CREATING SUSTAINABLE HEALTH AND CARE SYSTEMS IN AGEING SOCIETIES

Phil Hope with Sally-Marie Bamford, Stephen Beales, Kieran Brett, Dr Dylan Kneale, Michael Macdonnell and Andy McKeon

The Global Health Policy Summit

A partnership between

Imperial College London

Qatar Foundation

Report of the Ageing Societies Working Group 2012

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Foreword

Phil Hope

Professor the Lord Darzi of Denham

We live in a time of profound changes and challenges – economic, environmental, social and political. When it comes to our health and care systems, the most ominous of these changes is the impact of the ageing "revolution". In 1950 the number of people aged over 60 across the globe was 200 million. By 2050, the number will be two billion – nearly a quarter of the world's population. Some countries are already facing this demographic challenge now. Many others are sure to face it in years to come.

It is a truism, but we have to do things differently if we want different outcomes. Every country will have its own distinctive starting point, but all countries have in common the difficult responsibility to innovate for the sake of ensuring that their health and care systems are sustainable as their population ages.

Ageing societies are, of course, a sign of progress, and we want to celebrate that progress. But declining health in older age could put unaffordable pressures on healthcare systems, and to avert that crisis will require further change and innovation. We must take a holistic view of the health and care needs of older people, involve them directly in the design and delivery of services to meet their needs, and identify and apply best practice in health services and performance management of our health and care systems.

Drawing on our own experience as former ministers in the UK Government, we have developed this report in order to offer ministers and policymakers a new framework of thinking – **the Ageing and Health Sustainability Framework** – as a way of approaching the challenge. We asked ourselves: what kind of innovation would we have found useful when we were decision-makers and takers? The new framework duly identifies innovations from around the world that can help in several crucial respects: reconciling increased demand with limited resources; increasing the supply of informal care for older people; reducing demand for care through prevention and self-management; and improving value for money by providing better care at home and in the community.

This report is the start of a conversation, not its conclusion. It represents our contribution to a global collaboration focused on delivering real change. Over the coming months, we look forward to working with a network of partner countries and organisations, in a joint effort to build upon the framework and create a new **Ageing and Health Sustainability Index**. This index will allow countries to assess and improve the sustainability of their health and care systems. And we hope to support these developments through a new global Ageing and Health Innovations Institute to analyse data, trends and in vations, and to suggest ways forward.

Phil Hope
Adjunct Professor, IGHI, Imperial College London and Co-Director Improving Care

Professor the Lord Darzi of Denham PC
Paul Hamlyn Chair of Surgery and Director of the Institute of Global Health Innovation

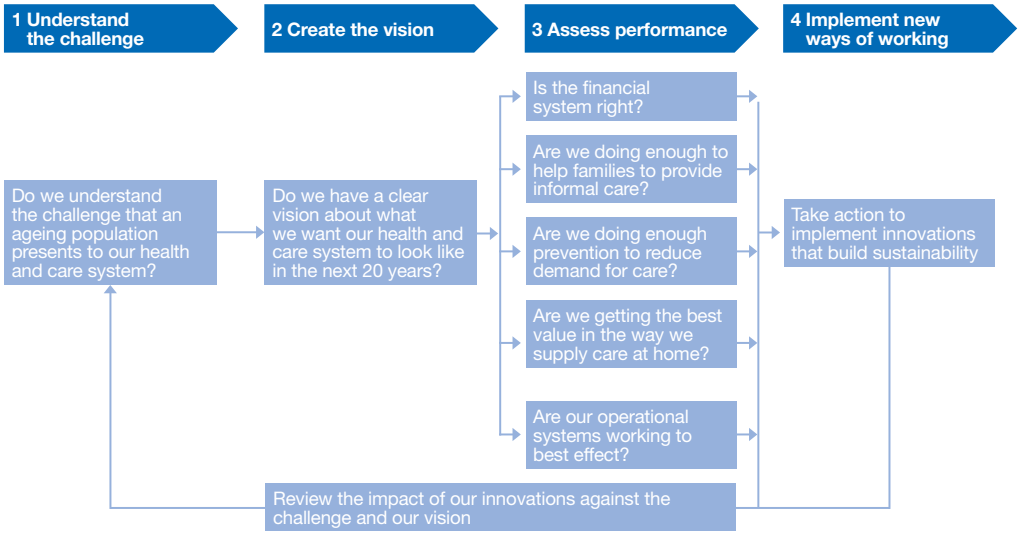
Executive Summary

An ageing revolution is taking place across the world. Increased longevity is a cause for celebration, but it also raises a challenge for health systems. High- and middle-income countries are at a crossroads now – they can reform their health and care systems to be sustainable for an ageing society, or they can prepare to face age-based rationing or heavily increased expenditure. Low-income countries are approaching that crossroads, and should take the opportunity of making changes now in order to create health systems that are sustainable for the future. It's a huge challenge for all countries, but innovations exist that show how it is possible to deliver better care in a sustainable way.

This report develops an **Ageing and Health Sustainability Framework** of key actions and innovations that will help countries assess and enhance the robustness of their health systems. Over the next 12 months, we want to work with a number of countries to refine this work into an **Ageing and Health Sustainability Index**, and create benchmarks for countries to gauge the sustainability of their health and care systems and to target innovations where they will make the most difference.

The Ageing and Health Sustainability Framework

Here we set out an overview of the Ageing and Health Sustainability Framework. Full details of the Framework are in Chapter 3.



All governments and societies face rising demand for services and increased expectations, and they need to reconcile these with the limited resources available to pay for them. *In 2012 people aged 60 years and more number 0.8 billion and make up 11% of the world's population. By 2030 they will number 1.4 billion and make up 17% of the world's population. By 2050, they will number 2 billion – about 22% of the world's population*. Ageing affects all countries. The current rate of ageing in low-income countries is greater than that in high-income countries – a fourfold increase as against a doubling.[1] By 2050, 68% of the world's population over 80 will be living in Asia and Latin America and the Caribbean.[2] And as the numbers of elderly people grow, so the ratio of working-age people to older people will fall sharply. Old-age support ratios are projected to halve between 2012 and 2050 in both low- and high-income countries – to 8.6 and 2.1 respectively.

There are other factors, such as increased urbanisation and migration, that will result increasingly in older people living alone. Taken together, all these trends will make current approaches to funding, informal care and service delivery unsustainable. Each country will need a comprehensive approach to meet the challenge, drawing on global innovation in policy design and technology to make the necessary transformation. Policies and innovations will need to be adapted to the circumstances of individual countries. But the most promising ones are those that aim to maintain or increase individuals' capability for self-managing their care needs with the help of family and community, and drawing on expensive institutional care and health professionals only when necessary. The Sustainability Framework covers four key areas, and the report showcases innovations in each:

Getting the financial system right – reconciling growing demand with limited resources. Countries need to break the links between old age, poverty and ill-health. They can best do this by introducing social pensions and enabling older people to work longer, reflecting increased life expectancy. Extending the working age should itself bring economic benefits as well as health benefits, by offsetting the expected reductions in the support ratio and filling gaps in the workforce. Another important way of maintaining incomes is by making it easier to send remittances home: one successful model is that of M-Pesa in Kenya, which uses mobile phone technology for the purpose.

However, public funding of care is unlikely to provide the whole solution. Alternatives are needed. Health insurance can take innovative forms: for example, the long-term care insurance introduced in Japan, or the very low-cost health insurance enabled by the Grameen Health Insurance programme in Bangladesh. In high-income countries, there is a trend of enabling older people who are asset-rich but income-poor to turn their assets into income in order to help fund care costs.

Helping families to care – increasing the supply of informal care. Care provided by families is the backbone of long-term care. But it is difficult to maintain or increase it in the face of falling support ratios, urbanisation and migration, and changing working patterns. One option is to direct cash and services to support carers. Another is to use technological innovations to provide information and support: an example is the new "Grouple" online tool from the UK. And, as we see in Singapore and India, governments can innovatively incentivise or reinforce traditional family caring responsibilities through the tax system and other regulatory measures.

Prevention and self-management – reducing the demand for care. Prevention and self-management go together. Prevention programmes have historically focused on younger or working-age adults, but there is increasing recognition of the value of prevention programmes aimed at older people. Among the key ways of reducing demand are these: improving health literacy, targeting physical activity, exploiting new technology, encouraging best use of medicines, and delivering services focused on increasing functionality and self-management. We feature innovations in each of these areas.

However, the prevention agenda needs to broaden if it is to tackle social isolation, engage communities more widely, adapt or develop homes, and make cities more age-friendly places. Innovations in each of these areas are available and scalable.

Care at home and in the community – improving value for money in care supply. Conventional service delivery is often based on institutional hospital care and a supply of trained health professionals – all relatively expensive. Moreover, different professionals often work in organisational silos, and fail to integrate services to achieve best value and best care. Countries obviously need high-quality institutional care and health professionals who deliver care according to best practice. But to make care more affordable, countries also need to provide or develop services that rely less on the conventional model of health care, and to overcome barriers to integrated care. New technologies are now available to help integration and to deliver care less expensively to wider populations in their own homes or communities. When people need longer-term or hospital care, there are alternatives that can offer better value and better quality of life. Examples include: telemedicine as in Denmark, patient hotels as in Sweden, and new smartphone devices to diagnose eye diseases at an early stage.

Supply can also be improved by fully involving older people and carers in the design and delivery of services. Such services tend to suit the patient's needs better, and are more likely to be home- or community-based. A radical alternative to publicly provided care services in England is to give older people the equivalent budget and let them direct or buy the care that they need to achieve the outcomes they want.

This report is just the start. It provides policymakers with innovations and insights to address the challenges created by population ageing. The solutions will be different for different countries, but it is worth trying to identify relative strengths and weaknesses backed by global sharing of ideas, information and health innovations. We are, therefore:

- Inviting countries to work with us to refine the **Framework** into an **Ageing and Health Sustainability Index** that can be used to benchmark health and care systems and assess their readiness for the challenges and opportunities of the ageing revolution;
- Proposing that this effort be accompanied by the sharing of information about individual assessments through a network of like-minded countries wanting to achieve sustainable health and care systems;
- Intending to support these developments by creating an international institute to hold a growing library of health innovations building on those in this report, and to analyse data, trends and innovations to suggest ways forward.

Countries are at a crossroads, and the challenge is clear – innovative reform to build sustainable health and care systems for ageing societies.

