

Five more years?

The case for innovation in
health and wellbeing



Final report of the Health
and Wellbeing Innovation
Commission Inquiry 2018

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About the Health and Wellbeing Innovation Commission

The Health and Wellbeing Innovation Commission was established by the ILC in May 2018, with support from Audley and EY. Its purpose was to:

- examine the current evidence base for innovation in health and wellbeing*
- generate new research and thought leadership*
- critically explore the opportunities for, and barriers to, innovation*
- set out a blueprint for future work.*

The Commission gathered evidence through an inquiry, holding sessions with experts in relevant fields, and published a series of reports of which this is the last.

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Executive summary

The Government has set itself a grand challenge: to increase the healthy life expectancy in the UK by five years by 2035. Yet at the same time, our healthcare system is under significant strain, with rising costs and no sign of demand abating.

If we are to achieve the Government's aim while maintaining fiscal stability, we will need to improve the overall productivity of our healthcare system. But current trends are pointing in the wrong direction: a radical shift is needed, towards preventing ill health and promoting wellbeing.

Doing more of the same won't get us where we need to go. As acknowledged in the Government's recently launched prevention strategy, new approaches are needed.¹ The nature of those approaches remains up for grabs. Commentators are increasingly clear that the NHS must 'innovate or die' – but what does this mean in practice? What kind of innovation do we need? And are we set up to capitalise on the innovations already coming through?

As society ages, the cost of healthcare is set to increase – but the UK's ageing population is not the sole driver of rising health expenditure. In fact, far from saving the NHS money as one might expect, advances in medical technology are also a significant cost driver.

Previous ILC work has shown that innovation has the potential to help address fiscal sustainability and meet challenges faced by the health sector, such as the increase in the numbers of people living with multiple long-term health conditions.² However, to realise this potential we need to create a space for innovation that extends far beyond the hospital gates.

1 Department for Health and Social Care (2018) *Prevention is better than cure*: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/753688/Prevention_is_better_than_cure_5-11.pdf

2 ILC (2017) *Towards affordable healthcare why effective innovation is key*: <https://ilcuk.org.uk/towards-affordable-healthcare-why-effective-innovation-is-key/>

Softer innovations, outside the healthcare system, have just as much to contribute to healthy lives as health apps and digital medical innovations, but are often overlooked. And there are many other challenges facing innovators outside the medical arena. These include how to gather evidence of impact, particularly where this is complex and affects a wide range of outcomes. This complexity can also affect funding – particularly where costs and savings accrue across organisational boundaries.

The Commission's work demonstrated the urgent need to encourage innovation in the many non-medical fields that can contribute positively to our health. We will need to stretch our understanding of the type of innovation required, far beyond the NHS's organisational boundaries. If we don't manage this, we risk letting poor planning distort our entire welfare state into a healthcare service.

Today's challenge is to tap into developments in housing, transport, and areas such as social and emotional health, encouraging entrepreneurs and innovators in these fields and creating the infrastructure to recognise, incubate and replicate their innovations.

Through our healthy ageing grand challenge, we will ensure that people can enjoy five extra healthy, independent years of life by 2035, whilst narrowing the gap between the experience of the richest and poorest.

We are living longer lives because of medical advances, better drugs, healthier lifestyles, and safer workplaces. It is a sign of our success, of our progress as a society, and is to be celebrated.

But as we extend the years of our life, we should also work harder to increase quality of life in our later years.

That should not just be the preserve of the wealthy – everyone, of every background and income level, has the right to enjoy a happy and active retirement.

We can do that by supporting more people to stay happy, healthy and independent in their own homes for longer, instead of going into hospital.

It will take a collective effort to achieve this.

Employers can help, by meeting the needs of people who have caring responsibilities and by doing more to support older people to contribute in the workplace – and enjoy the emotional and physical benefits of having a job if they want one.

Businesses can contribute, and benefit, by supplying the needs of a growing market. Innovative and well-designed products and services: from housing adaptations that make our homes safer for older people to live in, to smart technologies that help people continue to enjoy life if they have a health condition.

These innovations can also be exported to a rapidly growing market around the world.

And we can all play our part – by making healthier lifestyle choices ourselves, and by supporting our friends and neighbours as they get older. We can build a stronger society, where more people can contribute their talents for longer and fewer people face loneliness and isolation.

Prime Minister, Rt Hon Theresa May MP, May 2018

Context

The ILC launched its commission inquiry on innovation in health and wellbeing, in partnership with Audley and EY, in May 2018. At that time, the UK Government's new Industrial Strategy set out a bold commitment to ensure that, by 2035, people in the UK will enjoy an average of five more years of healthy life than they do today.³

Making the announcement, the Prime Minister hailed the potential of innovation to help deliver this objective. She also highlighted some key areas for action, including housing and healthy lifestyles, as well as loneliness and social isolation.

But questions remain:

- To what extent can innovation truly play a role in delivering our ambitions for health and wellbeing in an ageing society?
- Does our current approach to healthcare support innovation from conception all the way to bringing innovations to scale?

The Commission sought to gather evidence of what 'good' innovation looks like and how we can stimulate it to improve health and wellbeing in the future. During the summer of 2018, ten experienced Commissioners heard evidence from a total of 20 expert witnesses over four sessions, considering innovation in:

- Retirement communities and care homes
- The built environment, including transport, planning and design
- Physical and mental health
- Social connections, and addressing isolation and loneliness

This report draws on the learning from the Commission's work to examine the drivers of health and wellbeing innovation, and consider the case for action.

