



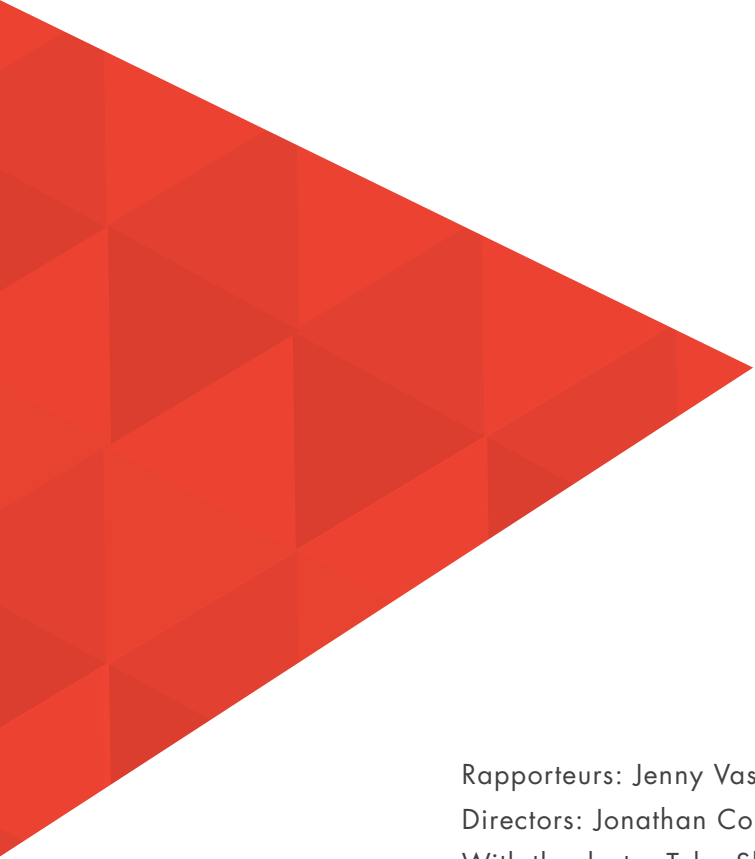
JESUS COLLEGE
CAMBRIDGE

AGEING
WELL

2017




INTELLECTUAL FORUM
RUSTAT CONFERENCES



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A WELCOME FROM OUR DIRECTOR



DR JULIAN HUPPERT

Life is busy. Far too often, we are all so engaged in doing all our daily tasks, that we simply lack the time to step back and reflect, thinking about the bigger picture.

The Rustat Conferences, running now for almost a decade, are a rare chance to break out of the normal cycle of activity. We have studied many important topics, looking for areas of agreement or disagreement, and seeking to identify the key unanswered questions. We address many of the crucial issues of our time.

Ageing is a process that happens to all of us, but our experience of it changes dramatically. Children often await each birthday with eager excitement, whereas they later seem to come along with ever-increasing rapidity. For this conference on ageing, we brought people together from many backgrounds – government and academia, medicine and business, campaigners and carers. Attendees ranged from their 20s to their 70s.

Ageing has too often been seen as a problem to be addressed in medical terms and with social care – the question being essentially how we cope with all these old people. One key theme that resonated clearly was that we should instead see it as a far more positive process. The unpleasant negative stereotypes of old people – decrepit, demented, and waiting to die – simply do not describe the realities of ageing for most people. We can exert a great deal of control over how we age. What does society need to do, and what do we each need to do, to have the best long-term experience? Older people have an immense amount to contribute.

Inequality is an immense problem. There is no doubt that the cohort of baby boomers now in early retirement have more wealth than ever before, which raises real concerns about intergenerational justice. 30-somethings are finding the world much tougher than they would like. But any focus that only looks at the averages by age is missing the inequalities within age groups. While some pensioners are doing well, there is still huge pensioner poverty; while many millennials struggle, others are financially very well off. What should we do to reduce all of these inequalities?

We have not sought in this report to answer every question – that would take far more than a single day's discussion. But we hope to have identified what those questions ought to be.

With thanks to our Rustat Members and attendees,



INTRODUCTION

THE RUSTAT CONFERENCES



Britons are living and working longer. How to respond to our ageing population is one of the most important and pressing issues facing policy makers today. We often hear about how older people pose a burden. But longer living presents a huge number of opportunities for individuals and societies. Critically, we must explore the benefits as well as the problems that ageing can present for government, industry, and society.

At this Rustat Conference, we brought together leaders from business, government, the third sector, and research to discuss ageing in our society from a variety of perspectives. We divided the conference into keynote addresses and four sessions, each with an introduction from experts in the field, followed by a roundtable discussion among all participants. Those sessions have been consolidated in this report to reflect the key themes of the day:

1. Improving Health and Well-Being
2. Political and Economic Needs
3. Caring for Older People
4. Harnessing Technology and Innovation

The Rustat Conferences convene interdisciplinary expertise and our purpose in this report is to outline and identify what is known, as well as the key challenges and questions facing leaders in years to come. For more information on the Rustat Conferences, see: www.jesus.cam.ac.uk/research/rustat-conferences.



HIGHLIGHTS

24.2%

of people in the UK
will be 65+ by 2040

There are now more
people in the UK
aged 60+ than
those under 18

1 in 3 baby girls and
1 in 4 baby boys born
in 2011 are likely
to live past 100



There are **14,570**
centenarians in the U.K.,
up 65% since last
decade. Of these, an
estimated 800 are 105+,
double that of 2005.



CARING FOR OLDER PEOPLE

500,000

aged 50+ people in
England are carers

In 2014, there were
421,550
delayed discharges
attributable to lack of
care in place

PEOPLE WHO NEED ASSISTANCE IN DAILY LIVING AND ACTIVITIES

AT 80+



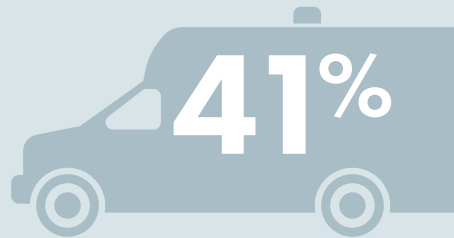
AT 90+



Spending on
care in 2014
£77
billion

IMPROVING HEALTH & WELLBEING

Almost **59%**
of people aged
80+ in the U.K.
have a disability.



*of adults admitted
to a U.K. hospital
last year were 65+*

25,000

aged people in the
UK, could die
prematurely from
the cold this winter



Dementia costs the U.K. around
£26.3 BILLION
last year, about twice as much as
cancer, but 12 times as much is spent
on cancer research.

Over the last decade, disability
free life expectancy increased
significantly but, since 2012, men
lost 75% and women lost 60% of
the gains made in the earlier part
of the last decade.

QUESTIONS FOR

1

How can society evolve its
understanding of health and
cognition to drive longer,
better lives?

2

How can public services be
reshaped to meet future, as
well as present, needs?

3

What can be done to
facilitate longer periods of
independence and agency
for older people?

CONFERENCE WHAT WAS SAID

PEOPLE

are
57
days
of social

ding on social
n England has
fallen by
70 Million
nce 2010

POLITICAL & ECONOMIC NEEDS

Today's younger generation could struggle to match or exceed the living standards of the generation before them; in terms of earnings, income, and assets. We have become used to the idea that subsequent generations do better, so this is a real concern for us.

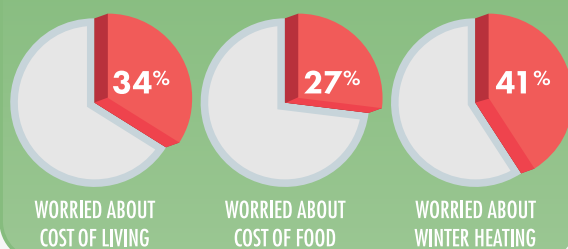
Laura Gardner,
Resolution Foundation

1
MILLION
people working
beyond 65

Older households (65+) in the
United Kingdom contributed about
£61 BILLION
per year to the economy in 2013/2014.



PEOPLE AGED 60+



HARNESSING TECHNOLOGY & INNOVATION

It's somebody's fault if you can't use the product; it's not your own. If you get it right, inclusive design is just better design. It opens up a wider market. It's better for everyone, not just the person who might be excluded.

Professor John Clarkson,
University of Cambridge

4.2
MILLION
aged 65+ in the U.K.
have never used the
internet

Across all age groups,
disabled people are **less likely** to use
the internet than those who are not disabled.

FOR LEADERS

4

How do we avoid a system of informal caring that makes the wellbeing of future generations worse?