Figure 1:

The Ageing Population: Population aged 60+ 1950-2050[5]

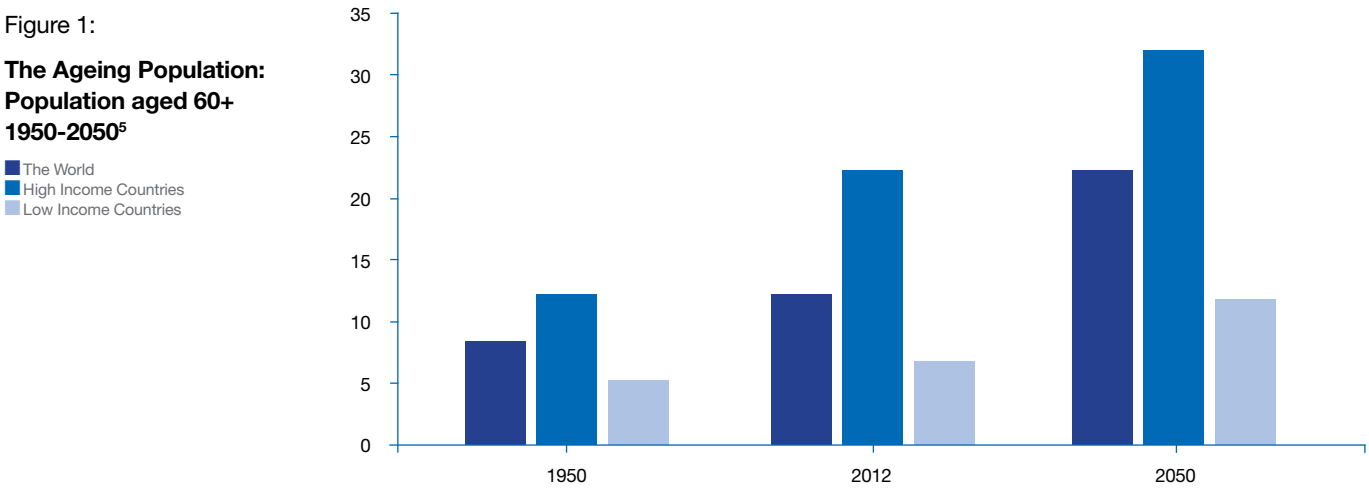
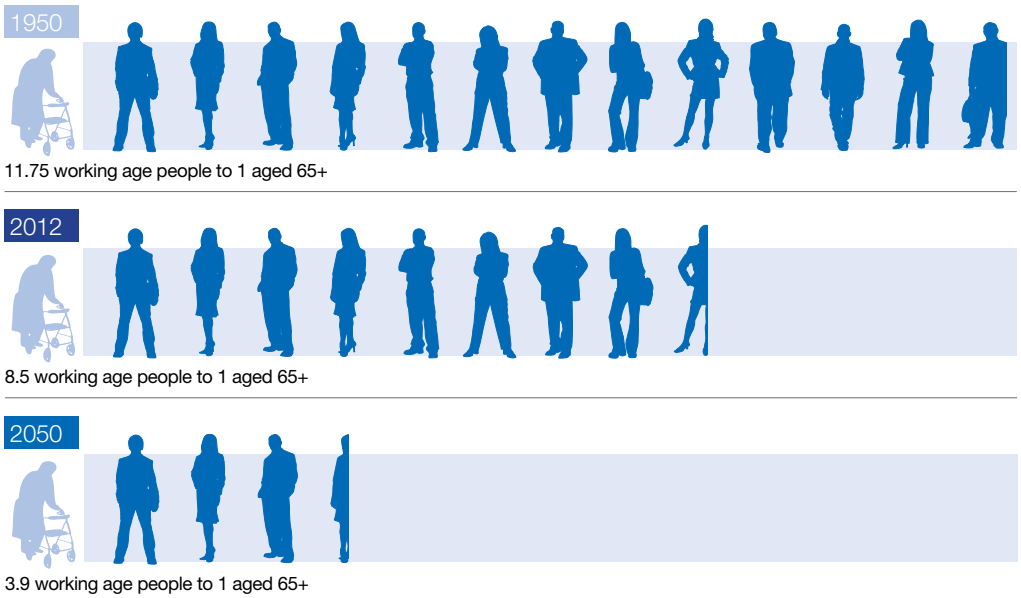


Figure 2:

The number of people of working age (15-64) for each person aged 65+ globally in 1950, 2011 and 2050



Chapter 1: Population ageing and what it means for today and tomorrow

The most significant global demographic change in health and care systems around the world is the ageing of the population.

Global demographic trends

An Ageing World

In 2012 people aged 60 years and more number 0.8 billion and make up 11% of the world's population. By 2030 they will number 1.4 billion and make up 17% of the world's population. By 2050, they will number 2 billion and make up 22% of the population. In 2047, for the first time in human history, a higher proportion of people in the world will be aged 60 and over (21.0%) than aged under 15 (20.8%).[3,4] The age distribution of the population is shifting towards older ages across most countries (see Figure 1), owing to a combination of declining mortality and falling fertility rates.

Longer Global Life Expectancy

We are living longer. Global life expectancy at birth rose from 47 to more than 67 between 1950 and today. And it is expected to reach 75 in 2050, as deaths become more concentrated in older age, though the limits of future gains in life expectancy are uncertain.[6]

Ageing affects all countries. The current rate of ageing in low-income countries is greater than that in high-income countries – a fourfold increase as against a doubling.[7] Similarly the population aged 80 and above is set to increase more than 4.5 times in low-income countries compared to a 2.4 times increase in high-income countries. By 2050, 68% of the world's population over 80 will be living in Asia and Latin America and the Caribbean.[8]

Support ratios are declining. As well as absolute increases in the number of older people, there is also a relative increase. The so-called support ratio – the ratio of people of working age (15 to 64) to people aged 65 or over – decreased globally by about 25% between 1950 and 2012, from 11.7 to 8.5.[9] (This fall is due to the combined effects of increased life expectancy and declining fertility.)

In low-income countries, that decrease was more modest: from 16.7 to 15.7. However, between 2012 and 2050, low-income countries will experience almost the same decrease as high-income countries – about a halving. According to projections, the ratio for low-income countries will fall from 15.7 to 8.6, and for high-income countries it will fall from 4.1 to 2.1. Globally, the decrease will be from 8.5 to 3.9. (See Figure 2.)

Another, subtly different measure is the so-called dependency ratio, which this time adds children (aged 0-14) to the calculation. It is the ratio of dependent people (older people *and* children) to working age people (aged 15-64). In several countries and regions, this ratio is at a historical low, and for as long as that lasts, a "demographic window" remains open, allowing a "demographic dividend" – the potential for economic growth.[10]

UN population data[11] suggests that for some countries, such as India, this window of opportunity will remain open even beyond 2050 (see Figure 3). For others, such as Japan, it is already closing. Unicharm Corp. recently reported that last year, for the first time, sales of adult nappies in Japan exceeded those for babies.[12]

Even if the impact of population ageing has been overstated, and even if global labour-force participation rates will change little in coming decades,[13] we still have to reckon with the rise in absolute numbers of older people and the fall in support ratios. And that means that health systems will come under increasing pressure, and must change.

Older-person-specific diseases and conditions

Sight and Hearing Disorders

In all countries, the moderate or severe disabilities that older people have are due to sight and hearing disorders more than to any other cause.[15] The scale of these disabilities is much larger in low- and middle-income countries (see Figure 4), and is the greatest cause of loss of healthy years and of lost functionality. Many of the disorders, such as cataracts, are treatable and/or preventable.

Frailty

Another set of major health issues is that of frailty and associated problems such as incontinence. In Finland, an estimated 5-10% of older people who live in community settings are categorised as frail, while a further 20-40% exhibit some signs of frailty.[17] In the UK, almost a fifth of older people living in the community experience urinary incontinence.[18]

Among people aged 60 and above in low- and middle-income countries, cardiovascular diseases are prominent. The projection is that in 2030, the leading single cause of loss of healthy years will be hypertensive heart disease in low-income countries (17%), and ischaemic heart diseases in lower-middle (15%) and higher-middle-income countries (12%).[19]

Figure 3

Total Dependency Ratios 1950-2050 – selected countries[14]

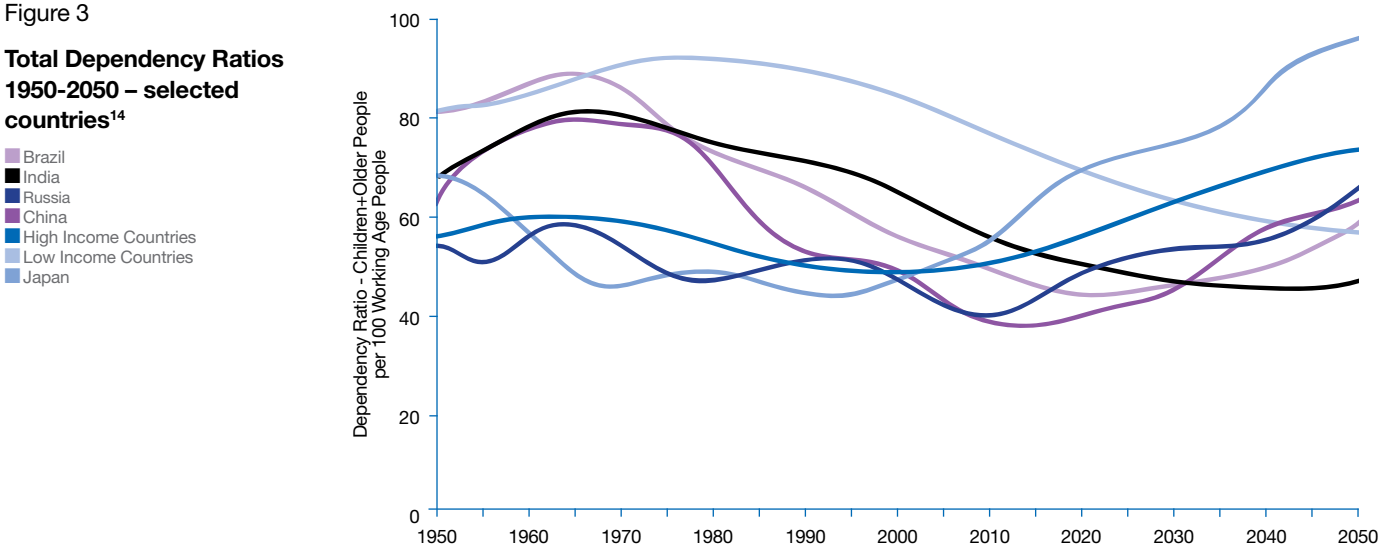
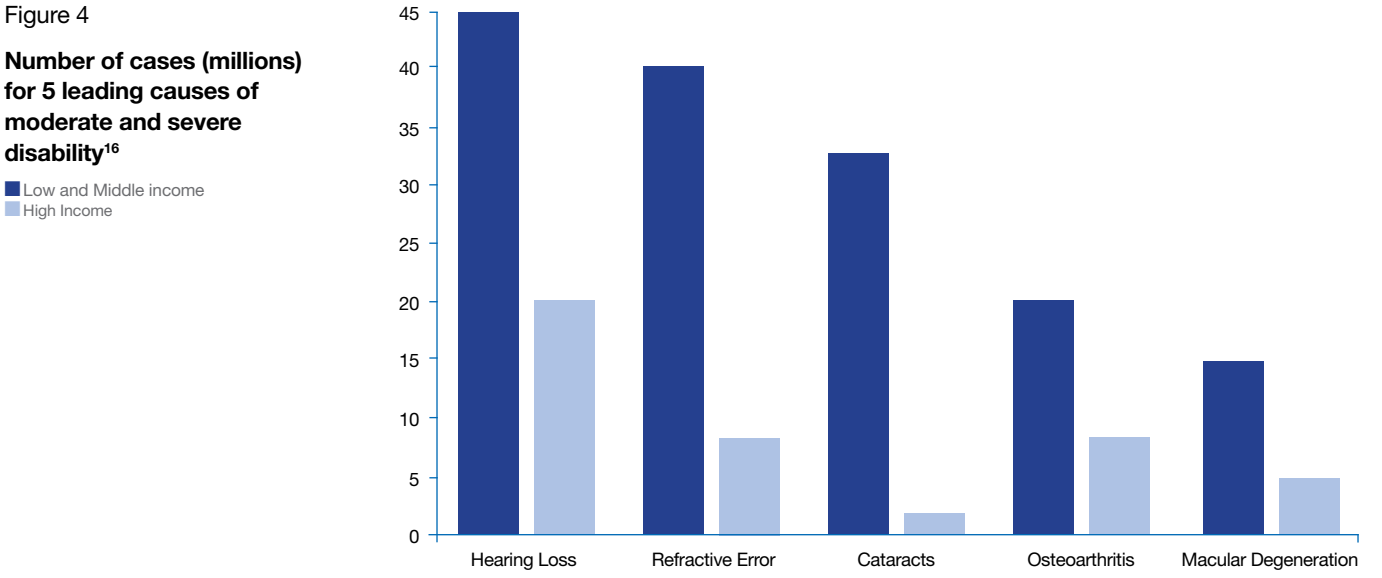


