IPPR

SUSTAINABLE HEALTHCARE

PRACTICAL STEPS TO BUILD BACK BETTER IN THE ENGLISH NHS

Chris Thomas and
Richard Sloggett

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FH FUTURE HEALTH

ABOUT THE AUTHORS

Chris Thomas is head of the commission on health and prosperity at IPPR.

Richard Sloggett is research director and founder of Future Health.

ABOUT THIS PAPER

This paper advances IPPR's charitable objective of advancing physical and mental health.

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INTRODUCTION:
THE PEOPLE'S PRIORITY

Good healthcare is a vital foundation for the future of our country – including the health of its economy and of its democracy. The pandemic has demonstrated the former.

- The first year of the pandemic saw the biggest one year fall in UK GDP on record. We would need to look back over three hundred years to find a bigger, one-year fall in GDP. (House of Commons 2021).
- By the end of Q4 2021, productivity (output per worker) had only just increased above 2019 levels, for the first time since the pandemic began (ONS 2021).
- Over a million people have been forced from the labour market – 400,000 for health-related factors, including the increase in long-term illness since 2020 (Thomas et al 2022a).

And on the latter, there are few agendas that attract such consistent and universal support as the UK healthcare service. Public perception analysis shows that:

- healthcare is the most salient issue for the public – topping over 30 per cent of Ipsos Mori monthly issue indexes since the late 1980s (Thomas et al 2022b)
- people support the NHS' founding principles: including that it should be comprehensive (88 per cent), free (88 per cent) and tax-funded (79 per cent) (ibid)
- the support for the NHS is cross-party: comprehensive (Conservative 86 per cent; Labour 9 per cent), free (Conservative 89 per cent; Labour 93 per cent), and tax funded (Conservative 81 per cent; Labour 85 per cent) (ibid).

Should politicians lack the ambition needed to revitalise the NHS there is a risk they not only fail to strengthen the UK economy, but also contribute to a trend of increasing public disillusionment in, and distrust of, Westminster politics (see Quilter-Pinner et al 2021).

BEYOND RECOVERY

Given health outcomes were not on a positive trajectory even before the pandemic (see Thomas et al 2022b), it is clear policy must aim higher than simple recovery. Delivering on better health as a people's priority must mean building back better.

It must also mean taking steps to prepare for a highly uncertain future. Covid-19 has shown that our health – and, therefore, our wealth – is fundamentally vulnerable to shocks. Worryingly, these shocks could become more likely in the future, including:

- rising risks of major infectious disease outbreaks and emerging infectious diseases (see figure 1.1)
- the direct health consequences of climate change, rising emissions, and extreme weather events

- the continued and rising risk of anti-microbial resistance (AMR)
- 'known' but severe health risks, like the rise in chronic, long-term conditions, or the consequences of rises in obesity.

Steps to build back better should also be steps to put our healthcare system on a stronger footing, as much for tomorrow as for today.

Figure 1.1: Major global disease outbreaks are rising fast, indicating a growing risk of major pandemics

Number of 'major disease outbreaks' per year, as reported by the World Health Organisation
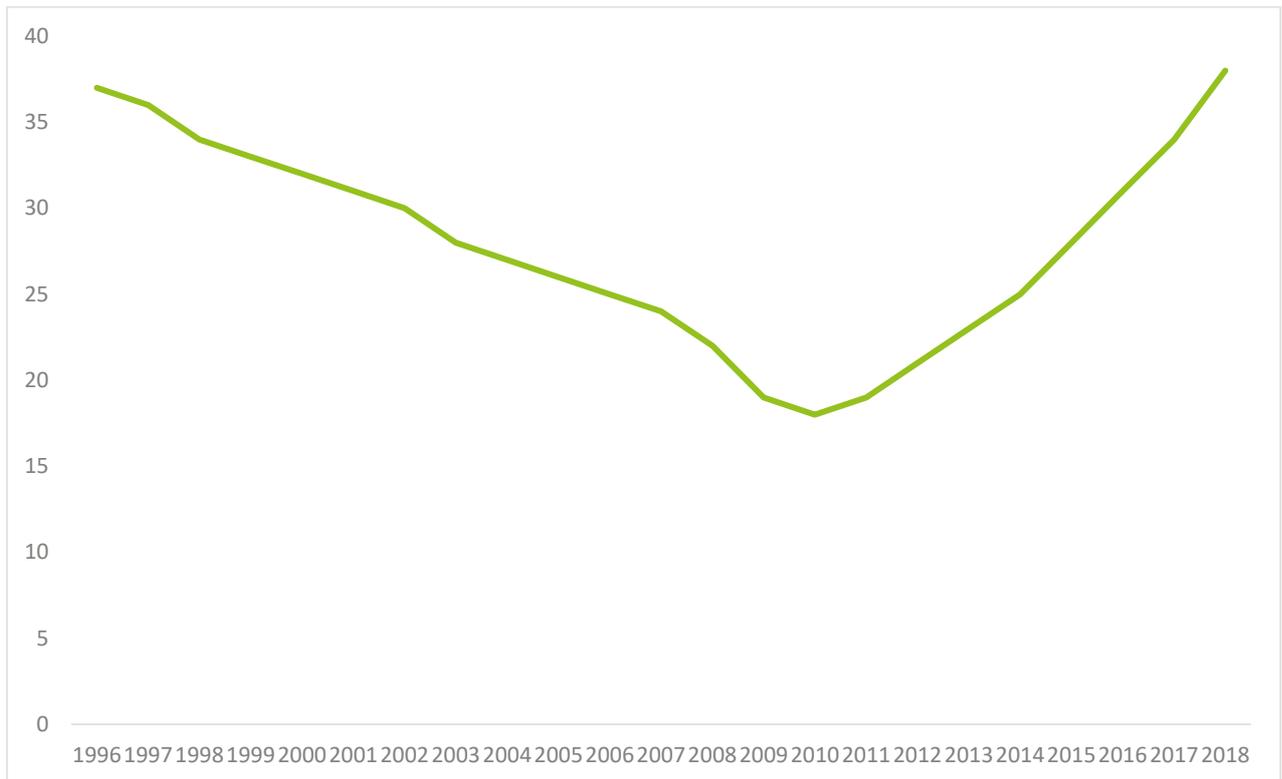
Source: Recreated from World Economic Forum 2019

To support this, the Institute for Public Policy Research and Future Health Research have come together to identify immediate learnings from the pandemic. Our ambition has been to understand areas of consensus, where sustainability can be better embedded. Drawing from international definitions, we have defined sustainability as:

> *"A health system's ability to continually deliver the key health system functions of providing services, generating resources, financing, and stewardship… in pursuit of its goals of improving population health."*
> World Economic Forum 2021

Importantly, this definition does not disassociate sustainability from quality. The bar is set higher than the absence of a total collapse within the NHS. Instead, sustainability requires

an NHS that can continue to improve population health, in line with what public health, science and innovation make possible – and what other countries, or even individual parts of the country, show to be possible.

PRACTICAL STEPS FORWARD

Our analysis has identified five domains where sustainability can be strengthened, most immediately (figure 1.2). These include thinking differently about investment, narrowing inequalities, ending the postcode innovation lottery, and connecting the health service through data and integration. A sustainable workforce – currently one of the biggest barriers to world-class NHS care – was a theme that cut across these domains.

