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Introduction

This issue of the Asia-Pacific Population Journal is dedicated to three commissioned papers by independent experts as part of the project on Strengthening National Capacity for Promoting and Protecting the Rights of Older Persons. The Economic and Social Commission for Asia and the Pacific (ESCAP) is managing the project with support from the Government of China and Zhongshan College in Nanjing, China. The project contributes to the ESCAP Social Development Division’s work on population ageing and sustainable development and its overarching goal to increase knowledge on population trends, policies and good practices in the region.

The project’s first phase concluded that several issues are central to achieving the Sustainable Development Goals, at least those that relate to the well-being of older persons – which amount to more than half of them. The critical issues encompass the development of adequate and quality human resources to provide health care and long-term care for older persons and the enabling difference that technology can make in the delivery of services to older persons. The gender dimensions of ageing were also highlighted because the majority of older persons are women. And older women have their own particular needs and are more vulnerable than men (because they tend to outlive their spouse) to poverty, alienation and disease due to health-care neglect. The care component has an especially strong gender dimension, which requires deeper analysis.

The gender dimensions of ageing echo the inequalities that women experience as a result of their gender-based roles in society as well as their importance in the family and community. The policy implications for older women and men in an ageing environment requires rigorous and multi-dimensional analysis, including – but not limited to – the exploration of changing family structures, widowhood, care giving, social protection and health, women’s work and retirement.

One of the main challenges associated with the phenomenon of population ageing is how to cope with the health-care needs of older persons. In Asia and the Pacific, challenges persist in the context of health care, whereby older persons, particularly older women, cannot access medical treatment because of high costs, a lack of health-care providers, poor transportation or other difficulties. There is a large and growing gap between urban and rural areas in terms of access to appropriate health-care facilities. To bridge these gaps, it is important to adopt innovative technology-based methods that target older persons. Technology applications through computers, mobile telephones and other creative devices can expand older persons’ access to health-care services and promote their rights. The extensive regional coverage of such technology can help people overcome geographical distances and social obstacles. Technology can provide people in rural or remote areas links to health-care specialists based far away, which may otherwise be unavailable to them. This is of particular consequence for older persons who are in some way marginalized, excluded or disadvantaged with limited access to the formal health system.
It is also important to better understand the ways in which technology can help increase the inclusion of older persons in society. Training and awareness raising among older persons will be necessary so that the new technologies do not become barriers to the new delivery channels of services and to their meaningful participation in society in general.

Lastly, it is of utmost importance that the human resource needs required now and in the future to adequately manage the challenges of a rapidly ageing population are well understood and appropriately planned for. It is, however, an area with little mapping or study. This edition of the Asia-Pacific Population Journal draws critical attention to those needs and the potential for replicating good practices in developing caregivers, training syllabi and on-the-job learning.

While this edition of the Asia-Pacific Population Journal speaks to policymakers and development practitioners on the challenges and opportunities of the transition towards an ageing society in Asia and the Pacific in terms of the gender dimensions, human resources and technology applications, ultimately, it draws attention to the broader issue of the often-neglected rights of older persons.

**Acknowledgements**

Special thanks to Karen Emmons, Marco Roncarati, Lawan Uppapakdee and Chaveemon Sukpaibool for their editorial assistance.
Gender Implications of Population Ageing: Rights and Roles

Wendy Holmes

This review analyses the gender dimensions of rapid population ageing in the Asia-Pacific region, shares examples of useful practices and makes policy recommendations within the context of the 2030 Agenda for Sustainable Development and the Madrid International Plan of Action on Ageing. Population ageing is occurring at the same time as urbanization, migration, more women in paid work, smaller families, technological advances and environmental changes. Awareness of population ageing is increasing, with reports from international agencies and new national policies and plans. But these often fail to respond to the different needs of older women and men and to recognize and benefit from their different contributions. Age and sex discrimination intersect to disadvantage both women and men. Gender and ageing analysis need to be mainstreamed within development programmes. Women live longer than men yet have higher risk of poor health and disability in old age, suffering the accumulated effects of gender inequality throughout their lives. Although most older women and men continue to live with their families, older women are more likely than men to live alone, to be widowed and poor. They have had fewer opportunities to earn or make pension contributions and may lack inheritance rights. Older men are more likely to be socially isolated and miss their earlier roles. Older persons’ community organizations reduce social isolation and have many benefits. Conditions affecting quality of life are more common in older women and often neglected, including sensory impairments, arthritis, incontinence, falls and sleep disorders. Risk factors also show gender differences. Women are less likely to be physically active; older men are more likely to drink alcohol and smoke. Older women face greater barriers to health care. Caring for dependent older family members is usually the responsibility of women, and paid care providers are disproportionately female. Family caregivers need support, help with assistive devices and respite care. They are often unable to earn and save for their own old age. Older persons’ groups could provide paid or voluntary care services at the community level. Government, civil society and the private sector all have roles in facilitating the contributions of older persons, preventing disability and providing care and support. National Governments need to invest in policies that recognize the different rights and roles of older women and men.

Human Resource Requirements for Meeting the Needs of Ageing Societies

Thelma Kay

While health care is accorded priority by Asian and Pacific countries in addressing the rapid ageing of their populations, only some include long-term care as part of a continuum of care available in institutional and non-institutional settings with formal and informal caregivers. Measures for avoidable (preventive and amenable) mortality also serve as preventive long-term care. The delivery of health care by health professionals, allied
health professionals and auxiliary care workers is discussed in this review, with examples of the training of nurses and social workers to show the range and variety of training. Caregiving is also undertaken by migrant domestic and care workers and by volunteer health workers, often as part of community organizations. Institutional care is often perceived as abandonment and de-institutionalization is thus pursued as an “asset-light” policy option. But it should be supported as ageing-in-place, community-based services and platforms, with the integration of health and social care, innovative approaches for engagement and participation, and technology, all of which require trained human resources with the necessary skills and competencies. Other measures to strengthen care provision and support to older persons include expanding filial piety to social piety, changing mindsets and combating ageism for social solidarity and collective responsibility, and measurement and monitoring mechanisms for accountability and course correction.

Technologies to Reach Older Persons with Health-care Services

Dong-Kyun Park

This report introduces telemedicine practices that have applied information and communication technologies (ICT) for the delivery of health-care services to older persons in the Republic of Korea, Japan, Australia and China. The practices are separated into teleconsultations and telemonitoring; teleconsultation is a method for doctors to treat patients in the same way as teleconferencing, while telemonitoring enables health professionals to observe the biomedical signals of patients at home through a medical sensor device. In the Republic of Korea, the Ministry of Health and Welfare carried out a telemedicine pilot project to manage chronic disease patients more efficiently and at lower cost. More than 70 per cent of the participants in the project found the service helpful in managing their health in general.

In Tono City, Japan, a telemedicine pilot service targeted approximately 400 people aged 40 years or older. The service included a health management curriculum, including diet and nutrition guidance from nutritionists, and gymnastics stretching instruction from physical education instructors, with management through a mobile telephone application. In Australia, a Home Monitoring of Chronic Disease for Aged Care Project was conducted in 2014 by the Commonwealth Scientific and Industrial Research Organisation to manage ageing patients in their home. The project reduced the cost of health care for patients and their levels of anxiety and depression while improving their quality of life. Additionally, hospital admissions decreased. In China, the Ningbo Municipal Health and Family Planning Commission and the Neusoft Xikang Healthcare Technology Co., Ltd. launched the Ningbo Cloud Hospital in 2015 to cater to 7.6 million residents. The Ningbo Cloud Hospital was established to control the increasing health-care expenses and to resolve difficulties for individuals to see a doctor. More than 2,000 patients are now registered with the online service for video consultations and prescriptions. The featured examples illustrate how the application of telemedicine to a health-care system promotes accessibility between doctors
and patients and saves on construction costs for new facilities and the expense of supplying medical personnel in remote areas. However, to initiate technology-based health-care services, governments in Asia and the Pacific need to establish related policies that promote telemedicine while they conduct pilot tests to determine the most effective services for their country’s context.
Gender Implications of Population Ageing: Rights and Roles

Abstract

This review analyses the gender dimensions of rapid population ageing in the Asia-Pacific region, shares examples of useful practices and makes policy recommendations within the context of the 2030 Agenda for Sustainable Development and the Madrid International Plan of Action on Ageing. Population ageing is occurring along with urbanization, migration, more women in paid work, smaller families, technological advances and environmental changes. Reports from international agencies and new national policies and plans often fail to respond to the different needs of older women and men and to recognize and benefit from their different contributions. Age and sex discrimination intersect. Women live longer than men yet have higher risk of poor health and disability in old age. Although most older persons continue to live with their families, older women are more likely than men to live alone, be widowed and poor. They have had fewer opportunities to earn or make pension contributions and may lack inheritance rights. Older men are more likely to be socially isolated and miss their earlier roles. Conditions affecting quality of life are more common in older women and often neglected, including sensory impairments, arthritis and incontinence. Risk factors also differ: Women are less likely to be physically active; older men more likely to drink alcohol and smoke. Older women face greater barriers to health care. Caring for dependent older family members is usually the responsibility of women, and paid care providers are disproportionately female. Family caregivers need support, help with assistive devices and respite care. They are often unable to earn and save for their own old age. Government, civil society and the private sector all have important roles. National Governments need to invest in policies that recognize the different rights and roles of older women and men.

By Wendy Holmes

Introduction

In September 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, which emphasizes rights, equity and inclusiveness, with the overarching theme of “Leave no one behind” (WHO, 2016c). This 2030 Agenda will guide the work of the United Nations during
a period of unprecedented change in the age structure of populations, especially in South Asia and East Asia. Between 2015 and 2030 the number of people aged 60 years or older is projected to increase in Asia by 66 per cent, and this growth will accelerate over time (ESCAP, 2016). The “oldest old” age group of people aged 80 years or older is predicted to increase by 73 per cent (ESCAP, 2016). This rapid population ageing has major social, economic and public health implications in the Asia-Pacific region. It is becoming increasingly necessary due to those implications to promote healthy and active ageing throughout the life course and to respect the rights of older persons. Older women and men contribute in different ways to the well-being of their families and peers and to community and economic development. There is also great potential to facilitate and support their contributions.

There is significant diversity in population ageing within the region. There are wealthy countries already well advanced in the demographic transition, with people aged 60 years or older making up more than 17 per cent of the population, such as Japan (at 33 per cent) and Singapore (at 18 per cent). There are rapidly ageing countries with more than 8 per cent of the population aged 60 years or older, such as Indonesia (at 8 per cent), Viet Nam (at 10 per cent), Sri Lanka (at 14 per cent) and Thailand (at 16 per cent). And there are “younger” countries in which only 5–7 per cent of their populations are aged 60 years or older currently but will start ageing rapidly in the coming years, such as Pakistan (at 6.7 per cent), Mongolia (at 6.6 per cent), the Lao People’s Democratic Republic (at 6.1 per cent) and Papua New Guinea (at 5.2 per cent) (ESCAP, 2016).

Older persons in most countries in Asia are more likely to live in poverty than people in younger age groups, although poverty rates are declining in some countries.

The major gender differences in how we age have long been recognized. In her 1818 novel, *Persuasion*, Jane Austen has a character say, “Man is more robust than woman, but he is not longer lived.” Women now have longer life expectancies than men in every country in the world (ESCAP, 2016). The gap in life expectancy at birth has widened between the sexes over the past four decades (Baker and others, 2014). In the Asia-Pacific region, women make up 52.4 per cent of the population aged 60 years or older and 59.0 per cent of those aged 80 years or older (DESA, 2015). However, they have a higher prevalence of poor health and disability in old age and are more likely to need health and social care and support than men of the same age (WHO, 2010; Santosa and others, 2016; Leveille and others, 2000; Rodrigues and others, 2009). Women family members most often provide this care; the formal caregiving workforce is also predominantly female. Women’s rights and roles may be affected by government efforts to increase fertility rates in response to population ageing.

Although men and women are different and have different roles in all societies, they have equal rights. In most societies, however, women have lower status than men, and in their old age they suffer the accumulated effects of this sexism. In many Asian countries, they are more likely to be
stunted in infancy (Khatun, Stenlund and Hornell, 2004), with long-term consequences for adult diseases; they are less income likely to be educated and literate, less likely to work outside the home and usually earn less than men. They often lack autonomy, property and inheritance rights, so are more likely to suffer poverty in old age and may find themselves dependent on their children for shelter, food and care. They may have suffered violence and sexual abuse from their partners or others, with physical and mental health consequences (WHO, 2013). Because men have shorter life expectancy and women tend to be younger than their husbands, older women are more likely to suffer spousal bereavement; widowhood is often associated with discrimination, greater poverty, loneliness and poor health. Debt causes stress and anxiety. On the other hand, older women’s domestic roles tend to continue, and their advice and help is often respected and valued by their families, while men’s roles and authority often diminish in old age.

In the development field, the subject of ageing was relatively neglected and inadequately resourced for decades. In recent years, awareness has been increasing, with many reports from international and regional agencies, national policies and plans and a growing number of media reports from the region (Shukla, 2016; Wijesiri, 2016; Faizal 2016).

The aims of this review were to analyse and report on the gender dimensions of population ageing and to raise awareness of the need for policymakers to recognize and address the rights and roles of older women and men. The review also aimed to identify and share examples of useful practices for coping with gender-specific challenges and make policy recommendations within the context of the 2030 Agenda and the Madrid International Plan of Action on Ageing.

This review contributes to the project on Strengthening National Capacity for Promoting and Protecting the Rights of Older Persons, which the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) has initiated with support from the Government of China and Zhongshan College in Nanjing. The project is being implemented in the context of the Third Regional Review of the 2002 Madrid International Plan of Action on Ageing and within the framework of the 2030 Agenda’s Sustainable Development Goals (SDGs). The review reflects a desk assessment of relevant research and international, regional and national policy documents. It presents analysis of the gender dimensions of the major influences on the quality of life of older persons, including family and community life, health and health care, long-term care and income security.

**Review methods**

**Scope**

Our review of gender and ageing considered the rights and roles of both older women and older men. We also considered the implications of the change in population age structure for younger women and men. The “life-course” approach recognizes that we are ageing from birth. Official
definitions of old age (and of “premature mortality”) vary between countries, reflecting different average life expectancies. There is much diversity in the effects of ageing among older persons; the “old” are not a homogenous group. Nevertheless, it is helpful to consider three age groups: the “young old” (60–69 years), “older old” (70–79 years) and the “oldest old” (80+ years).

Gender inequality intersects with age discrimination and other inequalities related to socioeconomic status, caste, religion, ethnicity, marital status, disability and sexual orientation. As Sen and others (2009) have pointed out, “More complex questions that are missing in the literature are about the relative magnitudes of economic class, gender, caste, and so forth, in determining health inequalities.” The authors outlined a statistical method for analysing the intersections of social inequalities in health (Sen, Iyer and Mukherjee, 2009). For this review, we also considered the impact of rapid social, technological and environmental changes, including climate change, urbanization, migration and growing economic inequalities.

**Review of research literature**

There has been considerable increase in research reports, reviews of evidence and policy analysis in relation to ageing and to gender inequality in recent years. A scoping review of both peer-reviewed and grey literature was conducted. Search terms included: older women, older men, gender and healthy ageing, active ageing, population ageing, health promotion for older women, health promotion for older men, health-care barriers, social care for older women, long-term care and caregivers. Studies and reports from the Asian and Pacific region were prioritized.

**Review of key relevant international, regional and national documents**

We reviewed key documents, asking to what extent:

- international, regional and national reports and policies on ageing include a gender perspective;
- reports and policies on gender equality include consideration of older women and older men; and
- reports and policies related to health and development address the implications of population ageing and recognize the roles of older men and older women.

**Data analysis**

Secondary data from selected ESCAP member countries were analysed, such as national census data and data from Demographic and Health Surveys, the World Health Organization (WHO) Global Health, ESCAP, the World Bank and the United Nations Department of Economic and Social Affairs Population Division and the WHO Study on Global AGEing and Adult Health.
**Good practice examples**

Development practitioners and researchers were consulted and suggested examples of good practices for addressing the gender-specific challenges experienced by older persons.

**Findings and policy recommendations**

1. **Patterns of population ageing**

Table 1 presents data relevant to population ageing, disaggregated by sex, for three countries:

- Singapore, a wealthy country far advanced in the demographic transition, with 18.7 per cent of its population aged 60 years or older but predicted to rise to 31.0 per cent by 2030; 13.4 per cent of the population aged 60 or older is in the oldest age group (80 years or older).
- Sri Lanka, a middle income rapidly ageing country, with 14.4 per cent of its population currently aged 60 years or older but predicted to rise to 29.0 per cent by 2030; 14.4 per cent of the current population aged 60 or older is in the oldest age group (80 years or older).
- Myanmar, a young, lower-middle-income country, with 9.2 per cent of its population currently aged 60 or older but predicted to rise to 13.0 per cent by 2030; 8.8 per cent of the current population aged 60 or older is in the oldest age group (80 years or older) (ESCAP, 2016; DESA, 2015).

2. **Reasons for sex differences in longevity and ageing**

Why do women, on average, live longer than men and have more years of poor health in old age? The answers are complicated and not yet well understood, despite the efforts of researchers from many disciplines (Brooks and Garratt, 2016). But understanding the biological, social and cultural factors that contribute to these differences can help in developing effective and appropriate strategies for healthy ageing for both women and men:

- There is evidence that the physiological processes associated with reproduction have influenced the evolution of sex differences in lifespan and ageing in many species—not just humans. Researchers have studied the physiologic, genetic and epigenetic mechanisms that might be relevant (Brooks and Garratt, 2016).
- It is rare among animals for females to have a long life after they cease to reproduce. Scientists have suggested that the role that grandmothers play in increasing the chance of survival of their grandchildren may be a reason why human females have evolved to have a long life after menopause (Hawkes and others, 1998).
- There are complex links between the influences of sex, reproduction, nutrition, hormones and various molecular pathways on ageing and lifespan (Brooks and Garratt, 2016; Austad and Bartke, 2016; Seifarth, McGowan and Milne, 2012).
### Table 1 Selected population ageing indicators for three countries

<table>
<thead>
<tr>
<th>Variable</th>
<th>Country</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy at birth (years)</td>
<td>Singapore</td>
<td>80.3</td>
<td>86.4</td>
</tr>
<tr>
<td>(2016)*</td>
<td>Sri Lanka</td>
<td>71.9</td>
<td>78.5</td>
</tr>
<tr>
<td></td>
<td>Myanmar</td>
<td>64.2</td>
<td>68.3</td>
</tr>
<tr>
<td>Life expectancy at age 60 (years)</td>
<td>Singapore</td>
<td>22.5</td>
<td>27.5</td>
</tr>
<tr>
<td>(2010-2015)#</td>
<td>Sri Lanka</td>
<td>19.1</td>
<td>21.6</td>
</tr>
<tr>
<td></td>
<td>Myanmar</td>
<td>15.7</td>
<td>17.5</td>
</tr>
<tr>
<td>Healthy life expectancy at birth (years)</td>
<td>Singapore</td>
<td>71.8</td>
<td>75.9</td>
</tr>
<tr>
<td>(2015)* (average number of years that a person can expect to live in full health)</td>
<td>Sri Lanka</td>
<td>64.2</td>
<td>69.7</td>
</tr>
<tr>
<td></td>
<td>Myanmar</td>
<td>57.7</td>
<td>60.5</td>
</tr>
<tr>
<td>Labour force participation of persons aged 65 years or older (%)</td>
<td>Singapore</td>
<td>38.0</td>
<td>18.6</td>
</tr>
<tr>
<td>(2016)*</td>
<td>Sri Lanka</td>
<td>30.3</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>Myanmar</td>
<td>41.3</td>
<td>26.2</td>
</tr>
<tr>
<td>Statutory retirement age (years)</td>
<td>Singapore</td>
<td>67</td>
<td>67</td>
</tr>
<tr>
<td>(2016)*</td>
<td>Sri Lanka</td>
<td>55</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Myanmar</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Proportion of population aged ≥15 years, widowed, by sex (%)</td>
<td>Singapore</td>
<td>1.8</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>Sri Lanka</td>
<td>1.3</td>
<td>8.7</td>
</tr>
<tr>
<td></td>
<td>Myanmar</td>
<td>3.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Speed of ageing: years taken for the % of persons aged 65+ to change from 7% to 14% of the total population*</td>
<td>Singapore</td>
<td>1999-2019 (20 years)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sri Lanka</td>
<td>2007-2027 (20 years)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Myanmar</td>
<td>2023-2055 (32 years)</td>
<td></td>
</tr>
</tbody>
</table>


**Note:** * = ESCAP, 2016; # = DESA, 2015.

- Most women have two X chromosomes; most men have an X and a Y chromosome. Women may be protected from the effects of a mutation of any of the 1,100 genes on the X chromosome because they have a copy (Migeon, 2007). Sex differences in the expression of these genes may influence longevity and health in old age.