Figure 4

Number of cases (millions) for 5 leading causes of moderate and severe disability[16]



Dementia

Dementia is primarily associated with older people. Worldwide, 35.6 million people live with dementia, and the numbers are set to double every 20 years. The projections are for 65.7 million in 2030 and 115.4 million in 2050.[20] Among people aged 60 and above in high-income countries, Alzheimer's and other dementias account for 9% of lost healthy years due to premature death or disability, the largest share of any single non-communicable disease (NCD).[21] Two-thirds of people living with dementia reside in low- and middle-income countries. Globally, dementia research has lower priority than research into other NCDs, with funding just one-twelfth of that for cancer, even though the estimated costs are over twice as high. Some countries, such as France and the UK, are now beginning to narrow this gap, however.

The wider context for policymaking

Health Literacy and Health "Consumerism"

Health literacy – the ability to make sound decisions about health matters in the context of everyday life – is crucially important for achieving higher levels of self-management, prevention, navigating of the care system, and adherence to medical advice and managing medicines. Unfortunately, old age often represents a barrier to health literacy among some populations.[22] Older people are typically less able or less likely to use the Internet, an increasingly important source of health information, especially in high-income countries.

Older people are also less likely to be proactive than younger age groups in voicing their preferences in their healthcare or in seeking health advice.[23] But it is unclear whether lack of health "consumerism" is really an "age effect" rather than simply a generational effect. Older people in the future might prove to be much more consumer-oriented in their approach to healthcare. Healthcare systems are increasingly putting patients at the centre of the process, enabling them to identify their own needs and to make choices about how and when they are supported – in short, looking to match personal responsibility with personal services.

Informal Care

Globally, about one-seventh of older people live alone. Older people in higher-income countries are generally more likely to live alone than those in low-income countries.[24] Women are also more likely to live alone – globally, 80% of men over 60 are married, but only 48% of women are.[25]

In many high-income countries, it is relatively rare for older people to live with their adult children in multi-generational households. For people aged 65 or more, the figure is about 10% in northern Europe; in India and China, by contrast, the figures are 83% and 64% respectively.[26]

Informal caring arrangements – care provided by spouse, family or children – are critical in providing care to many older people and in keeping healthcare systems and long-term care systems viable. A study estimated that the care provided by informal carers in the UK is worth £119 billion per year[27] – the same as all traditional healthcare spending combined. However, four global trends could have dramatic consequences for the numbers of informal carers:

- An increase in the education of women and their participation in the workforce;
- Migration and urbanisation, which lead to increasingly mobile populations and a breakdown of traditional family and kinship structures. Over half of the populations of Europe, the Americas and Oceania live in cities, and by 2023 and 2030 respectively, that will be true of Asia and Africa as well.[28] But the changes are unequal across generations: in lower-middle and low-income countries, older people are proportionately much likelier to live in rural areas than young people are;
- Declining fertility rates;
- In Sub-Saharan Africa, the HIV/AIDS epidemic, which has led to "orphaned" parents and so increased the care burden placed on older people themselves.[29]

In high-income countries in particular, many carers of older people are likely to be older people themselves, and future informal care arrangements may be disrupted by the onset of NCDs among older carers. It is crucial for all countries to maintain, and often to stimulate, a culture of informal care. If that fails, the costs of care will have to be transferred to other sources, notably the state.

Healthcare Professionals

Recent major shortages in the global health workforce[30] will affect the way that care can be provided. Shortages are particularly acute in low- and middle-income countries because of the challenges of HIV/AIDS, out-migration, inadequate investment, and indeed an ageing healthcare workforce.

There is also a major shortage of geriatric specialists in the U.S., Canada and several European countries, and geriatric medicine is severely under-prioritised in many countries. In a WHO survey, 40% of countries were found to lack national standards for geriatric training.[31]

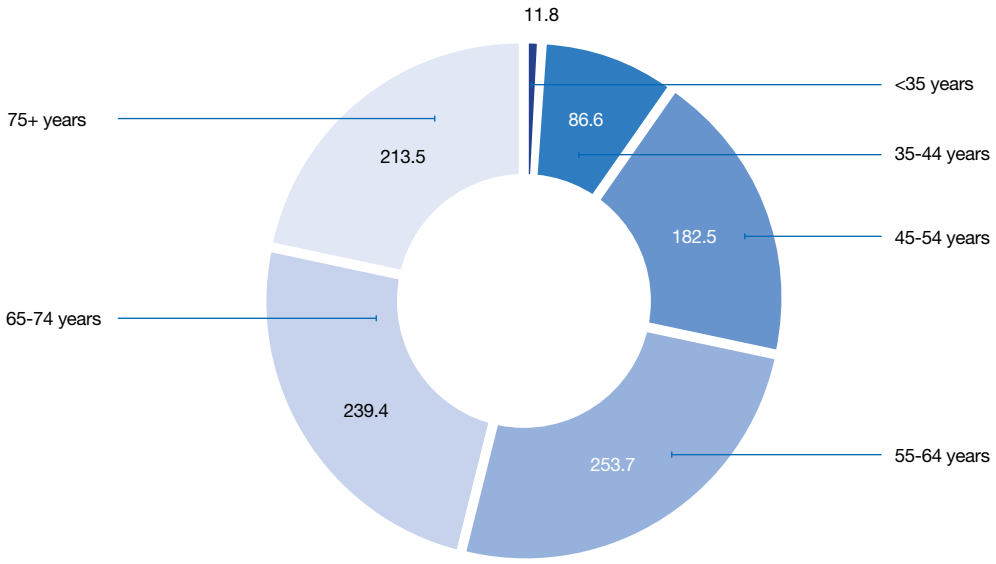
Poverty, Wealth and Health

Poverty is more common in older than in younger age groups, and is linked to poor health in high-income countries[32] and low-income countries alike.[33] In middle- and low-income countries in particular, serious illness can trap families in debt and poverty. Older people are much less likely to be able to move out of poverty once they become poor, owing to their comparatively fixed income.

Paradoxically, older people as a population – particularly in high-income countries – are also often likely to have higher levels of net wealth than younger people, as shown by data from the U.S. (Figure 5). In many countries, housing wealth is especially unequally distributed among the generations, with older people characterised by high levels of home ownership.[34] For many countries, the key issues include not just reducing poverty but also finding ways for older people to fund their own care, and this high home-ownership level suggests an opportunity for such funding.

Figure 5

Figure 5: Median Family Net Household Wealth by Age of Householder, U.S. (thousands of dollars)[35]



The need for change

Ageing populations create challenges for the healthcare systems of all countries. These challenges broadly fall into three categories:

- **Funding**. There is a clear correlation between a country's expected healthcare expenditure and the changing proportion of older people in its population - regardless of other trends such as changes in NCDs or availability of informal care. But further, the falling support ratio will sometimes mean that the working population is less able to fund care, so a potential crisis lies ahead.
- **Relatively fewer people providing support and care**. As the support ratio declines, many countries will have a relatively smaller pool from which to draw the requisite number of healthcare workers. And the falling support ratio, when combined with rural-urban migration, will also mean fewer informal carers.
- **An increase in demand for services**. Demand for services will rise, as people live longer, as levels of NCDs increase, and as people increase their expectations of the quality and quantity of care they should receive.

To meet these challenges, and to make healthcare systems equitable and sustainable, policymakers should look to innovation as the route to transformation. The next chapter considers some of the innovations that are being developed and implemented around the world to tackle the issues facing societies with ageing populations.

Chapter 2: Innovations for an effective, equitable and sustainable healthcare system for an ageing population.

This chapter identifies innovations, from a wide range of countries, that respond to the challenges set out in Chapter one. In our work, we defined innovation as "the intentional introduction and application within a role, group, or organisation, of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, or wider society". The search criteria included both non-disruptive and disruptive innovation, and all possible product, process and structural innovations. We selected the innovations using the following criteria:

- actionable by policymakers
- scalable
- value for money
- representative of low-, middle- and high-income societies

The innovations are grouped into four policy areas:

- **Policy Area 1** – Getting the financial system right – reconciling growing demand with limited resources
- **Policy Area 2** – Helping families to care – increasing the supply of care
- **Policy Area 3** – Prevention is better than cure – reducing the demand for care
- **Policy Area 4** – Care at home and in the community – improving value for money in care supply

Our search is the first of its kind, we believe. We found more innovations than are featured in this chapter. A summary list is available in Appendix A. You can find more details of each innovation, including fuller versions of those that appear in this report, on the Global Health Policy Forum website. We are sure that there are more innovations still to be found, and we make a specific proposal in Chapter 3 for capturing and spreading knowledge about relevant innovations.