Throughout, we have looked for answers that go beyond 'more money'. While the right funding is evidently a precondition for sustainable healthcare, extra money – devoid of a compelling reform agenda – is unlikely to work on its own. We need a more strategic investment regime, designed to deliver the full human and prosperity benefits of better health – as a simultaneous alternative to throwing money at the problem *and* the short-termism of the focus on efficiency during austerity (see Thomas 2020).

Figure 1.2: Domains for improving sustainability

Five priorities for reform established in our call for evidence
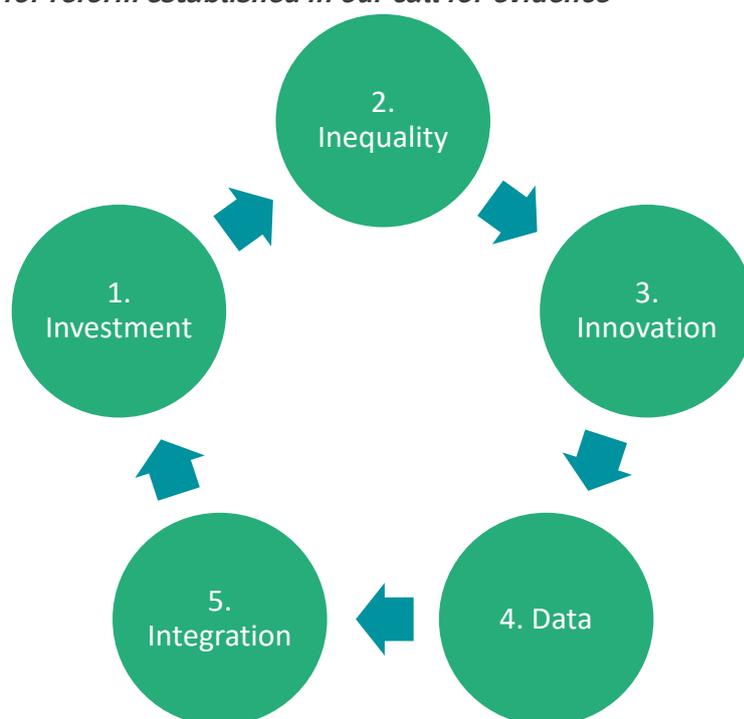
Source: Authors' analysis

We find a relatively strong consensus within the health sector on some immediate and tangible actions that could be implemented to improve sustainability in the NHS. But an equally interesting conclusion from our analysis is that many of these ideas have been in circulation for a long time. Indeed, they are often in practice in isolated parts of the

country. Given that, we have not only looked for evidence-based policy ideas – but also, why it has proven so difficult to implement good ideas, as part of a universal offer, in the last few decades.

This is indicative of an important truth at the heart of this report: brilliant care is still possible within our NHS. The solution to the sustainability challenges we face is unlikely to be a wholescale shift in operating model – as some suggest. Marketisation or insurance-based models are not silver bullets and pursuing them at the expense of more important reform priorities could well make things worse. Instead, the search should be for policies that can help the NHS both universalise and sustain the best care now, for all, in a period of intense global health uncertainty. It's time to revitalise our NHS.

METHODOLOGY

This report is a summary of our research, which includes:

- an extensive literature review, including over 300 peer reviewed and grey literature reports
- a call for evidence, with around 40 responses – including from charities, businesses, legal firms, research institutions, think tanks and civil society
- follow-up interviews to develop and test our policy framework and final recommendations.

Our policy framework

Policy action	What have we learnt from Covid-19?	Barriers	Proposals
Thinking differently about health investment	The clear connection between health and wealth. Investment in health will support the wider economy. A stronger more regionally balanced economy will support health improvement.	- Focussing government on an unbalanced set of metrics (eg GDP). - Disproportionate Treasury power. - Lack of levers for secretary of state for health and social care.	- Elevation of a composite health metric to sit alongside GDP, as a top-tier government metric. - Cross government health impact assessments for government decisions. - Greater investment in research and innovation beyond London and the South East.
Making genuine progress on health inequalities	People in more deprived areas and with underlying health issues were more likely to die from Covid-19. The pandemic legacy needs to show a dramatic reduction in these in the years ahead.	- NHS funding formula is more focussed on demand than unmet need. - Historic lack of targets and ways to embed tackling inequalities in health service delivery. - Variable access to healthcare and health innovation.	- Reform of NHS funding flows to greater account for deprivation. - Explicit inequality targets in every NHS clinical priority. - Expansion of 'one stop shop' clinical services, using existing infrastructure – from GP services; to vaccination sites; to empty high street spaces.
Ending the innovation postcode lottery	Access to healthcare and the latest innovation is variable. The power of new vaccines, treatments and diagnostics has been clearly evidenced through the pandemic response.	- An overly supply-driven and top-down approach to innovation. - Innovation is not embedded in day-to-day leadership responsibilities and cultures can be risk averse to adoption. - Evidence can be hard to generate, and short termism dominates decision-making.	Better linking innovation to outcome goals by establishing a new NHS innovation mandate to focus on how innovation can tackle variations in outcomes and health inequalities. innovation mandate to sit with the NHS England Transformation Directorate.
Using health data to better inform health service delivery	Having strong inter-connected data infrastructure can support more real time decision-making and action. The Covid-19 datastore and other pandemic initiatives need to built from	- Frontline staff are too busy - Systems are old and not inter-connected - Data collection and analysis is not enough of a priority - Public trust remains challenging	- Establishment of national data infrastructure accelerator to spread technology that works rapidly. - Greater national policy coordination on data initiatives. - Contractual frameworks to ensure that suppliers meet minimum data standards. - Proper public engagement campaign on pandemic health data learnings to build trust.
Delivering more integrated and personalised care	That collaboration between different parts of the health system and partners is critical to delivering the best outcomes	- Integrated care is difficult to codify and replicate - Incentives and levers need to be re-oriented to support integration - Primary, community and social care have all been under-invested in - Existing safety, management protocols and targets do not encourage wider collaboration	- Build a new healthcare workforce that is more flexible, patient centred and can deliver greater prevention and earlier intervention - Develop a capital investment plan for health that supports more primary and community care led integration - Ensure that new ICSs are held to account in their engagement with partners and stakeholders, through clear feedback and evaluation measures

Source: Authors' analysis

PRIORITY 1:
THINKING DIFFERENTLY ABOUT INVESTMENT

In the face of rising population health need, driven by the UK's ageing population, healthcare policy has often made short-term cost efficiency synonymous with sustainability. This has been particularly true in the last ten years. During austerity, the NHS was repeatedly tasked with finding tens of billions of pounds in short-term cost savings. But it continues today, with all NHS trusts recently asked to find savings in their 2022/23 budgets.

The focus has not been on what strategic investment in health – and on the potential for better health to support national prosperity - but rather how spending on health can be kept down for as long as possible.

Covid-19 has demonstrated that economic health and human health exist in a reciprocal relationship. But this is true outside of the pandemic context, too. As a recent publication by the World Bank puts it:

> *"Although the current pandemic constitutes a truly exceptional shock, the book documents that even relatively milder health crisis, such as past epidemics, were followed by lasting investment and productivity losses."*
> World Bank 2021

Place-level analysis is increasingly demonstrating that poor health has an economic cost. For example, it is clear that the north and midlands have both worse health and worse productivity than the South East, London, and east of England (ONS 2021; Thomas et al, 2021). Indeed, a report by the Northern Health Science Alliance has demonstrated a causal relationship between poor health and wealth – estimating that health inequality could explain as much as a third of the productivity gap between the North of England and the Rest of England (Bambra et al 2018).