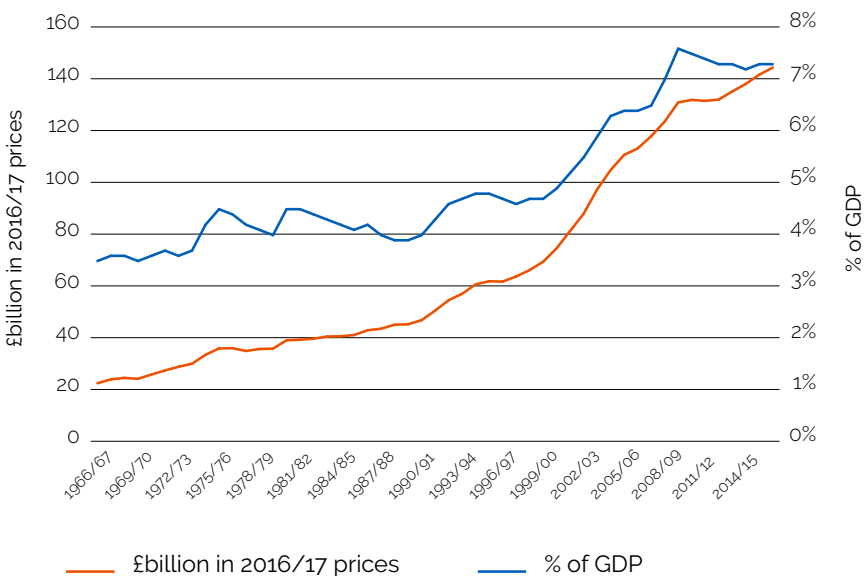
3 GOV.UK (2018) *PM speech on science and modern Industrial Strategy*: <https://www.gov.uk/government/speeches/pm-speech-on-science-and-modern-industrial-strategy-21-may-2018>

Why innovate? The fiscal challenge

Forecasts by the European Commission predict that the UK's age-related spending, including health and pension spending, will increase by around two percent of GDP between 2020 and 2060.⁴

Over recent decades the UK's spending on healthcare services has risen substantially, both in real terms and (until relatively recently) as a percentage of GDP. With every indicator suggesting that this trend will continue, organisations such as the OECD have raised concerns about the sustainability of healthcare funding.⁵

Figure 1: Historic UK health spend by year



Source: ILC analysis, House of Commons library data

- 4 Office for Budget Responsibility (2015) *Age-related spending projections in Europe*: <https://obr.uk/box/age-related-spending-projections-in-europe/>
- 5 OECD (2015) *Fiscal sustainability of health systems*: <https://www.oecd.org/gov/budgeting/Fiscal-Sustainability-of-Health-Systems-Policy-Brief-ENG.pdf>

Figure 2: Healthcare spending proportions as a % of GDP



Source: OBR Fiscal Sustainability Report 2018

The Office for Budget Responsibility (OBR)'s⁶ baseline spending projection⁷ suggests that, by 2067/68, health spending as a proportion of GDP will have almost doubled since 2017/18. And if the UK's population ages faster than expected, health spending could rise even further, up to 16% of GDP by 2067/68.

However, despite growing expenditure, our healthcare system is failing to keep up with demand, with key services under significant strain. For example, analysis by the King's Fund has shown that the proportion of NHS trusts and foundation trusts in deficit rose from

6 Office for Budget Responsibility Fiscal Sustainability Report (2018) : <http://obr.uk/fsr/fiscal-sustainability-report-july-2018/>

7 The OBR's baseline projection is one possible scenario they have modelled, which is based on current trends in demographic change and health continuing.

5% in 2010/11 to 66% in 2015/16.⁸ In the meantime, funding for adult social care fell by 8% in real terms between 2009/10 and 2016/17, equivalent to a spending reduction of 13.5% per person.⁹

As a result, there has been growing political pressure to allocate additional funding to health and care in the UK. This has been met by a promised £20.5 billion cash injection for healthcare services by 2023,¹⁰ with further emergency funding for social care in advance of the promised Green Paper addressing the future funding settlement.¹¹

If our Government continues to seek to maintain or reduce current levels of national debt, we will need to find new ways to deliver better health and wellbeing, more efficiently. If we fail, we will be forced to spend an ever-increasing share of GDP on health, to the detriment of other areas of public spending, or to reduce our healthcare service's quality or coverage.

What are the drivers of health costs?

As a society ages, the demand for services changes. Figure 3 (page 10) shows the representative profile for health spending by year of age: broadly, the older we get, the more is spent on our health.

However, ageing isn't the only driver of health expenditure in the UK. Figure 4 (page 11) shows that across different care settings, non-demographic pressures have more significance than demographic pressures in driving cost.