Countries will have different starting points, but will always need to address all four policy areas to be sure of arriving at the single destination of a sustainable health and care system. So, high-income countries with well-developed, acute-centric systems will need to shift their policy priorities towards prevention and away from acute provision, whereas medium- and low-income countries are in a position to take a different "expansion path" in order to spare their healthcare systems from the cost pressures being felt by high-income countries. Common to all countries, however, will be these aspects: personal and family responsibility, prevention, and policies that reduce the need for intervention by health professionals or costly institutions.

Not all the innovations will be applicable to all countries. Some of the innovations refer to the wider social determinants of health, and we address wider policy areas that have an important bearing on healthcare systems. We also indicate the extent to which the evidence for the impact of the innovation is strong or still emerging. A complementary set of innovations can be found in the accompanying Global Health Policy Forum reports on NCDs and primary care: these two areas are both important for tackling disease in an ageing population and providing equitable access to care.

Policy Area 1 – Getting the financial system right – reconciling growing demand with limited resources

Financing the costs of care in the face of growing demand from an ageing population is a prominent and pressing global issue. Direct state funding may be part of the solution, but is unlikely to be all of it. The role of individuals and their families will be vital. That means continuing to encourage personal and family responsibility for care, and creating or maintaining a culture of early financial planning and investment among the population to help pay for their own care needs.

The innovations that we identified for reconciling growing demand with limited resources relate to three broad, complementary strategies:

- Enabling older people to fund more of their own care
- Raising financial contributions from people (though at the same time promoting equity in access to healthcare and long-term care services, and ensuring equity in contributions, both between social groups and between the generations)
- Turning assets into income

Enabling Older People to Fund More of their Own Care

Poverty is more common in older age groups, and is linked to poor health. Measures that attempt to raise the living standards of older people and provide a guaranteed minimum income should have observable impacts on the health of older people.

If countries take steps to adapt pension systems, working lives, and notions of retirement, that will help to support a decent standard of living for future cohorts of older people. Some high-income countries that offer publicly funded pensions have undertaken reforms to adapt to population ageing; for example, Sweden and Germany have implemented policies that link actual pensions to the prevailing support ratio, while the Swiss are now allowing pensions to be created for children from birth.[36]

In some middle- and lower-income countries, (public) pensions systems are still in their infancy. India, which has the second largest population of older people globally, established a voluntary state pension scheme as late as 2009.[37] The newness of (public) pension arrangements in some countries is an opportunity for them to set off on the right foot – to adopt best practice identified in countries with more established pension systems. Case Study 1 illustrates the point.

Case Study 1: Pensions in low-income countries

The challenge
Older people, especially if living in poverty, can have poorer health because of greater levels of exposure to poor environmental and housing conditions, limited access to healthcare services, and greater reliance on poor-quality and unregulated but cheap health services.[38] Worldwide, over half of older people lack income security, and the number could reach 1.2 billion by 2050.[39]

The innovation
Older people can receive a guaranteed minimum income through social pension schemes – that is one of the few ways in which governments can attempt to break a link between old age and poverty. Several low- and lower-middle-income countries now have social pension systems that offer a guaranteed minimum income for older people (including Bolivia, Lesotho, Swaziland, Bangladesh, India and Nepal),[40] and others, such as in Mexico and China, are in the process of introducing them.[41]

The impact
Simulations demonstrate that universal social pensions would substantially reduce poverty rates.[42,43] There is less direct evidence of the benefits of social pensions on health, but since the introduction of social pensions in South Africa and Brazil, large increases have been recorded in the life-satisfaction of older people.[44]

Evidence Base: Strong

As well as introducing or restructuring pensions systems, policymakers should consider extending working lives as a further way of mitigating the impact of declining support ratios.[45,46,47,48] Retirement policies have often failed to keep pace with gains in life expectancy. Life expectancy in a selection of 43 countries (mostly high-income) rose by an average of nine years between 1965 and 2005, while the legal retirement age rose by only about six months on average.[49] There is a double value in innovations that help older people to maintain societal and labour market participation: such innovations not only help to subsidise likely rises in healthcare expenditure, but may also provide actual health benefits for older people. Case Study 2 features one country's successful approach to encouraging longer working lives.

Case Study 2: Singapore: creating a culture to support older workers

The challenge
Older people often struggle to remain in employment and receive continued support there, owing to cultural, health and regulatory hurdles and prejudice.

The innovation
The Retirement and Re-Employment Act was introduced in 2012 for eligible workers to extend their careers beyond the current retirement age of 62 – initially to the age of 65, but potentially to 67. The law requires employers to offer re-employment to employees who have satisfactory performance records and who are medically fit, to enable them to continue working beyond the age of 62. The law is backed by a system of subsidies and grants.

The impact
The employment rate for older workers in Singapore aged 55-64 years reached 59% in 2010, compared to 46.8% in 2005. The government aims to reach the target of 65% by 2015.[50]

Evidence Base: Emerging

In many low-income countries, the key source of economic support for older people is currently the material support provided by their families.[51,52,53] There is some evidence that the quantity and quality of this support is declining.[54] Enabling families to preserve traditional flows of income and wealth between family members may be an important way of helping to maintain older people's living standards.[55] That includes developing ways of utilising new technologies and banking practices; one such initiative in Africa is described in Case Study 3.

Case Study 3: Encouraging and facilitating remittance cultures in Africa with M-Pesa

The challenge
Monetary support from the family constitutes the main source of income for older people in many low-income countries. These traditional patterns are disrupted when younger family members migrate to urban areas.

The innovation
Many people in Kenya do not have a bank account, but do have mobile phones. M-Pesa (M signifying mobile and Pesa being Swahili for money) allows users to transfer money using their mobile phones. Users can deposit money at an authorised outlet; recipients can then obtain the money from another outlet, using a code delivered by text message as authentication. This provides a swift and secure remittance service, with neither party needing a bank account.

The impact
In 2009, up to 40% (nine million) of Kenyan adults were users of M-Pesa. Up to 40% of remittance payments made using M-Pesa were made by adult children to parents in 2008, and a further 17% were made to other extended family members.

Mobile phone systems could be used for other purposes, such as disease surveillance or the facilitating of payments of social pensions.

Evidence Base: Strong

Raising Financial Contributions from People

Individuals and families need to contribute to the cost of their own care in ageing societies. Ensuring such contributions is crucial for health policymakers in all countries, no matter how much the countries' contexts may vary. Health insurance is not new. But there are promising innovations in two areas. The first is in developing health insurance in low-income countries. Case Study 4 outlines the development of a micro-insurance programme in Bangladesh.

Case Study 4: Helping people to manage the costs of their healthcare in resource-scarce settings

Developing micro-insurance programmes in Bangladesh

The challenge
Providing affordable healthcare insurance to people in low-income countries would enable them to access healthcare and manage their health effectively. But such a scheme is relatively untested in low-income settings.

The innovation
Subscribers to Grameen Kalyan pay a yearly insurance premium of around 120 taka ($2) a year, which covers up to six family members. Members pay an additional co-payment of $0.14 when they visit a health centre.[56] These costs cover basic curative and preventative procedures. The insurance also helps users obtain medication, pathology tests, specialist consultations and hospital visits if needed, at a discounted rate.[57]

The impact
A total of 51 Grameen Health Clinics have now been established, each serving approximately 50,000 people,[58] and the network currently operates with a 93% cost-recovery rate.[59]

Evidence Base: Emerging

The second innovation is for high-income countries – developing insurance for long-term formal care delivered within older people's homes or in institutional settings. Japan, though not the first country to implement an insurance system for long-term care,[60] provides an an interesting example (Case Study 5), as it serves the most aged population in the world. Its long-term care insurance system is a mandatory one (voluntary systems tend to suffer from sub-optimal uptake), and could offer lessons for other nations.[61]

Case Study 5: Supporting people to plan for the financial costs of their future health and care needs

Developing long-term care insurance in Japan

The challenge
Japan has one of the most aged societies in the world – by 2050, almost 15% of the population will be aged 80 or above. Families in Japan have traditionally provided long-term care for older people, but this often needs to be supplemented, and family structures are changing anyway. Hospitals had been providing long-term care to older people with no actual medical needs, and that had been driving up healthcare expenditure.

The innovation
Japan implemented a mandatory long-term care insurance system in 2000, in order to shift the emphasis from "care by family to care by society", and provide universal provision of care.

The insurance gives all citizens over 65 the right to long-term care, as well as all citizens aged 40-65 years with Alzheimer's or stroke-related disability Everyone aged 40-74 is required to go for yearly health check-ups.

Costs are covered by a mix of co-payments, taxes, and insurance premiums paid by everyone aged 40 and above.

The impact
The quality of life of the elderly is expected to improve as a result of the reforms.[62] Several research projects are currently underway to evaluate the cost-effectiveness of Japan's system.

Evidence Base: Emerging

Turning assets into income

The third area of innovation, particularly relevant in high-income countries, is in enabling older people to turn housing assets into income, in order to pay for long-term care.

Case Study 6: Turning assets into income in high-income countries

The challenge
Many older people, particularly in high-income countries, have been characterised as relatively "asset-rich and income-poor,"[63] with much of this asset wealth related to housing.

The innovation
Downsizing and equity release are two options for freeing housing wealth. Downsizing involves older people moving from family-sized housing to smaller, more age-appropriate housing. Equity release (or "reverse mortgages") involves freeing capital from homes to guarantee a fixed income during older age, but retaining the use of the home, with the loan usually repaid upon the death of the home owner. Loans that are subsequently repaid from sale of housing assets may be available from public authorities to enable older people to meet the cost of publicly provided care ("deferred payment").

The impact
Freeing up capital through moving to smaller accommodation is a relatively novel approach, or a restricted one, owing to a lack of supply of age-appropriate housing in some contexts. Equity-release schemes have relatively low levels of market penetration, and that is likely to continue unless further intervention takes place.

Evidence Base: Emerging

Policy Area 2 – Helping families to care – increasing the supply of care

Informal Care

Care provided by families is the backbone of long-term care. For example, family care is estimated to account for 56% of the cost of dementia care in low-income countries, compared with 42% in middle-income countries and 31% in high-income countries.[64] Estimates of the economic contribution of unpaid carers suggest that unpaid care is intrinsic to economic sustainability. In 2009 in the U.S., for example, unpaid care was delivered by almost a third of American adults, and was valued at $450 billion – in GDP terms, that ranks between the GDPs of Belgium and Poland for 2009.[65] In lower-income countries, where levels of co-residence and informal care are higher, the relative contribution is likely to be even greater.

The trends outlined earlier show that an ageing society will have a proportionately falling numbers of carers available for future demand. Policies that incentivise and support caring will be critical to sustaining healthcare systems. In addition to providing direct financial or service support for carers and encouraging positive inter-generational attitudes, policymakers can attempt different approaches, though the suitability of these will vary according to differing cultural contexts.