The social and environmental context also influences sex differences in longevity and ageing, which vary across countries.

- In a few least developed countries, men still have similar life expectancy to women as a result of higher female death rates in infancy and in childbirth (ESCAP, 2016).

- When fertility rates fall, the lifespan of women increases (Bolund and others, 2016).

- Men have higher mortality rates from injuries, conflict and occupational hazards. Suicide rates are 3.5 times higher among men than women in high-income countries and 1.6 times higher in low- and middle-income countries in South-East Asian countries (WHO, 2014).
• Risk factors, natural history and impact of major diseases of older persons vary between men and women (WHO, 2003a).
• There are also sex differences in health-care seeking behaviour, in the barriers experienced in reaching and receiving care and in treatment.

3. Attention to gender in international, regional and national documents and policies on ageing

The Madrid International Plan of Action on Ageing, adopted in April 2002 by 159 governments at the Second World Assembly on Ageing, states: “The situation of older women everywhere must be a priority for policy action. Recognizing the differential impact of ageing on women and men is integral to ensuring full equality between women and men and to the development of effective and efficient measures to address the issue. It is therefore critical to ensure the integration of a gender perspective into all policies, programmes and legislation” (United Nations, 2002). There are many international guidance and reference documents that focus specifically on gender and ageing (WHO, 2001, 2003, 2006, 2007; HelpAge International, 2002; United Nations, 2012; Senanayake, 2000). Many of them have greater emphasis on older women than on older men. A report by the Organisation for Economic Co-operation and Development (OECD, 2016) noted, “Ageing wears a largely women’s face as women tend to outlive men.” However, Julie Byles of Newcastle University warned against viewing ageing only as “women’s business”. Men, too, experience gender-specific challenges as they age and have particular roles in their families and communities. At the same time, men and women face many similar problems in old age, and some gender norms even become muted.

International policy advice on population ageing recognizes the central role of gender. The 2015 United Nations’ World Population Ageing report pointed out both that population ageing is relevant for the SDG goal on promoting gender equality and that advancing gender equality has contributed to the reductions in birth and mortality rates that have led to population ageing (United Nations, 2015). The WHO Global Strategy and Action Plan on Ageing and Health (2016–2020) includes gender as a principle that should underpin the Strategy’s implementation and makes many references to gender equality (WHO, 2016b).

Regional reports have emphasized the significance of gender in relation to rapid population ageing. The Asia Development Bank’s 2012 publication Social Protection for Older Persons: Social Pensions in Asia has a chapter titled Gender and Old-Age Pension Protection in Asia (Handayani and Babajanian, 2012). The 2016 World Bank publication on Live Long and Prosper: Aging in East Asia and Pacific treats gender as a cross-cutting issue and presents most data disaggregated by sex (World Bank, 2016).

Five years ago, the United Nations Population Fund (UNFPA) and HelpAge International urged national policymakers to “mainstream ageing into all gender policies and gender into ageing policies, taking into account the specific requirements of older women and men.” (Williamson, 2015). In 2015,
the HelpAge International East Asia/Pacific Regional Office, supported by UNFPA, reviewed ageing-related policies of 26 countries (O’Connell, Rasanathan and Chopra, 2014). Relevant policy, legislation or action plans were found in 18 of the 26 countries. The low- and middle-income countries were as likely as the richer countries to have national policies, legislation or action plans. The report noted that few gender-specific policies were found in regard to ageing. Policies addressing the needs of the oldest-old and rural ageing populations, both especially relevant to older women, were lacking. However, all 18 countries with ageing-related policies or plans did address issues of particular relevance to women, including social protection, equal and universal access to health care, housing and the living environment, care and support for caregivers, images of ageing in society, training for healthcare workers and neglect; abuse, violence, rights and age discrimination; work and labour; and knowledge, education and training. Health was the most frequently covered policy area, but age- and sex-disaggregated data on chronic disease morbidity were available in only 17 of the countries. The review did not include any assessment of the implementation or impact of these policies.

4. Attention to ageing in international development, women’s and children’s health and gender equality agendas

Older persons were not mentioned in the Millennium Development Goals, but the SDGs are more inclusive due to strong advocacy efforts. The health goal emphasizes, “Ensure healthy lives and promote well-being for all at all ages,” and the gender equality goal mentions older women. There is emphasis on disaggregating data by age and sex in the report on the development of indicators for the SDGs. ESCAP is working towards supporting member States to shape a more inclusive society. In recent years, ESCAP has taken on encouraging and assisting member States to prepare for population ageing at the policy and institutional levels. They have organized regional meetings for government officials to discuss the challenges and opportunities with peers and specialists. However, age discrimination in the development, health and gender equality agendas seems to be an even greater problem than gender discrimination in ageing-related policy.

In 2012, the United Nations General Assembly adopted a resolution to address systematic discrimination and achieve universal health-care coverage. However, old age is commonly omitted from lists of the factors associated with discrimination (O’Connell, Rasanathan and Chopra, 2014), and the 2014 WHO and World Bank report on monitoring progress for universal health-care coverage reinforced the common, false belief that population ageing is an issue for wealthy countries rather than for low- and middle-income countries (WHO, 2014). The OECD, however, urged in 2016 that rapid population ageing in many emerging economies makes universal health-care coverage a pressing goal; the OECD report on measuring progress in the Asian and Pacific region emphasized that “older age often exacerbates pre-existing inequities based on income, education, gender and urban/rural residence, highlighting the importance of equity-focused policy-making in the future” (OECD, 2016).
Older women’s roles in contributing to reproductive, maternal and child health and in providing emotional support and guidance to young people have been insufficiently recognized. Older women provide advice, example and support to younger women about food preparation, child spacing, pregnancy, childbirth, infant feeding, hygiene behaviour and parenting. They are strongly committed to promoting the well-being of children and their families. With more women in the workforce and more women migrating for work, the roles of grandmothers in childcare and family support are increasingly significant. They may also sometimes inadvertently promote harmful traditional practices. Yet, information and communication materials to improve knowledge and practices are usually developed for an audience of young women and parents and do not aim to reach older women. Their role rarely receives attention in health-care provider training.

None of the articles in either the 2006 or the 2016 comprehensive *Lancet* series on maternal health mentioned the role of older women or grandmothers in influencing maternal health (Lancet, 2006; *The Lancet*, 2016b). Maternal health tends to be defined within a narrow time.

**Older women provide support during labour and early breastfeeding**

For many years, maternal health experts recommended that the training of traditional birth attendants should cease, and all births should be attended by a trained midwife. In many countries in the region, most women now give birth in a health facility where emergency obstetric care is available if needed or they are attended by trained midwives. But they often miss the support traditionally provided in home deliveries by older female relatives or traditional midwives. Maternal health-care providers tend to be overworked and may show unkind attitudes towards women in labour. A 2007 *Cochrane Review* concluded, “All women should be allowed and encouraged to have support people with them continuously during labour” (Hodnett and others, 2013).

In Bandung, Indonesia, local traditional birth attendants, the *paraji*, are generally older women who are an integral and respected part of the religious and cultural community. *Paraji* have been trained and encouraged to practise in partnership with trained midwives (Ambarentnani, 2012). There are similar partnership programmes in other parts of Indonesia, such as the *dukun bayi* (Analen, 2007), and in other countries, such as the midwife-hilot project in the Philippines (Department of Health, 2005). In several countries in which women deliver in hospital, there are programmes in which mature women (doulas) provide continuous support to a woman in labour and may also provide help with breastfeeding through post-partum home visits (Haider and others, 2000). Doulas do not undertake deliveries. These programmes aim to improve maternal and infant health and are examples of enabling older women with a valuable role that adds to their dignity and self-esteem.

interval that does not include the long-term reproductive health consequences that older women may experience, such as uterine prolapse. Knaul and others (2016) noted the rapidly growing burden of chronic non-communicable diseases that women worldwide are experiencing and argued, “The maternal and [non-communicable disease] agendas and movements can and should be synergistic”. 


The articles in the influential 2016 *Lancet* series on early childhood development also failed to mention the role of older women or grandparents (*The Lancet*, 2016a). The review of interventions identified that “A notable gap in published reviews is the role of fathers in promoting nurturing care and protection.”, but the gap related to grandmothers was not noticed (Britto and others, 2017).

The Global Strategy for Women’s, Children’s and Adolescents’ Health, 2016–2030, from the United Nations Every Woman Every Child initiative, does not include any mention of older women (WHO, 2016a). The international Women Deliver 2016 Conference had no sessions on ageing or the role of older women. The website of UN Women Watch: Information and Resources on Gender Equality and Empowerment of Women does not mention older women (UN Women, n.d.). Although UN Women produced the valuable 2012 report, *Between Gender and Ageing*, the first five annual reports of UN Women made no mention of older women or healthy ageing. The 2015 UN Women report on monitoring, however, did advocate for the inclusion of older women (UN Women, 2015).

*The Grandmothers’ Project in the Lao People’s Democratic Republic*

In 1996, in the Lao People’s Democratic Republic, the Grandmother’s Project, in collaboration with UNICEF and the WHO, carried out participatory health education activities with groups of grandmothers (Aubel, Sihalathavong and Kopkeo, 1997). The objective was to build on their traditional knowledge while increasing their understanding of modern practices. The communities strongly supported the idea. The project had five components:

- Rapid assessment of grandmothers’ role and influence in the household and community related to the issue of interest
- Public recognition of grandmothers’ role in promoting health and development of families and communities
- Participatory communication and education activities that engage, first, grandmother networks and, second, other community members, in discussion of both traditional and modern practices
- Strengthening the capacity of grandmother leaders and networks to promote improved practices with other grandmothers, in families and in the community
- Ongoing monitoring and documentation for learning

Rapid assessments confirmed the influence of grandmothers on women and children’s well-being and on other household members’ attitudes and practices. The older women had experience, motivation and commitment. The training was based on respect and dialogue. The older women were open to combining new and old practices and to stopping harmful traditional practices. At the start of the project, for example, only 30 per cent of grandmothers advised giving additional fluids to children with diarrhoea. After a year of the project, this increased to 74 per cent. At baseline, 73 per cent of grandmothers recommended continuing to breastfeed a child with diarrhoea, which increased to 90 per cent a year later. Facilitating their contribution also led to an increase in respect for older women. The Grandmothers’ Project has also been successful in sub-Saharan African countries. The lessons learned in the Lao People’s Democratic Republic could be adopted in maternal and child health promotion work more widely (Aubel and Sihalathavong, 2001).
The health of men generally has received less attention than women’s health, but calls to address men’s health also fail to mention older men (Baker and others, 2014). While health interventions throughout the life course will improve the health of future cohorts of older persons, the current cohort of older men also has a right to good health and to health care.

What is keeping older women invisible and older men in the shade? Aubel (2006) suggested some reasons for the lack of inclusion of grandmothers and older women in development programmes. These include negative stereotypes that older women are a bad influence, have poor literacy, will not be able to learn and are resistant to change. Strategies to improve women’s and children’s health have tended to focus on women of reproductive age, in isolation from their household and community.

Reich (1995) developed a framework to analyse why some subjects are neglected in the international policy agenda. The framework identifies symbolic, organizational, scientific and economic streams of influence. Such analysis can help point the way to effective advocacy strategies:

- Symbols and images of mothers and children evoke pleasant emotions, while images of young people suggest thoughts of a positive future. But images of older persons may evoke fear of ageing or feelings of guilt. Images often stereotype older persons as frail and dependent. They are thought to have “had their innings” and perceived as no longer productive, while children and young people have their lives ahead of them (Rivlin, 2001).

- Some international organizations still lack awareness of the pace of change in population age structure and the broad implications for development. Organizations, and departments within them, understandably focus on their own agendas and timelines. There may be a belief that attention to ageing would compete with effective maternal and child health services or non-communicable disease control, and the potential for synergies has not yet been sufficiently appreciated.

- Measurement difficulties also contribute to the lack of attention to ageing. It is difficult to extrapolate trends in life expectancies because of cohort effects, and more difficult to define the outcomes of interest in older persons. With children younger than 5 years and pregnant women, it is easier to determine denominators, and targets can be meaningfully framed in terms of reductions in deaths. Adult health targets, however, are framed in terms of reductions in “premature” mortality because everyone dies eventually. Countries define “premature” depending on their life expectancy; low- and middle-income countries often use 65 years. This can result in the unintended exclusion from health-promoting interventions of people older than the age limit for premature mortality because they would not be included in the target (Lloyd-Sherlock and others, 2015). Another example of inadvertent age discrimination related to measurement is the upper age limit for two of the indicators for monitoring the SDG on gender equality: 5.6.1: Proportion of women aged 15–49 who make their own
informed decisions regarding sexual relations, contraceptive use and reproductive health; and 5.6.2: Number of countries with laws and regulations that guarantee women aged 15–49 access to sexual and reproductive health care, information and education (DESA, 2016). Women older than 50 years also need to make their own sexual decisions and need information and relevant health care.

- Older persons make important contributions to the economy (World Bank, 2016), but their work is not usually quantified and does not appear in national economic accounts. In low-income settings, older women generally have little purchasing and decision-making power. Commercial companies have vested economic interests in encouraging high fat, high salt and high sugar diets and the use of tobacco and alcohol, which adversely affect men's health and contribute to their limited lifespan (Moodie and others, 2013). There are also vested interests in resisting regulations to reduce the health impacts of occupational exposures during the working life (Castleman, 2016).

Because there are already several resource documents on the gender dimensions of ageing, how can we increase dialogue and awareness beyond the “already converted”? It can be difficult for new perspectives to gain the attention of busy academics, policymakers and development practitioners. There is a need to recognize that, like gender, ageing is a cross-cutting issue, and ageing analysis should be mainstreamed into development work, along with gender analysis (Holmes, 2016). The implications for older persons and their potential contribution should be considered in the planning, implementation and evaluation of all development programmes. Allen and Feigl (2017) suggested that online global forums can facilitate broad dialogues with the inclusion of multiple stakeholders, such as the debate around the Global Coordinating Mechanism on the Prevention and Control of Non-Communicable Diseases and the SDG indicator consultation. Leaders in the ageing sector need to talk with leaders in other sectors to raise their awareness. Representatives of international agencies should discuss the value of investing in responses to population ageing with national politicians and officials at all meetings and conferences.

5. Gender dimensions of family, community and social life

Respect for older generations is a strong feature of indigenous communities worldwide, reflecting the essential role older persons have had throughout human history. Older persons are generally respected for their cultural knowledge, leadership abilities and for making decisions on behalf of the community (McIntyre, 2001). Older women are valued especially for their strong nurturing role and contribution to family functioning; older men are valued for their guidance of boys and young men in practical and spiritual aspects of life, society and culture (Lohoar, Butera and Kennedy, 2014). As Australian Indigenous researcher Yolanda Walker noted, “We rely strongly on them as key decision-makers within families. They are the people we hold the greatest respect for, because many of them went through so much, so that now we do not have to suffer the injustices they experienced. Their
guidance is often illustrated through everyday life and their teachings are often done subconsciously; we follow, we observe and we go on to teach our own families. It is through our Elders that the spirit of Aboriginal people is kept alive (Walker, 1993).”

In traditional villages and small towns in many countries in the region, older persons continue to have an authoritative voice on cultural, social and health behaviours. Fuglesang (1982) described the critical role of older persons in ensuring continuity between the knowledge and values of their ancestors and those that younger generations need in preparing for life in the future. The ability to continue to these roles in their families and communities contributes to the well-being of older women and men.

**Living arrangements and family life**

There are strong traditional cultural beliefs that family members of different generations should live together. Parents look after their children, who then look after them when they become old. Different cultures have different traditions about whether the older family members live with their daughter or son and whether they live with the youngest or oldest. Older women in Asia have more commonly lived with an adult son and his family than with a daughter (Bongaarts and Zimmer, 2002). With greater life expectancies, smaller family sizes and migration of adult children to cities or overseas for work, there is greater variety of living arrangements. Some households might include three or four generations. More older persons are also choosing to live alone, especially in wealthier countries, preferring privacy and autonomy (World Bank, 2016). Others prefer the companionship of their children and grandchildren and contributing to household tasks. Separate households may be more costly than extended families living together.

Older persons are more likely to live alone than other age groups. In Asia, 3.6 per cent of men aged 65 years or older live alone, compared with 10.2 per cent of older women (DESA, 2006). The numbers living alone are starting to increase slowly as the number of older widowed women increases (DESA, 2006; Martin, 1990). Studies in varied settings suggest that living alone is more likely to affect the psychological well-being of men than women (Dean and others, 1992). Women living alone are more likely than men to have social contact with relatives and friends and to report higher levels of social support regardless of marital status (Michael and others, 2001). A longitudinal study in Singapore found that living alone was associated with increased mortality, independent of marriage, health and other variables (Ng and others, 2015). The impact of living alone on mortality appeared to be stronger among men than women. Teerawichitchainan and others (2015) studied older persons who live alone in Myanmar, Thailand and Viet Nam. Many of the older persons they found living alone were living close to a child or children, with strong ties of affection and feelings of mutual obligation. They also found that living alone did not necessarily add to financial stress. People living alone were more likely to feel lonely but were not usually socially isolated. People who were childless were most likely to be poor and lonely.
Social participation

There is strong evidence that social participation is associated with better health and well-being in old age for both men and women (Seeman, 2000; Holt-Lunstad, Smith and Layton, 2010). A systematic review of longitudinal studies of older persons living in a community found strong evidence that a low frequency of social contacts was one of the factors that increased risk of decline in functional status (Stuck and others, 1999). Conversations with family or neighbours was shown to have a significant association with happiness in older adults in Japan (Onishi and others, 2006). A study of rural older persons in Thailand found that social support buffered the impact of disability and reduced the risk of depression (Suttajit and others, 2010). A few studies have found that helping others helps older persons adjust to their decline in function and health (Greenfield, 2009).

Gautam and others (2007) noted that there are cultural norms about social behaviour and networks that are distinctly different for men and women. In their study in Nepal, visiting friends predicted satisfaction with life for women, while saying prayers, watching television, listening to the radio and participating in physical exercise correlated to lower levels of depression for men. Socializing with others was related to higher satisfaction with life for men and women (Gautam, Saito and Kai, 2007). Unger and others (1999) also found gender-specific associations between social relationships and health for men and women. Men are generally less skilled than women at building social networks and maintaining family relationships. As they age and leave employment, they are more likely to become socially isolated, especially when widowed (WHO, 2001). They also are also more likely than widowed women to remarry (Perkins and others, 2016).

Older persons’ organizations facilitate social participation and have a range of benefits for healthy ageing for men and women (Holmes and Joseph, 2011; HelpAge International, 2009). Members support each other, visit sick peers at home, participate in religious ceremonies and comfort bereaved peers. Such organizations facilitate intergenerational activities, with mutual support between youth and older persons. They enable health promotion through peer educators and host visits by health-care

Men’s Sheds

The Men’s Sheds movement began in Australia in the 1990s. Men’s Sheds are community spaces in which older men meet and take part in woodwork, metalwork, vegetable growing and other activities. They enable men to make new friends, develop new skills and take part in income-generating activities. There is some evidence that they reduce social isolation and depression, increase self-esteem and promote a sense of purpose (Waling and Fildes, 2016). The Men’s Shed movement has since spread to other countries and could be adapted in Asian countries. Men’s Sheds can also bring together older and younger men in intergenerational activities, with benefits for both (Rahja and others, 2016). There is a useful manual on how to establish a Men’s Shed group (available at: mensshed.org) This movement responds to the challenge of social isolation and loss of role that many older men feel when they retire.
professionals for screening and detection of chronic conditions and vision impairment. They also provide a collective voice and greater visibility for older persons, with increased respect and representation. In Sri Lanka, for example, Elders’ Committee leaders, including older women, represent their peers at local, district and provincial levels and at the National Council of Elders (Government of Sri Lanka, 2011; Holmes and others, 2016a). This structure increases the opportunity for the views, ideas and concerns of older persons, including older women, to be heard by government. Information from government agencies can be conveyed to them through the same structure.