5

How do we capitalize on technology and innovation to improve the quality of life alongside length of life?

6

How can we use technology intelligently while avoiding the creation of loneliness?



KEYNOTE SPEAKERS

[Tom Wright CBE](#)

Age UK

[Professor Sarah Harper](#)

Oxford Institute of Population Ageing

Session Summary

When we think about older people, health concerns are often the first thing that comes to mind. Our keynote speakers pushed beyond this, exploring the whole picture of wellbeing of older people, and how we as a society can promote ageing well through policy and social action.

Wellbeing is both a consequence of, and impacts upon, society. The challenge has shifted from simply extending the number of years lived to extending healthy life. Both speakers called for transformation of current systems and institutions to place wellbeing - a concept that captures physical health as well as psychological states - at the centre of responses.

Tom Wright, CEO of AgeUK, detailed how people are living longer, but with longer periods of disability. They are also working longer. This indicates that we need to look at how to prevent disabilities, and consider how we use technology and design to support people to maximise what they can do.

By considering whole-life analysis, Professor Sarah Harper, University of Oxford, concluded that investment in education at an early stage results in better work outcomes and therefore in general a longer, healthier life. She highlighted the importance of the early years - from pre-school education forward - on living longer, healthier lives.



What was the biggest challenge facing the UK Government, now and going forward? Putting wellbeing right at the centre as all individuals age. It's about how the Government supports that in the light of inter- and intra- generational inequalities."

Professor Sarah Harper
University of Oxford



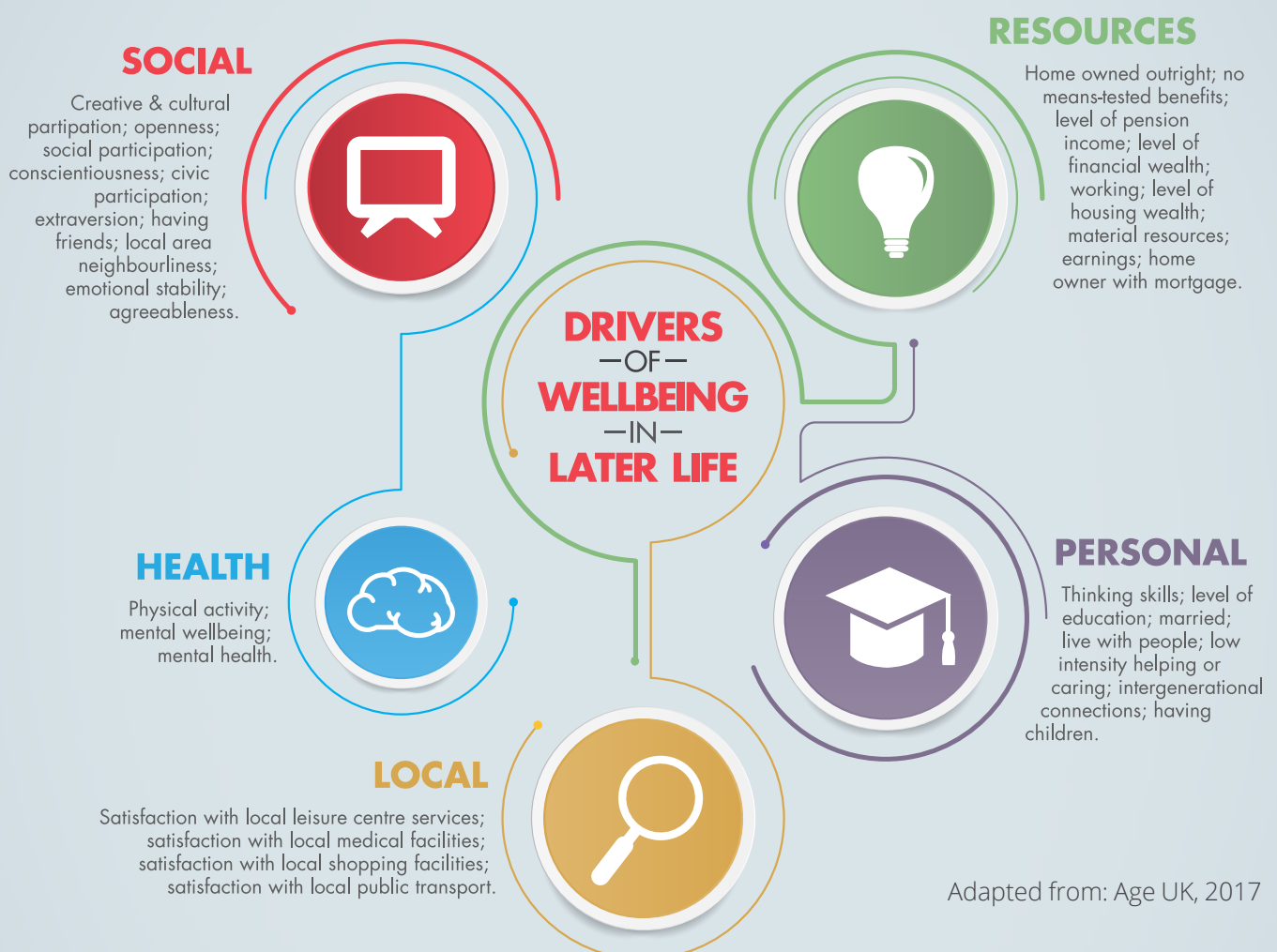
WHAT WE KNOW

Across the last century medicine vastly extended life expectancy in the UK. This, along with changing birth rates, meant the number of older people increased rapidly. There has been a fundamental demographic shift.

But while many of the diseases that previously shortened life have been addressed, there are still many things to achieve. For example, brain health remains a central challenge. 850,000 older people are living with dementia in the UK.¹ Twenty percent of people over 65 in the UK already have some kind of mild cognitive impairment.² 2.3 million people. There is much more work that can be done on brain health and cognitive decline. While we are living longer, are we living well? Can we do more to improve quality of life while ageing?

Troublingly, the number of people living with disability at age 65 in Britain is increasing, rather than decreasing.³ This limits an individual's ability to live independently, increasing their need for support and decreasing their wellbeing. But the impact of poor wellbeing is not just on individuals; those who have poor wellbeing will have a third to a half of a greater impact on the NHS than those with good wellbeing.⁴

The factors known to drive wellbeing are summarised in the figure below.⁵ We must consider the whole person when we think about later life, not just about addressing poor physical health.



WHAT WE MUST CONSIDER

Ageing is not just an issue for older people. It concerns all generations, as well as presenting major challenges for policy makers and researchers. There are vast inequalities at present in British society that flow from early age across to the older generations. A number of pressing issues therefore emerge:

- ① How do we evolve our understanding of health and cognition to build longer and better lives across generations?
- ② How do we ensure there are enough medical and caring professionals to meet the future needs of our society?
- ③ How do we ensure that resources are distributed fairly across generations and within generations?
- ④ How do we address Britain's current, significant life-long inequalities to ensure better ageing is experienced by all?
- ⑤ How do we reshape views of ageing as decline and illness to be more positive?
- ⑥ How do we capitalise on technology and innovation to improve the quality of life alongside length of life?



THEME ONE: IMPROVING HEALTH AND WELL-BEING

Session Summary:

There are more older people than ever before in Britain. The number of people over 65 years of age is increasing, while the size of the over 85 population has grown.⁶ The number of centenarians (people aged 100 and over) living in the UK has even risen by 65% over the last decade.⁷ The expansion in numbers of "older" older people raises profound challenges, but also many opportunities for new thinking and practice.

Our discussion emphasised, for instance, that rising levels of co-morbidity require different responses by healthcare professionals than traditional approaches, which tend to focus on single conditions. Rethinking practice is key. But we must focus on driving wellbeing and independence for older people. Troublingly, there remain great disparities in health and well-being across the ageing population. These identifiable life-long inequalities across British society need to be addressed.

Also, while there has been much discussion of dementia, we don't yet know much about what we can do about improving brain health. What is clear is that cognitive decline is not just linked to age. The picture is complex. How much can we control brain health? What can we do? Research is needed into what interventions work and how to best allocate limited health and social care resources.



There are over half a million people aged 90 and over in the UK.
70% of these are women.



Nearly 1 in 5 people currently in the UK will live past 100.
This includes 29% of people born in 2011.

WHAT WAS SAID

Disability is increasing

Rather than focussing on fatal diseases, it is critical to change thinking and explore that the greatest limitations to older people are now disabilities. Arthritis, for example, has a very disabling effect: reducing personal independence and wellbeing, while impacting on the ability to maintain physical health. It may not attract headlines, but it is the most disabling condition affecting our society, with wide ranging consequences on the person and their need for care.⁸

Malleability: how far is brain health within our control?