"The stick": use of legislation to stimulate informal care

Few nations resort to statutory instruments to force adults to provide for their elderly parents. Singapore is one that does. The country operates a Tribunal for the Maintenance of Parents, as set up by the Maintenance of Parents Act, to ensure that elderly parents can obtain material support from their offspring. The Act also established the Office of the Commissioner for the Maintenance of Parents (CMP). The role of the CMP is to facilitate conciliation and mediation between parents and children so to resolve maintenance issues. Several other countries or regions also have legal provision for compelling adult children to make financial provision for their parents, including France, Germany, China, many states in the U.S., and Ontario in Canada.

Case study 7 outlines the case of India, which passed the Maintenance and Welfare of Parents and Senior Citizens Act in 2007.

"The carrot": incentivising informal care

Alternatively, countries may choose to adopt an approach based on incentives, and in that way creates an enabling environment for providing informal care. Taiwan has adopted a combination of "carrot" and "stick" policies by altering the inheritance rules, such that adult children who are found to be in dereliction of their duties are prohibited from receiving inheritance. Hong Kong has modified its tax system to allow for reduced taxation for carers; the publicly subsidised housing system has also been altered in favour of multi-generational households. Similar measures involving housing policy and taxation are also implemented in Japan and Singapore. The case of Singapore is reviewed in Case Study 8.

Case Study 7: Compelling families to provide care for older people

The Maintenance and Welfare of Parents and Senior Citizens Act, India

The challenge
Migration of younger people to cities continues unabated, and presents a threat to traditional patterns of family care for older people in India.

The innovation
The Maintenance and Welfare of Parents and Senior Citizens Act 2007 aimed to ensure the provision of adequate food, shelter, clothing and healthcare to all people aged 60 and above. The Act makes it a legal obligation for adult children (over 18 years of age) to provide a minimum level of maintenance to their parents. An older person who cannot provide for himself or herself may apply to a local maintenance tribunal, which may order adult children (or close relatives, in the case of childless older people) to provide a monthly allowance.

Those who are convicted of neglecting their elderly dependents may be fined 5,000 rupees (around $90) or be jailed for up to three months, or both. Relatives who stand to inherit property from the older person may have this inheritance revoked if they are convicted of neglect.[74]

The impact
Very little data has been published on the impact of the act so far, owing to its newness.[75,76] According to Kerala's High Court, in the first two years since its enactment, 746 cases were filed in this state of 30 million people.

Evidence Base: Emerging

Case Study 8: Incentivising families to provide care for older people

Housing benefits and tax relief in Singapore

The challenge
Projections are that Singapore's population will age rapidly in the next 40 years, with the proportion aged 65 and above set to rise from 10% in 2012 to 32% in 2050.[66] Other social changes are expected to reduce family support.

The innovation
Cash grants are available for house/flat purchases, or priority status is awarded for some public housing, in order to encourage parents and their adult children to live within two kilometres of one another.[67,68,69,70]

Meanwhile, tax incentives are given to families who share their homes with elderly parents, as well as to non-resident carers. Singaporeans can claim "Parent Relief" from tax for caring for their parents or other elderly relatives. The dependent parent or grandparent must be aged 55 and above, or be physically or mentally disabled, and must have a low annual income (of approximately $3,100 or less (U.S. dollars)).[71]

The impact
There has been little formal investigation into the impact of these policies, though they may partially explain the high levels (67%) of multi-generational households.[72] Priority allocation of housing, to encourage families to live close together or in the same household, is likely to continue to impact on caring patterns, as over 80% of all Singaporean housing stock is publicly owned or controlled.[73]

Evidence Base: Emerging

Use of technology

Technology too may have a part to play in supporting carers. For carers to provide the best possible care, they have to maintain their own health, and they might need support to ensure that. Older people with dementia will always require some form of informal care, but the carers are under particular pressure here in view of the challenging behavioural issues that they have to deal with.

Case Study 9: Helping carers to care through shared information

The challenge
Many carers can feel isolated or depressed, and suffer from stress-related conditions. Several people may assume a caring role.

The innovation
"Grouple" in the UK is an online tool currently being piloted for families and friends caring for someone with dementia. It is a private and secure network for the carers to share their concerns and experiences. For example, when one of the relatives visits the person with dementia, they add this as an event to the shared timeline, together with any relevant notes. Tailored reports can also be printed out, and given to the relevant GP or social worker.

The impact
The aim is to support carers in establishing joined-up routines and patterns that are sustainable for longer, and to reduce their stress.

Grouple is at early stages of development. The impact on users and the person they care for is still to be evaluated.

Evidence Base: Emerging

Policy Area 3 – Prevention is better than cure – reducing the demand for care

Gains in life expectancy were formerly thought to be associated with spending a shorter time in ill-health – a process known as compression of morbidity.[78] The process now seems to be minimal or absent in some countries, however, as increases in life expectancy often outpace gains in healthy life expectancy.

The absence of a clear compression of morbidity highlights the need to innovate in prevention programmes as well as treatment programmes. Changes in lifestyles and behaviours, indicated by the doubling in obesity levels between 1980 and 2008,[79] reinforce the need for implementing prevention programmes to improve the health of the future population of older people. Currently, however, preventive measures account for less than 3% of the overall healthcare budget in industrialised countries,[80] even though many of the major risk factors for NCDs are preventable.

Prevention programmes have historically focused on younger or working-age adults, but there is increasing recognition of the value of prevention programmes aimed at older people. Such programmes may target risks that are specific to older people, such as falls. A study by Fried and colleagues[81] shows how the prevention of ageing-related falls and frailty should include changes in medical and behavioural regimes, and that these changes might require both individually targeted and environmental approaches. However, prevention policy needs to broaden – to include improvements to homes and households, workplaces, transport, civic institutions and the wider environment.

Prevention is best served by self-management, reducing the need for intervention by health professionals or institutions.

Prevention at the individual level

Promoting and mainstreaming physical activity

Prevention needn't be expensive. In older adults with poor mobility, there is consistent evidence that regular physical activity is beneficial and reduces risk of falls by nearly 30%.[82] Physical activity is also a protective factor for some forms of dementia, and can delay the onset of cognitive disability.

In many countries, health-promotion campaigns and initiatives have received little priority in the past, or have remained unavailable to large sections of the older population. There are signs that this neglect is being remedied, however. Policymakers in Brazil and China are promoting physical exercise as a key component in national health plans or wider strategies, and that policy enabled greater access to amenities for older people. Brazil is scheduled to establish 4,000 "health academies" (public gymnasiums) in every municipality by 2015, and in China 70% of urban communities and 50% of townships in rural areas have established sports associations for seniors.

However, increased access to services does not mean greater uptake. So policymakers also need to consider innovations that promote behavioural change by improving health literacy – in the form of targeted advice, work-based support, or mass health-promotion campaigns.

People-centred care and self–management

Successful self-management of chronic disease is of growing importance, and in some countries forms part of a new paradigm of care, involving a move from a physician-centred to a patient-centred system. This shift to "patient-centred" care or the wider "people-centred" care (defined by WHO as encompassing clinical health as well as wider healthcare determinants) is taking hold in many high-income countries, but many low and middle-income countries have yet to realign their models of healthcare delivery.

In this sub-section, we explore innovations linked to self-management and chronic disease – innovations in which new technology provides advice and support. These innovations yield direct benefits to the individual through improved health status and quality of life, and potentially reduce demand on healthcare and care services and also on informal care.

Case Study 10: Using new technology to help patients self–manage their illness

Healthy Outlook – UK

The challenge
People with COPD (chronic obstructive pulmonary disease) should be enabled to take control of their own health.

The innovation
The UK's National Weather Service created "Healthy Outlook". By means of mobile-phone technology, COPD patients are sent warning texts about local weather conditions that may adversely affect their illness, and are thereby in a position to take preventive measures. The service can also provide simple health advice.

The impact
Given that extreme temperatures, humidity and/or viruses in the air can aggravate the ill health of people who have COPD and increase hospital admissions, the mobile-phone alerts and advice are an obvious boon.

Evidence Base: Emerging

Case Study 11: Creating a culture of health in the workplace

GE Healthcare

The challenge
There is a growing recognition of the need for employers to promote and protect the health of their workforce, particularly given the need to extend working lives. A healthy workforce not only improves the quality of life of employees, but can increase productivity and profitability and reduce healthcare costs.

The innovation
GE Healthcare has created the HealthAhead programme, which aims to provide tools and support to help and promote the health and wellbeing of all employees. The programme includes offering gym discounts, healthy meals, preventative screening, and health classes. As part of this initiative, an interactive website has been created with various resources and tools to enable all GE staff to identify and manage their own health status and wellbeing. Development of resources is responsive to employees. For example, a poll asked what would best help them to manage stress, and the majority responded by saying "a good night's sleep". A number of "small steps" towards this goal have duly been listed; employees commit to and track progress against these goals, drawing on the "three R's" to encourage sustainable behaviour change – rivalry, recognition and reward.

The impact
HealthAhead has touched 70% of all GE global employees, and has invested $50 million dollars on health and wellbeing programmes annually. While no external evaluation of HealthAhead is available, there is growing evidence of the potential of investment in such interventions to improve the health of the working population. However, further research evidence is needed on the cost-effectiveness of brief interventions.

Evidence Base: Emerging

Medicines Management

Another significant yet sometimes overlooked aspect of self-management of health is medication adherence. Although age is not necessarily a determining factor in medication non-adherence, the older adult population is at higher risk. Studies show that 20-50% of patients mismanage their medicines,[83] and thereby undermine patient outcomes and the value of the healthcare invested. A report in the U.S. found that medication non-adherence accounts for more than 10% of older adults' hospital admissions, nearly 25% of their nursing-home admissions, and 20% of preventable adverse drug events in the community setting.[84]

Innovations in medication-adherence technologies can help patients and unpaid carers to obtain medication information, medication organisation, dispensing, and dosage reminders, as well as safeguard against an overdose. One example is Rex the talking pill bottle – a single-function standalone device that assists visually or cognitively impaired patients in accessing recorded medication information. The pill bottle contains a speaker with recorded information from the pharmacist, stating the name of the drug, what it is used for, dose, frequency, duration, side-effect warnings, and refill instructions. Kaiser Permanente has implemented this technology in over 140 facilities.

Prevention at the Community Level

The promotion of social participation for older people is integral to "active ageing", and can protect against chronic disease.

"People with adequate social relations have a 50% greater likelihood of survival compared to those with poor or insufficient relationships."[85]

Social participation, integration and support can encourage and promote health-seeking behaviour, healthy lifestyles and improved self-management. One low-cost innovation that helps in this regard is outlined in Case Study 12.

Case Study 12: Combating social isolation and poor health literacy in men

Men's Sheds, in Australia, New Zealand, Ireland, England

The challenge
Men are traditionally more reluctant to seek health advice, and older single men in particular may become more socially isolated.