Another way of demonstrating at the cost of poor health is to compare healthy life expectancy against state retirement age. As it stands, the retirement age for men and women born today will be 67 (subject to no further policy changes).[1] As the figure below shows, a vast majority of places do not have a healthy life expectancy above that retirement age – only 17 per cent of local areas have a higher female healthy life expectancy, and just 10 per cent of local areas have a higher male life expectancy.

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[1] It will reach 67 by 2028.

Figure 2.1: There are large gaps in life expectancy, healthy life expectancy and the proportion of life lived in good health in England today

Life and health state life expectancy, deprivation quintiles, England (scatter) compared to retirement age by 2028 (line). Split by female (left) and male (right)
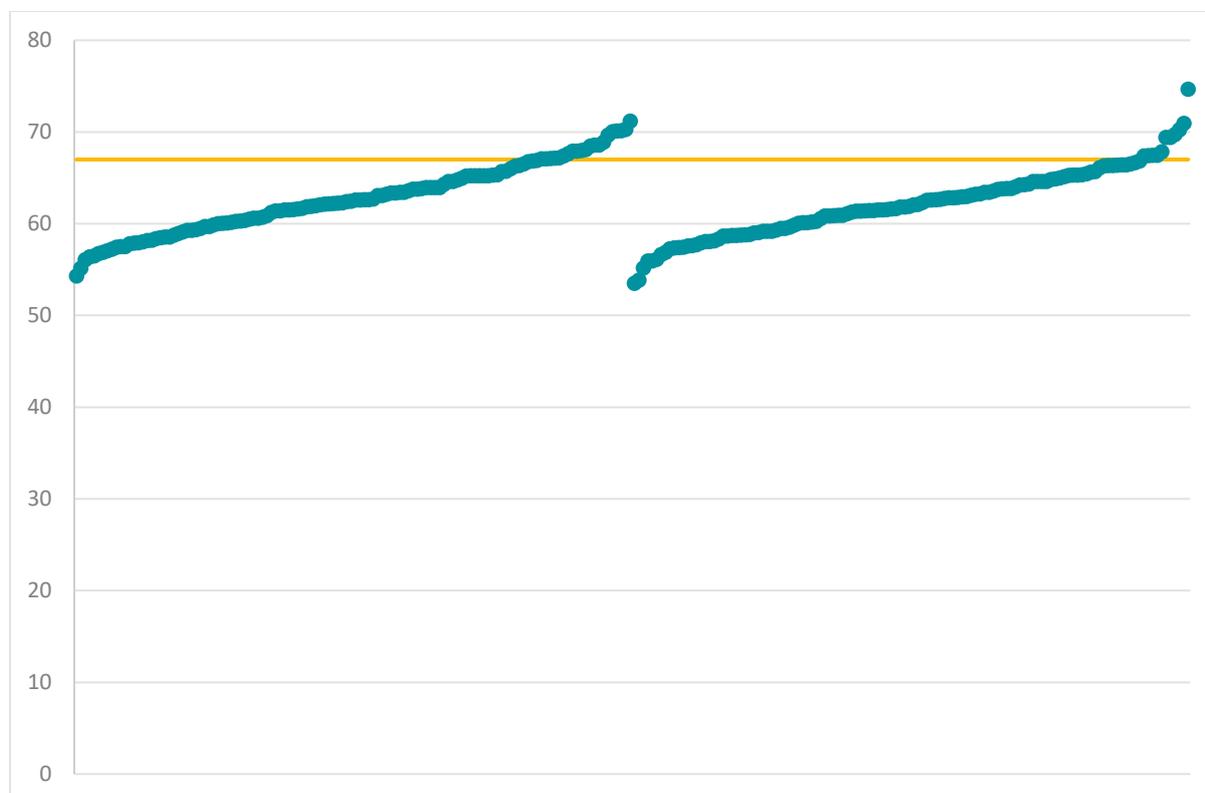
Source: Authors' analysis of ONS 2022
Note: Analysis is a mix of upper-tier local authority and county data, based on ONS data availability.

Building on recent IPPR research, showing that a rise in long-term illness since 2020 has forced hundreds of thousands from work, this indicates that addressing health inequalities is a vital component of delivering a strong, productive labour market.

WHAT WORKS?

Our call for evidence identified a range of ways to optimise the relationship between health and the economy – with a particular consensus around prevention and the life sciences.

1. **Better prevention:** Prevention was an area of significant consensus. In many submissions, the focus was primary prevention (i.e. preventing illness). For example, submissions highlighted the substantial societal costs of obesity and tobacco use. The former has an economic cost of £27 billion, and causes a wide range of health conditions, including cancer, Type II diabetes and coronary heart disease (Public Health England 2017). The latter has an economic cost of £12.9

billion and is thought to explain as much as 50 per cent of health inequality (ASH 2017).

In other submissions, evidence focussed on secondary prevention – on our capacity to ensure people with one or more long-term conditions are able to lead a flourishing life. For example, one submission highlighted evidence from the Journal of Medical Economics showing that best practice management of Type II Diabetes could create workplace productivity benefits worth £1,500 per person (Bain et al 2020). This is indicative of the potential benefits from better management of long-term conditions, particularly in the epidemiological context of rising rates of chronic and multiple conditions in the UK as a whole.

2. **Harnessing the life sciences:** There was also broad consensus on the scope for life sciences to help combine health and wealth. A more R&D intensive economy would help solve the UK's significant productivity issue. And when looking at R&D, life science is an area with clear opportunities. It is an area of historic UK strength; it is the sector with the highest private-sector investment spend.

The UK's ability to harness the potential of the life sciences is being undermined in three ways.

1. **Poor implementation of innovation:** The best life science eco-systems signal that they value innovation. This requires a strong approach to rapid adoption and diffusion of new technology, medicine, digital tools and care pathways. This is not currently the case in the UK – where adoption is far slower than comparable countries, and the focus is often on short-term cost-efficiency rather than long-term strategic investment.

2. **Low public investment:** The evidence is now clear that public investment helps 'crowd-in' private sector spend (particularly if that public investment is associated with 'missions'). However, the UK has chronically underinvested in R&D overall. Compared to the OECD average, UK underinvestment in R&D since 1985 has totalled over £200 billion.

3. **Unequal public investment:** The best industrial strategy would draw investment into places where health need is highest. This would mean the economic benefits of the life sciences as an industry – high quality, productive and skilled jobs – were more equally distributed. Yet, despite some fantastic clusters outside of London and the South East, public investment has often shunned the north and the midlands (figure 2.2).