The non-demographic pressures on health spending break down into 'income effects' and 'residual factors'. Income effects include

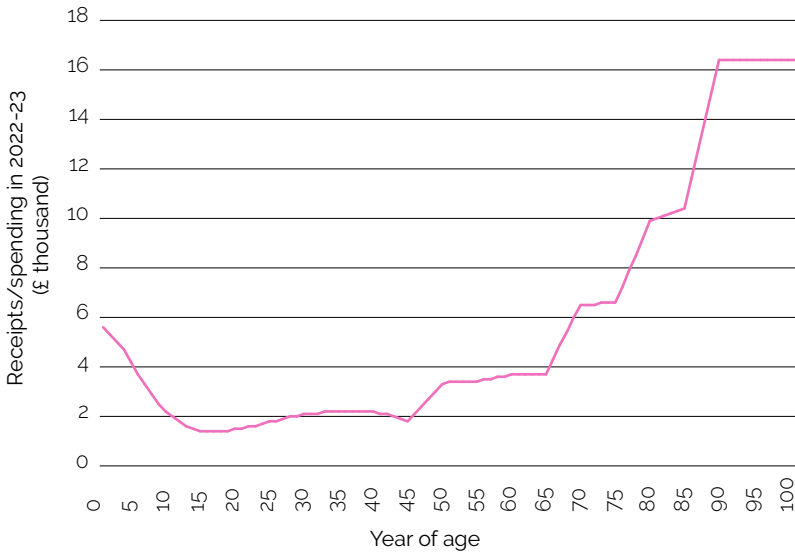
8 King's Fund (2018) *Trusts in deficit*: <https://www.kingsfund.org.uk/projects/nhs-in-a-nutshell/trusts-deficit>

9 IFS (2017) *Public spending on adult social care in England*: <https://www.ifs.org.uk/uploads/publications/bns/BN200.pdf>

10 BBC News (2018) *NHS funding: Theresa May unveils £20bn boost*: <https://www.bbc.co.uk/news/health-44495598>

11 Nursing Times (2018) *Health secretary announces social care emergency funding*: <https://www.nursingtimes.net/news/politics/health-secretary-announces-social-care-emergency-funding/7026192.article>

Figure 3: Representative profiles for health spending



Source: OBR Fiscal Sustainability Report 2018

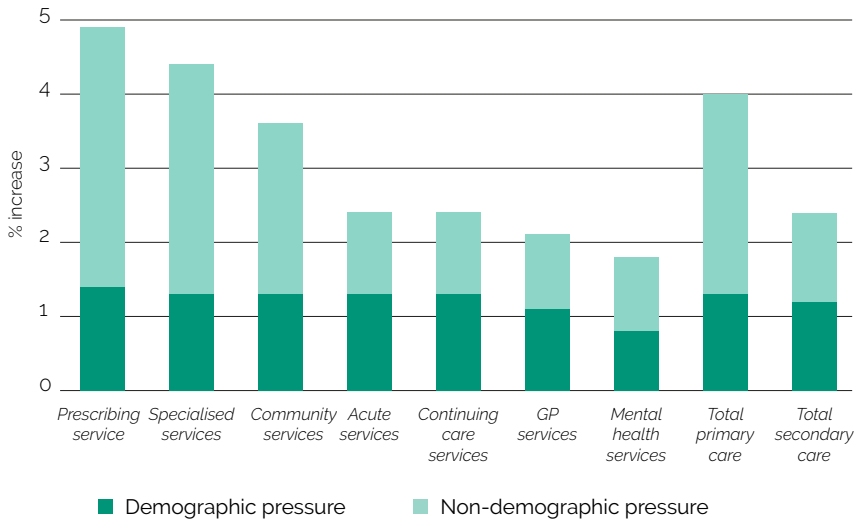
changes in societal expectations that can occur as economies grow, such as expectations of public services. Residual factors include price fluctuations, changes in productivity levels and, significantly, technological innovations.¹² In short, our health spending profile as a nation has changed because we have changed. As we have eradicated communicable diseases like polio, other health issues, like heart disease, have become more prevalent. So now we must spend more money on heart health as well as buying polio vaccine.

Technological innovations in health tend to increase associated costs rather than control them,¹³ which is unlike the effect in other sectors. For example, a study across 23 countries from 2009

12 OBR (2015) *Drivers of rising health spending*: <http://obr.uk/box/drivers-of-rising-health-spending/>

13 *Ibid.*

Figure 4: Demographic & non-demographic pressures (2015-16)



Source: OBR Fiscal Sustainability Report 2018

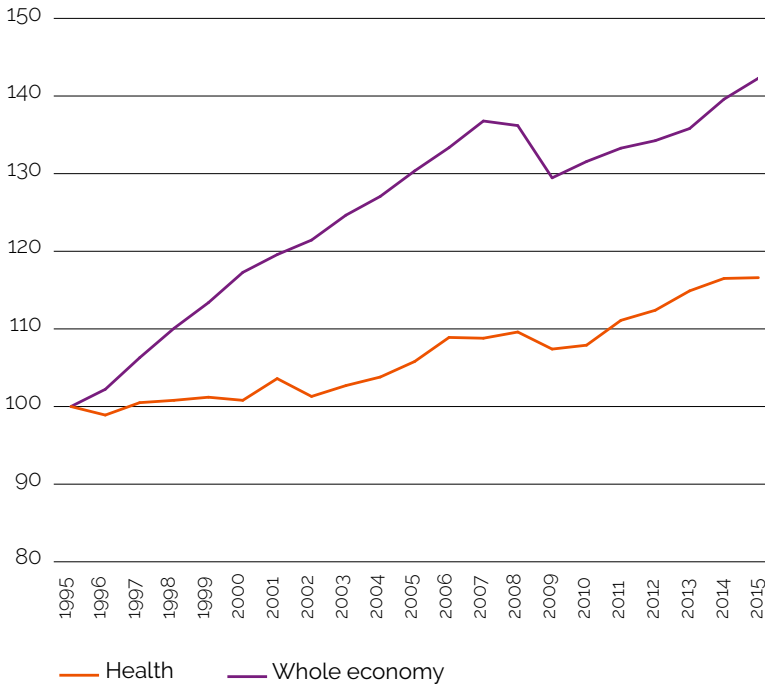
concluded that medical technology has accounted for between 27 and 48% of the growth in health spending since the 1960s.¹⁴

