

**Observations on The House of Lords Science and Technology Select Committee First Report of the session 2019 – 2021. Ageing: Science, technology and healthy living. HL paper 183**

[House of Lords - Ageing: Science, Technology and Healthy Living - Science and Technology Select Committee \(parliament.uk\)](https://www.parliament.uk/business/committees/committees-a-z/commons-select/science-and-technology-select-committee/)

*This important report was published January 15<sup>th</sup> 2021. Its findings and recommendations are likely to influence the lives of older people in the UK for the years immediately ahead and into the long term. Christians on Ageing contributed a short commentary during the consultation stage*

The select committee was made up of 15 peers. It was chaired by Lord Patel. The committee studied a wide range of relevant published materials and received oral evidence from experts as well as inviting comments and suggestions from others. The report runs to 132 pages. It includes a wealth of information and references:

**Introduction:** By 2035 the population of the United Kingdom will include 16 million people aged 65+ (an increase of 4 million from 2018), 5 million of whom will be 80+ (an increase of 2.5 million from 2018)

Life expectancy from birth has increased: for males from 70.5 years 1980 to 79.3 years 2018.  
Females 76.6 years 1980 to 82.9 years 2018

But years spent in healthy life have not increased so much. Men on average are healthy for 79.5% of their years, women for only 76.7%

Social deprivation predicts reduced life expectancy: males in the least deprived area live 9.5 years longer than those in the most deprived areas. Women in the least deprived areas live 7.5 years longer than the most deprived

Differences in healthy life years between the least and most deprived are 18.9 years for men, 19.4 years for women

**Demography:** In the next 17 years the population will see a 50.5% increase in numbers aged 80+ and 28.9% increase in people age 65-79. The increase in older people will be greater in non-city communities

The consequences of inequalities have been thoroughly detailed by Professor Marmot over a period of years: [the-marmot-review-10-years-on-full-report.pdf \(instituteofhealthequity.org\)](https://www.instituteofhealthequity.org/reports/the-marmot-review-10-years-on-full-report.pdf)

Men in the least deprived areas enjoy 70.6 years of healthy life (median) Men in the most deprived area enjoy only 52.6 such years. Poverty is more common in the Black community (33%). 29% Asian. 14% White. Multiple disadvantages cluster in individuals and in geographical, socioeconomic and ethnic communities. They predict reduced health life years and reduced life expectancy.

Comparison on these measures places UK males 10<sup>th</sup> of 27 European countries (Sweden top) and women 16<sup>th</sup> of 27 (Spain best).

Commonest symptoms in UK 70 year olds are: low back pain (men) and hearing loss (women)

By the age of 55, half the population has experienced anxiety and/or depression. Being alone doubles the risk of depression. But older people have fewer mental health problems than younger people

Frailty: 'a decline in function across a number of organ systems' is more common in great age and is also linked to deprivation. It predicts poor response to stresses.

Multiple morbidity is more common in advanced years, it is evident earlier (younger) in deprived areas and individuals. Seventy percent of people with a mental disorder have at least one physical disorder.

It is noted that health services in the UK are set to respond to individual pathologies – not a good model when facing populations with multiple morbidities – It gives rise to multiple healthcare contacts, prescriptions which may compete rather than help, and risks discontinuities and incongruities of competing 'care pathways'. There are strong arguments for reinventing Geriatric Medicine as seen in the 1950s, 60s and 70s! The UK gave the world Geriatric Medicine. How can you lose something so special?

### **Science of Ageing**

Ageing is associated with the accumulation of a wide variety of molecular damage in cells over time. At a whole-body level there is decreased cognition, reduced physical capacity, and death.

Themes identified as explanatory mechanisms include: accumulation of mutations, antagonistic pleiotropy (possession of genes which produce success early in life but are destructive later in life) and disposable soma (energy used up in reproduction and other activities in youth is not available in later life).

Genetic endowment, life-style and environment interact to determine the trajectory in any individual.

Biomarkers are recognised as hallmarks of ageing within the cells of individuals. These include: genomic instability, telomere attrition, epigenetic alterations, loss of proteostasis, deregulation of nutrient-sensing, mitochondrial dysfunction, cellular senescence, stem cell exhaustion, and altered intercellular communication.

The immune system becomes weaker with age. The gut microbiome loses diversity

'Gero-protectors' have been identified. These are drugs which can slow the aging process. Examples include Rapamycin and Metformin

'Seno-lytics' kill senescent cells. 'Seno-modifiers' change the behaviour of damaged cells. Anti-inflammatory drugs and statins have potential in this field.

There is pressure to include older people and people with multiple pathologies in trials of new treatments. Hitherto they have often been excluded as they might complicate analysis by the presence of confounding factors. Trials will need to include more subjects to accommodate the confounders.

### **Life-style and environment:**

Factors affecting health, cognition and life expectancy in middle age and old age are confirmed to include smoking, poor nutrition, obesity, lack of exercise and excess of alcohol consumption. Of these only smoking is becoming less prevalent – all the other hazardous behaviours are increasing year by year.