Figure 2.2: Public sector and charity R&D investment is heavily skewed towards the South of England, £ million

Prevalence of select health conditions, England
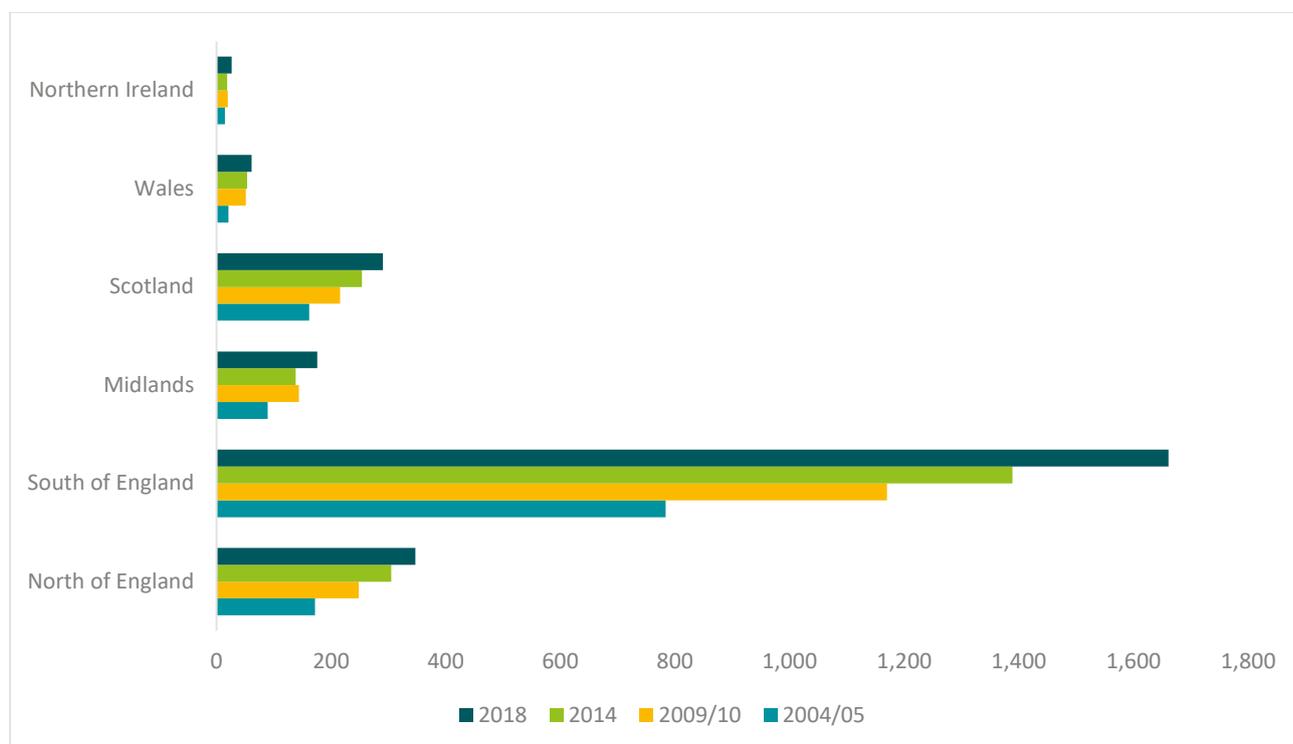
Source: Recreated from Thomas & Nanda 2020

WHY DOESN'T IT HAPPEN?

Our call for evidence identified three reasons that the UK struggles to approach health as a lever in creating prosperity, rather than as a cost to be contained.

The wrong measures

A number of measures are privileged in UK policymaking – particularly, output production measures like GDP. These are useful data. However, we must also contend with some of their unintended consequences.

- They value the things that make us sick: Economic activities that cause ill-health, like the production of cigarettes, are counted within GDP without discount.
- They value activities arising from preventable illness: The UK then disproportionately counts the activities arising from illness in its measurement of GDP – such as hospital and GP activity.

Or in other words, an exclusive focus on GDP helps embed a system in which:

- prevention – including secondary prevention – is disincentivised
- activity is incentivised instead of outcomes.

Disproportionate Treasury power

The Treasury is a department with both the power and the inclination to focus on short-term cost containment. This is accentuated by the fact it runs to a yearly fiscal event, and that its political leaders must justify their record at relatively regular elections. However, good health is something that takes a long time to create – often, a decade or more. This means, for all its economic potential, it is often not the most politically useful tool for the chancellor.

Insufficient levers for the secretary of state for health and social care

By contrast, the health secretary doesn't always have the powers they need to optimise the relationship between health and prosperity. Around the cabinet table, some have hard levers over colleagues: the chancellor decides budgets, the prime minister has control over reshuffles. The health secretary has no such levers, leaving them reliant on soft influence to impact health-critical areas – from the social determinants of health to industrial strategy.

PROPOSALS

We need a shift from a paradigm where health is seen as a cost, to one where it is seen as an enabler of prosperity and site for strategic investment. This means changing how health is viewed and valued across government.

We recommend the following.

1. **Health should be a key cross-government measure, as a supplement to 'stock and flow' measures like GDP.** Our capacity to measure health, beyond relatively blunt tools like longevity, has increased substantially in recent years. The apex of this has been the ONS' creation of the Health Index, a new national statistic. We do not suggest this should replace GDP – but there is a case for it to have parity. This could be as part of a wider dashboard, that also includes wealth distribution and climate change measures, as argued for by IPPR previously.

2. **The impact on policy and investment decisions on health should be routinely assessed and made to have a bearing on decisions outside DHSC.** Given the structure of government and cabinet, it is important the whole of government considers health – not just the health and care secretary. One lever to embed this would be health impact assessments for all government decisions. These could quite explicitly focus on the health and wealth relationship – for example, challenging officials to ensure they've considered how better health could improve the economic consequences of their policies.

3. **The government should look to cement its commitment to an increase in public investment in life sciences, in places where greater need intersects with innovation potential.** There is no good reason why the North attracts less public and charity life science investment. As a range of studies have made clear, it has many high potential clusters – in population health and ageing (North East), data

and digital infrastructure (Manchester city region), vaccine development (Liverpool city region), medical technology (Yorkshire) and enabling technologies (Scotland's central belt). Moreover, investment in life sciences would constitute a helpful antidote to the productivity and health inequalities already noted by this chapter.

We suggest that, as part of its stated ambition to increase public R&D investment to £20 billion by 2025, the government makes a firm commitment on public investment in the life sciences. We recommend, in the context of its commitment to levelling-up, that this includes a goal to better equalise investment between the English regions. Priority should be given to areas that have a) high life science potential and b) poor health, helping ensure public investment doubles as both an industrial strategy and public health intervention.

PRIORITY 2:
TACKLING HEALTH INEQUALITY

Health inequalities are wide and widening in England. Our analysis of the latest ONS data shows that a man in the most deprived part of the country can expect to die a decade sooner than a man in the least deprived part of the country. They can expect to fall into poor health almost twenty years earlier – and, despite their shorter life expectancy, live a higher proportion of their life in poor health.

Figure 3.1: There are large gaps in life expectancy, healthy life expectancy and the proportion of life lived in good health in England today