This suggests that if innovation is to help drive down the overall costs of health and care we need to look beyond the hospital gates, across the wide range of factors that affect our health. This reflects recent policy changes by the Department for Health and Social Care that prioritise prevention.¹⁵

14 Sheila Smith, et al. (2009). 'Income, insurance and technology: Why does health spending outpace economic growth?' Health Affairs, vol 5 (28): <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.28.5.1276>

15 Department for Health and Social Care (2018) *Health Secretary launches 'Prevention is better than cure' vision*: <https://www.gov.uk/government/news/health-secretary-launches-prevention-is-better-than-cure-vision>

Figure 5: Health and whole economy productivity



Source: ONS: Growth rates and indices for public service healthcare inputs, quality adjusted output and productivity, 1995 to 2015; Multi-factor productivity (experimental): estimates. 1995 = 100

Improving productivity in healthcare

If we are to secure fiscal sustainability without sacrificing health standards or outcomes, we must find better ways to deliver more for less within the health system.

NHS England's *Five Year Forward View*¹⁶ makes it clear that improving productivity across health settings is the only way to meet needs while controlling costs.

¹⁶ NHS England (2014) *Five Year Forward View*: <https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf>

For example, if NHS productivity growth remains low, the UK's net debt would double from around 80% of GDP to 160% in 50 years.¹⁷ Yet at present, productivity in our healthcare service lags behind the UK's generally lacklustre overall productivity rate.

Research from the University of York¹⁸ suggests that UK healthcare services would need to improve productivity by 2-3% per year to achieve future sustainability. But this would require a significant improvement against recent performance – as between 2014 and 2016 productivity grew by an estimated 0.04%.

17 Social Market Foundation (2018) *The NHS, innovation and productivity*: <http://www.smf.co.uk/wp-content/uploads/2018/06/NHS-Innovation-and-Productivity-report-web.pdf>

18 University of York (2018) *NHS struggles to improve productivity*: <https://www.york.ac.uk/news-and-events/news/2018/research/nhs-struggles-to-improve-productivity/>

Why innovate? The challenge of ageing well

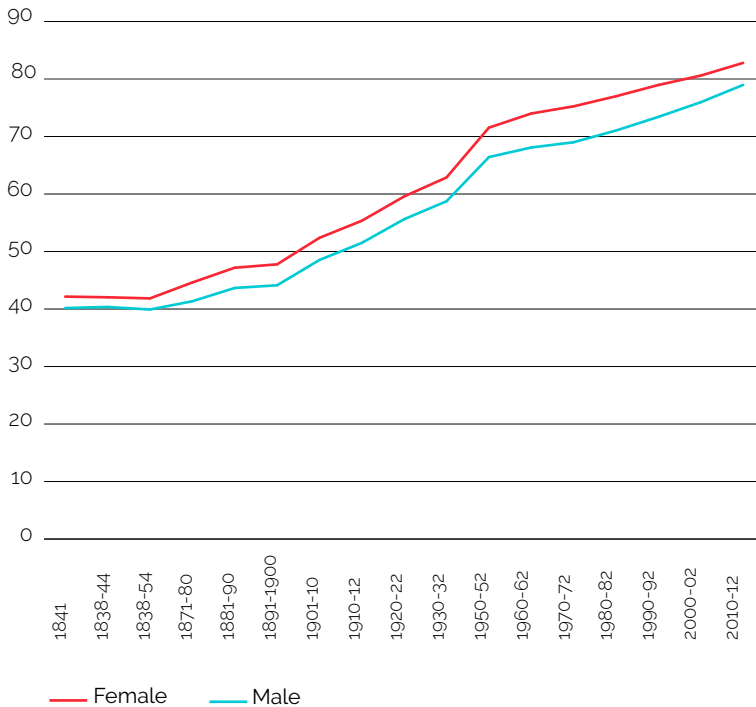
Longer lives

Life expectancy has increased steadily throughout history, but at the beginning of this decade the rate of increase slowed. In 2018, life expectancy increases stalled in the UK for the first time on record and inequalities in health continued to grow, in direct challenge to the Prime Minister's pledge.

Healthy longer lives

While longer lives bring fresh opportunities, pure life expectancy is not the whole picture. A key part of the Prime Minister's pledge

Figure 6: Life expectancy at birth over time



Source: ONS, Decennial life tables

relates to healthy life expectancy, ie life lived in good health. It is well established that increases in life expectancy lead to good health during those additional years of life.