Brain health is an essential part of an individual's healthy life expectancy. Across people's lifetimes we see a considerable variety in both the health of the organ itself and its cognitive function.⁹ It is not true to say that all 85 year olds have the same capacity, and therefore it is understood that there are different factors affecting brain health, like wider physical health.

We know some things about how the brain changes over an individual's life. Smoking, for example, is a huge risk factor for dementia.¹⁰ We also know that the adage that crosswords and sudoku maintain cognition in later life requires further evidence.¹¹ There is strong evidence that those who speak multiple languages are able to carry that greater level of lifelong cognition into later life.¹² We know that by building up cognitive skills across the whole life span, we can have greater reserves of cognition going into later life.¹³ But exactly which factors have impact? More research on interventions is needed.



Health and Care

The National Health Service in England and Wales, as many healthcare systems, is largely structured around single issue care and treatment. Professionally, medical personnel are rewarded for specialisation, rather than diversification and holistic treatment. As individuals become older, they are more likely to have multiple conditions. For example, after 85 years of age men generally have four diagnosed diseases, while women have an average of five.¹⁴ For older people, therefore, the structure of our medical system requires evolved thinking and restructuring, while professionals may require different training.

A core issue is the last year of an individual's life. This year is the most expensive in terms of medical interventions. Ideally, policy and practice need to shift to delivering earlier interventions. Emphasis should move to maintaining older people's independence and functionality for as long as possible. This will reduce the time spent in high cost residential and medical care towards the end of life. The great question is: how do we make that shift happen in practice?

Life-long inequality

Undeniably, structural inequalities across UK society make the greatest difference to ageing outcomes. According to Age UK, "[t]here are huge socio-economic differences in disability free life expectancy at age 65 – a fivefold difference between people in the poorest and most affluent areas – e.g. a woman aged 65 has an expected 3.3 years of healthy living in the worst area compared to 16.7 years in the best".¹⁵ Factors across the years like early years education, quality of work, and continued good health and activity, are indicators of disability free life expectancy. To quote Professor Carol Jagger, "if we dealt with inequalities across lifecourse we could raise healthy life expectancy considerably".

“ The UK has the highest rate of fuel poverty and highest rate of excess winter deaths in Europe, and is near the bottom of the other league tables on affordability of space heating (14 out of 15), share of household expenditure spent on energy (11 out of 13), homes in poor state of repair (11 out of 15), thermal performance (6 out of 8), and the gap between current thermal performance and what the optimal level of insulation should be in each country (7 out of 8). Overall, no other country of the 16 assessed performs as poorly as the UK across the range of indicators.”

Association for the Conservation of Energy, 2013

ISSUES FOR THE UK



Over £9.8b of health and social care spending is due to malnutrition in people over 65.



6.25 million older people with a long-term limiting illness or disability by 2030.



Loneliness can be as harmful for our health as smoking 15 cigarettes a day.



Dementia costs around £26.3b a year, twice as much as cancer, yet we spend 12x as much on cancer research.

WHAT WE DON'T KNOW

There are critical gaps in our knowledge around encouraging health and wellbeing across lifecycle. Critically, we need to better understand what interventions work best and when. For example, in terms of the brain, we know it is not only affected by age. However, other than being bilingual and not smoking, we do not have strong evidence of what interventions work and when they are best implemented. We do know that keeping people's brains healthy is key to keeping them independent and preventing disability. Not only must we take a whole-of-life approach, exploring how to reduce the risk factors over a lifetime, but we must also drill down and look at what works, how it works, and when it works best. Some examples of research needed arose in discussion:

How frequent must exercise be to have an impact?

We know that exercise is good for not just the body but for the brain. We know it must be cardiovascular to have impact. What we don't know is how much or how frequent it needs to be to have an impact.

What early interventions are needed and when?







Braintraining remains popular especially in the USA. However, the evidence is very mixed on how effective these exercises are. We need to know more about what interventions can be used across an individual's life to build a healthier brain.

What about community-based interventions?

We presently spend significant money on community-based interventions to prevent hospital admissions. However, there is little evidence on the efficacy of these. More research is needed around interventions and their efficacy.



KEY QUESTIONS REMAINING

-  How do we incentivise a holistic view of health and wellbeing in light of the fact that government departments and the structuring of the medical professions lead to silos?
-  How do you shift investment in health and wellbeing earlier in the ageing process? Rather than spending the majority of money in the later stages of care, how do we fund preventative and supportive measures to live a longer, healthy life?
-  How do we delay the onset of dementia, knowing that by delaying its onset by five years would save around 30,000 lives per year, halving the deaths it causes?
-  How can we build better interventions that encourage wellbeing and health across the lifecourse as well as during critical periods that impact the most upon ageing?
-  How can we better address systemic inequalities to improve not just life expectancy but also quality of life for individuals across the UK and beyond?
-  How do we redesign services to meet the needs of older people with multiple conditions?

THEME TWO: POLITICAL AND ECONOMIC NEEDS

Session Summary:

With ageing best explored in terms of lifecourse, it is critical to assume a cross-cutting, multi-generational outlook, both politically and economically. As the large baby boomer cohort moves towards older age, we presently face the prospect of greater pressure on a wide range of services, as well as on funding. Described by some as “the pig moving along the python” – a distasteful but appropriately dramatic visual – the baby boomer group poses unique challenges for policy makers, businesses, and society more broadly.¹⁶ We are left asking: how, as a society, should we support a larger group moving into older age?

In this session, we explored how we need to have, as a society, a conversation about what we want to provide and to receive. We must ask what ageing well means. We should think also about how we can enable agency and dignity in later life. Critically, how will we address the considerable socio-economic inequalities in Britain, which translate to different life expectancies and quality of life. It is clear that if we address inequalities, the ageing experience would consequently improve for many. However, it is not clear that, at present, there is the political impetus to achieve this.



“

Older households (65+) contributed about £61 billion a year to the UK economy in 2013/14. £37 billion of the total amount came from employment. £11.4 billion from informal caring. Child care contributed £6.6 billion. Nearly £6 billion came from volunteering.”

Age UK, 2017

“

Over one third of people aged 60+ are worried about the cost of living, 27% are worried about the cost of food, and 41% are worried about the cost of heating their homes in the winter.”

TNS Tracker Survey for Age UK, 2015

WHAT WAS SAID

Pensions

Current demographic trends mean previous funding models for pensions are not sustainable.¹⁷ Some governments have responded by extending working lives, while others have focused on increasing contributions to pensions and retirement funds. In the UK, for example, the Government increased the state pension age, and introduced automatic enrolment into new workplace pensions, including duties on employers to contribute.¹⁸

These measures, though, may actually act to worsen social and educational inequalities, reinforcing the difference between those needing the state pension and those drawing on private funds. With the State Pension now boosted by the “triple lock”, most will receive a basic level of payment, however if someone does not meet the qualifying years for a state pension, they may be quite badly off.¹⁹ Discussants asked, how should state support be funded in the future?

Intergenerational Inequality

Inequality is apparent not just within generations but also between them. The current working age generations are experiencing less opportunity to build the assets previous generations could build.²⁰ Meanwhile, while austerity has marked fiscal reductions that affect all generations, those who are older now have received the benefits of a greater level of state spending throughout their lives.²¹ Without dramatic changes, younger people will not see such spending across their lifetimes. This may also lead to longer term, intergenerational inequalities. The discussants called for greater investment in areas that transcend generations like education and housing.



“ On average, men leave the labour market earlier now than they did in the 1950s and 1960s, and often this is not a planned early retirement, but people forced out of work by circumstances beyond their control.”

Department for Work and Pensions, 2014

Political Responses

There are many issues around ageing that require robust and immediate political responses, from fuel poverty to health and social care provision. However, the issue that continues to dominate debates is how to finance what is needed for the future larger cohorts of older people.

There are four key options:

1. increase the working-age population;
2. change the shape of working lives;
3. increase taxation; or
4. change who is affected by taxation.

The first option involves increasing immigration to the UK: a politically unpalatable suggestion in the current climate. Alternatively, improving the birth rate could address the short-term issues, although this “baby boom” may pose similar issues down the line.