**Spousal bereavement**

For many older persons, the death of their spouse is a major blow to their health and well-being and can affect them for many years. Older women are much more likely to be widowed than older men. Support for spousal bereavement is an important need. Yet, there is lack of research on this topic in low- and middle-income countries in the Asian and Pacific region (Perkins and others, 2016).

**Solidarity among widows – Women for Human Rights single women’s group**

In Nepal, as in many other settings in the region, widows are a marginalized group who suffer social ostracization, economic dependency, legal discrimination and political insensitivity. They are often viewed as bad omens and may be blamed for the death of their husbands. There are religious and traditional practices that harm the physical and mental health of widows. In 2002, Lily Thapa, a widow, founded a group for widows who meet weekly to give each other strength, comfort and support and to advocate for the rights of widows and against discrimination on the basis of marital status. Their vision is “a non-discriminatory and equitable society where single women are respected and can live with dignity and there are sufficient legal provisions to protect single women’s political, social, cultural and economic rights”. Women for Human Rights issued a national declaration to use the term “single women” instead of “widow” because widow, or bidhwa, in Nepali carries negative connotations that leave many single women feeling humiliated and distressed. Women for Human Rights works in 73 districts with more than 100,000 single women members. The group is now the secretariat for the South Asian Network for Widows’ Empowerment in Development.


**Humanitarian crises**

Responses to humanitarian crises, which are increasing in frequency largely as a result of climate change, should consider both ageing and gender implications. Older women in many cultures are more likely to be confined to their home at greater danger of harm. They lack visibility and are often not included in cash-for-food programmes or livelihood assistance. Among displaced people, older women are especially vulnerable to injury, abuse
and violence. Without shelter, they are more vulnerable than younger people to heat or cold. Older women often emerge from a disaster with greater responsibilities and fewer resources than men. Older women make important contributions in emergencies, often providing care to small children, and both older men and women provide a sense of continuity after a disaster (HelpAge International, 2002).

Physical, emotional, sexual and financial abuse and neglect

The WHO defines “elder abuse” as “harm to an older person through a single or repeated act or lack of appropriate action, occurring within any relationship where there is an expectation of trust, which causes harm or distress to an older person” (WHO, 2016d). Abuse may be physical, psychological, sexual, emotional or financial, including neglect and abandonment. Women are more likely to suffer abuse and to be perceived as a burden, especially if they have a physical disability, are dependent on care, have poor physical or mental health, have a low income or lack social support. Moreover, around one in three older women experience gender-based violence, with serious consequences for their physical, mental and sexual health (Johannesen and LoGiudice, 2013). Public health practitioners and policymakers are searching for effective responses. Studies from the region suggest that women as well as men may justify gender-based violence (Tran, Nguyen and Fisher, 2016). Older men and older women could take on a valuable role in changing the gender norms and beliefs that enable gender-based and family violence. However, reviews have found few studies about prevention of abuse and neglect in low- and middle-income countries in the region and no mention of the role that older men could have (Skeen and Tomlinson, 2013; Knerr, Gardner and Cluver, 2013).

Policy recommendations

- Foster respect and dignity for older persons, especially older women and widows, building on traditional values.
- Ensure that older persons are represented in policy deliberations and decision-making.

Self-defence lessons for older women in Nairobi

Older women in the poor, informal settlement of Korogocho in Nairobi have been learning how to defend themselves against assaults. The women first began meeting weekly in 2009 after a group of young men robbed and raped older women because they believed that older women were less likely to have HIV. The classes were organized by Lee Sinclair, who founded the United States-based NGO, No Means No Worldwide. Sheila Kariuki teaches the older women a mix of kung fu, karate and taekwondo. The focus of the training is more on accuracy and attracting attention than on strength. The women practise hitting punching bags and repeatedly yelling “No!” as each blow lands. Many of Kariuki’s pupils live alone, but the self-defence training has reduced their fear and given them confidence and freedom. The older women have continued to meet and have begun to make baskets and other craftwork to generate income. The concept is featured in a short documentary film.

making. Make efforts to invite older women and facilitate their participation by providing transport and childcare.

- Scale up support to older persons’ groups at community level to reduce social isolation and facilitate peer support, care, physical activity, health promotion and income-generating activities.
- Encourage intergenerational activities so that the small proportion of older persons without family support have someone to call upon.
- Raise awareness of neglect and abuse and encourage community discussion and responses.
- Encourage research on elder abuse.
- Ensure that disaster management planning takes into account the gender-specific vulnerabilities and roles of older persons.

6. Gender dimensions of health in old age

Health status and health conditions

Health problems in old age are characterized by chronicity, co-morbidity, preventable disability, consequences of health hazards earlier in life and acute exacerbations of chronic conditions, but older persons are also resilient.

In low- and high-income countries, women have higher overall rates of physical illness than men at all adult ages and experience more disabilities and activity limitations (Prince and others, 2015). Hosseinpoor and others (2012) analysed data from the World Health Survey and found that approximately 45 per cent of the sex inequality in disability in older adults can be attributed to differences in the distribution of socioeconomic factors. Approximately 55 per cent of the inequality results from differences in the effects of the determinants.

The leading contributors to disease burden in older persons are ischaemic heart disease, stroke, chronic obstructive pulmonary disease, diabetes, low back pain, lung cancer, falls, visual impairment, dementia, tuberculosis, hypertensive heart disease, stomach cancer, hearing loss, osteoarthritis and major depressive disorder (Prince and others, 2015). Stroke and chronic obstructive airways disease are more common in men than in women, but the prevalence of other disorders is consistently higher in women (Prince and others, 2015; Buist, Vollmer and McBurnie, 2008). Diabetes, hypertension and cancers often remain undetected and untreated.

Self-reported health is a good indicator of objective health status, but there are differences in responses by gender and ethnicity. Women tend to have worse self-reported health than men, which may be culturally determined (Davina and others, 2012). Older women tend to assess their health more favourably than men in the Republic of Korea, but in Bangladeshi, Japanese and Sri Lankan older populations, gender differences disappeared when other variables, including disease prevalence, were taken into account (Lee and Shinkai, 2003; Rahman and Barsky, 2003; Ostbye, Malhotra and Chan, 2009).
There is a relative lack of knowledge about many health problems and preventive interventions for women in old age (Goldman and others, 2004).

In the past, longitudinal studies of common chronic health problems, such as heart disease, and clinical trials often recruited only men. This was because of perceptions that women’s reproductive hormones complicate the picture and difficulties in follow up because women change their names after marriage (Graham and Campbell, 1991; Holdcroft, 2007). Evidence-based treatment guidelines are rarely gender specific, although optimal management may differ for men and women (Riddell and others, 2016). Recognition of the need to study both sexes has increased. In their protocol for a trial of hypertension treatment in India, Riddell and others (2016) noted, “The role of gender, socioeconomic deprivation and education on the diagnosis and management of hypertension in each of the three rural areas is being explored.” Although there has been much research on non-communicable diseases, many aspects of older men’s health have been neglected by researchers and policymakers. The 2001 WHO paper, Men, Ageing and Health: Achieving Health Across the Life Span, has a comprehensive account (WHO, 2001).

Conditions that affect the quality of life of older persons, their families and caregivers but do not cause death are often neglected. In low- and middle-income countries, women report greater difficulties than men in a range of common activities, such as bending over, pumping water or walking a specified distance (Austad and Bartke, 2016). They tend to have weaker muscle strength than older men (WHO, 2010). Older women have higher prevalence and severity of arthritis and musculoskeletal disease (Austad and Bartke, 2016). Osteoarthritis increases the risk of falls, which are more common among older women (Hoops and others, 2012). Women are more vulnerable to osteoporosis and increased risk of fractures as a result of reproduction and restricted diet.

Poor oral and dental health are also more severe in women, and can affect ability to chew, resulting in poor nutrition in old age (Iwasaki and others, 2015). Impaired vision is common among older persons and restricts their lives (Holmes and others, 2016b). In South Asia, in 2010, 24 per cent of people older than 50 years were estimated to have moderate or severe vision impairment, and 4.4 per cent were blind; worldwide, older women are at greater risk of vision impairment than men (Jonas and others, 2014; Zetterberg, 2016). Yet, most vision impairment and blindness is due to cataract or refractive error and can be cost-effectively treated with surgery or spectacles. Cataract surgery rates are lower for older women than men, and they are less likely to own spectacles (Lewallen and others, 2009). In the latest Global Burden of Disease study, vision impairment was assigned a much lower disability weighting than in the previous Global Burden of Disease studies, which likely resulted in an underestimate of the burden in low-income settings. It is likely that the respondents in the disability weighting survey, who were predominantly from high-income countries, assumed that an older person with presbyopia would have spectacles for near vision, which is often not the case (Salomon and others, 2015).
Mental health problems in older persons have not been well studied. An analysis of data from the WHO Study on Global Ageing and Adult Health found a cross-national prevalence of geriatric depression of 4.7 per cent (95 per cent CI: 1.9–11.9 per cent). Female gender, illiteracy, poverty, indebtedness, past informal sector occupation, bereavement, angina and stroke were all associated with higher risk of depression (Brinda and others, 2016). Suicide rates for older age groups are relatively high in Asian countries, especially among men, with the older person-to-general-population suicide ratio ranging from four to six (Chen and others, 2011).

Psychosocial problems may manifest as chronic fatigue in older women. When grandmothers are separated by migration from grandchildren they have cared for, they may suffer grief and loss. Several studies have suggested that women are more at risk of dementia than men, but a large population-based study in the Netherlands found no gender differences in the incidence of dementia up to 90 years of age (Ruitenberg and others, 2001). In some settings, dementia may not be thought of as a health condition requiring treatment or care (Patel and Prince, 2001).

Both older men and women suffer from sleep disorders in old age. Older men often wake to urinate because of an enlarged prostate. In ageing, men’s melatonin secretion decreases and the circadian periodicity of melatonin is gradually disrupted with sleep disturbances. There may be important health consequences, especially on mood and cognition.

Sexual activity tends to be associated with youth. The sexual health of older persons is generally neglected—perhaps because sexual and reproductive health are generally linked in policy guidance documents, and reproductive health is often thought to be of concern only for women of “reproductive age” (Heidari, 2016). Yet, sex is important to many older persons – both women and men (Lusti-Narasimhan and Beard, 2013; Nicolosi and others, 2005; Gott and Hinchliff, 2003). It contributes to close relationships and to better health and well-being, reduces stress and is a source of pleasure. Nicolosi and others (2005) found that men and women in Asian cities continue to show sexual interest and activity into middle age and beyond. Sexual problems were common, but older persons often did not seek medical help because of cultural and economic reasons. Older persons have often had no sex education and lack awareness of sexually transmitted diseases, including HIV infection. The topic of sexual health in old age is often not included in the training of health-care providers, who often feel embarrassed to ask older patients about their sexual life (Gott and Hinchliff, 2004). Older men may fear criticism if they reveal that they have sexual desires. For older women, it is generally assumed that desire has faded (Hinchliff and Gott, 2008). Older persons who live with their families may lack privacy, curtailing their sexual relationship.

Diabetes, hypertension and medications can result in erectile dysfunction, which affects the well-being of both older men and their wives. Generic sildenafil is an effective treatment (Seftel, 2003) but is not yet included in the WHO Model List of Essential Medicines and is often joked about. There is a growing body of research on sexuality among older persons in
high-income countries, including within residential care, where couples may be separated or even live in separate nursing homes (Reingold and Burros, 2004). But there remain strong cultural barriers about discussing sex in many Asian countries.

Health-care providers require training and practice in how to talk about sexual health and relationship problems with their older patients (Nicolosi and others, 2005). Research is needed, but there are methodological challenges. Response rates to questionnaire surveys may be low. Self-administered questionnaires are problematic where literacy rates are low. However, when older persons are “given permission” to talk about sex in an in-depth interview and assured of confidentiality, they may be willing (Gott and Hinchliff, 2003). International and national policies and programmes on sexual health will need to be adapted to better meet the changing sexual needs of older women Lusti-Narasimhan and Beard, 2013.

Reproductive health is conceptualized as ending with menopause, so little attention is paid to older women’s reproductive health problems. Yet, many older women, having had multiple pregnancies at a time when maternity services were weak, suffer such problems as uterine prolapse, incontinence and osteoporosis. In a 2011 review of data from 16 low- and middle-income countries, the mean prevalence for urinary incontinence in older women was 28.7 per cent (with a range of 5.2–70.8 per cent) (Walker and Gunasekera, 2011). Older persons with disabilities may be unable to reach a toilet or undo their clothing in time, and those with cognitive difficulties may not recognize the need to visit the toilet to pass urine. Older men also suffer urinary incontinence, usually associated with an enlarged prostate gland, and characterized with frequent urination, getting up at night to pass urine and dribbling after urination.

Urinary and faecal incontinence are often considered shameful and can restrict mobility and social contact, especially for women in places where there are few public toilets. Washing and drying clothes and bed sheets causes difficulties. There is a need for more studies on how older persons cope with this problem. There is great need, and an ever-growing market, for low-cost disposable incontinence pants. Making washable pads and plastic pants could be an income-generating activity for small groups of older women. Gender-segregated pelvic floor exercise training helps to prevent as well as treat urinary incontinence for both men and women.

The incidence of breast cancer in Asia has been increasing in recent decades, and it is now the most common cancer diagnosed among women and is the leading cause of cancer deaths (Bray and others, 2013). Breast cancer has a high mortality rate, but if detected early, the prognosis is good. However, older Asian women tend to present with breast cancer at an advanced stage. For example, in India, 50–70 per cent of women presenting for treatment had locally advanced breast cancer, and in Singapore, it was 22 per cent (Tan and others, 2007).
The WHO-CHOICE economic modelling exercise for South-East Asia found that biannual mammography with treatment for all stages of breast cancer would be highly cost-effective (Ginsberg and others, 2012). The researchers acknowledged that substantial infrastructure investment and training would be needed to achieve this. Careful thought also needs to be given to a communications campaign aimed at both younger and older women.

Health behaviours and risk factors

There are sex differences in the frequency and effects of risk factors and health behaviours that affect longevity and disease. For example, self-reported physical activity is a predictor of longevity for older women but not for older men, while low physical activity increases the risk of disability in old age in men (Schultz-Larsen, Rahmanfard and Holst, 2012). Shadyab and others (2017) found that older women with less than 40 minutes of moderate to vigorous physical activity per day and who remain sedentary for more than 10 hours per day have shorter telomeres, which protect chromosomes from deterioration and progressively shorten with age. Shortened telomeres are associated with cardiovascular disease, diabetes and major cancers. In Nepal, men were found to participate in physical exercise more frequently than women (Gautam, Saito and Kai, 2007).

Less than 4 per cent of women in most Asian countries reported smoking daily, compared with 34 per cent of men (OECD, 2016). Men are also more likely to drink alcohol – 4.5 per cent of women and 16.8 per cent of men in Asian countries reported weekly heavy episodic drinking in the last 30 days in 2010 (OECD, 2016). Women in Asian countries are more likely to be overweight than men: 28.5 per cent of women, compared with 25.5 per cent of men (OECD, 2016). But men are catching up. Since 2010, the share of overweight increased by 4.6 per cent for women and 13 per cent for men. Men have higher blood pressure than age-matched women before menopause, but not afterwards (Kotsis and others, 2006). Low birth weight is linked to the development of cardiovascular disease later in life, especially for women (Dasinger and Alexander, 2016). Older women often cook for their families and are likely to have greater exposure to smoke from biomass cooking fuel, increasing the risk of respiratory and other diseases.

Older women have been found to take, on average, more medicines than older men, which can result in harmful drug interactions and difficulties in remembering to take them correctly (Woo and others, 1995). Older patients often have difficulty in taking prescribed medicines for chronic conditions in the correct doses, at the right times and continuously. Problems with the way medicines are dispensed, lack of labelling and poor storage at home also affect the efficacy of treatment. Unit dose calendar packaging, in which medicines are packed by a pharmacist in a foil-backed blister pack for each day of the week, have been found to be effective at improving compliance among older patients in high-income countries (Ware and others, 1991). Older persons often seek care from traditional practitioners. Health-care providers need to take this into account and ask about traditional medicines and therapies.
Health promotion

Studies in high income countries have shown that, even in old age, health education and promotion activities can have a measurable impact on health behaviours resulting in improved health (Kaczorowski and others, 2011; Kerse and others, 1999; Vetter and Ford, 1990). But health education needs to be sustained to be effective (Cupples and McKnight, 1999). Older persons may have more time for and interest in health education, but they may also have low literacy levels, especially women, poor hearing or vision and cognitive difficulties. If health promotion efforts are participatory, engaging and entertaining, the messages are more likely to be remembered. When discussion is stimulated, this is more likely to lead to behaviour change.

An enabling environment for behaviour change is needed at community and health service levels, as are strategies that address the social, emotional and economic determinants of health. In the Tibet Autonomous Region, for example, older women had high rates of low back pain, exacerbated by lifting heavy water containers. A tap stand was designed with a high tap and a waist-high bench, thus reducing the need to bend the lower back when filling and lifting water containers (Hoy and others, 2003). Older men can benefit from mutual support groups to reduce or stop drinking alcohol and smoking. Older persons, once given support to become organized, are able to contribute to their communities. Intergenerational activities are especially important, with mutual benefits for young people and older persons. Health education efforts should include reaching family members and carers of older persons with the same messages. It is also important to think about the effect of behaviour change messages from a gender perspective. For example, while it is important to encourage less salt in the diet, there should be effort to reach men with these messages rather than simply addressing older women, who cook for their husbands and families and want to make tasty meals – they naturally want approval and may have reason to fear disapproval.

Health-care seeking behaviours and barriers to health care

Influences on barriers to seeking and receiving health care also vary by gender. The most common barriers for older persons are lack of money to pay for transport, consultations and medicines, lack of transport, lack of knowledge about where to go and previous poor experiences of health services, including long queues and waiting times (WHO, 2016d). Older women, especially in rural areas, are more affected by these factors than older men, and they also more often need someone to accompany them. Both older men and women prefer to see a health-care provider of the same sex for health problems of a sensitive nature. Older men often wait to seek health care only when their symptoms can no longer be ignored (WHO, 2004), while older women may not seek care when they view symptoms as a natural part of ageing, such as gynaecological problems (Elias and Sherris, 2003).
Health-care providers need to understand the importance of treating older persons with dignity and ensuring their comfort, giving them priority in queues, and making sure that toilets are accessible and clearly signed. At health facilities in some countries certain times are set aside for only older persons to be seen, chairs are provided, and older persons can use the toilet without losing their place in a queue. A useful resource, the WHO document *Towards Age-friendly Primary Health Care* emphasizes that community-based health care should ensure that attitudes, services and relevant policies integrate both age and gender concerns. It also notes that special outreach programmes for older men are needed (WHO, 2004).

**Policy recommendations**

- Invest in health promotion for older persons that is participatory, free or affordable, and takes account of older women’s lower rates of literacy.
- Health-care provider training should include gender differences in prevalence and presentation of health conditions, risk factors and treatment.
- National standard treatment guidelines should take gender differences into account.
- In rural areas, try to bring preventive, screening and treatment services closer to where older persons live. Make efforts to encourage early detection of cervical and breast cancer in older women.
- Ensure that health data are disaggregated by age and sex.
- Make health-care facilities age-friendly and free or affordable.
- Address transport barriers, especially for older women.