'Compression of morbidity' (or living healthily for as long as possible) is a critical priority. However, improvements in this indicator have also stalled recently, with the proportion of life we expect to experience in good health remaining stubbornly static and only moving at the same speed as life expectancy improvements (as can be seen in Table 2 on page 16).

Table 1: Healthy life expectancy figures for the UK, 2013 to 2015

	At birth Male	At birth Female	At age 65 Male	At age 65 Female
Life expectancy	79.5	83.1	18.7	21.1
Healthy life expectancy	63.4	64.1	10.5	11.2
Years in poor health	16.1	19	8.2	9.9
% of life in poor health	20.3	22.9	43.9	46.9

Source: ONS, Health state life expectancy at birth and at age 65 by local areas, UK

Table 2: Healthy life expectancy and life expectancy figures for those aged 65-69 in the UK

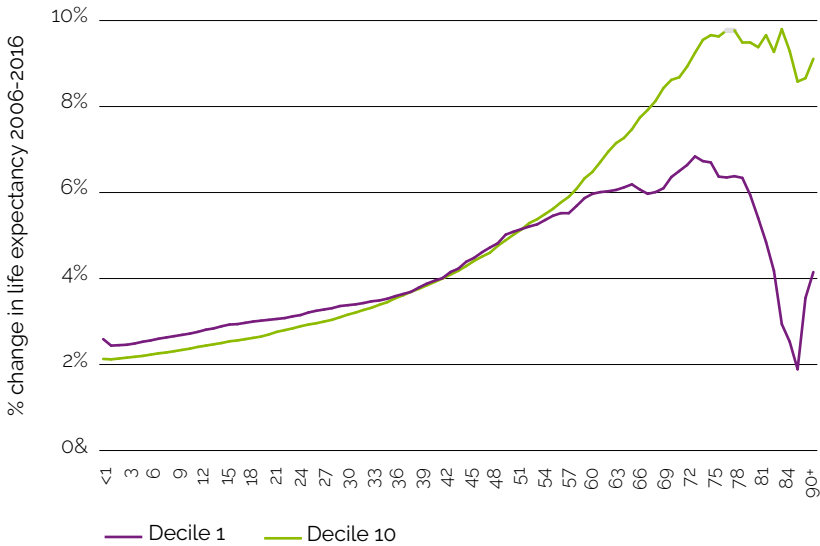
	Male		Female	
	Life expectancy	Healthy life expectancy	Life expectancy	Healthy life expectancy
2009-11	18.1	9.8	20.7	10.5
2010-12	18.3	9.9	20.8	10.6
2011-13	18.4	10.0	20.8	10.5
2012-14	18.5	10.2	20.9	10.6
2013-15	18.5	10.2	20.9	10.8
2014-16	18.6	10.2	21.0	10.8
2015-17	18.6	10.3	20.9	10.9
<i>% point increase</i>	<i>0.5</i>	<i>0.5</i>	<i>0.2</i>	<i>0.3</i>

Source: ONS, Health state life expectancy - all ages, UK

Some lives are healthier than others

Although life expectancy and healthy life expectancy increases have stalled overall, this aggregate picture obscures significant demographic inequalities. These inequalities are a key part of the healthcare challenge. The best-off in society saw their life expectancy continue to increase, while for the most deprived, life expectancy fell between 2014 and 2016.

Figure 7: % change in male life expectancy by decile

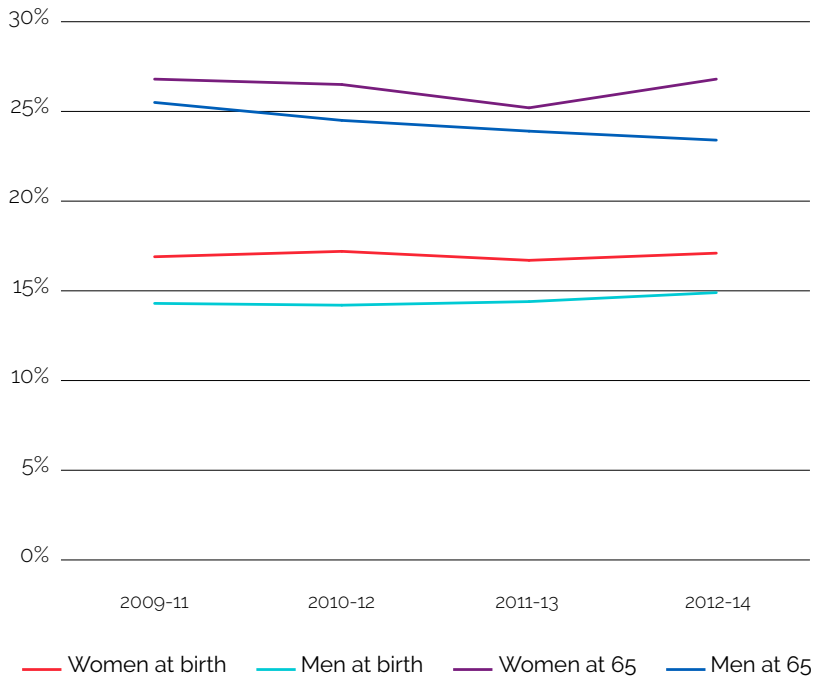


Source: ONS, Health state life expectancies by national deprivation deciles

This pattern is also evident in healthy life expectancy. Since 2010, reductions in healthy life inequality have stalled, with inequality rising for older women.