The innovation
Men's Sheds is an initiative that originated in Australia to combat social isolation, promote social participation and promote good health for older men. It aims to reduce social isolation by providing a safe, friendly and welcoming place for men to work in sheds on meaningful projects and to contribute to the wider community. With federal government funding of A $3.3 million, the Australian Men's Shed Association and Men's Shed Australia are community-based, non-profit, non-commercial organisations.

The impact
The initiative can claim demonstrable success in reaching marginalised and isolated males and in contributing to improvements in male health and wellbeing. There are now 480 sheds in Australia, 30 New Zealand, 20 in Ireland, and three in England.

Evidence Base: Emerging

Prevention through ageing in place

Urbanisation is surging, though substantial numbers of older people remain resident within rural areas. There are different challenges in each case. Community life and the associated social networks and social capital are extremely important in maintaining the health of older people: that seems intuitively obvious, yet it is only now being properly understood and appreciated across different settings. So it is crucial to develop strategies for building and maintaining these social networks, as a way of optimising the physical and mental health of older people.

The physical design and characteristics of neighbourhoods can make all the difference to the ability of older people to access and maintain their social networks. Neighbourhoods need to be physically accessible and safe, at a minimum, for older people to participate in community life. In addition to basic infrastructure, neighbourhoods need places to rest, accessible transport, and distinct pathways that are accessible and obstacle-free, otherwise they will not feel safe, and will become inaccessible and threatening places for older people. Making towns and cities "age-friendly" is becoming a critical part of a wider prevention strategy. Just as neighbourhoods should facilitate "ageing in place", so should housing. Housing may need to be adapted or developed to match the limited capabilities of older residents, and to cater for their physical and social needs.

Case Study 13: Japan – creating age-friendly transport and transport systems

The challenge
Public transport can be inaccessible and ill-equipped for meeting the needs of ageing citizens, and can thereby limit their independence and ageing in place.

The innovation
Japan has introduced a series of legislative Acts to increase accessibility and provide universal barrier-free accessibility.[86] The 2000 Public Transportation Accessibility Act, notably, introduced a legal requirement on transportation businesses to make their transport services accessible.

This Act was followed by the General Principles of Universal Design Policy in 2005, which required all buildings and public transport systems to adhere to the universal-design concept for improved accessibility and user-friendly design. In 2006 the two policies were combined into the New Barrier-Free Act.

The impact
Since 2000, the accessibility of public transport and buildings in Japanese cities has improved significantly. In Tokyo, for example, almost all underground and rail stations (excluding some that present technical difficulties) have elevators and accessible restrooms. Almost all buses are wheelchair-accessible.[87] All buses will be accessible by 2015.

Evidence Base: Emerging

Policy Area 4 – Care at home and in the community – improving value for money in care supply

This section considers innovations that change conventional patterns of supply, and reduce the need for high-cost health professionals or institutional hospital care. (But of course, any proper health and care system will still need sufficient good-quality care in institutions, delivered by professional staff who follow best practice.) It also looks at ways of achieving better value from the money spent, especially by involving older people more closely in the design and delivery of services.

We have selected three categories of innovation that transform the delivery of care:

- Exploiting new technology to change the way that services are delivered to older people
- Changing the physical location in which health and long-term care is delivered, away from the more costly institutional settings of hospitals and residential care
- Involving older people more closely in decisions about their care

Exploiting new technologies

Integrated care brings together primary and secondary care services to concentrate on achieving best care at the lowest cost, specifically by seeking to prevent expensive hospital admissions and to help patients (and carers) to manage their own condition. Some integration can be physical in nature, as with the network of clinics in Israel that bring together geriatricians and primary-care professionals specifically to support older people. Other approaches to integration involve new technology to ensure best coordination of services and professionals. The Veterans Health Administration in the U.S. serves as an outstanding example of innovation and integration (see Case Study 14).

Case Study 14 : Integrating services for older people through technology

Veterans Health Administration (VHA), U.S.

The challenge
Older people in particular have complex health and long-term care needs, which tend to be served by disparate organisations and departments. The lack of integration can result in a poor experience for the patient, as well as drive up costs.

The innovation
The Veterans Health Administration (VHA) is an American, veteran-specific, national health service with up to 5.5 million individual clients.[88] The Veterans Health Information Systems and Technology Architecture (VistA) software application enables clinicians, nurses, clerks and others to enter, review and continuously update all information connected with patients. All information relevant to treating any given patient is readily available. Care providers can quickly flip through electronic "pages" of a patient's chart to add new medication orders, review or add problems, write progress notes or see results.[89]

The impact
VistA is credited with being a key reason why the VHA has held its costs per-patient steady where costs have risen elsewhere, as in Medicare (the national social insurance programme for older people and people with disabilities). In 1996 the VHA's cost per-patient was similar to Medicare's annual spending per enrolee ($5,000); by 2004, the VHA's unchanged cost per patient was nearly 26% lower than Medicare's cost per patient.[90]

Evidence Base: Strong

Technological advances alter the way that care is delivered, introducing efficiencies and other benefits. New technology might require substantial upfront investments, but not always: it can cost fairly little to enhance devices that are already in common use. Smartphones have great potential for monitoring patient health (see Case Study 15), whether by patients or by professionals: in some high-income countries, 80% of health professionals already own them.[91] We also outline a Danish example (Case Study 16) of patient interaction with technology, in the form of telemedicine. Both innovations demonstrate how new technology can put the management of care firmly into the hands of patients or less highly trained professionals, thereby lowering costs and levelling inequalities in treatment received.

Case Study 15: Screening through new technology

The potential of CATRA and the use of smartphones

The challenge
Cataracts are the third most common cause of moderate to severe disability in low-income countries. Screening older people is problematic in countries with poor health infrastructure.

The innovation
CATRA is a clip-on piece of hardware that can attach to smartphones to produce a diagnosis of early-stage cataracts in minutes. Users look through an eyepiece that attaches to the smartphone, and interact with a keypad based on what they see. CATRA is designed for use by general audiences as well as by medical professionals, giving users a greater understanding of their own medical conditions. In addition, the data generated by CATRA is said to be more detailed than that generated by current techniques of assessing cataracts.[92]

The impact
The innovation is yet to be tested among large populations. However, users and ophthalmologists report high acceptance levels of CATRA in pilot studies.[93]

With high levels of uptake of mobile phones and smartphones across all countries, and over five billion mobile phone subscriptions worldwide,[94] there is clear potential for this technology to be applied very widely.

Evidence Base: Emerging

Case Study 16: New technology changing traditional service delivery

Telemedicine in Denmark

The challenge
Older people are at higher risk of developing NCDs than younger people are. But monitoring patients with chronic conditions is a challenge, and can be costly.

The innovation
IntraMed's Clinical System Organiser (CSO) is a Web-based tele-monitoring software for use in the treatment of patients living with chronic conditions. CSO software allows patient to self-monitor medical data, which can then be transferred instantaneously to the medical staff in a hospital or clinic. Continuous monitoring means that fewer errors are made, and more accurate and up-to-date information is collected, allowing earlier detection of worrying trends and enabling more timely intervention. Other systems have also been developed, such as Dansk Telemedicin, with the similar goal of collecting and sharing patient information.[95]

The impact
More than 60% of the hospitals in Denmark are using the system.[96]

Studies examining patient self-monitoring in Denmark and beyond have found that, for a range of conditions, patient outcomes had improved,[97,98,99,100] but there are no published independent studies of cost savings.

Evidence Base: Emerging

Care in less institutional settings

Institutional hospital and residential care is more expensive than home care, and is probably more unpopular among older people and their families in many countries in Europe, North America and Australasia.[101] At the same time, home care is unlikely to meet all long-term care challenges. A diversity of efficient and effective care options is needed.

The two innovations outlined in this section have changed the delivery of care. In Scandinavia, patient hotels were developed to reduce levels of unnecessary hospitalisation; concurrently, "extra care housing" was developed in the UK and North America to reduce the level of institutional care required. Both of these trends represent a shift towards less formal and less expensive ways of delivering long-term and respite care for older people, and giving them a better quality of life in doing so.

Case Study 17: Healthcare in less institutional settings

Patient hotels in Scandinavia

The challenge
Hospital beds are often occupied by older patients who need very little medical attention other than some form of monitoring.

The innovation
A patient hotel is a form of intermediate care, providing accommodation to patients with low-level needs. The model's most common application is to accommodate inpatients who are in a discharge programme after acute treatment, as an alternative to general ward care for convalescence, rehabilitation and pre-discharge observation. Those in patient hotels still have medical supervision in close proximity. Although the model has been used mainly for patients recuperating from treatment for acute physical conditions, it could be adapted to suit other patient groups, such as mental health and dementia patients, or end-of-life care.

The impact
The patient-hotel model has the potential to reduce the costs of hospital care substantially for some patients. Some data has been gathered on the benefits of patient hotels, but more is needed. Notably, a patient hotel in Skåne (Sweden) had achieved improved patient well-being,[105] better clinical outcomes, and an estimated 60% reduction on previous spend.[106]

Evidence Base: Emerging

Case Study 18: Integrating long-term care and housing for older people

Extra care housing in the UK

The challenge
Older people have faced a dearth of options that both promote their independence and provide the care and support they need.

The innovation
Extra care housing is a model of ergonomically designed independent housing, offering an adaptable long-term care package. As the residents' care needs change, the care package provided is also intended to adapt. Out-of-hours care is also available in extra care housing. Integral communal facilities help to foster social relationships and promote informal peer-caring among residents.

The impact
Compared with residence in institutional settings, residence in extra care housing is associated with several benefits: better levels of cognitive and physical functioning, lower-than-expected levels of mortality, decreased levels of overnight hospitalisation, and high levels of social wellbeing.[102] Compared with domiciliary care in the community, residence in extra care housing is associated with these benefits: decreased reliance on institutional care and decreased levels of overnight hospitalisation.[103]

A cost-benefit analysis of extra care housing as compared with residential care found significant cost savings for residents in extra care housing, particularly when the impact of the slower decline in physical functioning was taken into account.[104]

Evidence Base: Strong

Involving older people in the design and delivery of services

If services neglect to take account of older people's preferences and wishes, the chances are that they are poorly matched to older people's needs. Service providers should closely involve older people and their carers in the design and delivery of the services. New approaches allow older people to be in control and to make decisions about their publicly funded care packages: the idea is to let the older people take charge of the budget allocated to them for their personal care. This makes the care properly "person-centred", encourages personal responsibility, and breaks away from conventional patterns of care.

Case Study 19: Applying a person-centred approach to healthcare budgets

Self-directed Support and Personal Budgets in England and Wales

The challenge
Users have had little control over the long-term care that they receive, and care packages have failed to reflect users' needs or desires directly.