7. **Gender dimensions of long-term care**

With increasing age many people, because of frailty, illness or disability, need help with activities of daily life, such as getting out of bed, washing, cooking and eating. They may need rehabilitation after discharge from hospital, dressings for chronic wounds or to be provided with assistive devices, such as a wheelchair or commode. Older women are more likely to need long-term care services than older men, and women are more likely to be both informal and formal caregivers to older family members.

Long-term care services may be provided at home, at community day care centres or in residential nursing homes. Most long-term care is informal and provided at home by family members, neighbours or domestic employees. Formal long-term care providers may be employed by the government, civil society organizations, including religious organizations, or by the private sector. There is a need for regulation and monitoring of residential care for older persons because the risk of neglect and abuse in such settings is high.

Families have traditionally cared for their dependent older family members. However, with increasing numbers of older persons, smaller families and households, migration of adult children and greater female participation in
the workforce, government policy can no longer simply rely on or expect that women will provide care for older family members. Many governments in the region are starting to develop long-term care systems and services, which require consultation and coordination of several relevant ministries, especially the ministries for health and social services. Decisions have to be made about which cadres of workers can most appropriately provide care. Most formal providers of long-term care are women, but some older men may feel uncomfortable receiving personal care from a woman. There is much scope for policies and programming to assist and support family or neighbour caregivers, taking into account gender considerations. These should be treated as an investment; especially because the costs of providing home visits or residential care for dependent older persons who lack family caregivers would outweigh the cost of support to family caregivers (Buckner and Yeandle, 2015).

This support might include a carer’s allowance, help with assistive devices, respite care and information about financial matters. In Singapore, there are support groups for people caring for family members with Alzheimer’s disease; people who require counselling or additional respite care are referred to designated social workers (New Horizon Centres, 2010). Additionally, information materials and advice for family carers can be

Figure 1 Percentage reporting “moderate”, “severe”, or “can’t do” difficulty with self-care in the last 30 days by country and sex.

Gender Implications of Population Ageing: Rights and Roles


Older women could get together to provide services, such as home visits for companionship, meals, laundry, massage and physical activity to dependent older persons in their community, as an income-generating activity. Older men could visit their home-bound peers. Such groups should have links to government health services and receive training. There is also scope for new innovative business thinking and for micro, small and medium-sized enterprises to meet long-term care service needs (Dasanayaka, 2006).

The increasing need for long-term care for older persons has many gender implications, especially in relation to the issue of female participation in the workforce. There is a negative circle. There are strong cultural norms for women to care for older family members at home. Because of lack of part-time and flexible work, it is difficult for women who care for an older family member to go out to work. This makes it difficult for women to save and puts them, in turn, at high risk of poverty and poor health in their old age (Gunatilaka, 2013). Low participation of women in the workforce also limits national economic growth (World Bank, 2016).

Governments then lack the resources to pay for social protection schemes and formal long-term care services. The issue has received relatively little attention in many low- and middle-income countries in the region, although this is changing as policymakers recognize that working-age populations are stabilizing, while countries are experiencing rapid population ageing with serious implications for economic growth (Government of Sri Lanka, 2009).

Table 2 summarizes the implications of three gender dimensions of long-term care along with recommended policy responses and strategies.

Table 2 Gender dimensions of long-term care – Implications and policy recommendations

<table>
<thead>
<tr>
<th>Implications and consequences</th>
<th>Policy recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women are more likely to need long-term care services because they live longer than men but have worse health and more disability in old age</strong></td>
<td></td>
</tr>
<tr>
<td>• Older women are more likely to be widowed,</td>
<td>• Invest in effective health promotion throughout the life course for both men and women to help prevent disability and chronic diseases.</td>
</tr>
<tr>
<td>to live alone and to be financially dependent on others,</td>
<td>• Raise awareness of elder abuse and encourage responsible public debate and discussion in consultation with older persons.</td>
</tr>
<tr>
<td>than older men. They are vulnerable to physical, emotional,</td>
<td>• Support the establishment of community organizations for older persons, which can provide support, social contact and a collective voice.</td>
</tr>
<tr>
<td>sexual and financial abuse, which is often hidden</td>
<td></td>
</tr>
<tr>
<td>• Older women are more likely to face barriers,</td>
<td></td>
</tr>
<tr>
<td>including cost barriers,</td>
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</table>

31
Informal caregivers to older family members or neighbours are more likely to be women

<table>
<thead>
<tr>
<th>Implications and consequences</th>
<th>Policy recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal caregivers are vulnerable to:</td>
<td>Consult with caregivers in planning.</td>
</tr>
<tr>
<td>• Reduced ability to earn income</td>
<td>• Legislate for financial assistance to informal caregivers, such as a carer’s allowance and financial assistance for equipment and running costs to help manage disability or medical conditions.</td>
</tr>
<tr>
<td>• Poverty</td>
<td>• Develop a free and confidential financial information service for caregivers.</td>
</tr>
<tr>
<td>• Interrupted sleep; fatigue</td>
<td>• Introduce a part-time job culture in private and public sectors and provide home and group-based income-generating opportunities.</td>
</tr>
<tr>
<td>• Social isolation</td>
<td>• Introduce family-friendly workplaces.</td>
</tr>
<tr>
<td>• Low status and self-esteem</td>
<td>• Increase the availability of affordable, acceptable and flexible respite care.</td>
</tr>
<tr>
<td>• Discrimination</td>
<td>• Facilitate mutual support (local groups; internet discussion boards).</td>
</tr>
<tr>
<td>• Anxiety and stress</td>
<td>• Improve the image of caregivers, such as through media articles, local awards and positive storylines in TV soap dramas.</td>
</tr>
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</table>

to health-care services for prevention, detection, treatment and rehabilitation

- “Someone for everyone”: Promote intergenerational activities, including the pairing of young people with older persons who live alone, before they become dependent and need long-term care.
- Encourage preparation for healthy ageing, including financial preparation.
- Provide information about available long-term care services through methods that will reach older women with limited literacy.
- Introduce older person-held personal health records that are written in by social workers, health-care providers, long-term care workers, family members and older persons themselves.
In the formal sector, long-term care providers for home-based care, day centre care and residential care are more likely to be women

<table>
<thead>
<tr>
<th>Implications and consequences</th>
<th>Policy recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Low pay</td>
<td>• Improve pay and conditions.</td>
</tr>
<tr>
<td>• Poor working conditions</td>
<td>• Develop career structures.</td>
</tr>
<tr>
<td>• Low status</td>
<td>• Encourage the recruitment of male long-term care providers.</td>
</tr>
<tr>
<td>• Vulnerable to abuse</td>
<td>• Employment regulations and monitoring for private sector, charitable and government care providers.</td>
</tr>
<tr>
<td>• Older men have their personal care provided by women</td>
<td>• Develop and monitor occupational health and safety regulations.</td>
</tr>
<tr>
<td></td>
<td>• Establish an insurance scheme.</td>
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<td></td>
<td>• Raise awareness of union leaders about population ageing and conditions of long-term care providers in the formal sector.</td>
</tr>
<tr>
<td></td>
<td>• Develop training curricula and courses, with certification, for the different cadres of long-term care providers and their supervisors, including the relevant regulations concerning their employment rights.</td>
</tr>
<tr>
<td></td>
<td>• Provide long-term care workers with safe transport in the community.</td>
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</tbody>
</table>

8. Gender dimensions of income security in old age

Most older persons in Asia are supported by their families when they have no income of their own. Currently, there are ‘demographic dividends’ because the proportion of youth is large, so the ratio of the working-age population to the old-age population is relatively high. However, with smaller families, there will be fewer adults in the workforce to support older family members. The old-age support ratio (or its inverse, the dependency ratio), defined as the ratio of the working-age population (those aged 15-64) to people aged 65 or older, is used to demonstrate this trend. In the Asia-Pacific region, there are an estimated 8.4 people aged 15-64 years for every person aged 65 or older (ILO, 2011). By 2050, this is predicted to decrease to 3.4 people in the working-age group to each older adult – a decrease of 60 per cent (ESCAP, 2016). This will significantly reduce the ability of governments to afford full coverage of social pensions.

It is important to bear in mind that the old-age support ratio assumes that people older than 65 years do not work or contribute financially and that all people older than 15 years (but younger than 65) are in the workforce (WHO, 2016d). But in Asia and the Pacific, older persons often work, usually as self-employed, until they are physically unable to do so, and many young people are in full-time education. Labour force participation rates after age
65 vary greatly across the region but are generally higher among men and in rural areas (World Bank, 2016). Labour force participation for the region was estimated in 2016 to be 33.4 per cent for older men (65 years and older) and 16.5 per cent for older women (ESCAP, 2016).

Older men, especially in urban areas, are likely to work in insecure and low-paid positions. Older women are less likely than older men to be in the paid workforce, and when they work, they work fewer hours. But they undertake more unpaid work for their families (World Bank, 2016). Both older men and older women contribute to their families through subsistence farming, caring for children, cleaning and cooking, which enables other family members to go out to work. If poor health or disability prevents these contributions, there may be family tensions and even abuse. Older men may feel helpless after being used to the breadwinner role. When older men leave employment, they lose not only the economic reward but also the social and psychological benefits of activity and purpose (WHO, 2001).

Retention of older workers

The Silver Sustain programme of Velona Pty Ltd, a Sri Lankan textile company, is a good example of how businesses can enable older women to continue to earn income with flexible hours. The chief executive of Velona, Mr Gehan de Soyza, says their “policies and procedures do not discriminate based on age or gender” and has developed a system of retaining workers older than the retirement age. They also have flexible policies that enable those who have to care for older family members to take time off when needed. They encourage older workers not to retire and offer shorter working hours and training. They recognize that most older workers require better lighting conditions, flexible work and less strenuous roles, and they restructure roles as needed. The company benefits from retaining the skills of older employees, their reliability and commitment, and their example to younger workers.


Many countries in Asia and the Pacific have low, patchy and inequitable coverage of pension schemes. Countries in Asia have large informal sectors, so government pension schemes are essential for income security. Pension coverage (the proportion of persons of statutory pensionable age) varies considerably, from 2.3 per cent in Pakistan to 62.5 per cent in Nepal, and from 5 per cent in Cambodia to 81.7 per cent in Thailand (2010 estimates) (World Bank, 2016). Contributory pension schemes usually cover only government employees and military personnel. Where universal non-contributory social pensions schemes exist for all older persons, they tend to be set at low levels. Government pension schemes are especially important for older women because female participation in the workforce has been low, they are paid less than men on average, their retirement is set at a younger age, they are more likely to be widowed and they lack inheritance rights. Women have both lower pension coverage and lower pension benefits (Handayani and Babajanian, 2012). They are also vulnerable because of poor financial literacy.
As discussed earlier, when women join the workforce they often undertake unpaid domestic care work, including caring for older family members. Factors influencing female workforce participation include lack of higher education for young women, the age at which women have children and the presence of other women in the household.

Large pension funds are vulnerable to mismanagement and corruption (Iglesias and Palacios, 2000). When poor people do not receive their entitlements when they retire they may become destitute because they may have expected to repay their debts. Confidence in making pension contributions is thus damaged.

Older men with little education are vulnerable to exploitation and theft when they claim their retirement entitlements because they often depend on unscrupulous brokers to complete complicated administrative arrangements (USAID, 2015). At retirement, women who have worked all their lives (for example, in the plantation sector or textile industry) may receive a lump sum rather than a regular pension payment. This lump sum is often eagerly awaited by the family and is soon spent repaying debt or on a TV or wedding. Unions have generally not advocated for a change to the lump sum because their members are working-age adults who anticipate their parent receiving the lump sum. Older women may also be vulnerable to financial scams, which are becoming more common with increasing access to the internet.

A few countries have been innovative, and there are good examples from China, the Republic of Korea and Thailand, which have rapidly expanded their social pensions and budget-financed matching contribution schemes for informal sector workers (World Bank, 2016). The 2016 regional report from the World Bank, *Live Long and Prosper*, analyses the economic and social issues related to achieving income security in old age and provides governments with useful recommendations.

The Individual Deprivation Measure is a good example of an effort to establish multidimensional development indicators that take into account both age and sex to complement monetary household poverty measurements (Bessell, 2015). The Individual Deprivation Measure is based on interdisciplinary, cross-national participatory research that included the views of poor older men and women.

**Policy recommendations**

- National Governments should study and address the factors that influence the level of women’s participation in the workforce.
- Increase coverage of public pension systems to ensure a basic old-age pension for all.
- Enable women in the workforce to more easily move or retain their pension scheme when they change jobs.
- Quantify and include in national accounts the contribution of the domestic and childcare work that older women and men perform.
• Oblige employers to assist workers to access their entitlements at retirement.
• Unions should consider extending membership to workers after retirement and to advocating for retirement benefits to be paid as a regular pension rather than as a lump sum.
• Introduce training in financial literacy and preparation for retirement, especially for women.
• Establish strict government legislation and watchdog organizations to prevent and punish mismanagement and corruption in relation to company pension funds.
• Increase the official retirement age.
• Invest in social science research to assess trends in family support for older persons. There are some useful examples in the book *Transnational Labour Migration, Remittances and the Changing Family in Asia* (Hoang and Yeoh, 2015).
• Complement existing poverty measures with the individual deprivation measure.

**Conclusions and recommendations**

Because there are major differences in the lifespan, family and community life, the health, long-term care needs and financial situations of older men and older women, it is important to take gender into account when planning to address the implications of population ageing. Coordination between sectors is essential and ministries of finance have a key role.

Our review of international reports revealed that a gender perspective is often promoted in relation to guidance on responding to population ageing. This is less often reflected in national policies and plans. However, international guidance documents on gender equality rarely include mention of the consequences of gender inequality in old age or the particular needs and rights of older women. Drawing attention to the impact of a lifetime of gender inequality on older women would be a strong argument for insisting on gender equality at all ages. Older women suffer both age and sex discrimination.

Health and development specialists and agencies have also often failed to recognize or acknowledge the important contributions and influence of older women and men on the health and well-being of women, youth and children. They have paid little attention to the impact of their caring for older family members on young and middle-aged women. There is great need to raise awareness of the broad implications of rapid population ageing and to mainstream ageing analysis in the same way as we mainstream gender analysis.

Governments need to recognize that the economic contributions of older women’s domestic and childcare work and older men’s agriculture and other informal work are considerable. Population ageing is an opportunity
as well as a challenge. But this would be better appreciated and there would be greater political support for investment in health and long-term care system reform if older person’s contributions were quantified and included in national accounts. Serrao (2016) provides a useful analysis of the way that caregiving activities have remained invisible in the national accounting system.

National Governments are now developing or extending old-age pension protection systems. This review has highlighted the importance of taking gender differences and the increasingly varied life courses of women into account when designing these systems.

In the rapidly changing social and economic context, it is important to build capacity for research on ageing-related issues. Both quantitative surveys and social science studies are needed and in different settings, such as remote, rural and poor urban communities, plantation communities, ethnic minority communities and highland communities. Students should be encouraged to undertake research on ageing during their training to foster expertise that will be valuable to the country in the future.

The varied examples of good practice from countries in the region are predominantly initiated by non-government organizations. But they provide useful lessons to government policymakers on how investing in older persons’ health and well-being can reduce dependency and harness older persons’ knowledge and experiences. These initiatives need to be adapted to local contexts and modified as they develop, in response to regular participatory evaluations. Such investments will fulfil older persons’ rights, contribute to economic development, reduce the growing burden on the health-care system and be politically popular with older persons and their families. It is time for governments to scale up these interventions and to recognize the rights and roles of older men and women.
References


Gender Implications of Population Ageing: Rights and Roles


Human Resource Requirements for Meeting the Needs of Ageing Societies

Abstract

While health care is accorded priority by Asian and Pacific countries in addressing the rapid ageing of their populations, only some include long-term care as part of a continuum of care available in institutional and non-institutional settings with formal and informal caregivers. Measures for avoidable (preventive and amenable) mortality contribute towards preventive long-term care. The delivery of health care by health professionals, allied health professionals and auxiliary care workers is discussed in this review, with examples of the training of nurses and social workers to show the range and variety of training available in the region. Caregiving is increasingly undertaken by migrant domestic and care workers and by volunteer health workers, often as part of community organizations. Institutional care is often perceived as abandonment and de-institutionalization is thus pursued as an “asset-light” policy option. But it should be supported as ageing-in-place, community-based services and platforms, with the integration of health and social care, innovative approaches for engagement and participation, and technology, all of which require trained human resources with the necessary skills and competencies. Other measures to strengthen care provision and support to older persons include expanding filial piety to social piety, changing mindsets and combating ageism for social solidarity and collective responsibility. It also includes measurement and monitoring mechanisms for accountability and course correction.

By Thelma Kay¹

Introduction – A perfect storm

The world is ageing, and by 2050, the Asian and Pacific region will be home to more than 60 per cent of the global population older than 65 years. Many factors have brought about this demographic change, of which the most significant are increasing life expectancy and declining fertility.

Compounding the situation, the rate of population ageing is expected to accelerate. By 2050, the population aged 60 or older in all countries in the region is projected to increase. Only two countries are expected to have

¹ Thelma Kay is an independent expert with the Active Aging Consortium Asia Pacific and former Senior Advisor on Ageing Issues, Singapore.
a proportion of that age group that is smaller than 10 per cent: Afghanistan (at 9.0 per cent) and Timor-Leste (at 8.1 per cent). It is sobering to note the large number of countries that will have more than 20 per cent of their population in that age group, with four countries at more than 40 per cent: Japan (42.5 per cent); the Republic of Korea (41.5 per cent); Hong Kong, China (40.9 per cent); and Singapore (40.4 per cent). Almost all show sizeable increases from current levels. Also important are the implications associated with the increase in the populous countries, such as China and India.

The speed of ageing will give countries less time to prepare for the implications of population ageing. With countries at different stages of ageing and at varying levels of economic development, some will get old before getting rich, which means they will be without adequate financial resources to address the economic and social challenges of an ageing population.

Those implications will be exacerbated by other characteristics – the feminization of ageing and the increasing numbers of older persons living alone, of single older persons and of the “oldest old” (80 years or older, with higher probability of being frail and vulnerable). Smaller family size and scattered families are reducing the capacity for care and support traditionally provided by family members.

One of the most significant shifts in recent years is the epidemiological transition from the predominance of infectious diseases to more non-communicable or chronic diseases. This has been exacerbated by the growing prevalence of cognitive impairment, especially dementia. This shift necessitates a change in the type of care and support that are required, with greater need now for long-term care. Long-term care typically has been provided by the family, with adult children looking after older parents, in line with tradition and cultural values. And within that family context, care has been largely provided by women. Ongoing economic and social changes, including the greater participation of women in the labour force, are shifting the organization of older person care that will be needed in the coming years.

The convergence of all these conditions is leading to a “perfect storm” for the region.

Demand for long-term care is set to grow more rapidly because of the accelerated population ageing and the increased prevalence of chronic diseases. A particular concern is that the direct and indirect economic demands of caregiving may become a significant cause of family impoverishment and hinder progress towards the Sustainable Development Goals.

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2 Detailed figures for all countries in the region can be found in the user-friendly 2016 ESCAP Population Data Sheet, www.unescap.org/resources/2016-escap-population-data-sheet.
Global response

The world is increasingly responding to the issue of population ageing. At the Second World Assembly on Ageing in 2002, the Madrid International Plan of Action on Ageing was adopted, containing three policy directions: older persons and development; advancing good health and well-being into old age; and ensuring enabling and supportive environments. The Madrid Plan of Action offers several policy recommendations pertaining to health and long-term care, particularly on health promotion and well-being throughout life, the training of care providers and health professionals and care and support for caregivers.

The importance of ageing was reaffirmed in the second Asia and Pacific review of that Madrid Plan of Action in 2012, when countries adopted various measures calling for regional action. In the 2015 World Report on Ageing and Health, the World Health Organization (WHO) proposed a framework that conceptualizes healthy ageing as comprising intrinsic capacity and functional ability. Healthy ageing is thus defined as “the process of developing and maintaining the functional ability that enables well-being in older age”.