Socio-economic deprivation is associated with clusters of health problems, early illness, disability and death. Heart disease, lung cancer and diabetes are more common amongst poor people.

Perversely attempts to counter this by Health Education are taken up preferentially by people who are already advantaged, and so widen differences rather than reduce them.

The benefits of a balanced diet, regular exercise and not smoking or drinking alcohol to excess are understood. This knowledge needs to encourage appropriate changes in life-style.

The dangers of being sedentary – ‘sitting’ – may not be so well recognised. Uninterrupted sitting leads to reduced synthesis of muscle proteins and promotes resistance to insulin by muscle tissues. This leads to weakness and frailty.

Engaging in brain work is protective of cognitive reserve. Lack of brain work leads to disuse atrophy.

Sleep and education promote good health, including mental health. Hearing loss is associated with a decline in cognitive function. Psychological stress leads to poorer health, in part at least, by means of inflammation.

There is strong support for taking a life-course approach to prevention of ill-health, and avoiding becoming old before your time. Hence the argument for a national Institute of Health Protection. [Health matters: Prevention - a life course approach - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/health-matters-prevention-a-life-course-approach)

### **Technology and Services:**

It is pointed out that the UK's housing stock is amongst the oldest in Europe. It is asserted that this makes it unsuitable for the needs of older and disabled residents. Only 7% of houses in England are said to meet current standards for ‘basic accessibility’. Architects have proposals to correct this: [Home of 2030 \(architecture.com\)](https://www.architecture.com/news-and-views/feature-articles/home-of-2030)

The poorest housing is where the old, the disabled and the poor live.

Telecare: Alarm systems of various sorts have been invented to improve safety and communications within existing homes. Most use analogue technology which has proved satisfactory but all systems must go digital 2025 – cause for concern and potential chaos [The closure of the public switched telephone network - CCS \(crowncommercial.gov.uk\)](https://www.crowncommercial.gov.uk/news/telecare-closure)

Older people are less likely to be using the most modern technology. Only 59% of 65 year-olds living alone have Broadband. But we are encouraged to think that older people can benefit from the attentions of AI (Artificial Intelligence), socially assistive robots, robotic implants, in-body sensors and in-body drug delivery systems

Two million people aged 75+ in the UK live alone. There are claims that technology can reduce their likelihood of feeling lonely - this is a major plank of the Loneliness Strategy. [DDCMS Loneliness Strategy \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/624242/ddcms-loneliness-strategy)

Yet it is acknowledged that 4 million people in the UK do not use the internet. Half of these are aged 75+. People who do not use the internet are less educated, less healthy and less wealthy than others. This sort of technology will not reduce inequalities – Inequalities will increase.

### **The Ageing Society Grand Challenge:**

Ageing Society is one of four Grand Challenges identified by Government (2017). The challenge given is to increase the nation's expectation of Disability-free Life Years by 5 years by 2035 and to reduce inequalities between the richer and poorer [The Grand Challenges - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/the-grand-challenges)

Reviews of the current status and rate of change find that the country is not on track to achieve these targets: Increase in DFLYs in men is too slow. DFLYs for women have fallen rather than grown. Inequalities are widening. It is pointed out that no-one has charge of the mission to meet this challenge. There is reasoned argument to review its feasibility

### **Covid-19**

The Covid Pandemic has affected older people preferentially: 92% of hospital deaths by Covid-19 had been aged 60+by September 2020.

It has also affected components of the population unequally: Death rates in wealthy areas have been half those in the poorest postcodes. People of Bangladeshi ethnicity have died at twice the rate of the white population

### **Conclusions:**

The summary paragraphs of the report end with: 'Improving healthy life expectation is a vital and worthy ambition, but there has been a lack of leadership and planning for the Ageing Society Grand Challenge mission, resulting in minimal progress. The government should act now to revitalise the mission and utilise opportunities in science, technology and public health to ensure it is achieved.'

### **Commentary:**

This is a welcome and informative report. It is fascinating and illuminating to read about the cutting edge of knowledge of the biology of ageing and the technologies which have potential to combat disability. Pleading for investment in research and development are transparent and predictable. Much more impressive is what is already known of the factors which influence life expectancy, healthy life years and inequalities in both. The knowledge has not been translated into action, nor will it be until government is prepared to acknowledge these facts and to act accordingly – to manage the economy so that the poor become richer and the rich a little less rich.

This is a message which rests easily with the churches and with all faiths. It is the lesson of history. Pope Francis has taken a lead in spelling this out [Fratelli tutti \(3 October 2020\) | Francis \(vatican.va\)](#)

It is for all of us in all our local church communities to interpret this message in the way we live and behave to each other, to family, friends and strangers – and to seek to support those in positions of influence to direct our national efforts in this light.

A notable omission from the report – in the evidence considered and the conclusions and advice – is the relevance of spirituality and faith to life, health and longevity. This is a complicated matter but not one which should be ignored. We should collect evidence and reflections so that these can be included in deliberations.

David Jolley

February 2021