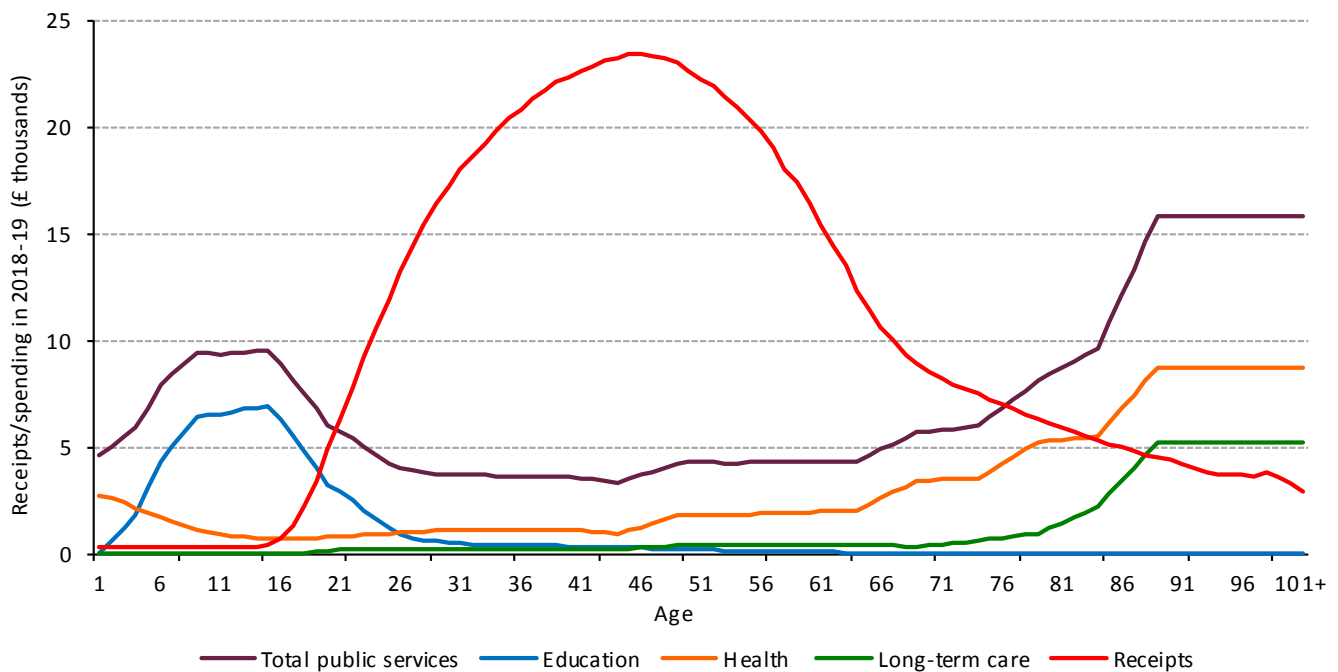
Changing the shape of working lives is a less-explored area. Technology and changing workplaces mean people are able to work longer: the recent Rustat Conference Report on the Future of Work explored this issue. However, it remains the case that, by the time they reach state pension age, half of workers have already retired.²² Changes to the nature of work must be further researched.²³

The third option of increased taxes was proposed by several parties running in the 2017 General Election. According to the Resolution Foundation, though, generational accounting suggests that to raise sufficient funds the basic rate would need to increase from 20p to 40p.²⁴ The burden of this would fall disproportionately on the current working age population – generations already struggling to build up the same assets that their parents did in terms of housing and pensions. Intergenerational inequalities must be considered.

This leaves changes to who is taxed and when. Older people presently pay a lot less tax on the same income than a person under retirement age. For example, if we cut national insurance by 5p and increase taxation by the same amount, a working age person would see no difference in his or her pay cheque, but an older person would pay more tax.²⁵ The money generated could be earmarked for specific service provision for older people.



REPRESENTATIVE PROFILES FOR TAX AND PUBLIC SERVICES SPENDING



Source: OBR

Economic Responses

Fiscally, we contribute the most at working age and take out most at the start and end of life. For the next twenty years in particular, largely because of demographics shifts, we face economic challenges and a notable impact upon the dependency ratio. According to the Resolution Foundation's calculations, the ratio of children and those of retirement age to those of working age will increase almost twice as fast in reality as the theoretical ratio if cohorts were typical sizes.²⁶ This puts greater financial and caring pressure on the working age cohort.

Also, demographic changes place the UK at a disadvantage globally. In terms of global economic competitiveness, we may face real challenges if countries at the start of their demographic transition can educate and open up their labour markets to take advantage of that transition as we once did.

But discussing a dependency ratio perpetuates the idea that older people are a burden. This group contributed substantially throughout their working lives and continue to do so through volunteering. Older people make a net positive contribution to the economy. Good health and well-being facilitates further contribution, so investing to keep older people in good active health is critical. The cost of healthcare and support can be seen as investing in citizenship. We must support older people to continue their net positive contribution to society, and reshape views of older people as just a burden.




WHAT WE DON'T KNOW

With all the economic data we have and knowledge about intergenerational inequalities, the discussants noted an important point: older people spend down their pensions, but not housing assets or savings.²⁷ We speculated that this is due to an aversion to risk; people are fearful of spending and not having enough for 'a rainy day'. Such behaviour leads to inequalities within the older generations, impacting on people's own standard of living in late old age, but also leads to asset inequalities between generations, as younger people cannot access affordable housing stock.

Importantly, as so-called millennials perceive things as getting worse for them, there are also links to decline in trust and in support for democracy. We don't know how to reconceive intergenerational exchange and flow of assets yet. This is a critical issue linked to ageing well. We were left asking: what will happen in the generation who don't have as many assets as their parents and grandparents? With housing ownership already in a dramatic decline in recent years, will the idea of owning assets like houses simply just end? Will consumption reduce and impact business? We know inequalities have profound impact across life course, but how can we best tackle it?



KEY QUESTIONS REMAINING

-  Of the fiscal options to create intergenerational fairness, what would be the most politically achievable and publically supported?
-  How can we better understand and address "rainy day" savings to facilitate a better distribution of assets and savings in the UK?
-  How do we design and fund public services to meet future, as well as present, needs?

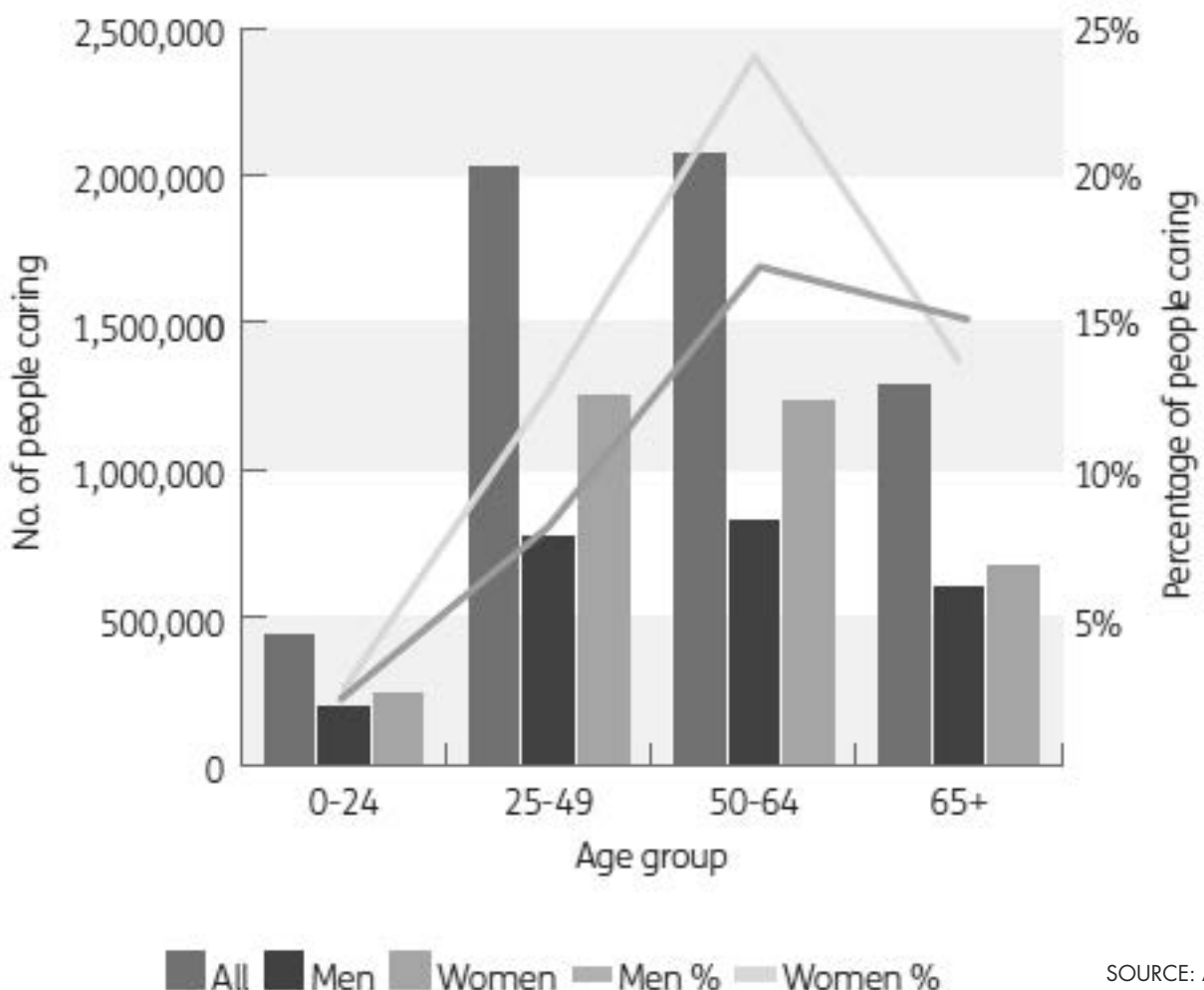
THEME THREE: CARE FOR OLDER PERSONS

Session Summary:

Longer lives and greater numbers of people experiencing disability mean there is an increased need for care. Discussion therefore focused on how care is funded and who delivers care. The nature of care is changing, as is the type of person acting as carer. Informal care is increasing. Men in their 60s and 70s are one of the fastest growing groups of informal carers.²⁸ Nearly two million people aged 50+ are carers.²⁹ And because informal care is often for a family member or partner, they are generally providing intensive care.

This means care for older people is creating pressures on their children, who themselves are moving towards later life. Additionally, there is pressure on the National Health Service and on the social care systems. The result is a need to consider both funding and delivery. For some, funding care will be possible from the sale of homes, but for many this is not possible. The focus should be on encouraging agency and living well longer.

NUMBERS AND PROPORTIONS OF PEOPLE CARING BY AGE GROUP



SOURCE: AGE UK
CITING ONS, 2011

WHAT WAS SAID

The Home

For older people, the word “home” has many aspects to it. For some, it represents their independence and autonomy. For others, it is an asset—a safety net—that they will be able to release equity from to pay for any needs, including their own care. There is great inequality in housing assets across the UK though, and in areas where there are fewer and lower value housing assets, older people may be more reliant on state funding and services.³⁰ Discussants also asked: if so-called Millennials aren’t buying houses now, will they ever? What will this mean in the future?

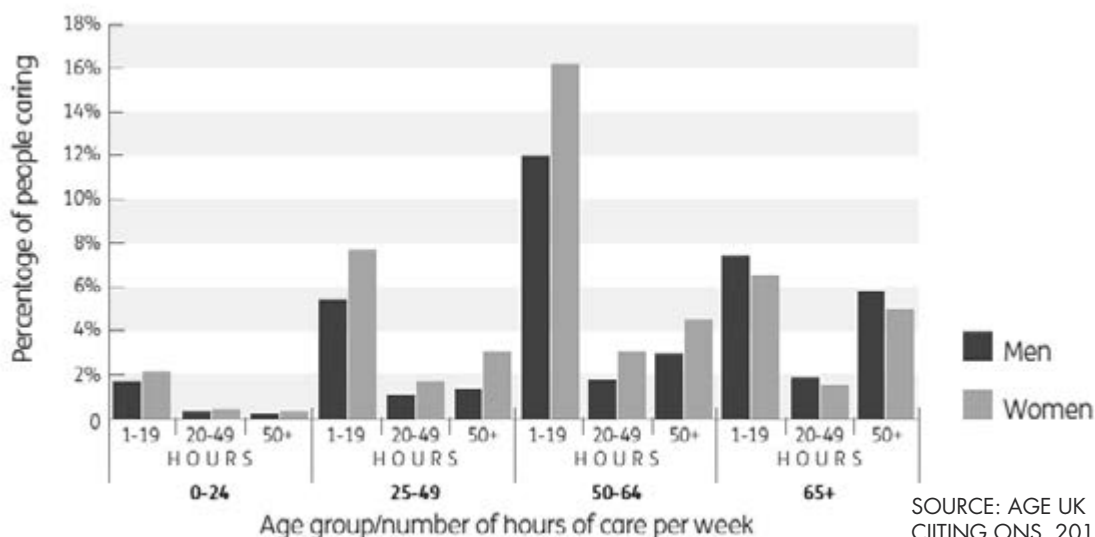
One response, witnessed around the world, has been a rise in intergenerational housing, especially in the USA.³¹ Such housing distributes the economic and care burdens across generations. However, such a configuration requires the space to accommodate everyone, posing new design and social challenges. But it also means those approaching retirement are often acting as carers for older parents, while remaining financially responsible for, even housing, their children for longer. This may impact on working lives and the wellbeing of this age group substantially.

When to enter care

We know interventions can be made that enable people to remain independent for longer. Locally, in Cambridge, for example, the majority of people move accommodation into locations offering more intensive care in the last year of life, and in very old age, this decision is almost entirely due to an acute illness, fall, or fracture.³² Such ill health drives moves into care, which are often stressful and upsetting.³³ Discussants asked: could we manage a transition better earlier? How do we offer better end of life pathways?

With cognitive impairment, there is a different picture. A majority of patients with dementia die in a long-term care facility.³⁴ The provision of appropriate facilities with appropriate staffing may be the reason that older people with dementia avoid dying in hospital and ensure quality of end-of-life care.

HOURS PER WEEK OF UNPAID CARE BY GENDER AND AGE GROUP





Learning from Abroad

Australia developed a new program, 'Living Longer, Living Better', following a bipartisan Commission, which involved a shift to the provision of a financial package to facilitate assisted-living that covers the whole service continuum.³⁵ An individual is assessed and a package of resources is made available to him or her, with the specific focus of the budget being on outcomes. This package allows for individual agency, as long as funding is spent with the intent of delivering the outcomes in the plan.

Unintended consequences emerged. Older people are "saving for a rainy day". Individuals try to get the maximum support by time spent, rather than the most appropriate support, stockpiling any expendable resources. Also, individuals have to manage their own purchases and shop around, which requires informed consumption. A side effect has been that pricing in the sector has become more transparent. The discussants therefore asked: how should the state regulate markets and support individuals to access the most suitable care? Do older people need individual advocates to act as support? Furthermore, how can we achieve political support, particularly bipartisan support, to drive new measures?

Inclusion of the Oldest Old

In the UK, there are now half a million people aged over 90, which is almost three times the number of the oldest old from 30 years ago.³⁶ These individuals are at the greatest risk of becoming voiceless. Discussants detailed how increased isolation is apparent. In part this is linked to increased reliance on technology and social media. It is important then to enable agency and enjoyment of the extra years of life medicine is driving.

WHAT WE DON'T KNOW

The last year of life is known to be the most expensive in terms of care.³⁷ The discussants argued that this money would be better spent on prevention of ill health and poor wellbeing. Therefore, the great unknown is how, politically and socially, and when to shift this investment to earlier in the life cycle?

We also know the last few years of life are inevitably complex and involve services from multiple agencies, who we also know need to interact more effectively. The question then becomes, how do we best encourage partnerships? How do we encourage multidisciplinary health and social care teams? How do we manage funding for working across organisations and funding schemes?

Discussants suggested also that we explore the concept of multi-use spaces, like combining homes for older people and nurseries. It is critical, though, that we make sure that informal care doesn't create poor wellbeing for carers. How do we develop a care system that overcomes inequalities and drives the highest societal levels of wellbeing?

KEY QUESTIONS REMAINING

- ① How can we facilitate longer periods of independence, as well as agency, for older people?
- ① How should we manage and prevent the rapid changes observed for those at the end of life to facilitate better and more comfortable living in their final years?
- ① How should we address the increasing pressure put on people approaching retirement or in retirement who are informally caring for other persons, including children and spouses?