The 69th World Health Assembly approved a resolution for the Global Strategy and Action Plan on Ageing and Health 2016–2020 for governments to draw upon. It contains five objectives for a long and healthy life: commitment to action on healthy ageing and combating ageism as a priority; designing age-friendly environments; aligning health systems to the needs of older persons; developing sustainable solutions for long-term care in homes, communities and institutions; and improving the measuring, monitoring and research on healthy ageing.

The Sustainable Development Goals adopted in 2015 recognize the importance of older persons by pledging that “no one will be left behind” and “to reach the furthest behind first”, with every individual benefitting from the development process and with highest priority accorded to the most vulnerable of individuals. Of particular importance is Goal 3: “Ensure healthy lives and promote well-being for all at all ages”.

National responses

Countries in Asia and the Pacific are taking action to address the challenges of ageing and to prepare for ageing populations.

A review of development policies in the region found several national development plans that cover population issues, including ageing issues, although usually from a welfare perspective. There is, however, an increasing shift towards recognizing ageing as a development issue, whereby ageing populations can contribute to the development of society as resources and assets.
Policies, plans of action and legislation


The HelpAge Policy Mapping on Ageing in Asia and the Pacific, which covered 26 countries, found policies targeting older persons and health in 22 countries. Of them, 18 countries had a national plan on ageing that included provisions on health, ageing and non-communicable diseases, and 17 countries had policies on human resource training and development. Such policies include the establishment of geriatric institutes, research, strengthening decision-making concerning health care for older persons, the introduction of standards and qualifications for professional nurses for the aged, mainstreaming geriatric care into the medical syllabus, promotion of information on care and long-term care for older persons.

Although the promulgation of legislation and regulations are a promising indication of the political importance increasingly accorded to ageing issues and set boundaries for action, implementation is often a challenge.

Long-term care and the care continuum

The WHO defines long-term care as “the activities undertaken by others to ensure that people with or at risk of a significant ongoing loss of intrinsic capacity can maintain a level of functional ability consistent with their basic rights, fundamental freedoms and human dignity” (WHO, 2015a).

The Organisation for Economic Co-operation and Development defines long-term care as a “variety of services which help meet both the medical and non-medical needs of people with a chronic disease, disability or functional/cognitive impairment who cannot care for themselves for long periods”.

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3 See www.oecd.org.
Health systems in many countries have not been responsive to the changing health landscape brought about by their rapidly ageing populations. Many lower-income and even middle-income countries have yet to develop a long-term care system; care continues to be based on hospitals for acute care and the family as the traditional means beyond hospital care. For example, in Thailand, “the development of long-term care has emphasized supporting family caregivers. .... For the few institutional settings currently in existence, there is neither standard of care nor competency requirement for care providers” (Sasat and others, 2013). In their study of long-term care institutions in Thailand, Sasat and Bowers (2013) also found that “there are overlapping levels of dependency in different facilities, no level of care classification, no care standards available and registration and inspection bodies were not specified”.

Countries at all income levels show diverse patterns of long-term care in terms of the balance between formal and informal services, the degree of government participation and the overall level of provision.

Care can be seen to be in a continuum, starting from primary prevention to primary care, acute care, step-down care, rehabilitation, community and home care to palliative care. Primary health care is provided by the government, NGOs and the private sector. Intermediate and long-term care are institutional, residential or home and community-based.

There is a spectrum of services catering to acute, intermediate and long-term needs, which is undertaken in institutional and non-institutional settings. There are essentially two categories of long-term care services: residential-based services, which in some countries consist of community hospitals, nursing homes, respite care facilities and hospice inpatient care; and community-based services, which are largely utilized by individuals who prefer to stay at home or live in more familiar surroundings but need care and support. This category is further divided into (i) centre-based services, such as day care and rehabilitation centres, dementia day-care centres, hospice day-care centres and (ii) home-based services, which cover home medical services, home nursing services, home help services and home therapy services.

Table 1 is an example from Singapore of the human resources development plan for long-term care, which covers ensuring adequate staffing, ensuring competitive pay, raising capability and skills and increasing efficiency and effectiveness.

Four-fifths of deaths from non-communicable diseases are in the region’s low- and middle-income countries, with older persons in developing countries particularly at risk. However, the health-care systems of countries have been built and developed to provide acute medical care, often neglecting approaches to prevent or manage chronic diseases. To compound the issue, the social gradient of economic and social disparities within countries often lead to unequal health outcomes.
Table 1 Human resource development plan for long-term caregivers in Singapore

<table>
<thead>
<tr>
<th>Ensuring adequate staffing</th>
<th>Ensure competitive pay</th>
<th>Expand capabilities and skills</th>
<th>Increase efficiency and effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aged care human resource projections (factor into pipeline planning)</td>
<td>• Job evaluation exercise to determine relative job size in the acute medical care sector</td>
<td>• Allow intermediate and long-term care (ILTC) staff to pursue training in advanced ILTC skills</td>
<td>• Process redesign and IT enablement</td>
</tr>
<tr>
<td>• Funding to enable nursing homes to improve staff</td>
<td>• Funding to address salary gaps</td>
<td>• Facilitate training courses for ILTC institutions</td>
<td>• Job redesign to enhance job value of nursing and therapy aides</td>
</tr>
<tr>
<td>• Secondment framework for allied health professionals and nurses</td>
<td></td>
<td>• Funding for locals to do degree-upgrading and basic ILTC training for all</td>
<td>• Support technology adoption and innovation to improve productivity</td>
</tr>
<tr>
<td>• Alternative work arrangements (such as part-time or flexi-work hours)</td>
<td></td>
<td></td>
<td>• Demand aggregation to achieve economies of scale (bulk procurement)</td>
</tr>
</tbody>
</table>

Source: Singapore Ministry of Health.

Global survey data show marked variation of care dependence among countries, ranging from less than 5 per cent of the population aged 65–74 years in Switzerland to around 50 per cent in some low- and middle-income countries (depending on how it is measured)\(^4\). This points to the need to take a life-course approach and intensify efforts in health promotion and preventive measures in low- and middle-income countries. At the same time, measures are needed to address the issue of care-dependent older persons.

Countries are increasingly undertaking activities in the health sector, especially wellness approaches, to maintain functional independence and to increase health span (and not just lifespan). There is also increasing recognition of the need for health promotion as a “life-course” approach and a more prioritized and tailored system for the health and well-being of older persons.

In Japan, the long-term care plan comprises institutional, non-institutional and preventive components (see table 2). Based on a population approach as well as high-risk targets and with the strategy of promoting independence, the Japanese plan recognizes three risks to healthy life expectancy: (i) metabolic syndrome (diabetes, high blood pressure and cholesterol), (ii) locomotive syndrome and (iii) dementia or mild cognitive impairment. “Cognicise” (combining cognitive training with exercise) is undertaken in

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Human Resource Requirements for Meeting the Needs of Ageing Societies

Table 2  Long-term care system services in Japan

<table>
<thead>
<tr>
<th>Home-based care</th>
<th>Community-based care</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Home visit services</td>
<td>• Patrols</td>
</tr>
<tr>
<td>(bathing, nursing, rehabilitation, recuperation advice)</td>
<td>• At-any-time home visits</td>
</tr>
<tr>
<td>• Day-care services</td>
<td>• Small multifunctional home care</td>
</tr>
<tr>
<td>• Short stay</td>
<td>• Group home for dementia</td>
</tr>
<tr>
<td>• Care in assisted-living facilities</td>
<td>• Community-based residential facilities</td>
</tr>
<tr>
<td>• Lending of care equipment</td>
<td></td>
</tr>
<tr>
<td>• Sale of care equipment</td>
<td></td>
</tr>
</tbody>
</table>

**Institutional care**
- Residential care facilities
- Rehabilitation facilities
- Geriatric hospitals

**Community-based care**
- • Patrols
- • At-any-time home visits
- • Small multifunctional home care
- • Group home for dementia
- • Community-based residential facilities

**Other types of care**
- • Subsidies for home renovation expenses
- **Preventive care**
- • High-risk targets
- • Population approach


Japan as a prevention against the need for long-term care. Professionals in health centres train local programme coordinators as instructors of preventive long-term care activities and they in turn instruct participants.

Countries have primary prevention and primary care programmes, with varying degrees of coverage and scope. There are also measures for avoidable (preventable and amenable) mortality. These programmes can be categorized as:

(i) Staying healthy through prevention, which covers health promotion activities to stay healthy physically and mentally; nutritional and dietary measures; and wellness programmes. Some health promotion programmes are tailored for local interests such as mindfulness, meditation, tai chi and yoga. Self-care is also promoted, and health promotion is started as early as possible through parents, schools and communities.

(ii) Screening for early detection for those at risk, which covers health screening (either from a population approach or a high-risk approach) for physical and mental health, including for depression, dementia and prevention of falls.

(iii) Management and treatment for optimizing outcomes, especially for those with chronic diseases, which covers disease management, such as diabetes and multiple complications.

(iv) The effectiveness of care, which covers the quality and value of drugs and health-care technology.

Singapore, for instance, has launched many initiatives to cope with its ageing population. Interesting programmes under its Health Promotion Board include the Mental First Aid Programme, the Health Ambassadors
Network, the Community Function Screening, the Falls Prevention, and the National Wellness Programme and Self-care on Health of Older Persons in Singapore (SCOPE). Many Asian countries have health promotion and preventive schemes falling under the four categories of activities.

China has embarked on a massive National Fitness Programme (2011–2015), which puts fitness in line with the overall development of the country and promotes sports for all people as a national strategy. Although progress has been made, challenges that remain are the lack of scientific guidance on exercise and insufficient sporting venues and facilities.

Thailand has interesting health promotion programmes, funded in part from the Health Promotion Fund derived from sales taxes on liquor and tobacco (the so-called “sin tax”).

An important consideration for prevention activities is having knowledge appropriate to the unique needs of ageing populations. For example, while younger persons may benefit from aerobic exercises, older persons will need exercises and resistance training to build muscle mass and maintain balance. People who oversee the sports and related activities should be aware of and skilled in age-appropriate activities.

A dimension that warrants further scrutiny is the impact of spirituality and religion on the health of older individuals. For example in Indonesia, Thailand, the Philippines and the Pacific island developing countries religious activities have an important role in the lives of older persons.

Almost all countries bemoan the shortage of human resources for providing health services, including long-term care. The workforce is a spectrum ranging from highly skilled medical practitioners and specialists, allied health professionals and nursing staff to informal paid and unpaid caregivers and family caregivers. There is also a category of care managers and workers in social care.

A study of the health workforce in the ten ASEAN member States showed that many had shortages, although the aggregate level of human resources suggested no critical dearth (Chongsuvibatwong and others, 2011). In that study, Cambodia, Indonesia, the Lao People’s Democratic Republic, Myanmar and Viet Nam fell below the critical shortage threshold defined by the WHO. Despite a high capacity for medical and nursing training in both public and private facilities in these countries, there was weak coordination between the production of health workers and capacity for employment, especially in nursing. Aggregate shortages also masked disparities in the distribution of health workers, attributed to the location of health facility infrastructure, poor working and living conditions in rural areas and the concentration of income-earning opportunities in urban and more prosperous areas.

General practitioners in the private sector provide primary care in many countries. There are initiatives for the public sector to work with the private sector through such measures as government subsidies for older patients.
and promoting a primary care network of general practitioners, whereby patients with multiple needs benefit from coordinated care delivered by a multidisciplinary team of doctors and nurses.

The shortage of medical doctors is experienced in many developing countries, especially in the rural areas. Specialists are also in short supply, and in some countries, this supply problem is aggravated by specialists in the public sector moving to the better-paid private sector to service more affluent patients and also medical tourists (such as in India, Malaysia, Singapore and Thailand). For ageing societies, the lack of gerontologists and geriatricians is problematic, although there are reports that trained professionals in these fields are underutilized in some countries (Dey, 2016).

Health care is also delivered through allied health professions, especially physiotherapy, occupational therapy, diagnostic radiography, and radiation therapy. There are also non-clinical staff such as in hospital operations and care coordination.

Nurses form the backbone of care in ageing societies. Training varies among countries, but the range of training is exemplified in the following example from Singapore (see table 3).

Table 3  Nurse training in Singapore

<table>
<thead>
<tr>
<th>To become...</th>
<th>You need to acquire...</th>
<th>At...</th>
<th>Minimum entry requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled nurse</td>
<td>National Institute of Technical Education certificate in nursing</td>
<td>Institute of Technical Education, College East</td>
<td>N Levels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>School of Health Science, Nanyang Polytechnic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schools of Health Sciences, Ngee Ann Polytechnic</td>
<td>O Levels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parkway College of Nursing and Allied Health</td>
<td></td>
</tr>
<tr>
<td>Diploma in nursing or in health services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registered nurse</td>
<td>Accelerated diploma in nursing</td>
<td>School of Health Sciences, Nanyang Polytechnic</td>
<td>Diploma or degree graduates (with working experience)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>National University of Singapore</td>
<td></td>
</tr>
<tr>
<td>Degree in nursing</td>
<td></td>
<td>Overseas full-time degree courses</td>
<td>A Levels</td>
</tr>
</tbody>
</table>

Source: Singapore Ministry of Health.
Across the region, nurse training ranges from degrees in nursing offered by universities and colleges, diplomas in nursing conferred by technical or vocational training institutes and nurse aides with lower training (vocational training institute) entry requirements. Retention of nursing staff in the medical service can be a challenge. To address problems of attrition and retention, schemes have been established for career progression, professional development and recognition, enhanced pay and improved working conditions. These include recruiting part-time basic care assistants to free up nurses for clinical duties and professional conversion programmes. A useful development is the training of nurses to work as community-based care nurses.

For long-term care, there are paid caregivers who have no formal nurse training and unpaid caregivers, usually family members. Training is available in many forms; moreover, countries have distinctive training programmes, with varying content and level of skills and competency required. The differences among training programmes are too big to be harmonized and integrated into a common standard. Nonetheless, there is a need for assessment of knowledge and models of quality assurance. Experts in this field have advocated for national standards, training based on core competencies, certification of care workers, accreditation of curriculum and a career ladder.

Human resources for long-term care must also cover social care, and training can cover several pathways. These include diplomas from vocational and technical institutes, university degrees in social work (or switching from other disciplines) and post-graduate degrees in social work. The interesting aspect of social care training is the flexibility to convert from other disciplines. This is especially useful in cases of retrenchment or reskilling from other fields.

Some useful measures to develop social care workers are the eldercare landscape study in Singapore, based on which training courses have been updated and developed, and the development of a National Social Work Competency Framework for social workers in the social service and health-care sectors (see figure 2). The framework also creates a progressive career structure for social workers, giving them opportunities to develop domain expertise as well as broad-based skills. An important role performed by social workers is coordination, as part of a multidisciplinary medical and social care team.

Migrant domestic and care workers

The use of domestic and care workers to address the needs of long-term care is prevalent in some countries in Asia. A recent International Labour Organization report (Peng, 2017) analysed the migration patterns of domestic and care workers in East and South-East Asia. There were noticeable differences in the use of migrant domestic care workers among

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Human Resource Requirements for Meeting the Needs of Ageing Societies

various countries, shaped to a large extent by social and economic policies, pre-existing conditions and political considerations. Japan and the Republic of Korea have a limited intake of foreign care workers and have opted to address childcare and care for older persons through publicly supported mechanisms. Singapore; Hong Kong, China; and Taiwan, Province of China have chosen to use foreign workers to address care needs and have provided support through policies and incentives.

In Singapore, financial incentive is provided to families to engage a foreign domestic worker to care for a family member with, at the least, a moderate disability. They receive a grant of S$120 per month and a reduction of S$60 for the foreign worker levy. Hong Kong, China has tax policies that are favourable to employing foreign domestic workers. Taiwan, Province of China has a Foreign Live-in-Caregiver Programme and a Living Allowance for the Aged, which has helped families to purchase care. In China, there is an influx of mainly female rural migrant workers for jobs as workers caring for older persons in urban areas. It has been postulated that the Confucian values of these Asian families has resulted in the outsourcing of care, or the “subcontracting of filial piety”.

The influx of foreign domestic care workers also prevails in the Mekong region, where migrants from neighbouring countries engage in domestic and care work in Thailand. All these country examples, though different,
provide useful insights into the relationship and intersectionality of gender, migration and the marketization of reproductive work. The main sending countries of domestic and care worker are Indonesia and the Philippines. Viet Nam also sends workers to Taiwan, Province of China. The main sending countries of domestic and care workers to Thailand are Cambodia, the Lao People’s Democratic Republic and Myanmar. These workers often multitask as domestic and care workers and are typically untrained or undertrained to perform care-giving duties for older persons, even if they undergo a rudimentary training session. Efforts are being made to boost older person care training for domestic workers, such as with specialized courses conducted by medical personnel, and usually with a subsidized fee. Nonetheless, it is envisaged that, as sending countries experience declining fertility and ageing populations, they will also need to manage their own care for older persons’ needs. Furthermore, some countries have established long-term care facilities catering to foreigners which may in the future exacerbate the human resource needs related to the care for older person in those host countries.

Japan and Canada have entered into agreements with Indonesia and the Philippines to receive nurses and caregivers. At the regional level, the ASEAN Framework Agreement on Services has had a mutual recognition arrangement on nursing services (since 2006) and medical practitioners (since 2008). Following through on these arrangements has been challenging, owing to such factors as licensing, quality of training and length of work experience required.

Volunteer health workers

The WHO Global Strategy and Action plan suggested that volunteers may make a significant contribution to extending long-term care provision, especially in poorly resourced settings. One of the first initiatives is a Republic of Korea–ASEAN project implemented through HelpAge Korea, which trained families and community volunteers in home care for older persons. Thailand is one of the most developed examples of national long-term care schemes that utilize volunteers at the community level. Building on a 1997 initiative of village health volunteers, the Government established in 2003 the Home Care Service Volunteers for the Elderly Programme for dependent older persons. Volunteers are given US$14 per month to provide domiciliary care services while liaising with local health workers. A 2014 evaluation of the programme reported physical and mental health benefits to the care recipients. However, it was also reported that although the volunteers were better able to deal with social issues, such as social isolation, they were not able to deal with geriatric health needs. This evaluation gave rise to a new programme in 2014 to provide volunteer caregivers more training on health services.

Similarly, programmes undertaken by volunteers under intergenerational self-help groups and older persons associations while successfully providing useful community services reportedly need to be enhanced to provide more complex health services. While there is a need to conduct more in-depth
evaluation of the effectiveness of community volunteer schemes, it would appear that these schemes can contribute to long-term care, especially in developing countries with resource constraints. It is insufficient as a stand-alone policy and can be at best a prong (albeit an important and affordable one) in a multipronged approach that integrates health and social care. One recent initiative in Thailand is the “interprofessional practice” scheme, which has reportedly been successful in addressing mental health issues in rural Thailand. The team involves village health volunteers working with health professionals (doctors, nurses, pharmacists, psychologists) to identify and address mental health problems through a holistic approach.

**De-institutionalization**

Due to rising demand, some countries have increased nursing home capacity and enhanced nursing home standards. There are also initiatives to shift from the traditional medicalized model of nursing home care to a more home-like habilitative model. However, while some countries in Asia need more institutional care provision, especially for the growing numbers who require specialized care, almost all countries in the region are looking for options and alternative settings other than residential long-term care facilities. Driven by cost considerations necessitating “asset-light” options and the lack of long-term care insurance and coupled with the overwhelming desire of older persons to live at home, the preferred strategy is often “ageing in place”, whereby home and community care are strengthened to avoid institutionalization, which is often perceived as abandonment.

This strategy, however, needs to be supported by various measures, especially service providers and infrastructure. It is important to have coordinated delivery of health and social care. This could take the form of geographically locating medical services in close proximity at the community level, such as the regional health clusters now seen in several countries.

Another arrangement gaining credence is the mobilization of multidisciplinary teams of health and social workers, best exemplified by the “Program of All-inclusive Care for the Elderly (PACE) prototyped in San Francisco and also practised in several countries, sometimes with smaller teams tailored to the availability of staff and needs of older persona (sometimes dubbed “PACE minus”).