We must consider inequality in outcome as we seek to improve healthy life expectancy. The approaches currently being pursued have failed to drive progress in the right direction, making the need for innovation clear.

Figure 8: % pt difference to proportion of life in good health



Source: ONS, Healthy life expectancy (HLE) and life expectancy (LE) for males and females at birth and age 65 by national deciles of area deprivation, England: 2009 to 2011, 2010 to 2012, 2011 to 2013 and 2012 to 2014 ¹⁹

¹⁹ Calculated using "good" general health across deciles alongside mortality data and mid-year population estimates.

The innovation challenge

“Now is the moment to put the failures of the past behind us, and set our sights on the NHS being the most cutting-edge system in the world for the use of technology to improve our health, make our lives easier, and make money go further, harnessing the amazing explosion of innovation that the connection of billions of minds through digital technology has brought to this world.”

Matt Hancock MP, Secretary of State of Health and Social Care²⁰

According to the World Health Organisation, innovation in health helps to address unmet needs, improves health, and improves the efficiency and effectiveness of healthcare.²¹ If we want to live well for longer without breaking the bank, we must learn how to deliver better outcomes for everyone, with less money. The case for innovation is therefore clear.

But innovation isn't a silver bullet, as it can drive up costs, so we must focus on addressing the drivers of health expenditure, and on influencing outcomes that improve overall health and wellbeing.

Since becoming Health Secretary, Matt Hancock has tended to frame discussion around health innovation in terms of digital technology. However, as yet there is little evidence that digital technology alone can help prevent unnecessary hospital admissions, or significantly reduce the costs of managing long-term conditions. But there are non-technological innovations that do promise to have an impact.

If we truly want our innovation to drive health and wellbeing, rather than simply creating new ways of deliver health and care, we will need to focus on developments far beyond the hospital gate, and indeed beyond the NHS all together, incorporating all kinds

20 Department for Health and Social Care (2018) *Matt Hancock: new technology is key to making NHS the world's best*: <https://www.gov.uk/government/news/matt-hancock-new-technology-is-key-to-making-nhs-the-worlds-best>

21 World Health Organisation (2018) *WHO Health Innovation Group*: <https://www.who.int/life-course/about/who-health-innovation-group/en/>

of products, processes and indeed organisational structures and systems.²²

Learning from the Commission Inquiry: innovation for sustainability

To meet the challenge of fiscal sustainability we need innovation in a number of specific areas:

- improving productivity within existing services
- delivering care in the right setting
- developing new ways of delivering care
- allocating spending more rationally²³

Broadly speaking, it should be possible to make:

- more appropriate use of resources, e.g. relieving pressure on hospitals
- more efficient use of resources, in terms of both spending and practice

Appropriate resource use

Between 2011 and 2015, 'delayed transfers of care' (when a patient is ready to leave a hospital or care provider but is still occupying a bed) increased by 60%.²⁴ This is the clearest indication of the pressure on our health care system, and its failures to provide appropriate care in the right setting.

Innovators have begun to develop approaches to help relieve pressure on the healthcare system and enable more people with long-term conditions to live well in the community. From apps such as myCOPD, which enables people with chronic obstructive

22 Omachonu (2010) *Innovation in Healthcare Delivery Systems: A Conceptual Framework*: <https://miami.pure.elsevier.com/en/publications/innovation-in-healthcare-delivery-systems-a-conceptual-framework>

23 Monitor (2013) *Closing the NHS funding gap: how to get better value health care for patients*: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/284044/ClosingTheGap091013.pdf

24 Nuffield Trust *What's behind delayed transfers of care?*: <https://www.nuffieldtrust.org.uk/resource/what-s-behind-delayed-transfers-of-care#what-is-a-delayed-transfer-of-care>

pulmonary disease (COPD) to manage their condition at home, to the NHS Vanguard programmes for enhanced healthcare in care homes, innovation can enable health management outside of clinical settings and improve outcomes for patients.

Efficient resource use

One of the most substantial developments since the turn of the century has been the rise of 'big data'. It's clear that better use of data could enable the healthcare service to move from reactive to proactive, with targeted interventions across the population that could smooth hospital flows, prevent epidemics and improve diagnosis rates.²⁵ But there's still a long way to go to realise the full potential of data within the healthcare system.

Data also offers the potential for more personalised approaches to medicine in future.²⁶ Steve Jobs is a high profile, if extreme, exemplar of this approach, having commissioned DNA analysis to enable a personalised cancer treatment.²⁷ While we are some way away from wholesale adoption of this approach within the NHS, progress is being made in the area of genomics.²⁸

But data is only part of the picture. The Commission has gathered evidence that shows technological innovation isn't the only way to improve efficiency. Organisational and structural innovation can have positive effects as well. For example, in 2016 the Local Government Association (LGA) investigated the potential efficiency gains from the integration of health and social care, which concluded that eliminating variations in frontline decision-making would deliver efficiency savings of 7 to 10%.²⁹

25 Nesta (2018) *Using big data in preventative healthcare*: <https://www.nesta.org.uk/blog/using-big-data-preventative-healthcare/>