Life and health state life expectancy, deprivation quintiles, England
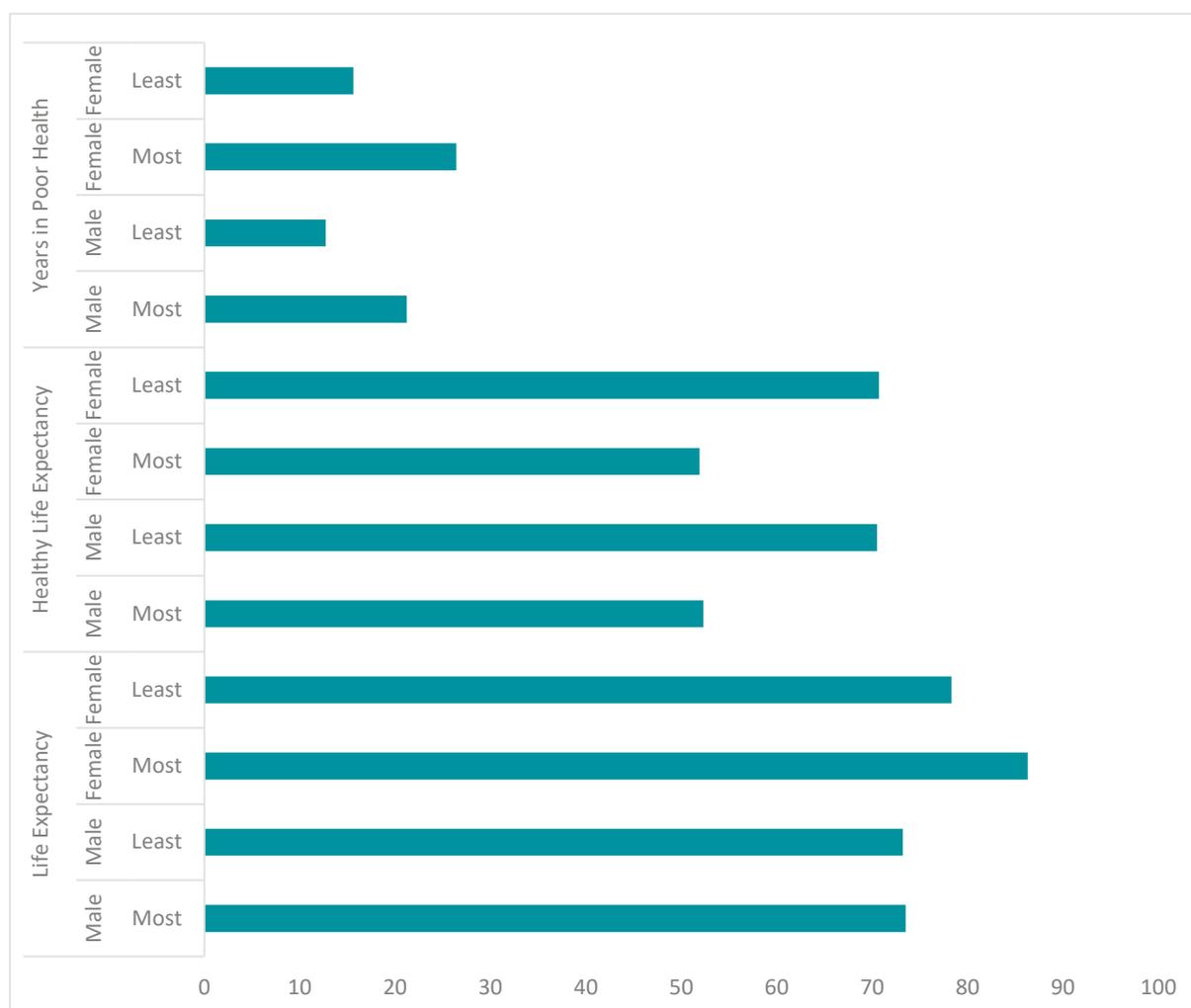
Source: Author analysis of ONS 2022

Beyond being a site of social injustice, and a driver of the economic consequences of poor health discussed in the previous chapter, health inequalities are bad for public finances.

One study put the cost of inequality in in-patient appointments alone at £4.8 billion (2011/12 prices) (Asaria et al 2016).

WHAT WORKS?

Planning around unmet need
The NHS is good at meeting 'demand'. It is far less good at planning for unmet need. This is true for a few reasons. Funding is predominantly allocated by demand, rather than unmet need. The NHS can be rather passive, often waiting for people to come to it, rather than going to them. AI risk stratification has not yet been embedded, limiting capacity to seek out high risk people.

Meeting complex needs
The NHS also struggles with complex needs. This is particularly true when those needs aren't exclusively medical needs – for example, if multiple health conditions interact with financial, housing, spiritual or social need. Schemes like the Improving the Cancer Journey pilot in Glasgow offer a way to address this long-standing challenge (see case study below).

The right aspirations
While we should be careful about targets, they can help provide a sense of purpose within the NHS. This can be seen in the power some privileged health service targets have over NHS leaders. Our interviews suggested that they feel particularly accountable to the following:

- cancer targets
- A&E waiting times
- CQC ratings
- budget deficits (annual).

Notably, none of these explicitly cover inequality or avoidable variation. There is a case to elevate progress on inequality as a top tier target within the NHS – one that leaders see as a clear national mission.

Case study: Improving the Cancer Journey Glasgow

Improving the Cancer Journey – a Macmillan supported scheme in Glasgow (and some other parts of the UK) – is a best practice approach to a multi-agency, navigation led approach to care. This programme identified that cancer doesn't just affect physical health, but rather all aspects of people's lives: from emotions to finances. People using the service received a visit from a link worker to talk about all their needs, health or otherwise. Working from a care plan, the link worker then helps each individual access services, activities, local businesses, and charities that are right for them. The pilot has had significant success – with most users coming from the most deprived parts of the city, and people's overall self-

reported need reducing significantly (Edinburgh Napier University and Macmillan Cancer Support, n.d.).

Successes of the pilot

• Over six in 10 came from the lowest quintile areas and 77 per cent came from the most deprived two quintiles.

• Over half of the people accessing this service had at least one other multiple condition.

• 13,168 needs were identified in total. The top three concerns were: money and housing, feeling fatigue/tired/exhausted and getting around.

• People's concern levels were substantially reduced on return visits, with average scores reducing from 7.15 to 3.82.[2]

• Recipients said they valued the consistency of having one person to help them with everything, and of having a link worker to help navigate the system.

WHY DOESN'T IT HAPPEN?

One of the earliest health policy reforms by the coalition government was a reduction in the amount of funding allocated to 'unmet need' within the NHS' funding formula. The technical body that oversee the formula, ACRA, have maintained that the balance between funding allocated to demand (proxied by age) and to unmet need (proxied by deprivation) is a political choice. That is, they have positioned funding for unmet need as a political rather than a technocratic decision.

Submissions to our call for evidence indicated that a lack of specific inequality targets is accentuated by an organisational structure within NHS England that can make health inequality a fringe issue. At present, national programme teams oversee policy and practice on clinical priorities (such as cancer or cardiovascular disease). A health inequality team then sits outside this team, with little in the way of real levers to ensure national policy focusses on inequality.

The consequence of this was clearly demonstrated by the NHS long-term plan – which made no reference to inequality in the chapters on its clinical priorities. An empowered inequality team within Skipton House, with real remit over condition-specific policy officials, would help this agenda significantly.[3]

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[2] A self-reported score out of 10.
[3] That is not to say the inequality team cannot have success and the CORE20PLUS5 programme is one excellent example. Rather, it is to say it makes it more difficult for inequality to feature – consistently – in the highest priority initiatives of national programmes on clinical priorities.

Moreover, as focussed on more specifically in the next chapter, the NHS struggles with scaling innovation. The existing Improving the Cancer Journey schemes were only made possible with significant voluntary funding and impetus, which is often not viable outside small-scale pilots. Mainstreaming them means grappling with the NHS' challenges with diffusion.

PROPOSALS

Sometimes, the scale of the challenge implied by the 'social determinants of health' can lead to a certain fatalism around what is possible. However, evidence shows that a sustained focus, the right funding, and ambitious targets – as seen in the English Health Inequalities Strategy at the turn of the millennium – can lead to a demonstrable impact (Barr 2017). On that basis, we recommend the following.

- **Reform of NHS funding flows:** To redress the balance between NHS services planned around demand, and planned around unmet need, we recommend the government increases the weighting of deprivation in the NHS funding formula. We also recommend the government commissions new research into the potential impact of a more radical reorientation of funding to need, rather than demand. This would be in line with the wider NHS shift to outcomes, as per the integration white paper.