The innovation
Users of local-authority-funded adult social care (care that provides assistance with the activities of daily living) receive an allocated amount for their care. With assistance, the users develop a Support Plan, which outlines how they choose to spend their Personal Budget in order to meet their identified needs and the outcomes or goals that they would like to achieve.

The impact
Evaluations of the impact for younger service users found that Personal Budgets had a positive impact on ten of the 14 aspects of life examined. Most notably: 76% reported a positive impact on dignity and respect; 75% on staying as independent as they want to be; and 72% on being in control of their support.[107] Uptake among older people is lower, and they may need more support from family members and other carers to direct their own care. Evaluations of the impact on older people have yet to be published.

Evidence Base: Emerging

Chapter 3: Addressing the Challenges

Our research highlights the need for all countries to make a comprehensive response – one that addresses different aspects of an ageing population and healthcare, and that enables the various countries to learn from one another. In this final chapter, we set out a potential framework for governments to assess the robustness of their health systems. It builds on the policy work of leading international organisations and on inter-governmental agreements, including:

- The World Health Organisation
- The World Economic Forum
- The International Convention on Rights for Older People
- The 10th Anniversary of the Madrid Plan of Action on Ageing

Over the next 12 months, we want to work with a number of countries to refine this framework into an Ageing and Health Sustainability Index, and lay down benchmarks that countries can use to assess the sustainability of their own health and care systems and to target innovations where they will make the difference.

The Ageing and Health Sustainability Framework

Understanding the challenge now and in the future

1) **How will the size, composition and morbidity of our older population change over the next 20 years?**
   Most societies will register an increase in the number and proportion of older people. But patterns of health and morbidity alter within each stage of older age. Having a clear understanding of the projected patterns of health and morbidity within the older population is essential for planning health and care services and responding with suitable preventive measures.

2) **How are we performing on key health and care outcomes for older people relative to other countries (weighted for per-capita income)?**
   Performance varies substantially between countries within similar GDP groups. Such variation has significant implications both for health and for costs.

3) **How are we performing in terms of health and care inequalities for older people in areas such as access to services and morbidity and mortality?**
   Patterns of morbidity and mortality vary significantly, often correlated to income inequality. Understanding these patterns helps to target policies better.

4) **How are our health and care services configured and what do they cost?**
   Understanding the current configuration and cost of health and care services provides an essential baseline, from which we can assess how best to develop services towards more preventative models and away from institutional care.

5) **Do we have an analysis of the impact of changing support ratios and other factors on likely levels of informal care over the next 20 years and on our ability to fund increasing health and care costs?**
   Falling support ratios, continued migration, and erosion of family values will have significant effects on the availability of informal care. Changing support ratios may also affect the funds available.

6) **How are costs likely to change?**
   On the basis of this analysis, modelling should identify the costs of different scenarios – with the key variables of informal care, prevention and service configuration – and key areas for action.

Knowing what we want to achieve in improving the health and social care of older people over the next 20 years

7) **In terms of our values, guiding philosophy and vision, do we have a clear sense of what type of health and care system we are trying to create for an ageing society?**
Values may differ from country to country, but by having a set of principles against which to develop health and care services, we have a useful platform for framing policy and assessing progress.

8) **Have we engaged with older people to understand their aspirations and expectations for health and care in the future?**
There may be variations between countries, but in almost all of them, older people will expect to have a louder voice and greater input into the health and care services they receive. This pressure is likely to increase as the older generations become more assertive. If older people are properly consulted, services can be designed to increase self-management and personal responsibility, and thereby produce better value from cheaper forms of care. To this end, it will be necessary to involve supporting NGOs in service design and policy issues.

9) **Do we have a clear view on the level of access, scale and quality of health and care for older people that we want to achieve and can achieve, taking into account such considerations as key priorities, best value for money and matching best performance?**
Given the vision and scale of the challenge, governments may be faced with a range of policy trade-offs or options. In order to shape policy more easily within a constrained budget, governments need to have a clear idea of the level of access needed and the scale and quality of services for older people in an ageing society, Policymakers should also take into account opportunities to improve performance at lower costs.

Having a comprehensive approach that draws on other countries' experience and innovation as set out in the Ageing Forum Report.

Getting the financial system right: reconciling growing demand with limited resources

10) **Given the challenges of ageing and our vision for health and care, what level of funding do we need to achieve, and how should this funding be split between private and public spending?**
This report has identified a framework and a number of policy bundles designed to help Ministers and officials to ponder the options for developing preventive, cost-effective health and care systems. As noted, we would encourage all governments to head for the same, broad destination, whatever their starting point. However, the vision, pace and levels of development will need to be balanced by the overall envelope of spending (be that public, private or voluntary). One crucial requirement is a clear understanding of the necessary spending and where it will come from.

11) **Do we have a set of policies that will sustain older people's incomes in the face of demographic changes, and that will bring other benefits?**
Poverty and ill health are closely linked. Pensions can help to weaken this link. Enabling older people to continue working can help to sustain incomes, benefit health, boost public finances and counteract the effects of declining support ratios.

12) **If relying on people to fund their own care, can we encourage the development of insurance for health or long-term care, or make it easier for individuals and their families to fund the care directly?**
Innovations can help individuals to fund their own care. As an example, in some societies, some older people may be asset-rich and cash-poor, with substantial asset holdings that could be used to pay for rising health and care costs. Our research has found little evidence of policy frameworks that promote the idea of converting such assets into income.

Helping families to care: Increasing the supply of care

13) **Are there opportunities to use fiscal or other incentives or forms of support to encourage or maintain levels of informal care?**
Informal care is a critical aspect of any care system. It is essential to monitor changing patterns of informal care, and adopt policies to maintain and/or increase its extent.

Prevention is better than cure: Reducing demand

14) **Do we have a clear analysis of where we could improve prevention to meet the key health challenges that we face?**
Prevention programmes are seldom targeted at older people. A useful starting point here is to gain a clear understanding of preventative models in relation to key older groups and their key high-cost morbidities.

15) **Do we have a clear approach to the wider factors that can affect older people's health such as isolation, access to social networks, housing and urban design?**
Older people's health is not simply a clinical matter. A comprehensive approach is needed, in order to embrace wider aspects. To increase awareness round the world, each national government should designate at least three of its cities as WHO Age-Friendly Cities, and provide them with the appropriate support.

Care at home and in the community: improving value for money in supply

16) **What opportunities are there to minimise the use of expensive health professionals and institutions by taking advantage of new technology and different forms of care?**
Current models of care in high-income countries rely heavily on trained professionals and expensive institutions. Innovations in this report show how a different – and more efficient and effective – pattern of care might be created.

17) **Have we modelled the implications of moving towards a more preventative system for older people's healthcare?**
Changing the patterns of care involves changing the workforce, buildings, and attitudes, all of them carrying financial as well as political implications, and potentially impacting on families and carers. "Double running costs" might arise, as old services are decommissioned and new ones established. The problem can to some extent be addressed through innovative solutions such as "Social Impact Bonds". The "Bond" is effectively an external source of finance deployed to pay for the development of new, lower-cost preventative services; the investor is repaid with interest from the savings generated by the re-shaping of the old system. Policymakers should think about the implications of the shift on carers, and should consider developing additional services, including training and respite care.

Getting the system right

18) **Do we understand the barriers to developing the required capacity and how to overcome them, including how the health and care workforce may need to change?**
Capacity gaps will constrain the speed of the transition, and will need to be considered as part of an overall strategy for developing a more preventative health and care system. Such a strategy needs to take into account the health and care workforce and their training needs, including how expert and other staff can be recruited, trained and deployed and how all can be encouraged to follow best practice.

19) **Do we have good-quality planning and delivery systems in place to help in realising our vision?**
The extent and nature of the changes will vary according to the existing and future models of care for older people. Certainly it will be essential to have high-quality planning, and to back it with clear accountability, systems and metrics to manage performance and delivery. But plans and targets alone will not be enough to drive the required change on the ground.

20) **What approach do we have to keeping informed on and stimulating research into critical areas, and also to keeping informed on developments and innovations in other countries**
For health and care systems to be sustainable, research must be instituted into critical areas such as dementia and new ways of providing care. And international forums should be set up to disseminate practical innovations that might help authorities to transform their systems.

Next Steps

This report is just the start – it provides policymakers with innovations and insight to address the challenges created by population ageing. The solutions differ for different countries, but it is worth trying to identify relative strengths and weaknesses, partly through a global sharing of ideas, information, and health innovations. We are, therefore:

- Inviting countries to work with us to refine the Framework into an Ageing and Health Sustainability Index that can be used to benchmark health and care systems and assess their readiness for the challenges and opportunities of the ageing revolution
- Proposing that this effort should be accompanied by the sharing of information about individual assessments through a network or networks of like-minded countries wanting to achieve sustainable health and care systems
- Intending to support these developments by creating an international institute to hold a growing library of innovations, building on those in this report, and to analyse data, trends and innovations to suggest ways forward.

Countries are at a crossroads and the challenge is clear – innovative reform to build sustainable health and care systems for ageing societies.

Appendix 1: Working Groups

This report was supported by a working group of experts who advised the Chair, Phil Hope, during the drafting of the report. The working group consisted of:

Professor Clive Ballard – Director of Research, Alzheimer's Society

David Behan – Director General of Social Care, Department of Health

Michael Birt – Director, Centre for Sustainable Health

Clive Bowman – Medical Director, BUPA Care Services

Kieran Brett – Director, ImprovingCare

Professor Alistair Burns – National Clinical Director for Dementia, Department of Health

Francesca Carega – Team Head, Wellcome Trust

Hilary Cottam – Director, Participle

Professor James Goodwin – Head of Research, Age UK

Baroness Sally Greengross – Chief Executive, International Longevity Centre, UK

Julie Jones – Chief Executive, Social Care Institute for Excellence

Nigel Jones – Partner, Linklaters

Professor Martin Knapp – Director and Professor of Social Policy, PSSRU

Professor Armand Leroi – Lifelong Health Project Lead, Imperial College London

Johnny Lundgren – Vice President, BD

Scott Maslin – Manager, KPMG

Andy McKeon – Managing Director, Audit Commission

Professor Graham Mulley – Emeritus Professor of Elderly Medicine, Leeds University

Dame Denise Platt – Chair, Commission for Social Care Inspection

Tom Wright – Chief Executive, Age UK

Appendix 2: Methodology

The information used in this report was derived from:

– A review of the literature pertinent to the main themes of demographic change, ageing, health and social care. The literature covered a range of quantitative and qualitative data including academic, clinical and research papers and grey literature.

– Semi-structured interviews with over 25 experts from the fields of academia, industry, policy and non-governmental organisations. The NGOs represented include the World Health Organization, NICE International, HelpAge International, Alzheimer's Disease International, Prudential, University College London, Kings College London, Ben-Gurion University, Israel, Instituto Argentino de Diagnóstico y Tratamiento, Argentina, and the Centre for Sustainable Health.