26 Institute and faculty of Actuaries (2016) *'Big data in health'*, *Longevity Bulletin* (Issue 9): <https://www.actuaries.org.uk/learn-and-develop/research-and-knowledge/our-journals-and-research-publications/longevity-bulletin/longevity-bulletin-big-data-health-issue-9>

27 MIT Technology Review (2013) *Steve Jobs Left a Legacy on Personalized Medicine*: <https://www.technologyreview.com/s/519686/steve-jobs-left-a-legacy-on-personalized-medicine/>

28 NHS England (2018) *Genomics*: <https://www.england.nhs.uk/genomics/>

29 LGA (2016) *Efficiency opportunities through health and social care integration*: <https://www.local.gov.uk/efficiency-opportunities-through-health-and-social-care-integration-delivering-more-sustainable>

Learning from the Commission Inquiry: innovation for healthy ageing

While biomedical innovations such as new drugs have undoubtedly played a significant role in our longevity gains in recent decades, we focus on these advances too often, neglecting other forms of innovation.³⁰

Evidence gathered through the Health and Wellbeing Commission inquiry demonstrated the sheer breadth of innovations with the potential to improve wellbeing and contribute to improved health outcomes.

The commission's approach was informed by an understanding of the wider determinants of health. The four areas covered in the Commission's sessions were chosen to illuminate key aspects of later life, including:

- 1 Retirement communities and care homes
- 2 The built environment, including transport, planning and design
- 3 Physical and mental health
- 4 Social connections and addressing isolation and loneliness

The Commission unearthed a wealth of positive innovations. For example, we found that innovative approaches to the provision of social support within housing environments could drive significant improvements in quality of life and reduce isolation.

We heard how social prescribing schemes, such as Ways to Wellness in Newcastle-upon-Tyne – which bridge primary care and social and emotional support in the community – could play a significant role in improving health outcomes.

30 Lichtenberg (2017) 'The impact of biomedical innovation on longevity and health', *Nordic Journal of Health Economics*, Vol. 5 (2017), No. 1, pp. 45-57

Similarly, innovative schemes that link younger and older people – such as the Cares Family programmes in Liverpool, Manchester, North London and South London – can also play a significant role in improving health and wellbeing, by creating opportunities for social connection.

The Commission also found enormous potential for innovation in housing, echoing NHS England's recent report on innovation in the Healthy New Towns programme.³¹ This includes the work of Standing Together, a partnership between the Mental Health Foundation and Housing & Care 21, which improved wellbeing by establishing peer support and activity-based groups among residents in retirement communities.

And in previous ILC research we found strong evidence to suggest that innovative housing models could drive real improvements in life expectancy – residents of the Whiteley Village retirement community experienced increased life expectancy, particularly for women.³²

31 NHS (2015) *Innovation Into Action: Supporting delivery of the NHS Five Year Forward View*: <https://www.england.nhs.uk/wp-content/uploads/2015/10/nhs-innovation-into-action.pdf>

32 ILC (2017) *Does living in a retirement village extend life expectancy? The case of Whiteley Village*: <https://ilcuk.org.uk/does-living-in-a-retirement-village-extend-life-expectancy-the-case-of-whiteley-village/>

Making it happen: innovation barriers and enablers

While the Commission found plenty of cause for optimism about the potential for innovation to improve health and wellbeing in an ageing society, when it came to scaling up these innovations we found even greater cause for concern.

Making innovation a reality

Understanding the process of innovation in the health arena is key to understanding what changes must be made to make innovation a reality. Nesta³³ defines the stages of this process as:

1. Problem identification
2. Invention
3. Adoption and diffusion

Day-to-day problem identification tends to come from health professionals, researchers and other campaigners and advocates.

The invention stage happens among innovators, but requires stimulation, for example, through accelerators and challenge platforms. In the context of the English healthcare system, innovation is led by bodies like the Academic Health Science Networks (AHSNs), or stimulated by accelerator programmes, such as the Alzheimer's Society accelerator programme for dementia³⁴ and the Government's Carer Innovations Fund.³⁵

Adoption and diffusion requires take-up by large-scale healthcare systems, such as NHS England, but is often mediated by other bodies, such as the National Institute for Health and Care Excellence, and the What Works Network.

33 Nesta (2017) *Open innovation in health: A guide to transforming healthcare through collaboration*: <https://www.nesta.org.uk/report/open-innovation-in-health-a-guide-to-transforming-healthcare-through-collaboration/>

34 Alzheimer's Society (2018) *Accelerator Programme*: <https://www.alzheimers.org.uk/research/our-research/accelerator-programme>

35 <https://www.gov.uk/government/news/cross-government-plan-launched-to-support-unpaid-carers>

To roll out innovation successfully, this entire process must work. But we currently have significant barriers at every stage, impeding the ability of healthcare systems to meet this challenge.

Obstacles to innovation

150 years after we proved the importance of handwashing in hospitals, the NHS has yet to achieve widespread implementation of this innovation.³⁶ Perhaps, then, we shouldn't be surprised that more recent innovations struggle to reach mainstream practice. However, as we have argued, we must find ways to overcome these barriers if we are to meet the dual challenges of fiscal sustainability and healthy ageing.