- **An explicit inequality target for every NHS clinical priority in the long-term plan:** We recommend that the NHS England health inequality team are given official authority to develop an ambitious inequality target for every NHS clinical priority in the long-term plan. This should be followed by plans by integrated care systems (ICSs), outlining their plans to make progress against these targets. This could be implemented through the government's review of targets, announced by the secretary of state for health and social care in autumn 2021. We support this following (and indeed boosting) the CORE20PLUS5 framework proposed by the NHS England inequalities director.

- **Expansion of the 'one-stop shop' care model:** The government have shown an ability to fund and deliver a rapid shift to community-based care models – namely, through the move to community diagnostic centres. We recommend this is harnessed further. One-stop shops need not only provide formal healthcare services but – in the spirit of integrated care – could also provide care navigation, local authority, and voluntary services (housing, social care etc), and social prescriptions. This would make them more relevant to those with the most complicated needs, and we recommend government work with primary care networks to design and deliver this expansion.

PRIORITY 3:
ENDING THE INNOVATION POSTCODE LOTTERY

While there have been improvements in recent years, outcomes for major conditions such as cancer and stroke in the UK continue to lag many other European countries.

In 2019, the International Cancer Benchmarking Partnership found that the UK had the lowest five-year survival rates of seven comparable countries across a range of cancers, and the lowest one-year survival rates for stomach, colon, rectal and lung cancer, between 2010 and 2014 (Arnold 2019). A comparison of healthcare quality by the Nuffield Trust in 2020 found that the UK had a substantial proportion of avoidable emergency admissions in some areas – including the highest admission rate for asthma among similar OECD countries (Davies 2020). Furthermore, the UK ranked seventh out of 11 high-income countries on unnecessary visits to emergency departments in a 2021 study from the Commonwealth Fund (Schneider 2021).

There are also widespread health inequalities between different regions and communities that have been exposed by the pandemic (APPG for Longevity 2021). Analysis by the Health Foundation concluded that 40,000 deaths could have been avoided if the national Covid-19 death rate had been the same as the least deprived areas.

There is a range of evidence that well-managed innovation can improve health outcomes by enabling the self-management of chronic conditions; introducing less invasive treatment for those who need it; and more precise and personalised care. Work from the IPPR in June 2020 calculated that improved access to innovation and care models could result in 20,000 fewer avoidable deaths a year (Thomas et al 2020b).

In response to our call for evidence. Some made the case for polygenic risk score technology to identify people at higher risk of cancer, diabetes, and heart disease; while others noted that innovative medicines can improve population health outcomes and allow more patients to be managed effectively in the community.

The UK has a long track record through collaborations between industry, the NHS, charities, clinicians, and patients in being at the forefront of scientific and medical discoveries. The government has ambitions to be a 'global leading life sciences hub', particularly in building from the success of the Covid-19 vaccine programme. To deliver on this in July 2021 a Life Sciences Vision was published with the aims of translating the innovation of the sector into economic growth and improved health outcomes (HM Government 2021).

The pandemic has also seen rapid change in the way that healthcare services are delivered, from telephone GP consultations, the Covid-19 vaccine rollout to remote monitoring services. However further work is needed to deliver on the ambitions for life sciences and unlocking innovation to tackle variations in outcomes more widely across the healthcare system.

In response to a survey published by Deloitte's Centre for Health Solutions in 2019 less than 10 per cent of NHS staff said they used some of the more innovative technologies, such as artificial intelligence, virtual reality, and robotics.[4] Evidence from the Office for Life Sciences shows that the uptake of new innovative medicines within the NHS is well below international comparisons.

The UK has a relative uptake per capita of NICE approved medicines of 19 per cent in year one, where the average across comparator countries including Australia, France, Germany, and the US amongst others is 100 per cent. By year five, the UK figure is 66 per cent. In addition, a NICE approval is expected to result in access within 90 days across the NHS. However, data looking at the adoption of a NICE approved medicine shows that this is not uniform, and that it can take years for full adoption. Part of the challenge of this is the sheer complexity of NHS structures (NICE 2021).

WHAT WORKS?

The well-documented successes of the Covid-19 vaccination programme provides lessons for successfully introducing innovation within the NHS. The creation of the Vaccine Taskforce in 2020, and the securing of priority access to millions of doses of multiple vaccines, enabled a rapid initial rollout once the vaccines were approved for use (HM Government 2020). The taskforce, researchers and clinical staff benefited from clear, relevant, timely data on the effectiveness of the different vaccines in different settings, and on the needs of local populations.[5] And the rollout saw the use of both mass vaccination centres and innovative efforts to promote vaccination within communities in an effort to get vaccines to groups and communities who often experience poor access to healthcare.

Getting It Right First Time (GIRFT) is a national programme designed to improve the treatment and care of patients through in-depth review of services, benchmarking, and presenting a data-driven evidence base to support change. The programme seeks to address unwarranted variation across the NHS and covers a wide range of surgical, medical and clinical service workstreams alongside with cross cutting themes including coding, medicines optimisation, procurement and litigation. The programme was started by Professor Tim Briggs who's work in elective orthopaedic procedures was seen to deliver £30–50 million in savings in orthopaedic care, through reductions in length of stay and procurement (GIRFT, n.d.).

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[4] https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/life-sciences-health-care/deloitte-uk-life-sciences-health-care-closing-the-digital-gap.pdf
[5] https://ukhsa.blog.gov.uk/2021/12/08/14634/

The AAC and Academic Health Science Networks (AHSN) have shown the value of unifying efforts to promote innovation from a diverse range of stakeholders. The national AAC brings together patient groups, government, industry, and NHS bodies in an effort to promote a streamlined approach to innovation. In 2019-20 the estimated benefits of its work included more than £50 million worth of savings for the NHS, more than 12,000 fewer hospital admissions and 125,000 fewer patient days spent in hospital (NHS England 2021).

At a regional level, the AHSNs aim to align education, clinical research, informatics, innovation, training, and healthcare delivery to translate research into practice. In recent years there has been close cooperation and streamlining between the AAC and AHSNs to speed up the delivery of innovation to patients. The AHSN Network's 2018–2020 impact report found that its work had benefited more than 479,000 patients, with thousands avoiding medication errors or strokes, and generated £322.3 million of inward investment for the UK economy (AHSN Network 2021).

WHY DOESN'T IT HAPPEN?

Despite some successes, scaling innovation within the NHS, it is still highly challenging. Introducing innovation is inevitably disruptive; requiring expertise, time, and resource to deliver. In a study in 2017 the Nuffield Trust noted the following problems:

- an overly supply-driven and top-down approach to innovation
- identifying solutions and innovations is not built into the day to day of the NHS, particularly clinicians
- problems with timely evidence and effective evidence generation in introducing new innovations
- procurement departments see innovations as short-term cost saving measures, rather than longer term investments
- there is a tension between moves towards integrated systems supported by larger scaled providers, and the capacity of SMEs to fulfil large contracts (Castle-Clarke et al 2017).

Similarly, IPPR identified three themes in its June 2020 study:

1. a risk-averse culture, driven by the approach to performance management and focus on short-term targets
2. the sheer complexity of the NHS, coupled with a lack of networks, creating a 'not invented here' culture
3. a lack of resource, including a lack of financial support (Thomas et al 2020).

In response to our call for evidence, the Health Foundation noted that there was still too much focus on pilots, rather than spread, in the adoption of innovation. AstraZeneca noted that perceived conflicts between expenditure and short-term priorities can mean slow or variable adoption of new evidence. The Nuffield Trust has said digital technology is often implemented with little consideration of the complexity of doing so (Sherlaw-Johnson 2021).