– The recommendations of a focus group on innovations at the Annual General Meeting of the International Longevity Centre Global Alliance in Prague, including representatives from all 14 centres.

– Strategic guidance and advice from the Ageing Policy Working Group (listed above).

Throughout this report we use as a generic term the phrase "older people" as opposed to "the elderly" as the latter term is perceived by some to denote frailty. Where possible we seek to clarify and distinguish age ranges or health status; for example, we might use phrases such as "older people with high support needs" or "older people 80 years of age". There is also an implicit recognition that a "one-size-fits-all" policy approach is outdated and misleading: the ageing population is very diverse, and old age is not a static form but constitutes a "continuum of independence, dependence and interdependence".

Since this report is intended to be global in its approach, we have sought to avoid assuming a westernised model of analysis. Throughout the research process, every effort has been made to elicit the views of experts from a cross-section of low, middle and high-income countries. Other than in direct quotations, the terms "developing" and "developed" are not used to refer to countries: instead, we use "low-", "middle-" and "high-income" countries.

Appendix 3: Complete List of Innovations Researched

"Healthy People 2020" – a health-promotion programme for older people in Taiwan with a particular focus on the prevention and management of chronic conditions including diabetes, hypertension and asthma.Taiwan

"On Lok" – an integrated, community-based programme covering all the medical and social services of relevance to the frail and elderly. It also includes a new financing model. U.S.

"Return Smiles to the Elderly" – a programme to provide and fix dentures and provide oral healthcare accessories free of charge for older persons. Thailand

"The Healing Environment" – environment enhancement for people with dementia. UK

Beth Johnson Foundation – information on intergenerational activities. UK and international

Brazil's 10-year health plan (2011-2021) – including support for municipalities to establish 4000 "health academies" intended to guarantee older people and others a place under supervision to participate in physical activity. Brazil

Buurtzorg – delivery of care through flat-structured semi-autonomous community care teams. Netherlands

CAALYX (Complete Ambient Assisted Living eXperiment) – incorporating three main components: (i) the Roaming Monitoring System, used to collect information on the well-being of the elderly users; (ii) the Home Monitoring System, that is aimed at helping older people to live at home, is being implemented by a device (a personal computer or a set top box) that supports the connection of sensors and video cameras that may be used for monitoring and for interaction with the older person; (iii) the Central Care Service and Monitoring System, that is implemented by a caretaker system where attention and care services are provided to the older person, logically links Caretakers, Doctors and the older person. Spain and Portugal

Care Robots – automated care in homes and hospitals. The Japanese government have earmarked 7.6bn yen ($93m; £58m) to support the installation in Japanese homes of machines capable of simple tasks, e.g. lifting; to commercialise simple domestic robots; and to develop safety technologies and standards. Japan

CATRA and the use of smartphones for cataract screening – see above, main report. International

China National Committee on Ageing – made up of 26 government ministries and NGOs and intended to coordinate work on ageing throughout the country. China

Comprehensive Geriatric Assessment – performed by interdisciplinary teams. Various international

Creating a Culture to Support Older Workers – see above, main report. Singapore

Creating Age Friendly Transport and Transport Systems – see above, main report. Japan

Daktari1525 – a "teletriage service" enabling callers to access medical advice and speak to qualified medical practitioners, operating 24 hours a day. Africa, various

Dementia Care Mapping Models (Bradford University) – designed to evaluate quality of care from the perspective of a person with dementia http://www.brad.ac.uk/health/dementia/dcm/. UK and international

Dementia Dogs – a programme to train and supply specially selected dogs to improve the confidence, wellbeing and support of people with dementia. UK

Dementia screening tool developed specifically to assess rural population – developed for settings where many of the people tested are illiterate and there is a paucity of trained medical staff. Indonesia

Developing micro-insurance programmes in Bangladesh – full description in report. Bangladesh

Encore Careers – salaried work for those 60+ in the non-profit and public sector. U.S.

Encouraging and facilitating remittance cultures in Africa with M-Pesa – full description in report. Kenya

Extra Care Housing – full description in report. UK

Fall prevention – population-based interventions to reduce fall-related injury among older people in the form of a coordinated programme using multi-strategy initiatives to implement the countermeasures in an entire community or large part of a community. Australia, Denmark, Norway, Sweden, Taiwan

Find Your 1% campaign – an innovation to get GPs to spot which 1% of their patients will be in need of end-of-life care. UK

General Electric HealthAhead (http://www.ge-healthahead.com/) – an interactive website with various resources and tools for all GE staff to self-identify and manage theier own health states and wellbeing. U.S.

Geriatric Clinics – for comprehensive evaluation of elderly patients. Israel

Golden Sunshine Action Programme – throughout the country, teenagers and people from various professions mobilised to help older people in day-to-day living, provide help with medical and health care and legal aid, and forming one-to-one relationships with the aged at home. China

Grouple – helping carers to care through shared information – full description in report. UK

Healthy Outlook – full description in report. UK

Hertfordshire County Council Breakaway for Carers Scheme – online database for carers to get respite assistance. UK

Home Instead Senior Care – home-based care for patients with Alzheimer's, based on person-centred principles. U.S. and UK

House Calls – a programme of home-based primary and specialty care for frail seniors. Canada

Housing benefits and tax relief in Singapore – full description in report. Singapore

Innovations in urban design with explicit incorporation of 24-hour care systems – Toyoshikidai housing estate in Kashiwa province is being remodelled to assist in the process of ageing in place. Japan

Integrated Care – full description in report. UK

Isle of Wight improvements in dementia care – including Dementia pre-screening and a Dementia outreach service. UK

Joint project between local authority and NESTA to develop new models of service delivery – online communities of practice, which exchange information on adult social care. UK

Lanxess (a German chemicals group) – plan to maintain a productive workforce as the average age rises, via: flexible work, eldercare, flexible retirement solutions, training, and a focus on working conditions. Germany and International

Long-term care insurance in Japan – full description in report. Japan

Medical care centres – a model of care that gathers general practitioners and a team of specialists, pharmacists, physiotherapists and chiropodists in one single healthcare centre. Germany, U.S., France, Denmark, Norway and UK

Men's shed initiative – full description in report. Australia and other countries

My Amego – IT-based system of "intelligent assistive technology". UK

National campaign called "Sunday, the Family Day" – for strengthening relations and care between family members of all ages. Thailand

National plan for Alzheimer's and related diseases 2008-2012 – includes the addition of 65 new memory clinics focused on early detection; and an effort to add more than 500 new diagnostic centres throughout the country. There has also been an increase in the number of respite care facilities to help carers of people with Alzheimer's. France

National Sports and Exercise Medicine Centre of Excellence – part of Olympic Legacy – research into exercise as medicine. UK

Northumberland Carers Association – it switched from a buildings-based model of carer support to a virtual organisation. UK

Ode fragrance-release system – designed to stimulate appetite among people with dementia. UK

Participle's Circle Movement (http://www.participle.net/projects/view/5/101/) – focused on addressing social isolation in an ageing population. Older people become members of the "Circle" and buy tokens, which can be redeemed in exchange for practical assistance, such as gardening, help around the house, advice on how to send a text message, and computer training. UK

Patient hotels – full description in report. Sweden

Pensions in low-income Countries – full description in report. South Africa

Personal budgets – full description in report. UK

Preventive assessments for people aged 75 years and over – preventative assessment programmes to improve health outcomes for community-dwelling older people. Australia

Preventive Interactive Computerised Primary Care Outreach Intervention – screening and comprehensive evaluation in clinics of high-risk elderly patients. Israel

Promotion of mass sports and fitness exercise – development of sports activities for older people and comprehensive activity centres with multifunctional equipment throughout the country. China

Public education on ageing – special funds for promoting inter-generational bonding and active ageing, and community initiatives to further these; also substantial NGO activity to strengthen inter-generational solidarity; also the establishment of Council for Third Age to oversee these activities. Singapore

Retro-decorating – Surrey Council has already started to use retro-decorating in homes and day centres. Retro-decorating schemes replace modern technologies with older versions, surrounding dementia sufferers with objects from the past to trigger their memory, and using and colour and light to make daily tasks simpler. UK

Right to Sight – prevention of blindness campaign, which screens older people for eye problems at pension pay points and old age homes, and refers those with a problem for visual-acuity assessment and possible surgery. South Africa

Senior co-housing – full description in report. Denmark, Sweden, U.S. and UK

SilverLine – telephone service for older people "to talk in confidence on a range of issues". UK

Singapore Government's adopting of technological solutions to allow older people to age-in-place – the Housing and Development Board has introduced several design features in its public housing provisions to make them age-friendly and accommodate the growing needs of people in their later years. Singapore

State-provided home care – up to 18 hours per week and/or time at day-care centres to promote "ageing in place". Israel

Supportive communities – providing (mainly) voluntary support in communities, including services like home repairs and transport. Israel

Tai chi and Green Gyms – organised physical activities for older people in parks and public spaces. Green gyms offer exercise equipment for older people, and also help to generate electricity. Tai chi takes place in most public parks. China

Tax incentives – lower tax rates planned on the income of older people, in view of their vulnerability to greater health expenditures; and tax incentives proposed for children of dependent older people to encourage co-residence with adult offspring. India

Tax Incentives – privileges for children who take care of their parents/parents-in-law, and tax deduction entitlements for health insurance policies purchased by children for their parents/parents-in-law. Thailand

Telemedicine in Denmark – full description in report. Denmark

The Integrated Programme for Older Persons (IPOP) – providing basic amenities like food, shelter, medical care and entertainment opportunities, thereby encouraging active ageing. India

The Intergenerational School, Ohio – a charter school next to a memory clinic – each class is linked with a long-term care facility, with older people acting as mentors. U.S.

Official changing of the label for dementia in Japan (in 2004) – to raise public awareness of dementia and replace the previously stigmatising word “chihō”, which translates as “a disease of cognition associated with idiocy”. Japan

The Maintenance and Welfare of Parents and Senior Citizens Act – full description in report. India

Transmural care – integration of primary and hospital services. A bottom-up facilitating approach was chosen to stimulate development of “transmural care” between traditionally separate sectors. The Netherlands

Turning assets into income in high-income countries – full description in report. UK

Veterans Health Administration – full description in report. U.S.

Walking for Health (Natural England) – organised “health” walks established in 2000 and now involving 75,000 regular walkers. UK

Wandsworth Hospital Virtual Wards – provide support in the community to people with the most complex medical and social needs by: (i) acting on evidence-based forecasts from predictive risk-modelling in order to reduce non-elective secondary care usage; (ii) providing multidisciplinary case-management; (iii) serving as a communications hub for all those involved in the care for these complex patients; (iv) offering intuitive working systems that appeal to patients and clinicians alike. UK

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