THEME FOUR: TECHNOLOGICAL INNOVATION

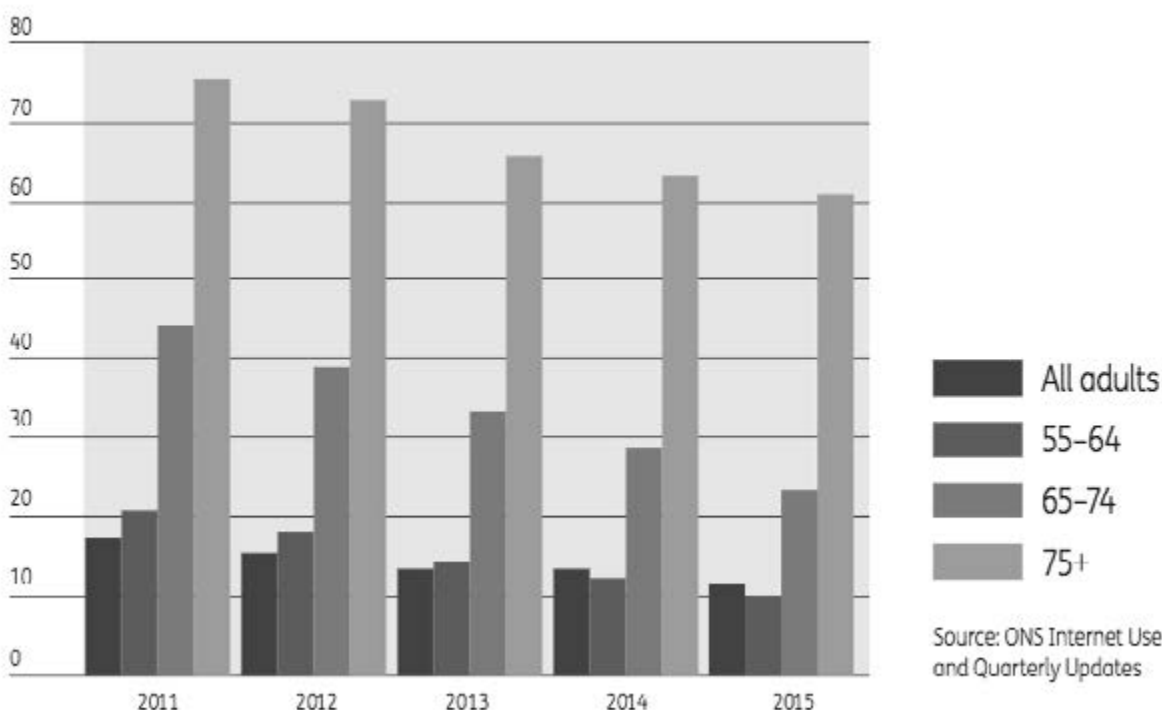
Session Summary:

By their late 80s, over a third of people have difficulties undertaking five or more daily tasks unaided.³⁸ Between a quarter and a half of the 85+ age group are frail.³⁹ Technology may offer ways to overcome these limitations.

As our society becomes increasingly digitised, technology brings both opportunities and challenges for older people. It can be enabling, but it can also increase the isolation of older people. Social media, for example, often reduces the need for direct interpersonal interaction. While research has explored the impacts of technology on efficiency and loneliness, there is debate about whether it has helped or worsened social connections for older persons.

However, technology allows for adjustments, support, and maintaining independence. A self-driving car, for instance, is a long-imagined technology, now realised. Such technology might support older people to travel without help. New technologies in the workplace may create longer working lives, but change the expectations of employment. Machines allow those with different abilities to work longer, but may also replace individuals, changing the nature of work. Discussants, consequently, called for research on life-long learning, as well as research into whether technological innovation encourages better lives for older people.

Percentage who have never used the internet 2011–15: all adults and age 55+



WHAT WAS SAID

Everyday Design

Good design can be enabling, bad design can be disabling. Adjustments to designs can support people with disabilities. These designs may also become mainstream when they improve overall usability. The pizza wheel and cordless kettles are but two examples that Professor Clarkson of the University of Cambridge raised. "Hacks" made to adjust product usage or to make something possible, are increasingly gaining attention and winning awards.⁴⁰

Importantly, intelligent design and new technologies can increase agency, improve independence, and reduce the pressure on families and the public purse. For instance, companies are building robots that prompt individuals to take medication,⁴¹ dispensing the correct dose and also sending relevant notifications of the need for a refill. Also, robots are being developed that can predict when someone is at risk of falling.⁴² Falls currently cost the US economy \$31b a year.⁴³ Smarthome technology can also optimise heating, control bills, and prevent winter related deaths. It can offer relatives and friends the ability to check in on an older person, without having to physically attend the home.

However, the deployment of technologies must be carefully considered. Technology must not replace human interaction. Loneliness is a major concern. Also, efficiency must be monitored. It may not always save money to use technology rather than people, as it is often assumed. However, the discussants pointed out using technology well could have huge impacts and cost savings. A delay of entering into care by one week for every single person in the UK could save around £100m per annum, so using technology to encourage independence is critical.⁴⁴





Work and Skills

Technology has created new jobs, while replacing others. Some developments require entirely new skillsets. Job roles are shifting and changing. This may mean people become redundant or may need new training. For example, at Mini, in Oxford, BMW were able to deploy technological developments in the production process to adapt work to suit their older existing workforce, reducing the physical demands of production. By contrast, Tesla have no humans working in their factory any more at all. The car manufacturing industry highlights how technology can be both enabling but also can reduce employment opportunities.

The discussants emphasised that these changes will lead researchers to questions about how we manage the future of work. It is critical to remember also that employment does not just generate income, but offers wider wellbeing benefits. The Rustat Report on the Future of Work is a fantastic reference on the issues government, business and society all face.

Service Design







Looking at the end-to-end user experience is critical. Through feedback and trials, service delivery can be tested. Discussants emphasised the need to look for barriers to use. We must consider what demands are being made of older people along processes and systems, exploring whether requirements exceed mental or physical capability and capacity. This makes co-creation essential. There is no good design in isolation from users.⁴⁵

WHAT WE DON'T KNOW

Earlier this year the OBR published a report estimating that 2/3 of increasing costs in health care come from technology, rather than the ageing population.⁴⁹ The discussants therefore concluded that we have yet to work out how best to use technology. Technology has been driven by convenience and speed, without perhaps considering what the best offer is. The approach has often been to offer something and see if there is demand. How instead can we focus on needs?

But we also need to think more about what technology means for older people and how they experience it. We need to be more aware of isolation and negative social outcomes. We need to think more about how we can go about improving access and ease of product or service delivery. The design field tends to be young professionals, designing for the opposite end of the age spectrum. There are adaptations, such as restrictive glasses and weighted gloves that give the sense of limited vision or arthritic joints, in order for younger people to test products, but beyond basic usability, consideration also needs to be given to the emotional experience of the individual. Design should delight, not just be functional.

QUESTIONS FOR LEADERS

-  How should we educate and train the next generation when we know that in twenty years the environment in which they operate will have changed, and the job roles as we know them may not exist?
-  How do we embrace, yet manage, the impact of technology on our lives, so that it enables?
-  How can we ensure today's older people do not become voiceless in our rapidly digitising society? How can we intelligently use such technology without creating loneliness?
-  How can we make sure development and design take into account users and actively engage older people in the process?
-  How can we keep costs down to enable technology to aid those who need it as well as those who can afford it? How can technology help society to overcome inequalities?
-  How can we address the impact of new technology on delivering affordable health and social care? Specifically, how do we as a society wish to respond to such technology and its impacts on the sustainability of the NHS?

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FROM THE ABOLITION OF CARE HOMES TO NHS VIRTUAL 'AVATAR' DOCTORS

HOW COULD AGEING LOOK AND FEEL AND IN 2050



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Threading together the radical ideas discussed by academics, healthcare professionals and entrepreneurs at two recent events - the Rustat Conference on Ageing and the Yorkshire and Humber AHSN Big Brains Breakfast on Healthy Ageing - this narrative piece presents a controversial future starting to take shape. Some of the brightest minds came together to imagine how our cities, schools, technology and politics, could transform how we age. Rather than looking at each bold idea in isolation, this thought piece asks, so what would this all look like? This fictional narrative is more than just an interesting thought exercise. Providing a more tangible response to the 'what is possible' question is the first step to uncovering where we want to go next.

I'd proudly tell you I'm 109, but here in 2050 we know ageing is flexible, shaped by our actions. My numeric age isn't important, especially when I am online. 2000 people join the language club I host in my 'living room', including my great-great-granddaughter Iris. Through virtual reality, bicycle highway, and driverless community cabs, people of all ages turn up. We no longer use Skype and Facebook- so 2017- instead we all virtually sit together. We practice speaking, joking, and debating, in different tongues. Last week we all went on a day trip to Saigon and didn't even need to leave the room. The proven benefits for brain health of being bilingual means wellness vouchers are given to those who join the club.

It has been 10 years now since the abolition of all care homes in this country. Citizens, politicians and entrepreneurs really did commit to entirely re-thinking what our world could be like for older people. As a country, we invested in that vision so that today we can confidently say our services revolve around looking at the whole picture of how we live: health, wealth, and work.