PROPOSALS

For innovation to be successfully deployed, it needs to be strategically integrated into the priorities of the health system nationally and locally. It also needs to be clearly focused on improving health outcomes and tackling health inequalities. To do this we propose the creation of a new innovation mandate for the NHS.

The innovation mandate would include the following.

- The establishment of a set of national innovation outcomes for the NHS. These missions would seek to align and support NHS action on reducing health inequalities through the CORE20PLUS5 framework and dovetail with the commitments in the Life Sciences Vision.

- For the missions finally selected, the NHS should then set-up a delivery and accountability system that optimises the introduction and adoption of related products and services, overseen by the NHS Transformation Directorate.

- This should take learnings from the work of the vaccines taskforce and vaccines delivery programme and involve enhanced horizon scanning, rapid appraisals, incentives for adoption, funding and tracking uptake rates.

- The existing innovation system of various organisations and funding pots should be simplified around the missions and built into new NHS structures to support the effective regional and local delivery of the nationally agreed missions.

- NHS England and integrated care systems should report annually on their efforts against the missions and a new innovation index created to monitor system performance against the mission areas.

- Quality accounts should be reviewed and repurposed to set out how NHS Trusts are contributing to the missions and organisations at the forefront of innovation adoption would have the opportunity to be designated as a new leading 'innovation trust', aligned with the objectives of the NHS/Healthcare UK Export Collaborative.

PRIORITY 4:
A CONNECTED HEALTH SYSTEM

UNLOCKING THE POWER OF HEALTH DATA TO SUPPORT IMPROVED SERVICE DELIVERY

There have been repeated calls over the last two decades for the better use of data and technology to support a more sustainable health service. In 2002 the Wanless review, commissioned by the Treasury to assess the future funding of the health service noted:

> *"Current use of information and communication technology (ICT) is extremely poor, changes in the skill mix of staff can go further and there is significant scope for better management (and less bureaucracy). If more decisions were taken in a holistic way, recognising the inter-relationships between many of the resources in the system, the health service would be more effective."*
> Wanless 2002

In 2019 the NHS Long Term Plan recorded that while progress had been made the 'wholesale transformation' of the NHS had not been achieved adding that:

> *"the NHS is made up of hundreds of separate but linked organisations, and the burden of managing complex interactions and data flows between trusts, systems and individuals too often falls on patients and clinicians"*
> NHS England 2019

The challenges of timely, high-quality data were repeatedly raised as an obstacle to improving healthcare in the response to our call for evidence:

- one respondent said data collection methods had not "caught up with the shift to virtual"
- another described data, particularly out of hospital data, as "a huge barrier"
- one-third raised the need for "timely and robust data".[6]

Poor-quality, fragmented, and slow data has a series of knock-on consequences for the health system.

The Department of Health and Social Care's Busting Bureaucracy report, published in 2020, highlighted the problem of duplicative data requests, which create inefficiency and waste staff time (DHSC 2020).

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[6] Submissions to IPPR/Future Health call for evidence.

Lord Carter's health service reviews have shown that poor data exacerbates unwarranted variation. In his 2016 review on acute hospitals, Carter noted:

> *"the best performing hospital systems around the world have real-time data at their fingertips enabling them to make decisions on a daily, weekly, monthly basis to improve performance"*
> Lord Carter 2016

Without access to good quality and timely data and information it is not possible to effectively track system performance, particularly on healthcare outcomes and how health services are doing in addressing health inequalities.

Good quality, joined up data is also essential to innovation. The government's Life Sciences Vision says it is a 'precondition' of success that the UK seizes the opportunities provided by health data.[7] It notes that data enables better research and development, the creation and growth of life sciences and AI companies, and the marketing of new medicines, MedTech, and diagnostics (HM Government 2021).

WHAT WORKS?

The pandemic has clearly shown us the importance of having accurate and up to date real time healthcare data. The Covid-19 dashboard, for example, has provided easy-to-access local population health data, including infection and vaccination rates (HM Government 2022).

NHSX has argued that the dashboard and associated data has helped it to:

- understand how the virus is spreading and identify risks to particularly vulnerable populations
- proactively increase health and care resources in emerging hot spots
- ensure critical equipment is supplied to the facilities with the greatest need
- divert patients and service users to the facilities that are best able to care for them based on demand, resources, and staffing capacity
- support clinical research to understand more about the virus and the impact it is having (NHSX 2020).

The dashboard has been widely used by the public: during the peak of the third national lockdown, it generated 76.5 million hits in just 24 hours (UKHSA 2021). Surveys also found that 90 per cent of users trusted the data they saw on the dashboard in February 2021 (ibid).

Other pandemic related innovations include the development by the National Cancer Research and Analysis Service (NCRAS) of a national cancer dashboard providing more real time data to the health service on cancer treatment; and the National Covid-19 Chest

Imaging Database, a joint initiative established by NHSX, the British Society of Thoracic Imaging (BSTI), Royal Surrey NHS Foundation Trust, and Faculty.

The Covid-19 Chest Imaging Database is a centralised UK database containing chest x-ray (CXR), magnetic resonance imaging (MRI), and computed tomography (CT) images from hospital patients across the country. The database was created to support a better understanding of Covid-19 and develop technology which will enable the best care for patients hospitalised with a severe infection.

The team behind the database have identified eight learnings from the programme:

- information governance: there is a need to clarify and standardise data governance processes to reduce barriers to NHS Trust participation in national data collection exercises
- database linkages: linking datasets is critical to improving the quality and coverage of data collected
- automation: this is critical to enable mass data collection
- trusted research environments (TREs): national infrastructure supports data being accessed and analysed in a safe and secure way
- availability of validation datasets: large-scale high quality validation datasets help accelerate routes to market for innovation
- funding: local NHS trust data collection requires funding mechanisms to support engagement on data collection
- patient and public engagement: this is critical to ensure that concerns about how data is used and stored is done so in a safe, secure and ethical way
- benefit and share models: sharing such models between national and local NHS organisations, helps support and incentivise local NHS participation in national data collection exercises (Cushnan 2021).

From a clinical research perspective, NHS Digital and HDRUK have been building a series of trusted research environments (TREs). TREs enable accredited researchers to access trustworthy, relevant, joined-up data which they need for analysis without providing data on individuals. A HDRUK strategy has noted several examples of TREs now operating successfully along these lines across the UK, including the Genomics England Research Environment and the UK Data Service Secure Lab. During the pandemic Data-CAN, the UK's Health Data Research Hub for cancer, has worked to speed up processes to ensure rapid, safe, and trustworthy access to cancer data in a transparent way that accelerates the pace of high-quality research.

Critical to the success of data sharing is data interoperability and effective minimum standards. A survey cited by HDRUK in 2021 found that 85% of users of health data from a variety of fields supported a core set of standards to enable research (Health Data Research UK 2021).

The NHSX draft data strategy published in the summer of 2021 sets out a plan to make local systems 'interoperable by default' and using interoperability to drive innovation (DHSC 2021).

WHY DOESN'T IT HAPPEN?

Data is often a casualty of frontline staff being too busy and lacking capacity. This problem was illustrated by the Commons Health and Social Care Committee's report into workforce burnout and resilience, published in May 2021, which highlighted problems including "chronic excessive workload" and workload intensity (Health and Social Care Select Committee, 2021). Inefficient and un-necessary data collection processes contribute to this and can become a target of staff hostility. The DHSC's Busting Bureaucracy report found that nearly six in 10 doctors had reported that IT infrastructure significantly increased their day-to-day workload (DHSC, 2020).