Many initiatives in caregiving are experimenting with new approaches, such as the integration of social and medical care and the “hospital in a home” initiative. Home caregiving is another area where innovations have been introduced, such as on-demand web-based platforms for home nursing and caregiving services in India, Singapore and Taiwan, Province of China. Initiatives are emerging to encourage social inclusion, such as the GoodLife Makan, a community kitchen in Singapore that engages older persons living alone in low-cost housing to cook a communal lunch, which in turn addresses loneliness and social isolation. In Japan, many innovative practices for community-based care, retirement communities and care
centres for older persons are being implemented. For example, the pioneering Dream of Mizuumi Centre in Japan is a model in which older persons in a day-care centre can take charge of their own activities, combining rehabilitation, independence, choice and motivational rewards (they are not left to submit to organized activities only). There are also good examples in Japan of intergenerational co-location and joint care for older persons and childcare facilities (in which care for older persons facilities are located next to or adjoining childcare facilities, with interactions promoted).

Another innovative Japanese programme is a system for providing care for older persons through exchanges of “time credit” saved in a paying-it-forward “time bank”. This scheme has been duplicated in China. In Australia, the Men’s Sheds concept of sharing resources and tools to work and interact on projects are proving to be successful in engaging older men in communal activities. In the United States of America, the Naturally Occurring Retirement Community concept is a multi-age neighbourhood or housing development in which older persons can access health and services in a common premise. This concept can be adapted for application in other countries.

Many countries have community-based platforms, such as senior activity centres. Some countries have older persons’ clubs or associations, such as those promoted by affiliates of HelpAge International (such as the Peoples Self-help Groups in Myanmar, older persons’ organizations in the Philippines and older persons’ associations in Cambodia and in Myanmar). In Viet Nam, there are 1,000 intergenerational self-help groups in 17 provinces; building upon the success of these pilot groups, the Government recently approved the expansion of the model to 65 provinces along with targets, a budget and defined responsibilities for implementation.

In countries with a tradition of organized groups, the participation rates of older persons are high. For example, the Viet Nam Aging Survey of 2011 found that 71.5 per cent of respondents were members of the Vietnam Association of the Elderly, and 82.5 per cent had participated in activities of the association within the previous 12 months. In China, there are about 500,000 community-based older persons’ associations nationwide, often run by younger seniors caring for older seniors. Some have evolved from social clubs into care centres, which are now registered as government-funded non-profit organizations providing door-to-door check-ups, assistance and medical referrals.

Volunteerism can take different forms, often informal and not necessarily through organizations or institutions. These can be community-based and centred on mutual help, such as gotong royong in Indonesia, traditional mutual help networks in Japan and clan or surname associations in Chinese societies. In Thailand, as part of a community-based integrated older person care system, home-help services are provided to older villages by two categories of volunteers: care for older persons volunteers and village health volunteers. Singapore started a National Senior Volunteerism Movement and a Senior Volunteer Fund will be set up to help community organizations better recruit and develop senior volunteers. China has launched the Yin-
Informal caregiving and volunteerism are largely not costed, leading to the non-monetization and undervaluation of these services. Much can be done to compute these shadow costs, such as by learning from the methodologies applied for measuring the cost of the unpaid work of women.

Apart from the facilities for community and home-based resources, an enabling environment is essential to promote “ageing in place”.

An age-friendly environment facilitates healthy ageing and enables ageing in place. The WHO age-friendly dimensions (transportation, housing, social participation, respect and social inclusion, civic participation and employment, community support and health services, outdoor spaces and buildings) are a useful framework. In the Asian and Pacific region, the number of countries, cities and communities that have joined the WHO global network of age-friendly cities and communities is still limited (only Australia; China; Hong Kong, China; India; the Islamic Republic of Iran; Japan; the Republic of Korea; Sri Lanka and Turkey). Only the capital cities of Tehran and Seoul are members, with most of the others being smaller cities and communities. However, the number of members is expected to increase and some countries have reported that, although they are not formally members of the network, they have adopted many of the dimensions of the WHO model of an age-friendly city (WHO, 2007).

The environment also can be made more age-friendly through improved walkability and access to transport. Transport can be made more age-friendly such as with wheelchair-accessible buses, longer traffic lights, resting benches. A useful measure is the granting of special privileges and discounts (often through proof of identity, such as a senior citizen card) to older citizens for transport costs to facilitate enhanced mobility and accessibility.

To implement a policy of ageing, human resources must develop accordingly. Health personnel will need to work beyond the hospital setting. Recalling the care continuum, it will be important to have a multidisciplinary mix of care personnel comprising medical and social care workers. Doctors must address chronic diseases, and the public-private sector mix must be incentivized to work and complement each other. Similarly, nurses must venture beyond the hospital setting to become patient navigators who guide individuals through the healing process and work to ensure that they are placed in an appropriate facility (right-site). A cadre of such links will enable the process of reablement to be optimized and to foster ageing in place. Paraprofessional and informal caregiver training will need to be taken to a more standardized level, with certification, as required, and the requisite competence and skills. Technology will be leveraged for productivity, and the whole of society approach and life-course approach will be enhanced.
Culture

It has been postulated that in Asia, the culture ideology of filial piety is an important determinant of family and intergenerational relationships, forming the foundation for respect of older persons and the provision of support and care by the family. With diminishing family size, the nuclearization of society and split families (due to migration for work), the traditional role of families has been eroded. Some counties have sought to address this issue with legislation that forces adult children to provide support to their older parents (such as the Maintenance of Parents Act in Singapore and similar legislation in China and India).

Some factors can preserve and reinforce filial norms (or piety). For example, even if families are separated and scattered, new and affordable methods of communication, such as telephone calls, messaging applications (for instance, WhatsApp, Line and WeChat) and Skype, have enabled regular contact, albeit of a physically indirect nature. Similarly, remittances sent home by migrant workers abroad are important economically in some countries. Examples abound of intergenerational dependence and solidarity, including multigenerational living, housing and spaces for intergenerational contact zones and co-location, and activities to promote intergenerational bonding.

In many parts of Asia and the Pacific, the underlying cultural philosophy of the family as the provider of care and support is still prevalent. Traditional values of filial piety and caring as a duty, especially of the eldest son, still prevails.

Filial piety can take two forms: within the family and extended family context, which is the cultural philosophy embraced in many parts of the Asia-Pacific region; and as “societal piety”, whereby a society feels that it “owes” previous generations for their contribution towards nation building. This provides the cultural underpinning for welfare provision from the State to older citizens, such as the provision of social pensions.

Technology and the digital revolution

In the field of health, technology will be a game changer for innovations and process improvements. Technology will enable older persons to be better able to engage in their own health care and well-being through platforms for telemedicine, telemonitors, health tracking and sensors and wearable technology. Reablement will be made possible with assistive devices and technology, such as 3D printing, telerehabilitation and the use of exoskeletons. Technology will also enable the reduction of the administrative load and facilitate continuity of care, such as through integrated national electronic health record systems (although there may be problems with security and confidentiality). New technologies can enable quality care to be extended to rural and remote areas and can improve communications and inter-professional collaboration (such as between urban and rural areas) and facilitate community-based disease surveillance and monitoring.
Future technology will enable improved productivity through digitization, providing connection and analysis of health-care data and predictive analytics to monitor patients’ conditions. Innovative use of technology, including digital applications for a health-care marketplace that can cover home-care services, transportation, therapy and nursing services, are already operational in several countries, either run by start-ups or by existing medical providers.

Social media will provide a platform to enhance communication, knowledge acquisition and exchange and to combat loneliness and seclusion. The Internet of Things – the interface between the internet and the physical world in which “smart” devices are connected – and the sharing (“gig”) economy will open up new ways of ageing, enabling ageing in place, independent living and inclusion. Social media has the potential to enable older persons to link to a wider world. Examples of promoting digital literacy for older persons can be found at programmes conducted in several countries, including Australia, the Republic of Korea, Singapore and Thailand. Also in Thailand, “digital community centres” offer digital tools for various purposes, including e-learning and the marketing of local products. Some centres are located in temples, which are frequented by older persons.

Obstacles still need to be overcome, such as the need for cheaper, more affordable and user-friendly devices, and more ubiquitous internet availability. Another hurdle is digital exclusion in which older persons are not accepting or not availing themselves of the tools of the digital revolution.

The lack of human resources with the necessary skills and competencies will hamper or delay the use of technology for health care, which necessitates an appropriate mix of complementary professionals, allied workers and care workers in the health and IT fields. E-learning an also be transformational in the education and training of health workers A human resources strategy needs to be developed for the training and education of telemedicine personnel and to incorporate knowledge of digital technology into training curricula.

**Changing mindsets**

A change in mindsets is necessary, especially for a shift from the image of inactive older persons of a bygone generation. Across the region, there have been efforts at changing the image of ageing, promoting a positive image of ageing and older persons, creating positive cultural and media presentations of older persons and changing the perception of older persons as contributors – not burdens.

Activities often cover commemorative events, such as the International Day of Older Person. Many countries have age thresholds for privileges and concessionary arrangements, such as discounted prices for goods and services, and priority services for health care, transportation and housing.
The media has an important role in changing images and expectations. For example, heart-warming media productions on respecting older persons, with videos from India, Malaysia, Singapore and Thailand, have been widely disseminated. A promising initiative is the adoption by the World Health Assembly in May 2016 of the Global Strategy and Action Plan on Ageing and Health, which calls for a global campaign to combat ageism.

Lifelong learning is becoming an important pillar for healthy ageing, with the recognition that education, which is often frontloaded in the earlier part of life, will need to be replaced by continuous education and lifelong learning, integrated with the real world and technological development and opportunities. Programmes like those run by the University of Third Age, the Elder Academy in Hong Kong, China, the SkillsFuture initiative and the Silver Academy in Singapore and Elder Schools in Thailand are providing avenues for older persons to engage in formal and non-formal education.

Ageism

Ageism is a widely prevalent, pervasive and prejudicial negative stereotyping and misconception stemming from the assumption that age discrimination and sometimes neglect and abuse of older persons is a social norm and thus acceptable. It is often expressed in attitudes, institutions and policy approaches, as well as media presentations that devalue and exclude older persons.

Ageism is significant as a barrier to health care and healthy ageing, and can be combatted through various measures. Foremost is the rights-based approach, whereby ageism is recognized as an infringement of the human rights of older persons. In the health sector, these rights cover freedom from discrimination, the right to health, the right to social security and the right to an adequate standard of living (including housing). Few countries have legal protection for the protection of older persons from abuse, violence and neglect in different settings (especially homes and institutions) and upholding their rights, although there is an increasing trend towards such protection.

As very few international human rights instruments have specific reference to older persons. The ongoing process towards a convention for the rights of older persons would be useful in securing vital protection of older persons’ human rights.

There have been encouraging regional developments. The Council of Europe, for instance, adopted non-binding recommendations on the rights of older persons in 2012; the Organization of American States adopted an Inter-American Convention on Protecting the Human Rights of Older Persons in 2015; and the African Union has a protocol to the African Charter on Human and Peoples’ Rights concerning the rights of older persons in Africa. In Asia, human rights frameworks need to be strengthened, building on political commitments, such as the ASEAN Human Rights Declaration (2012) and the ASEAN 2015 Kuala Lumpur Declaration on Ageing: Empowering Older Persons in ASEAN. The Asian Forum of Parliamentarians for Population
Human Resource Requirements for Meeting the Needs of Ageing Societies

Development makes active ageing one of its priority pillars and works towards fostering and rallying political will.

Action taken to address discrimination on the basis of race (racism), gender (sexism) and disability, especially in the institutionalization of policies, can serve as models to confront and combat ageism.

**Measurement and monitoring**

Quantification and measurement are important for implementation of an activity. The regional Shanghai Implementation Strategy is a set of indicators developed for the Asia-Pacific region, covering areas emphasized in the Madrid Plan of Ageing and the subsequent regional Plan for Asia and the Pacific.

The Global Age Watch Index provides a tool to compare indicators, with countries ranked according to income security, health status, capability and enabling environment.

The Active Ageing Index (AAI) of the European Commission and the United Nations Economic Commission for Europe is a composite index comprising 22 indicators across four domains – employment; participation in society; independent, healthy and secure living; and capacity and enabling environment for active ageing. This analytical tool has been used to monitor trends in the European Union countries and can serve as a model for other regions and also as a global index, with further refinement and adaptation.

The WHO’s *Measuring the Age-Friendliness of Cities – A Guide to Using Core Indicators* offers core indicators that focus on equity measures and age-friendly environmental outcomes from accessible physical environments and inclusive social environments.

With the Sustainable Development Goals (SDGs) having set out a comprehensive road map for achieving interconnected goals, measuring and monitoring progress would entail data generation and collection (disaggregated by sex and age for example), which would also be useful for tracking ageing issues.

It is important to develop and support longitudinal databases and to have improved collection, analysis and reporting of age-disaggregated data to better understand the experiences, evolving needs and contributions of people as they age. It is also important when developing evidence-based interventions that empower older persons and uphold their rights. The use of big data and analytics will be useful in providing deeper insights into critical issues.

**Future action**

Countries in Asia and the Pacific must prepare to meet the challenges of ageing populations and the reality of longevity through a range of measures determined by their individual level of ageing, level of development,
political economy, culture and traditions. It is thus necessary to analyse the ageing situation in each country individually and to then prioritize solutions and policy measures that are tailored to the prevailing situation.

For the development of human resources for long-term care, possible strategies include:

- Recognize that long-term care requires an appropriate mix of care workers in a formal and informal care-setting – professionals, allied professionals, paraprofessionals and non-professionals.
- Conduct a human resources landscape review and studies on care workers – covering factors such as number, type, distribution and productivity.
- Improve the management of care workers on selection, maintenance and progress on the career ladder.
- Incorporate assessment tools and quality assurance methods into various levels of care worker training and performance.
- Institute registration and regulation of care worker training institutions and care workers, and enhance continuous learning.

The trends that impact ageing require health care to be future-proofed – to anticipate future conditions and develop mechanisms that minimize negative impacts:

- Intensify age-appropriate health-seeking and behaviour modification measures, in line with the global wellness trend and emphasizing self-care and preventive measures, especially among the younger generation.
- Adopt health systems to the changing epidemiological landscape, focusing on non-communicable diseases and the growing prevalence of dementia or cognitive impairment. Leverage, adopt and adapt new developments and innovation in technological and social domains (including the Internet of Things and the sharing, or gig, economy).
- Enable ageing in place through age-friendly environments and by strengthening strategies that promote independence and intergenerational interdependence.
- Embrace cultural, traditional and kinship bonds, such as filial piety, community-based collective approaches and social piety, where applicable.
- Remove barriers, and future-proof the challenges of ageing through rights-based legislation and institutional measures to remove ageism and discrimination and prevent violence and abuse of older persons.
- Work to change mindsets so that older persons are recognized and acknowledged as contributors and not burdens to society, especially with media and messaging, and the WHO global campaign to combat ageism.
- Constantly monitor and measure progress, with appropriate tools and methodology, including big data and analytics.
References


Technologies to Reach Older Persons with Health-care Services

Abstract

This review examines telemedicine practices, which are separated into teleconsultations and telemonitoring, that have applied information and communication technologies (ICT) for the delivery of health-care services to older persons in the Republic of Korea, Japan, Australia and China. The practices featured from the Republic of Korea and Japan are telemedicine pilot projects to manage chronic disease patients more efficiently and at lower cost. The projects included a health management curriculum, with emphasis on nutrition and exercise guidance. The participants in each pilot project found the services to be helpful in managing their health; the project evaluation findings also indicated several meaningful medical improvements. In Australia, a Home Monitoring of Chronic Disease for Aged Care Project was designed in 2014 to manage ageing patients with chronic diseases at home through various telemedicine devices. In China, the Ningbo Cloud Hospital was established in 2015 to control increasing health-care expenses and to resolve difficulties for individuals to see a doctor. More than 2,000 patients are now registered for online video consultations and prescriptions. The featured examples illustrate how the application of telemedicine to a health-care system not only promotes accessibility between doctors and patients but can save on construction costs for new facilities and the cost of supplying medical personnel in remote areas, which thus can help reduce national medical expenses. However, to initiate ICT-based health-care service delivery, governments in Asia and the Pacific need to first establish related policies that promote telemedicine.

By Dong-Kyun Park

Introduction

To help cope with the social and economic problems related to ageing in most countries today, solutions using information and communication technologies (ICT) are attracting international attention. In featuring how some of those technologies are being applied, this report first looks at the trends and the socioeconomic impacts of the ageing population in the Asia-Pacific region. It follows with four ICT-based ways of managing health care for older persons – from examples in the Republic of Korea, Japan, Australia

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and China. The report then concludes with recommendations for applying ICT when working with older populations.

**Trends in population ageing**

The proportion of the world’s population older than 65 years is expected to increase from 8.2 per cent in 2015 to 17.6 per cent in 2060 (UNFPA, 2015). In 2047 – for the first time in history – people aged 60 years or older are projected to outnumber people aged 16 years or younger (OECD, 2015). Globally, the “oldest” population group, at 80 years or older, is growing at a faster rate than older persons in general. By 2050, the population aged 80 years or older is projected to number 434 million people (4.5 per cent of the global population), which is three times more than the same-age population of 125 million (2.5 per cent) in 2015. The proportion of the population older than 60 years is projected to also increase, from 12.3 per cent in 2015 to 16.5 per cent in 2030. When compared with the increase of 2.3 per cent from 2000 to 2015, the 4.2 per cent increase demonstrates the accelerated ageing of the world’s population (United Nations, 2015).

Nearly 60 per cent of the world’s older population (60 years or older) reside in the Asia-Pacific region. Because of the rapid birth rate drop and life expectancy rise, the region is faced with unprecedented population ageing. The number of older persons in this region is projected to increase to nearly 1.3 billion by 2050, from 547 million in 2016. The population aged 60 years or older will account for 25 per cent of the region’s population in 2050; and the proportion of the “oldest-old” (older than 80 years) will increase to 20 per cent of the older population by 2050. Women will remain the larger portion of the older population because of their higher life expectancy than the male population. Currently, 63 per cent of the population older than 80 years are women. Although the pace and timing of population ageing varies across the region, all countries will confront the issue of rapid population ageing in the next few decades (ESCAP, 2012).

The United Nations’ classification of countries, which groups countries by socioeconomic indicators, shows that countries with a higher level of development have a larger proportion of older population; and by 2050, the proportion of the older population will increase in all countries. In particular, the portion of people older than 65 years in Asia was 7 per cent in 2012, which was less than half of the other Organisation for Economic Co-operation and Development (OECD) countries in that time period. But the proportion quadruples to 26 per cent over the next 40 years, making it higher than the projected OECD average of 25 per cent (see figure 1) (OECD, 2014).

The common causes for the increase in the older population include lower fertility rates and extended life expectancy. The world total fertility rate was 2.5 persons during 2010–2015, a reduction of 1.9 persons (-43.7 per cent) from the 4.4 persons during 1970–1975 (in both Latin America and Asia, the decline was -2.8 persons, while in Africa it was -2 persons). This decline resulted in an increase in the proportion of the older population. This trend is more pronounced in the “more developed” countries (UNFPA, 2015).
Older persons in developing countries have relied heavily on their family for personal care and material support. Today, however, such support is under pressure from the fall in fertility rates (which means fewer children as caregivers) and the increased longevity of older persons, as well as changing cultural norms and the migration of rural young people to cities and away from older relatives (Population Reference Bureau, 2006).

Figure 1 Share of the population aged 65 years or older and aged 80 years or older, 2012 and 2050

Source: DESA, 2015.

Changes due to the increase of the older population

The slow reform of health-care systems is not enough to prepare the world for the fast-ageing society. This situation necessitates a change in focus on the role of primary health-care professionals (OECD, 2015). These days, the main health risk for older persons is non-communicable diseases. These diseases have two to three times greater impact on older persons in low-income and middle-income countries than in the high-income countries. The poorest countries have the greatest health burden on their older persons due to heart disease, stroke, visual disturbance, hearing loss and dementia. Older persons usually suffer from a combination of these diseases (WHO, 2011).
In developing and industrialized countries, the increase in chronic non-communicable diseases (heart disease, cancer and obesity) is attributed to changes in eating habits, lifestyles and ageing. The socioeconomic potential cost of these diseases has risen sharply with population ageing and may affect economic growth (WHO, 2011). Furthermore, the burden of non-communicable diseases is projected to increase, especially in low-income countries. Non-communicable diseases among people older than 60 years already account for more than 87 per cent of health problems in all countries (WHO, 2011).