Many older people now live at home, however, lots of us (including myself) chose to live in the new multigenerational spaces that emerged across the country. These spaces were co-created by the leaders of devolved localities. The one I live in is a colourful and bright centre of 20 smart-homes. Touch sensors monitor our well-being. For example, if we haven't risen, opened the fridge, or cooked breakfast as we would normally do, we get a friendly call on our wearable smart phone devices asking if we'd like someone to pop round.

No longer in separate enclaves, such homes integrate into existing neighbourhoods. Beautiful cycle highways and wildlife walkways skim the rooftops and connect our sprawling city. Public bikes have been designed for all abilities. Houses are finally recognised as the most important site for living. People increasingly work from home and look after their health there too. My neighbour, Helen, is so much more nimble since her knee was regenerated, an operation all done at home. This is so much better than when she got a superbug just from visiting an outpatient appointment. The smart-houses are designed to be easily upgraded to enable end of life care to be provided at home. More than anything, this takes away the fear I had of being pushed around a confusing system in my final days. I can choose where I die.

'Retirement age' doesn't make sense as a concept anymore. Instead, an inclusive work design approach means the challenges of work and jobs are matched to current capabilities. Employers understand that our wellness absolutely includes our mental health as well. I choose to run my language club part-time. Iris lives here, too. Iris is in Year 3 at school. She told her wellbeing and ageing advisor she wants to run her own language club when she is 100. Schools have become the place where we enable children to take care and responsibility over their own mental and physical health. Children are offered unlimited free access to exercise classes, meditation zones, and a wellbeing and ageing advisor. To achieve this, investment in education and the workforce was necessary. Our schools are now the best in the world. We have less inequality and higher productivity to match.

My own health is not too bad. Since access to your own patient health records was enshrined as a human right, it has become the norm to use wearable smart phone devices that have apps to allow you to track and manage your health. Before this happened, the concept of "a patient" was thrown out entirely. Sim is the main person I go to with any questions about my health and well-being. Sim is my NHS Virtual 'Avatar' Doctor- we joke she brings the unlimited knowledge and I bring the expertise. But my 'real-life' health advisor checks in with me every week in person, too. She's fantastic. Some people were afraid technology and the virtual nature of healthcare would increase loneliness and isolation, because it removes the need for human contact. Instead, it has connected millions of people. This is mainly thanks to strong relationships and co-production by our citizens with creative designers and considerate policy-makers.

All companies acknowledge that what they create and provide must bring all their consumers (regardless of age) dignity and delight. I notice the simple things as I live: all food jars are easy to open, arthritis friendly and have easy-to-read text. One company did it. Soon everyone preferred them. Recently, I have been trying out a new shopping module that helps you exercise as you walk around your house virtually shopping with friends. Sometimes my daughter joins me from Australia. Convenience means everyone embraces adaptive and inclusive design. Older people have a voice. It is loud, diverse and often digital. And great design listens.

The biggest change for me is in how I feel. And in how Iris feels too. Ageing is exciting. Quality of life, not longevity, is the emphasis. Members of communities, young and old, are consulted and included. With elegant systems and joined-up information in the background, we citizens are at the forefront, co-creating our own care and enjoying our extended lives.

With particular thanks to the input and ideas from Professor John Young, Dr Julian Huppert, Dr Steve Feast, Sarah De-Biase and Professor John Clarkson.



JESUS COLLEGE
CAMBRIDGE

Rustat Conference on Ageing
Thursday 23 March 2017

08.45-09.20 Registration - Prioress's Room, Cloister Court

Refreshments served. Please make way to Upper Hall by 09.25, taking all coats and bags

09.30-09.35 Welcome and Introduction - Upper Hall

Professor Ian White *Master, Jesus College, Cambridge; Chair, Rustat Conferences*
Dr Julian Huppert *Director, Intellectual Forum, Jesus College, Cambridge*

09.35-10.05 Conference Keynotes

Tom Wright CBE *CEO Age UK*

Professor Sarah Harper *Professor of Gerontology, Director, Oxford Institute of Population Ageing; and Chair, UK Government Foresight Review on Ageing Societies*

10.05-11.10 Session 1 - Medical Perspectives on Ageing, Health, Wellness

Chair: Professor Carol Jagger *AXA Professor of Epidemiology of Ageing, Newcastle University*
Professor Lorraine Tyler *Professor of Cognitive Neuroscience, Cambridge Centre for Ageing and Neuroscience*

- Increase in longevity versus healthy years of life - impact of dementia and heart disease.
- Will science slow down the ageing process? Regenerative or anti-ageing medical advances.
- How to maximise brain health for healthy ageing?
- Wellness in old age - importance of social inclusion, work conditions, sleep, exercise.

11.10-11.35 Break, Gallery, Upper Hall

11.35-12.40 Session 2 - Political and Economic Perspectives on Ageing

Chair: Dr Julian Huppert *Director, Intellectual Forum, Jesus College, Cambridge*
Laura Gardiner *Senior Research and Policy Analyst, Resolution Foundation*
Andrew Harrop *General Secretary, Fabian Society*

- How are governments and economies adapting to accommodate changing demographic profile?
- Intergenerational concerns.
- Economic impacts – income, assets, consumption. The 'debt time bomb'.
- Taxation, pensions, welfare, social security.

12.45-13.50 Lunch, Master's Lodge and Prioress's Room

13.55-15.00 Session 3 - Supporting Older People

Chair: Professor Caroline Glendinning *Professor of Social Policy, University of York*
Liz Forsyth *Global Lead, Human and Social Services, KPMG*
Dr Jane Fleming *Department of Public Health and Primary Care, University of Cambridge*

- Public health policies relating to care of the old.
- Current and future care services for the older old.
- Housing/ accommodation/ shelter for the elderly.
- Community schemes; family structure.
- Implications of ageing population on healthcare/ NHS. End-of-life care.

15.00-16.00 Session 4 - Technological Innovation and Ageing

Chair: Dan Jones *Director of Innovation and Change, Centre for Ageing Better*
Professor John Clarkson *Director, Cambridge Engineering Design Centre*

- Technological innovation and design in bridging the gap between the young and the old.
- How technology can ease the burden of healthcare costs for the aged?
- How technology can respond to the challenges of ageing?