Fundamentally, innovations will only thrive in environments with the infrastructure that will allow them to be adopted. Taking data as an example, the House of Lords Select Committee on Artificial Intelligence³⁷ raised significant doubts about the NHS's preparedness to embrace new technology. The NHS may not be able to capitalise on the opportunity of big data as very little NHS patient data is digitised: it is still captured and stored on paper.³⁸

Alongside infrastructure, organisational structure is also critical in determining whether organisations are ready for innovation.³⁹ The Nuffield Trust has argued that the top-down approach to innovation in the NHS slows its capacity to capitalise on new developments.⁴⁰ And even if an organisation is ready, innovation also requires investment. The National Audit Office has argued that the current reactive funding structure of healthcare isn't

36 The King's Fund (2018) *Adoption and spread of innovation in the NHS*: <https://www.kingsfund.org.uk/publications/innovation-nhs>

37 House of Lords (2017) *AI in the UK: ready, willing and able?*: <https://publications.parliament.uk/pa/ld201719/ldselect/ldai/100/100.pdf>

38 NHS Confederations (2018) *Is the NHS big data bubble about to burst?*: <https://www.nhsconfed.org/blog/2018/09/is-the-nhs-big-data-bubble-about-to-burst>

39 The King's Fund (2017) *Compassion and innovation in the NHS*: <https://www.kingsfund.org.uk/blog/2017/09/compassion-and-innovation-nhs>

40 Nuffield trust (2017) *Falling short: Why the NHS is still struggling to make the most of new innovations*: <https://www.nuffieldtrust.org.uk/research/falling-short-why-the-nhs-is-still-struggling-to-make-the-most-of-new-innovations>

suitable to fully support transformational change of the kind needed to embrace innovation fully.⁴¹

Healthcare service infrastructure is not the only factor that could prove a barrier to innovation; the evidence base for innovation is also key to its implementation.

The shift towards evidence-based policy in health is, of course, positive. However, the Inquiry heard concerns that an overly rigid approach to evidence holds back innovation in some areas. Random Control Trials (RCTs) are widely seen as the gold standard in health evidence, but their limitations are starting to be understood, with growing concern that they are fundamentally reductive and not applicable to all research questions.⁴² Reliance on RCTs can limit the evidence base available, preventing a broader, more social, understanding of innovation. While NICE have now made it clear that RCTs should not be seen as the only robust form of evidence, there's still a long way to go towards understanding the role of wider forms of evidence, including qualitative evidence like that outlined above.⁴³

41 NAO (2018) *Sustainability and transformation in the NHS*: <https://www.nao.org.uk/report/sustainability-and-transformation-in-the-nhs/>

42 BMJ Opinion (2017) 'Move over RCT—time for a revised approach to evidence-based medicine': <https://blogs.bmj.com/bmj/2017/10/20/christine-stirling-move-over-rct-time-for-a-revised-approach-to-evidence-based-medicine/>

43 Health Foundation/Innovation Unit (2017) *Successfully scaling innovation in the NHS*: <https://www.innovationunit.org/projects/against-the-odds/>

Conclusion

While the evidence clearly shows that increased spending on health is directly linked to improvements in life expectancy, the UK cannot spend its way to longer healthy lives via the NHS.^{44 45} Taking action to address the wider determinants of health, including education, housing and other environmental factors, will be vital. Our drive to innovate for health must encompass all these factors.

As we pursue innovation to secure our future health and wellbeing, we must embrace a comprehensive understanding of innovation. This includes considering the full range of products that could benefit from fresh thinking, as well as practice, settings and policies.

We believe that Health and Wellbeing Innovation Commission Inquiry has brought to light the breadth of innovation in the UK, and the potential for further growth in these areas. But action is needed to ensure that such innovations can be developed, incubated and scaled up for full use.

While the Health Secretary declares war on fax machines in the NHS, potentially life-changing innovations across the broader health space languish.⁴⁶ The Commission has identified a wide range of recommendations across the areas of its inquiry, which together set out an agenda to help innovation flourish and help the UK meet the urgent dual challenges of healthy ageing and fiscal sustainability.⁴⁷

However, the thread that runs throughout our inquiry is the urgent need to move our health and care system to a more integrated and sustainable footing.

The challenges that face our health and care system are well understood. The green shoots of innovation that could give us all

44 OECD (2011) *Health Spending*: <https://www.oecd.org/berlin/47570194.pdf>

45 *The Conversations (2017) Health-care spending has only a modest effect on lifespan and premature death*: <https://theconversation.com/health-care-spending-has-only-a-modest-effect-on-lifespan-and-premature-death-75206>

46 *Gov.uk Health and Social Care Secretary bans fax machines in NHS*: <https://www.gov.uk/government/news/health-and-social-care-secretary-bans-fax-machines-in-nhs>

47 See www.ilcuk.org.uk

five more years of healthy life are already starting to emerge: but a cash-strapped, fragmented system operating in crisis mode is not the right environment to nurture them.

While entrepreneurs across the private and voluntary sectors are leading the way in developing new solutions, our statutory system struggles to find space and energy to allow these innovations into the mainstream. Fundamentally this is a failing of structure and funding that can no longer be ignored. In 2014 the NHS Five Year Forward View heralded a new approach to the NHS: one that saw it becoming more innovative, more entrepreneurial and more integrated.

We cannot allow it to be five more years before this aspiration is realised.

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By 2037, we will
need 750,000
more care workers

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What happens next