In many Asian-Pacific countries, health spending growth increased faster than economic growth during the past five years. In figure 4, all economies above the diagonal line show that health expenditure went beyond income. This means that the share of health-care expenditure in total expenditure has increased constantly. The increase in health spending in economies below the line was lower than the increase in gross domestic product (GDP), on average. The portion of health spending in total spending fell in those countries and economies.

Figure 2 Average annual growth rate in real health spending and GDP per capita in selected countries, 2010–2014, percentages

In Asia and the Pacific, health expenditures accounted for 4.7 per cent of GDP in 2014, which was an increase of 0.2 per cent from 2010. Figure 3 shows the indicator varying, from 1.9 per cent in the Lao People’s Democratic Republic to 11 per cent in New Zealand. “Richer” countries tend to spend more on health care; the percentage of GDP allocated to the health sector in Asia and the Pacific was half of what OECD countries and economies in general spent in 2014 (at 9.3 per cent) (OECD, 2016).

Figure 3 Change in total expenditure on health as a share of GDP in selected countries, 2010–2014

The public part of health expenditure increased to 50.5 per cent in countries and economies in 2014, an increase of 3 per cent from the 2010 figure. Public spending in Brunei Darussalam, Japan, New Zealand, Papua New Guinea, Solomon Islands and Thailand, for example, accounted for more than 75 per cent of all health-care spending. In Cambodia, Bangladesh and India, however, it accounted for less than 33 per cent. In Bangladesh and Fiji, the public portion of health-care spending decreased by four points or more, while in Myanmar it increased considerably over the past five years – by 30 points (see figure 4) (OECD, 2016).

**Figure 4 Change in government share of total expenditure on health in selected countries, 2010–2014**

<table>
<thead>
<tr>
<th>Country</th>
<th>Difference between 2010 and 2014</th>
<th>Public share of total health expenditure, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>-2.2</td>
<td>91.9</td>
</tr>
<tr>
<td>Thailand</td>
<td>3.9</td>
<td>86.0</td>
</tr>
<tr>
<td>New Zealand</td>
<td>3.5</td>
<td>83.6</td>
</tr>
<tr>
<td>Australia</td>
<td>5.0</td>
<td>82.3</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>10.8</td>
<td>81.3</td>
</tr>
<tr>
<td>Mongolia</td>
<td>1.5</td>
<td>85.8</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>-2.1</td>
<td>85.2</td>
</tr>
<tr>
<td>Asia-19</td>
<td>4.0</td>
<td>84.1</td>
</tr>
<tr>
<td>Myanmar</td>
<td>1.5</td>
<td>90.7</td>
</tr>
<tr>
<td>Indonesia</td>
<td>10.2</td>
<td>90.5</td>
</tr>
<tr>
<td>Pakistan</td>
<td>3.5</td>
<td>35.2</td>
</tr>
<tr>
<td>India</td>
<td>-2.1</td>
<td>34.3</td>
</tr>
<tr>
<td>Cambodia</td>
<td>-2.2</td>
<td>27.9</td>
</tr>
</tbody>
</table>

*Source: OECD and WHO, 2016.*
In Bangladesh, India, Pakistan, the Philippines, Myanmar and Singapore, out-of-pocket payments accounted for more than 50 per cent of total health spending in 2014, and in Cambodia they reached 74.2 per cent, while the share in Thailand, Brunei Darussalam, and the Solomon Islands was less than 10 per cent (see figure 5). The out-of-pocket expenses portion of total health expenditure in 19 selected countries in Asia and the Pacific decreased by 2.1 per cent, to 42.2 per cent since 2010. The tendency is quite varied among countries and economies in recent studies. Bangladesh and Cambodia, for example, experienced 6.0 per cent and 13.9 per cent growth, while more than 66 per cent of the 19 selected countries and economies showed a decrease, including of more than 25 percentage points from 2010 to 2014 in Myanmar (OECD, 2016).

Figure 5 Change in out-of-pocket spending as a share of total expenditure on health in selected countries, 2010–2014

According to Wireless World Research Forum reports, such rapid growth of older populations will require far-reaching economic adjustments to health budgets to deliver better health care and social services more efficiently. But countries will also benefit from the widespread use of ICT solutions. ICT can provide personalized solutions, improve the quality of life, decrease the high costs of health-care services and help increase older persons’ social interaction with friends, families, and communities (WWRF, 2014).

**Effective health promotion methods for older persons**

There are several approaches that governments can utilize to better cope with population ageing. First, promoting good health and healthy behaviours for all ages will help prevent or slow the growth of chronic diseases. A healthy lifestyle involving physical activity, good eating habits and avoiding alcohol abuse or cigarette smoking can significantly reduce the risk of chronic diseases among older persons. These lifestyles must start at an early age and continue into old age. Early detection of chronic diseases and quality health care (basic and long-term palliative care) can minimize the damage. Metabolic changes (resulting in hypertension, hyperglycaemia and high cholesterol levels) should be detected early and managed effectively.

There is need to manage people who is already suffering from chronic diseases, however. Social determinants not only affect healthy behaviour patterns of the whole lifecycle, they help determine whether older persons can sustain social participation or not. It is thus important to create an age-friendly physical and social environment for the social participation and health promotion of older persons (WHO, 2011). Staying in good health by living a healthy lifestyle and preventing disease can lead to healthy ageing. There are various tools and methods to support healthy ageing, such as education regarding health care and continuous biosignal monitoring. ICT will strengthen the support for healthy ageing.

ICT can help shift health-care systems and services towards providing patient-oriented and integrated care that is suitable for older persons and fits well with healthy ageing. ICT contributes to the improvement of health-care accessibility, quality, safety and economic efficiency. Electronic health records and health information systems document and organize information on individual patients and the clinical population in general, which helps to determine the care required by older persons. They also help to establish treatment plans, to monitor responses to each treatment and to evaluate the results. They facilitate collaboration between medical staff and patients in different environments or geographically remote locations. Health services (telemedicine and teleconsultations) make it easier for patients to access expert diagnosis and advice for treatment that are not readily available.

In a variety of ways, ICT has become the critical factor in the effective management of chronic diseases and cooperative treatment of various diseases.
Technologies to Reach Older Persons with Health-care Services

The use of telemedicine applications is increasing to improve the quality of life of older persons. For instance, health-care services for the home establish a connection with communities and health-care providers and thus prevent the isolation of older persons and help them manage their health. Wearable devices are used to gather information about their physical activities and performance, such as diet and walking speed. Studies on the genetic determinants of older performance and the early reduction of biomarkers inform personal advice at an earlier stage (WHO, 2015). Automated reminders, warnings and prompts that are integrated into clinical health record systems assist medical staff in quality standards. Telemedicine also systematically documents the results of diagnostic tests and the care delivered.

To extend the effectiveness of health information systems further and wider across health-care systems, common indicators must be extensively agreed and consistently used. Such indicators as undernutrition, mobility impairment, cognitive impairment, sensory impairment and domains of functional capacity must be characterized and operationalized and routinely measured in older persons. Various instruments for assessing functional capacity across health-care and social care systems can provide an advantageous starting point to develop indicators (Ustun and others, 2010).

Examples of older population health management using ICT from Asia and the Pacific

Telemedicine application in the Republic of Korea

Telemedicine pilot project in the Republic of Korea

To improve the quality of care in long-term care facilities, the Ministry of Health and Welfare initiated a telemedicine pilot project from April to December 2015 as a supplementing solution to counter the insufficient number of medical professionals for managing chronic disease patients more efficiently and at low cost. The project consisted of three models: (i) telemonitoring and teleconsultation for chronic diseases management in urban areas and (ii) in rural areas and (iii) in nursing homes (see figure 6) (Hyun and Yang, 2004).

The first model aimed to manage patients with a chronic disease, such as type 2 diabetes, hyperlipidaemia, obesity and hypertension, in Seoul, Gyeonggi and a few other cities. The project involved 15 primary clinics and 239 patients. After patients transmitted self-measured biometric information to the monitoring system through the gateway in a smartphone application, the doctors reviewed the data and gave feedback directly to each person.

To measure the results, a case control study was carried out, which found the service clinically effective. Between the beginning of the project and three months subsequently, for the test group, HbA1c levels decreased by 0.64 percentage point on average, from 7.98 to 7.35 percentage points, while for the control group the fall was 0.36 percentage points. In the same period, test group patients’ glucose levels decreased by an average of 18.85 mg per dL,
from 150.9 mg per dL to 132.05 mg per dL, which was a larger decline than that of the control group – 16.44 mg per dL. In the same period, patients’ glucose levels decreased by an average of 18.85 mg per dL, from 150.9 mg per dL to 132.05 mg per dL in the test group, which was larger than that of the control group, by 16.44 mg per dL.

The second model of the project was conducted to provide telemedicine and monitoring services to 253 rural residents with chronic diseases, such as hypertension and diabetes, in the Shinan, Jindo and Boryung districts. Patients measured and transmitted biometric information to physicians at a health-care facility, and telemedicine was performed by connecting each patient’s smartphone with an imaging device (see figure 7) (Hyun and Yang, 2004).

To evaluate the effectiveness of the pilot project, both patient satisfaction and medication adherence were surveyed. According to the findings, 88.9 per cent of participants responded they were more than satisfied when asked if the service was helpful to manage their health in general, 80.7 per cent found the doctor’s consultations useful, while 74.9 said the consultations were sufficient; 73.3 per cent found the devices convenient, and 79 per cent would recommend the service. In addition, the medication adherence score was 5.1 out of 6.0, which was significantly higher than the 4.8 score before the service.

The third model was carried out in six nursing homes in Incheon city and Chungnam Province (see tables 1 and 2). Part-time doctors cared for the health condition of 357 patients who resided in the nursing homes and consented to medical treatment under the assistance of the nursing home nurses (medical staff). When possible, video “treatments” enabled ocular inspection and interviews, and biological information measuring devices (blood pressure, blood glucose and oxygen saturation meters) were used (Hyun and Hah, 2004).
Technologies to Reach Older Persons with Health-care Services

Figure 7 Telemedicine pilot project in Shinan, Jindo and Boryung districts in the Republic of Korea


Table 1 Number of participants in the nursing home model in the Republic of Korea

<table>
<thead>
<tr>
<th>Category</th>
<th>Pilot project participants (patients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S nursing home</td>
<td>28</td>
</tr>
<tr>
<td>H nursing home</td>
<td>60</td>
</tr>
<tr>
<td>Y nursing home</td>
<td>34</td>
</tr>
<tr>
<td>Chungnam B city</td>
<td></td>
</tr>
<tr>
<td>H nursing home</td>
<td>14</td>
</tr>
<tr>
<td>G nursing home</td>
<td>65</td>
</tr>
<tr>
<td>Incheon</td>
<td></td>
</tr>
<tr>
<td>W nursing home</td>
<td>156</td>
</tr>
<tr>
<td>Total</td>
<td>357</td>
</tr>
</tbody>
</table>


The biological information of the nursing home patients, such as blood pressure and blood glucose, was confirmed through the remote imaging system, with assistance from the nurses. The condition of the patients was checked through medical scopes and other devices, while mobile equipment was used for bedridden patients.
The nursing homes engage part-time doctors and nurses for older persons who have difficulty visiting the medical facilities. The part-time professionals visit the nursing homes but only once or twice a month typically, thus the medical services they provide are insufficient, even for patients suffering from simple diseases. Due to this project, however, the medical services now respond when symptoms occur, medical accessibility has improved and treatment is prescribed to patients when there are changes in their condition, thereby contributing to their overall health improvement (see figure 8).

The model also proved it is possible to save both social and economic costs because there is no need to use many people to move patients with limited mobility. Based on the end of project survey, 87.9 per cent of the participants were satisfied with the service overall. And 90.0 per cent said the service helped improve their health. Quality care was provided and emergency response was possible, with the part-time doctors responding from afar through the telemedicine devices and the monitoring of their patients. The pilot project was expanded nationwide in late 2016 to nursing homes with more than 70 beds (Hyun and Yang, 2004).

### Health promotion platform for older persons in the Republic of Korea

Gachon University Gil Medical Center in the Republic of Korea conducted a two-year (2014–2016) experiment with a digital older persons’ health management platform. The project investigated the effects of health-promoting lifestyles of older persons on their health condition, feelings of depression and quality of life. A health education curriculum was developed.
to teach the participants the importance of self-management and methods to cope with chronic diseases.

To develop the health education curriculum for older persons, the researchers first analysed previous basic health management and promotion programmes already operating in community health centres in the Republic of Korea. They found several common factors, such as health condition evaluations and consultations, improvement education, health information provision and continuous check-up and observation services. Second, the researchers applied Pender’s Health Promotion Model to identify personal factors affecting the health-promoting lifestyles of older persons in the Republic of Korea.²

The resulting curriculum for older persons’ health management and promotion content covered chronic disease management and educational programmes for hypertension, chronic gastritis, reflux esophagitis, arthritis, diabetes, stroke and dementia for persons aged 65 years or older. In addition, educational content on common symptoms, such as insomnia, dysuria, dizziness and constipation, were added. The customized health

² The health promotion model is based on the expectancy-value theory and social cognitive theory. The model identifies background factors that influence health behaviour. The main concept of the model can be categorized into three groups, the individual characteristics, experiences and behaviour-specific cognitions that can affect the behavioural outcomes. This model is considered prior related behaviour and personal factors like biologic, psychological and sociocultural for nursing intervention. This model is thus suitable to apply the unique characteristics of older persons for promoting health management in this project (Hyun and Hah, 2004).
education curriculum for older included a community-based, specialist training programme and a family education programme. The curriculum considered the characteristics of older persons, such as whether they are afflicted with multiple chronic diseases and have poor cognitive status.

The researchers then factored in characteristics of older persons, such as various chronic diseases and cognitive states. Finally, the multimedia content was modified for easier use and understanding by older persons (see figure 9). The website offered three options, each in line with a type of user’s cognitive ability (different font and icon sizes). The colours used were colour-blind friendly.

Figure 9 Modification of the health management digital platform’s website for easier use by older persons in the Republic of Korea

A service to monitor the physical health condition of older persons was then developed. The system for public places can be installed in multi-user facilities (such as senior citizens’ centres, resident centres, markets) and can provide easy measurement and self-monitoring (see figure 12). The system links the hardware (body composition analyser, blood pressure monitor, activity meter and blood glucose meter) to the gateway. A radio-frequency identification card can be used to measure and access personal health information without entering the identity or password, while the equipment measurement, data transmission and analysis data confirmation can be easily performed via touchscreen. The home service uses personal devices (such as blood pressure monitor, blood glucose meter, body composition analyser, activity meter) with internet connection for data transmission and analysis through a dedicated smart phone application. In addition, the system can analyse diet, exercise and mental health-related content, based on the personal data that has been supplied.

To evaluate the effectiveness of the older persons-oriented health management and promotion content and platform, pilot tests were conducted in the Gangbuk-gu Senior Welfare Centre in Seoul and the Jeollanam-do Senior Welfare Centre in Jindo-gun. The 69 participants were
at least 65 years old, had no problems in cognitive ability and understood the study’s purpose. The pilot tests were conducted once a week, in Seoul over a 14-week period (37 participants) and in Jindo-gun over a 15-week period in 2016 (32 participants) (see table 3). The changes in health-promoting lifestyles, perceived health condition, level of depression and quality of life were measured before and after application of the health

Table 3  Health education curriculum in the Republic of Korea

<table>
<thead>
<tr>
<th>Week number</th>
<th>Name of class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Educating leadership, pre-test (blood test, questionnaire, exercise test)</td>
</tr>
<tr>
<td>2</td>
<td>Self-exploration</td>
</tr>
<tr>
<td>3</td>
<td>Importance of health management</td>
</tr>
<tr>
<td>4</td>
<td>Nutrition management</td>
</tr>
<tr>
<td>5</td>
<td>Exercise of older adults</td>
</tr>
<tr>
<td>6</td>
<td>Depression, dementia management and prevention</td>
</tr>
<tr>
<td>7</td>
<td>Emergency situation management and prevention</td>
</tr>
<tr>
<td>8</td>
<td>Dysuria, constipation management and prevention</td>
</tr>
<tr>
<td>9</td>
<td>Insomnia, dizziness management and prevention</td>
</tr>
<tr>
<td>10</td>
<td>Diabetes management and prevention</td>
</tr>
<tr>
<td>11</td>
<td>Heart disease management and prevention</td>
</tr>
<tr>
<td>12</td>
<td>Chronic gastritis, reflux esophagitis, complex disease management and prevention</td>
</tr>
<tr>
<td>13</td>
<td>Stroke, dementia management and prevention</td>
</tr>
<tr>
<td>14</td>
<td>Arthritis, osteoporosis management and prevention</td>
</tr>
<tr>
<td>15</td>
<td>Post curriculum test - blood test, questionnaire, exercise test</td>
</tr>
</tbody>
</table>
education curriculum. The first eight classes were about general topics in health-care management, with the remaining seven classes focusing on complex chronic diseases.

A kiosk was installed near the classroom so participants could measure their biosignals every week. Blood pressure, glucose and body mass were measured and sent to the service centre to monitor the weekly health status changes of each participant.

To measure the impact of the education, biosignals obtained from the kiosks were analysed and a survey asked about changes in health-promoting lifestyles, perceived health condition and satisfaction with the education context. The biosignal data from the kiosks indicated the average weight of the participants decreased by 0.39 kg; the body mass index decreased by 0.12 kg per square metre, skeletal muscle decreased by 0.66 kg, body fat percentage increased by 0.8 per cent, systolic blood pressure decreased by 2.14 mm Hg and diastolic blood pressure decreased by 1.44 mm Hg. The improvements in biosignals were not considered as significant.

The survey findings, however, reflected that 91.5 per cent of the participants were “very satisfied” with the health education curriculum. Health-promoting lifestyles increased from 3.14 to 3.24 points on the Health Promoting Lifestyle Profile scale (of 0–4 points) after the education, while the perceived health condition increased from 2.92 to 2.95 points on that same scale. These scores reflect that the participants realized the importance of self-health management and considered themselves healthier after the classes ended. The findings showed no improvement in the level of depression experienced and the quality of life. This was due to the small number of subjects and a short period of time for application of the content and platform. Increasing the number of subjects and application period would likely improve the level of satisfaction and significance of biosignal monitoring.

Based on the results of the pilot tests, the health management education curriculum and the health-promotion content and platform will be further tested with older persons registered in a welfare or community centre in one rural and one urban area and one apartment complex to analyse the changes in chronic disease management and quality of life and to evaluate the health curriculum content. A total of 120 people (40 from each institution) will be recruited and a second two-year study will be conducted. To help participants adapt to the internet-based system, the website will be modified to automatically adapt to each user – each person can access the content and comments from medical experts more easily.

ICT to manage older persons’ health care in Japan

In December 2012, the Ministry of Internal Affairs and Communications in Japan launched an ICT-based social initiative to prepare for its ageing society. The goal was to recognize older persons as active social participants, to use, ICT as a countermeasure for ageing in each social area and to discuss the Government’s policy direction that encourages new ICT-related
businesses with relevant ministry officials and health professionals. The initiative includes an ICT-based health model, construction of a medical information system, creation of life-support businesses, improvement of information utilization ability, creation of new types of ICT-related industries, businesses and jobs, commercialization of ICT robots, the global deployment of related projects and international cooperation. Telemedicine focuses on health guidance for older persons by establishing an information system that links them with specialists and medical staff (nurses).

Health-care project staff in Niigata City in Niigata Prefecture combine and analyse the data collected from the pedometers, using an internet cloud-based system. The Making Healthy City with ICT System Project provides a health education programme that includes a personalized exercise regimen and diet; and it sends feedback on progress made to encourage participants to improve their health condition. A monitoring system checks the activities of older persons living alone as a guard against their being isolated or neglected and encourages them to communicate with their families.

