu Wang for his research on analyzing the needs of older people in the community. We would also like to thank Mr. Wang Mu Chieh for the design of this report.

Last but not least, the authors would like to thank members of the research team at Our Hong Kong Foundation: Ms. Shereen Ayub, Ms. Zoey Kuang and Mr. Noel Tsang for their contribution to the data collection and analyses as well as the write-up of the report. Special thanks also go to Ms. Shereen Ayub for the photography in this report and Mr. Alvin Cheung, Mr. Michael Chu, Dr. Christine Kwan, Ms. Natalie Lau, Mr. Jonathan Ng, Mr. Kenny Shui, Ms. Sarah So, Mr. William Tsang and Mr. Vincent Yip for editing the report.

Disclaimer

This report is provided for information purposes only. It is not a complete analysis of every material fact with respect of any industry or economy. Statements of fact have been obtained from sources considered reliable but no representation is made by Our Hong Kong Foundation or any of its affiliates as to their completeness or accuracy. All estimates, opinions and recommendations expressed herein constitute judgements as of the date of this report. Our Hong Kong Foundation accepts no liability whatsoever for any direct or consequential loss arising from the use of this report or its content. This report should not be relied upon in connection with any contract or commitment whatsoever.

About Our Hong Kong Foundation

Our Hong Kong Foundation (OHKF) is a Hong Kong non-profit organization registered in September 2014, with a mission to promote the long-term and overall interests of Hong Kong through public policy research, analysis and recommendation. Pooling together local, mainland and international talent, the Foundation studies Hong Kong's development needs, offering multidisciplinary public policy recommendations and solutions to foster social cohesion, economic prosperity and sustainable development.

OUR HONG KONG
FOUNDATION
團結香港基金

政策研究院
PUBLIC POLICY INSTITUTE

OUR HONG KONG
FOUNDATION

19/F Nan Fung Tower,
88 Connaught Road Central,
Hong Kong

December 2016

ourhkfoundation.org.hk