16.00-16.10 Closing Comments, Feedback and Next Steps

Dr Julian Huppert *Director, Intellectual Forum, Jesus College, Cambridge*

16.10-16.30 Conference Close – Tea, Gallery, Upper Hall



JESUS COLLEGE
CAMBRIDGE

Participants at Rustat Conference on Ageing - Thursday, 23 March 2017

Prof Jean Bacon	<i>Professor of Distributed Systems; Fellow, Jesus College</i>	<i>Computer Laboratory, University of Cambridge</i>
Andrew Barraclough	<i>VP Global Design</i>	<i>GSK</i>
Steven Baxter	<i>Partner, Head of Longevity Innovation and Research</i>	<i>Hymans Robertson</i>
Tim Bird	<i>Partner</i>	<i>Fieldfisher</i>
Stephen Burke	<i>Director</i>	<i>United for All Ages and Good Care</i>
Dr Eileen Burns	<i>Consultant Physician, President</i>	<i>British Geriatrics Society</i>
Prof John Clarkson	<i>Director, Cambridge Engineering Design Centre</i>	<i>University of Cambridge</i>
Prof Alastair Compston	<i>Professor Emeritus of Neurology; Fellow, Jesus College</i>	<i>University of Cambridge</i>
Jonathan Cornwell	<i>Director</i>	<i>Rustat Conferences</i>
Jo Cumbo	<i>Pensions correspondent</i>	<i>Financial Times</i>
Chris Curry	<i>Director</i>	<i>Pensions Policy Institute</i>
George de Courcy-Wheeler	<i>Deputy Investment Director; Member, Rustat Conferences</i>	<i>Sandaire</i>
Dr James Dodd	<i>Financier, Technologist; Member, Rustat Conferences</i>	<i>Rustat Conferences</i>
Victoria Dorling	<i>Client Relations; Member, Rustat Conferences</i>	<i>Sandaire</i>
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Paul Flatters	<i>Chief Executive</i>	<i>Trajectory Partnership</i>
Dr Jane Fleming	<i>Senior Research Associate, Department of Public Health and Primary Care</i>	<i>University of Cambridge</i>
Liz Forsyth	<i>Global Lead, Human & Social Services; Deputy Chair; Member, Rustat Conferences</i>	<i>KPMG (Australia)</i>
Christina Frankopan	<i>CEO</i>	<i>Protozoa Ventures</i>
Laura Gardiner	<i>Senior Research and Policy Analyst</i>	<i>Resolution Foundation</i>
Prof Caroline Glendinning	<i>Professor of Social Policy</i>	<i>University of York</i>
Dr Marcus Green	<i>Social and Economic Research Manager</i>	<i>Age UK</i>
Prof Sarah Harper	<i>Professor of Gerontology and Director</i>	<i>Oxford Institute of Population Ageing</i>
Andrew Harrop	<i>General Secretary</i>	<i>Fabian Society</i>
Adam Hill	<i>Chief Medical Officer; Rustat Conferences Member</i>	<i>McLaren Technology Group</i>
Nigel Howlett	<i>CEO</i>	<i>CHS Group</i>
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Dr Halima Khan	<i>Executive Director, Health Lab</i>	<i>Nesta</i>
Prof Zoe Kourtzi	<i>Professor of Experimental Psychology</i>	<i>University of Cambridge</i>
Annemarie Künel-Snodgrass	<i>Fellow</i>	<i>Jesus College, Cambridge</i>
Shiv Malik	<i>Journalist and co-author</i>	<i>Jilted Generation: How Britain Has Bankrupted its Youth</i>
Prof Juliet Mitchell	<i>Professor of Psychoanalysis and Gender Studies, Fellow</i>	<i>Jesus College, Cambridge</i>
Rob Morland	<i>Director, Inclusive Design Consortium</i>	<i>CfBI Centre for Business Innovation</i>
Dr Lorraine Morley	<i>Lead Researcher for SEAS2 Grow Project</i>	<i>Allia</i>
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Sarah Neville	<i>Health, Pharmaceutical, NHS correspondent</i>	<i>Financial Times</i>
Prof Ian Paterson	<i>Professor of Organic Chemistry; Fellow</i>	<i>Jesus College, Cambridge</i>
Prof Sheila Peace	<i>Professor of Social Gerontology; Fmr President, British Society of Gerontology</i>	<i>Open University</i>
Carys Roberts	<i>Research Fellow - Work and Families</i>	<i>IPPR</i>
Dr Roman Romero-Ortuno	<i>Consultant Geriatrician, Department of Public Health and Primary Care</i>	<i>University of Cambridge</i>
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Tom Wright CBE	<i>CEO</i>	<i>Age UK</i>
Prof John Young	<i>Professor of Elderly Care Medicine</i>	<i>Bradford Institute for Health Research, University of Leeds</i>

ABOUT THE RUSTAT CONFERENCES

The Rustat Conferences is an initiative of the Intellectual Forum at Jesus College, Cambridge, and chaired by Professor Ian White FEng, Master of Jesus College. The conferences provide an opportunity for decision-makers from the frontlines of politics, the civil service, business, the professions and the media to exchange views on vital issues of the day with leading academics.

In addition to acting as a forum for the exchange of views on a range of major and global concerns, the Rustat Conferences provide outreach to a wider professional, academic, student and alumni audience through the publication of reports. The conferences are held at Jesus College, Cambridge, and are named after Tobias Rustat (d.1694), a benefactor of Jesus College and the University. The Rustat Conferences are supported through a mix of sponsorship and a membership scheme that was launched in 2013. We thank them for their generous support:

Dr James Dodd

has concentrated on the founding, financing and governance of companies in the areas of telecommunications and technology. He studied physics at the universities of London, Oxford and Cambridge, and began his career in the areas of scientific and financial analysis for both government and industry. He serves on a number of boards and is active in supporting academic projects and charities.

Harvey Nash

is an executive recruitment and outsourcing group. Listed on the London Stock Exchange, and with offices across the world, we help organisations recruit, source and manage the highly skilled talent they need to succeed in an increasingly competitive and innovation driven world.

KPMG

is a global network of professional firms providing Audit, Tax and Advisory services. It has more than 155,000 outstanding professionals working together to deliver value in 155 countries worldwide.

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is a privately owned, international engineering enterprise with world-class capabilities spanning the entire client value chain. We operate an integrated business model comprising the full range of engineering, construction and asset management services delivering single-source solutions for some of the world's most prestigious public and private organisations.

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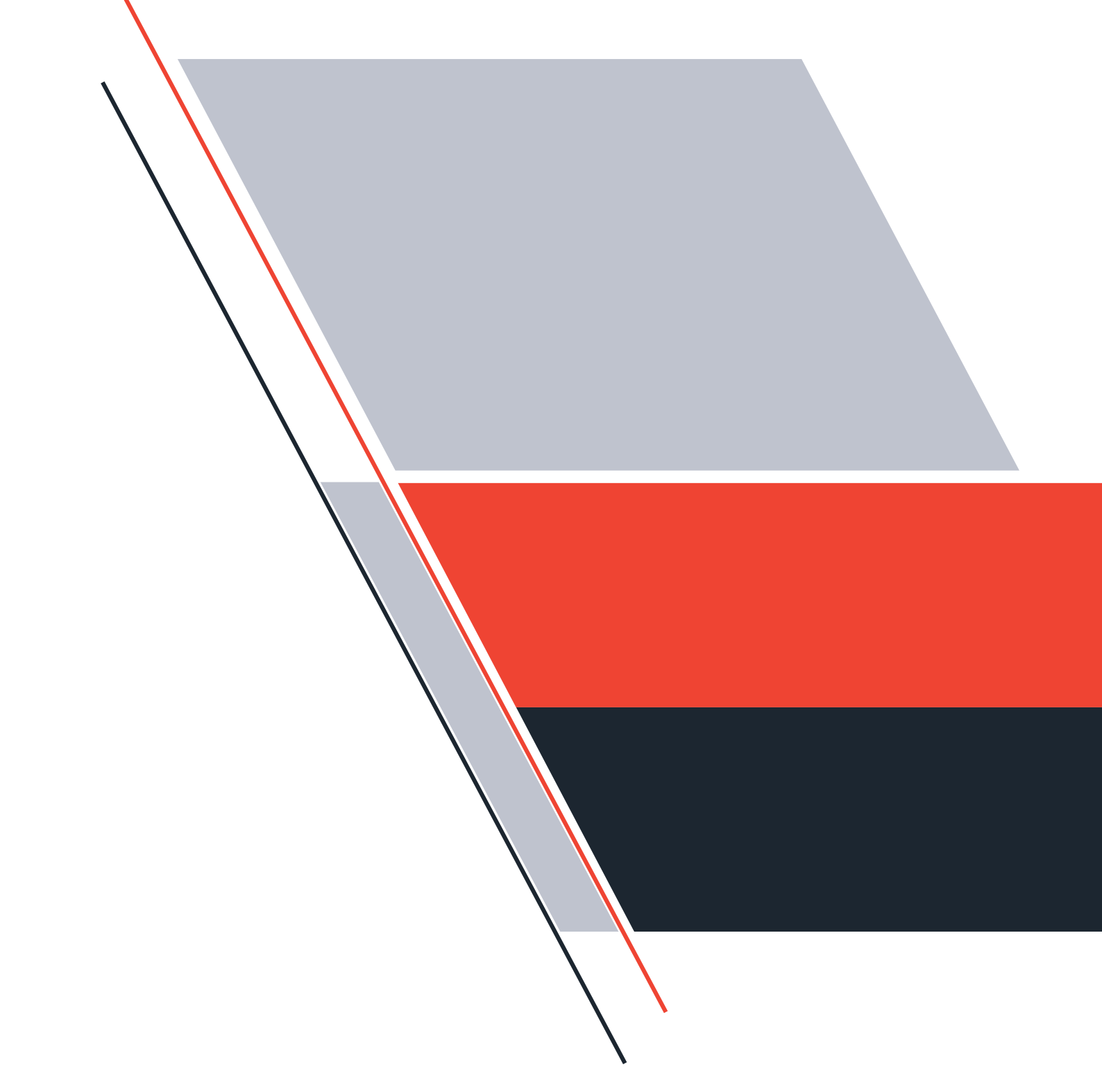
has a reputation for efficiency and professionalism. Working within a fast-paced environment and to the highest standards, our highly skilled workforce operates primarily in the areas of manufacturing, engineering and race team as well as logistics and support.

Mr Andreas Naumann

is a senior executive in the financial industry. Outside the professional sphere, he is keenly interested in subjects like urbanisation, youth unemployment, education and foreign policy. He supports the Rustat Conferences as a private individual.

Sandaire

and Lord North Street came together in April 2014 to combine their businesses, both of which specialise in looking after the investment assets of very wealthy families, charities and endowments.



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