Japan is also experimenting with the use of robots, connected through a network, to provide physical-function and cognitive-ability support to older persons.

There are also a few notable online sites for older persons. In particular, Seniorcom, which is a portal site for older persons, provides information on ageing management of older persons, hobbies to take up and meetings or opportunities to communicate with other older persons (Prime Minister of Japan and His Cabinet, 2011).

A health-care service in Tono City, Iwate Prefecture, uses telemedicine for older persons to manage conditions and prevent adult diseases (see figure 11). The project has shown improved test results for hypertension, diabetes, hyperlipidaemia and liver function abnormalities. The service includes programmes that encourage older persons’ participation in health promotion activities or reach out to those who are living alone to reduce health-related anxieties and prevent their isolation or neglect.

The ICT Tono Health Promotion Network Project also targets the reduction of medical expenses related to the care of older persons, based on a model applied in 2002 when the maternity clinic of Iwate Prefectural Tono Hospital was closed. The introduction of a maternity health check-up through video conferencing, which enabled the sharing of data between midwives in Tono City and physicians in other locations, made it possible for pregnant women to receive perinatal services. In 2008, that model was adapted for use in the health management of older persons in Tono City, where there were few medical facilities.

The ICT Tono Health Promotion Network Project involved 400 residents of the city aged 40 years or older. Their “biological information”, such as walking steps, blood pressure, and weight, were transmitted to guidance doctors and call centre counsellors through a video phone installed in each participant’s home. The health counsellors provided guidance through the
video phone every week, based on the biological information, while the doctors provided health guidance two to three times a year. The project included a health management curriculum that included diet and nutrition guidance from nutritionists, and gymnastics stretching instruction from physical education instructors. The curriculum was managed through a mobile application called Healthy Electronic Notebook.

To measure the project’s performance, the biometric data of the participants were collected by the call centre’s collection division once a week from 17 community centres. The participants were classified into four groups: hypertension, diabetes, hyperlipidaemia and hepatic dysfunction patients. The data included walking steps, weight, blood pressure, body mass index, visceral fat percentage, muscle rate, body fat percentage and the HbA1c, HDL-C and LDL-C levels. The first measurement was conducted in February 2009, followed by a second measurement in August 2009. The results showed that the number of participants with all four chronic diseases decreased from six persons to one person, demonstrating an improvement rate of 83.3 per cent.
The improvement rates for the participants with three diseases, two diseases and one disease at the start of the project were 64.7 per cent, 47.2 per cent and 30.8 per cent, respectively. In particular, the improvement rate of the group with the highest blood pressure and the improvement rate of LDL-C recorded high percentages were 62.7 per cent and 47.1 per cent, respectively (see table 4) (MIC, 2011).

<table>
<thead>
<tr>
<th>Table 4  Results of the service in Tono City, Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>First measurement</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Participants with 4 diseases</td>
</tr>
<tr>
<td>Participants with 3 diseases</td>
</tr>
<tr>
<td>Participants with 2 diseases</td>
</tr>
<tr>
<td>Participants with 1 disease</td>
</tr>
</tbody>
</table>

Source: Prime Minister of Japan and His Cabinet, 2011.

The project was deemed successful due to its (i) top-down approach from the local government so the project can be operated with more authority and momentum, (ii) a policy of sharing ideas to improve the service through close communication among the stakeholders and (iii) promotion of the regular physical check-up through the service (MIC, 2011).

Home monitoring of chronic diseases for older person care in Australia

The burden of chronic disease due to population ageing has been increasing in Australia. Approximately 80 per cent of general practitioner consultations relate to chronic disease, and patients with a chronic disease or complications use more than 60 per cent of hospital bed days. Moreover, two-thirds of patients admitted as medical emergencies have aggravation from chronic disease. Costs related to patients with more than one chronic disease are six times greater than patients with only one chronic disease (Celler and others, 2016).

To overcome such a burden, telemedicine was introduced and encouraged in Australia. The Medicare telemedicine arrangement took effect in July 2011 upon revision of the Health Insurance Regulations and with a resulting subsidy for online video consultations between patients and medical doctors. Since then, the number of doctors using telemedicine services and the number of services provided have been increasing. More than 55,000 patients received more than 144,000 cases of Medicare-covered telemedicine services from more than 9,200 doctors between July 2011 and December 2013. This means that more than 13 per cent of specialists provided Medicare telemedicine services (KHIDI, 2014).

The Australian Government recruited pilot projects in 2012 to test the suitability of telemedicine services at home. Nine projects (at a cost of approximately AU$20.6 million) were selected to test telemedicine services
that focused on aged care, palliative care and cancer care at home. Among them, the Commonwealth Scientific and Industrial Research Organisation’s (CSIRO) Home Monitoring of Chronic Disease for Aged Care Project received the largest portion of funding (at nearly AU$2.8 million). The project examined how telemedicine services for chronic disease management in the community could be deployed nationwide in a range of hospital and community settings. It looked to develop a model and data tools to measure the risk of patients with chronic conditions automatically on a daily basis.

To evaluate the effectiveness of the CSIRO project, 75 participants in each of its six sites were recruited. From a total sample size of 450, a total of 150 were recruited as test patients and 300 as control patients. At each site, 25 participants were allocated to the intervention and 50 control participants received normal care (as per the practice in their site). Participants were located by searching the hospital patient administration system records for people who satisfied the eligibility criteria (see table 5).

Table 5  Clinical criteria for eligibility in the Home Monitoring of Chronic Disease for Aged Care Project in Australia

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Inclusion</td>
<td>50 years old or older at consent.</td>
</tr>
<tr>
<td>Cognitive capacity</td>
<td>Inclusion</td>
<td>Abbreviated Mental Test (AMT) score of more than 7.</td>
</tr>
<tr>
<td>Unplanned acute admissions</td>
<td>Inclusion</td>
<td>A rate of unplanned acute admission with the required principal diagnosis codes indicated below:</td>
</tr>
<tr>
<td>ICD-10-AM principal diagnosis codes for each unplanned acute admission</td>
<td>Inclusion</td>
<td>Codes for each unplanned acute admission indicate a diagnosis for one or more of the following chronic conditions:</td>
</tr>
<tr>
<td>Unsuitable conditions</td>
<td>Exclusion</td>
<td>The study team considered the presence of the following conditions to be unsuitable for participation in the study:</td>
</tr>
</tbody>
</table>

- Any form of cancer
- Any neuromuscular disease
- Any psychiatric conditions
To provide the service, telemedicine devices were provided to the participating patients. The devices were managed by each participant during a clinician video conference call and through messaging and clinical and general questionnaires. The patients also were provided with vital sign devices that monitor ECG rate, the heart rate, spirometry, blood pressure, oxygen saturation, body weight and body temperature, with a glucometer as an optional add-on. The patients received the telemedicine services for 12 months. They recorded their blood pressure, blood oxygen, blood glucose, electrocardiogram, body temperature and body weight and responded to clinical questionnaires through the telemedicine devices, which were monitored daily. The data were sent to a website for the care team to review immediately. Local health workers provided appropriate care interventions to check any changes in the health condition of their patients and thus minimize hospital visits and ultimately improve the quality of life of each participant.

The one-year pilot project resulted in a 24 per cent decline in the cost and frequency of general practitioner visits, specialist visits and procedures and more than a 40 per cent reduction in mortality. Patients reported reduced levels of anxiety and depression and improved quality of life as well as a better understanding of their diseases. Hospital admissions decreased by 36 per cent, and the length of stay decreased by 24 per cent. This translates into huge savings, considering that the cost of a hospital bed per day in Australia is AU$2,051. The impact is expected to be substantial, with the return on investment predicted to be 5:1 due to the decrease in hospital outpatient and inpatient services, visits to general practitioners by patients and visits of community nurses. Approximately 750,000 people aged 65 years or older with complex chronic conditions who are admitted to hospital at least once a year would benefit from at-home telemonitoring of their vital signs and from ongoing clinical monitoring and triage of their

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**Table 5 (continued)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care team</td>
<td>Inclusion</td>
<td>The eligible patients were to be under the care of any of the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Community nurse and/or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• General practitioner</td>
</tr>
<tr>
<td>Care programmes</td>
<td>Inclusion</td>
<td>Participation in one of the following government care programmes:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Commonwealth Chronic Disease Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Commonwealth Coordinated Veterans’ Care Programme</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• New South Wales Connected Care Programme</td>
</tr>
<tr>
<td>Unsuitable care programmes</td>
<td>Exclusion</td>
<td>Participation in the following government care programme:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Commonwealth Extended Aged Care in the Home</td>
</tr>
</tbody>
</table>

*Source: CSIRO, 2016.*
health status. The services are considered as a complementary measure for insufficient medical resources (Celler and others, 2016).

Policy trends and telemedicine applications in China

Policy trend to apply telemedicine in health care for older persons

Medical infrastructure in China is insufficient to meet the medical needs. The ratio of doctors and nurses to the population in 2012 was 1.5 and 1.7, respectively, per 1,000 population, which is lower than the OECD average of 3.1 and 8.7, respectively (OECD, 2013). The number of beds per 1,000 population was 2.7, which was less than the OECD average of 4.8.

To cope with the situation, the Government has been working on its policy framework for the use of telemedicine since the State Council announced health-care system reforms in 2009. China is promoting the use of telemedicine for medical institutions as a core element of the health-care system reform. Among enacted policies thus far, the National Health and Family Planning Commission has responsibility for establishing the basic principles and guidelines related to telemedicine. The 2009 Notice on Multiple Tasks of Doctors allows doctors in medical institutions to freely perform remote medical services in addition to their hours of consultation. And the 2014 Opinion on the Promotion of Medical Device Telemedicine Service allows doctors to engage in telemedicine with their patients (Chan-woo, 2017).

Establishment of an ICT-based hospital: Ningbo Cloud hospital in China

The Ningbo Municipal Health and Family Planning Commission and the Neusoft Xikang Healthcare Technology Co., Ltd. launched, in 2015, China’s first “cloud hospital”, which caters to 7.6 million residents. Ningbo City is a high-income city (more than twice the average income for all of China) and rapidly developing due to its apparel and light industries and high-tech industries, such as steel and energy. It is also an ageing city, with more than 20 per cent of its population aged 60 or older. Demand for various forms of medical services is increasing more than in other regions of the country.

The Ningbo Cloud Hospital uses cloud computing and big data as a way of controlling the increasing health-care expenses and resolving the poor doctor-and-nurse-to-population ratio.

The hospital has connected with 100 health-care organizations and 226 doctors and family physicians. Four Cloud Diagnosis Rooms enable online consultations for hypertension, diabetes, psychological issues and general practitioner visits. The system also links with local pharmacies for prescriptions requested by doctors online (Tang, 2015). Patients can also visit the nearest consultation centre offline and receive a medical consultation via a videoconference. More than 2,000 patients are registered for the online service for video consultations and prescriptions. Doctors can access medical records as well as heart rate, blood pressure and other biosignal data, which are uploaded to the system by various devices. More than a thousand
qualified doctors have signed up to use the online platform, which now has 13 specialist clinics (Chan, 2015).

Medium-sized and large hospitals and small and medium-sized clinics and pharmacies are registered in the Ningbo cloud-based system. Patients access the Ningbo Cloud Hospital website to make appointments, and the system refers them to hospitals that provide optimal medical services digitally (see figure 14). For now, medical consultations are limited to four areas: hypertension, diabetes, psychological counselling and minor illness. People can read up on any medical specialist through a mobile telephone application and then choose their preferred doctor for a medical consultation. Approximately 8,000 people are now connecting to the application daily. The system also can be accessed through a television using a remote control instead of the mobile phone so older persons can easily use the service.

**Figure 12 Structure of the Ningbo Cloud Hospital service in China**

![Structure of the Ningbo Cloud Hospital service in China](image)


**Cost of using ICT to improve health-care accessibility in Asia and the Pacific**

*Is using ICT for health-care service effective in low-income countries?*

We found that participants who had received telemedicine or telemonitoring service from the projects in the Republic of Korea, Japan, Australia and China were highly satisfied with the services. These project experiences indicate that non-communicable diseases, such as hypertension or diabetes,
can be managed well at low cost. However, doing so necessitates the following conditions:

1. **A strong foundation of ICT use.** The ICT infrastructure was already developed in these countries. The telemedicine and the telemonitoring care services did not require new ICT infrastructure and thus did not represent additional costs.

2. **Face-to-face medical assessment.** The medical needs of the patients were assessed in the electronic health records after a face-to-face meeting with medical professionals, before starting the telemonitoring health-care service.

3. **A well-developed health-care system already functioning.** The ICT-based health care was set up to supplement the well-developed existing services, largely to cope with the human resource shortfalls.

It is not clear what impact ICT for health-care service would have in low-income countries in which ICT infrastructure is still developing or where there are limited health-care personnel. These are issues for further study and discussion when developing countries in the region look to ICT as a method to expand health-care coverage and improve health outcomes for older persons.

In Asia and the Pacific, challenges persist in the context of health care, particularly where older persons cannot access necessary medical treatment because of high costs, a lack of health-care providers, poor transportation or other difficulties in accessing health care. Innovative methods are definitely needed to overcome these challenges.

The good news is that ICT infrastructure in the region is developing fast. Many countries should be in a sufficient position to utilize ICT-based health-care services to cope with geographical distances and social obstacles and thus adequately expand access to health care for all people, including older persons.

**Strategies for developing countries**

**Focus on how to use ICT for health-care services rather than ICT infrastructure.**

Developing health-care infrastructure takes time and money. Educating health-care professionals, constructing hospitals and improving universal health-care coverage, which are basic factors for health-care service, take time and long-term planning to build up. In many developing countries in the region, ICT infrastructure is progressing faster than health-care infrastructure. For instance, 89 per cent of the region’s population has access to mobile phone networks; 3.2 billion people use the internet; and 1.8 billion people use a high-speed broadband mobile phone service. *The Mobile Economy: Asia Pacific 2016* report noted that 62 per cent of the region’s population was subscribed to a mobile service in 2015, which is forecasted to rise to almost three-quarters of the population by 2020, when some
600 million new subscribers are added. Mobile phone technologies and services made up 5.4 per cent of the Asia-Pacific GDP in 2016, equivalent to $1.3 trillion in economic value. This economic contribution is expected to increase to $1.7 trillion by 2020 (GSMA Intelligence, 2016).

ICT infrastructure is now regarded as essential for any society. Considering its impact on an economy, governments and the private sector will keep investing in it. Thus, it is safe to presume that ICT infrastructure for health-care services will soon be in place in most countries; rather than focus on such infrastructure, it would be more prudent to plan for and design ICT for better health-care service provision.

**All future planning should base the health-care delivery system on ICT applications.**

To use ICT as a method to deliver health-care service in a more cost-effective way, it should be planned. Countries have national policies and investment plans for their telecommunication and medical sectors. However, not many countries plan both sectors with a comprehensive perspective. While the information and communication field is actively utilizing advanced technology, such as network speed, big data analysis and artificial intelligence, the medical field has not taken advantage of technological developments. Advanced technology is applied to develop therapeutic technologies and produce new drugs but not to improve the medical delivery systems or even to train medical staff.

A comprehensive approach means planning how to develop telemedicine, telemonitoring and remote training based on the development ICT infrastructure.

As a first step, the medical human resources plan should be revised. The speed of population ageing and the prevalence of chronic diseases must be considered. The roles of health-care personnel in an ICT environment for cost-effective health-care service should be established. Despite shortages of doctors, delivering health services via ICT can improve health service accessibility, such as nurses or geriatric care workers making home visits to older persons and helping them connect with a general practitioner and any other medical consultation via a teleconsultation system.

When treating patients with particular symptoms or diseases, primary doctors operating in remote areas can consult digitally with specialists. Patients can be transferred to a tertiary medical institution for specialist treatment or diagnosis. After a certain period of specialist treatment, a primary doctor can take over management of the patient. ICT-based health services maximize accessibility to professional health-care services with a limited number of specialists.

Formulating a medical human resource plan with ICT-based health services helps to establish an effective medical delivery system at low cost. For example, in Canada, personal digital assistance (PDA) technology enhances nursing care in remote communities. In the communities where medical
support is scarce, primary care nurses have significantly helped improve patient’s access to clinical care and vital health-care information. Primary care nurses performed better diagnostic and prescribing functions with quick access to tools and health information resources to the point of care. This innovative strategy is likely to be more successful in countries where the medical infrastructure is not well developed. Countries with comparatively well-developed medical infrastructure usually face more challenges and resistance to implementing and enforcing innovative policies due to different positions among special-interest groups.

The success of ICT-based health-care services now depends more on policy implementation than on technical feasibility. Implementing policies that allow for the teleconsultation of doctors and medical service delivery by nurses and caregivers with telemonitoring support from doctors will increase the accessibility of medical services in rural areas and in areas with a high concentration of vulnerable populations.

Lead the fourth industrial revolution using medical information system.

To provide effective telemedicine services, basic patient information along with each person’s medical history must be digitized. Every hospital database needs to be digitized and standardized in the format of electronic medical records to facilitate medical care information sharing among institutions. The medical information system will be more likely to develop as a personal health-care record system because of enhanced rights to privacy. There are many high-income countries in which patients’ medical information is digitalized in many different forms by each hospital. In this case, it is not easy to exchange patients’ medical information and set up telemedicine because the information sources are not standardized. Therefore, developing countries that lack basic medical information infrastructure have a greater chance of succeeding in establishing a personal health-care record medical information system. Many industrialized countries have different electronic systems in each hospital, which makes it difficult to exchange health-care information among medical institutions.

The personal health-care record system in developing countries, is expected to be developed in collaboration with global IT or cloud companies, rather than being established by one local hospital. Thus, the lack of medical infrastructure and medical information infrastructure can be viewed as opportunities for developing countries to build a convenient, prompt and future-oriented medical information system. This type of system offers the optimal environment to use big data and artificial intelligence, which are the integral parts of the fourth industrial revolution. The new medical information system can result in a dramatic decrease in medical costs and a significant increase in quality of medical care.

Conclusions

It is hard to expect that imitating the policies of high-income countries in order to introduce telemedicine services in developing countries will be effective in reducing medical costs and promoting quality medical services.
However, if governments plan to establish an integrated medical service delivery system using ICT, telemedicine will be the driving force to improve accessibility of health-care services. It will also help reduce medical expenses while enhancing the quality of medical services and business competitiveness in the health-care field.

Current health management policies are not designed to sufficiently meet the demands of chronic disease treatment, especially in the least developed and less developed countries. Future health management policies must be designed to guarantee the consistent quality of health management beyond simple hospital facility improvements for older populations with chronic diseases or disabilities. The introduction of telemedicine (teleconsultations and telemonitoring) has proven to be effective in industrialized countries. Many countries in the region have applied various types of ICT to the health-care service at the public level, and countries that have not yet started are considering methods and strategies.

Teleconsultation is a method for doctors to treat patients in the same way that teleconferencing and telemonitoring enables health professionals to observe the biomedical signals of patients using medical sensor devices. The ICT-based health-care services featured in this report have shown that the application of telemedicine to a health-care system can promote accessibility between doctors and patients. Doctors can understand the health status of patients better, which enables them to provide consultations based on more accurate information. The application of telemedicine can save on the construction costs of new facilities and the cost of supplying medical personnel in remote areas, which can help to reduce the national medical expenses. The environments in which telemedicine can be particularly effective are rural areas lacking medical resources and nursing homes, where older persons with mobility problems are found.

Before telemedicine can be applied to a health-care system, characteristics of the service, target populations and target diseases must be considered. Due to the nature of telemedicine, there could be many older users because many services target non-communicable diseases. Older persons may find it difficult to adapt to ICT-based services, thus, the degree of tools and devices to be incorporated should be considered to make services user-friendly for older persons. To initiate ICT-based health-care services, governments in Asia and the Pacific will need to progressively implement related policies that promote telemedicine while conducting piloted tests to determine the most effective services for their context.
References


Technologies to Reach Older Persons with Health-care Services


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