Case study: Using intelligent automation to improve the triage and referral management pathway

NHS Lothian in Scotland receives 16,000 new gastroenterology referrals per year with urgent suspected cancer referrals on the rise. Gastroenterology consultants at Western General Hospital in Edinburgh triage around 30 to 40 referrals per day. The triage process was complex, with over 120 outcome permutations identified. Validation of a sample of referrals detected significant variability in how clinical triage decisions were being made.

As part of a three-year project NHS Lothian partnered with Deloitte to implement a referral and intelligent triage (RITA) system to direct patients to treatment pathways, starting with the gastroenterology department.

The RITA model was built using natural language processing, a technique that enables the model to infer meaning from text, coupled with machine learning algorithms, which learn patterns from 12,000 historical referrals to make predictions on new referrals.

The impact has included faster triage, lower administrative burden, reduced variation and waiting times and better integrated working across primary and secondary care.

Respondents to our call for evidence also noted that data often goes to waste in old systems which are not interoperable and that there is a lack of early and considered engagement of frontline staff in system design and associated training and support for using new platforms.

Historically solving data challenges has not been enough of a health service priority. In response to our call for evidence, one legal firm noted the challenge of demonstrating a return on investment from joining up data when service performance measures and

capital investment focussed often on short-termist, fragmented, single organisation focussed goals.[8]

Public trust based on past health data programme failures and practical and cultural barriers to data sharing between organisations responsible for delivering health and care, particularly across health and local government boundaries are also well-established barriers to progress.

However, and more positively, research from the Wellcome Trust's Understanding Patient Data project suggests public trust problems can be mitigated. The research found that the public will support the use of data to deliver benefits to patients – provided people have a say in how it is used.

PROPOSALS

The pandemic has demonstrated the importance of high-quality health data to public health. It has also helped accelerate positive changes that can help break down the barriers to effective health data integration and in unlocking the power of real time data.

For government and the NHS there is now a need to build on these changes, particularly in making it easier to collect, share and analyse health data. This report makes the following recommendations.

- **National data infrastructure accelerator:** The creation of a national data infrastructure accelerator would help rapidly deploy new tools and technologies – particularly those supporting automation and integration – that can deliver improvements in health data collection, sharing and analysis. The accelerator fund would help ICSs in developing more real time data capability, supporting greater transparency in service performance and helping to support service change and transformation. It will also support efforts to deliver innovation, through the AI Lab and the Accelerated Access Collaborative (AAC).

- **National policy coordination:** The government and NHS have an ambitious agenda on the use of healthcare data for population health improvement. However, responsibility is split amongst a range of bodies including NHSX, NHSD, NHS E/I, DHSC, the National Data Guardian, HDRUK and other research bodies such as Genomics England. This presents difficulties in realising the opportunities and improvements of NHS data. Moves to integrate NHSX and NHSD into NHSE should help. But the government should go further and create a National Healthcare Data Council chaired by ministers to coordinate action across the various bodies

- **Contractual mechanisms and transparency:** As part of procurement frameworks for delivering health services the government and the NHS should ensure that selected suppliers are meeting minimum standards on data quality and data

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[8] Submissions to IPPR/Future Health call for evidence.

sharing.[9] Organisational compliance levels with data reporting standards (for example national cancer reporting standards) should be collected and published by the NHS. Areas where compliance levels are below the standard should be identified, supported, and improved.

- **Post Covid-19 public and NHS staff engagement:** Following the success of health data use during the pandemic, the government and the NHS should launch a new public and health service staff engagement exercise on future plans for health data use, setting out clear governance and security arrangements for how such data will be accessed, processed, and managed.

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[9] The draft Standards and Interoperability Strategy published by the Faculty of Clinical Informatics includes proposals for ensuring vendors publish how they are compliant with standards and work with different Arms Length bodies to enforce compliance: https://facultyofclinicalinformatics.org.uk/blog/faculty-of-clinical-informatics-news-1/post/how-standards-will-support-interoperability-90

PRIORITY 5:
DELIVERING INTEGRATED, PERSONALISED CARE

As the demographics and health needs of the nation have changed, particularly with a rise in long term conditions such as diabetes, respiratory and musculoskeletal conditions there has been an increased focus on the need to deliver more integrated, person-centred care.

A lack of integrated care can have negative impacts on NHS sustainability, such as the following.

- Patients can find their care is disjointed across different parts of the system (primary care, secondary care, social care) and this disconnected care is a barrier to ambitions for delivering more preventative care and associated interventions.
- It hinders efforts to adopt population health management approaches where local health service managers are able to assess local health needs effectively and tackle health inequalities. To effectively tackle health inequalities a multi-agency approach is needed, which requires not only intra-health service working, but also effective partnership with other organisations, including public health leaders and civil society.
- Leads to nefficiency, as resource is wasted in duplicating processes and through poorer population health outcomes.
- Results in the misallocation and prioritisation of capital resources. In evidence to our consultation, the Nuffield Trust said the NHS had failed to develop a coherent plan for equipment such as MRI and CT scanners because capital investment has been delegated to individual trusts. In an NHS providers survey in 2020, 97 per cent of NHS trusts said there was a 'high' or 'medium' risk to transformation programmes because of inadequate access to capital. 92 per cent said inadequate capital investment posed a risk to staff wellbeing and recruitment.
- Creating frustration for staff who face institutional and system barriers in designing care around the needs of individual patients.
- Inhibiting the adoption of more innovative practices and technologies that can help build a more preventative system. Cancer Research UK has highlighted the benefits of focussing efforts on early diagnosis and detection of cancer, which can translate into a reduced need for costly late-stage treatment.

WHAT WORKS?

Effective integrated care requires bodies to work together to provide holistic, personalised care with a central focus on the service user's experience and outcomes.

Integrated care can provide a more sustainable approach to tackling major conditions. Stroke care provides an example. In 2017 the Stroke Association projected that the overall costs of stroke in the UK for those aged 45 and over would be £42 billion in 2025 and £75 billion in 2035. It said there was "great capacity" for improvements on prevention, treatment and rehabilitation which could relieve this burden. The NHS Long Term Plan identified integrated stroke delivery networks – which aim to make stroke care more coherent, optimise care pathways and support the adoption of innovation – as a means of delivering sustainable and effective stroke care.

Similarly, a pilot programme from the British Heart Foundation showed benefits of integration for people with cardiovascular disease, including a reduction in hospital admissions and a significant increase in patients' confidence to self-manage their conditions (NHS England 2019).[10]

On a structural basis to deliver integration, health systems need to:

- invest effectively in community care
- build the right culture
- share data and information
- develop effective partnerships with local organisations.

Investment in community and care at home services is a critical foundation for more integrated care and care management.

Several respondents to our call for evidence argued for greater capacity in the community to support the management of chronic disease and improve early detection and diagnosis. Addressing these issues should be a priority for health service capital expenditure: 65 per cent of NHS trusts told NHS Providers the reconfiguration of estates and wider service transformation was a priority or opportunity for capital investment (NHS Providers 2020)

Surrey Heartlands ICS has shown that collaboration between leaders can help to build a better culture and ensure more efficient, effective, and sustainable care. It has prioritised efforts to share problems faced by healthcare leaders, including by launching the Surrey 500 collective leadership programme. Meanwhile, one local sustainability and transformation partnership (STP), Sussex and East Surrey, has substantially improved its financial framework, enabling it to start to write a population health check. Its chief

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[10] Cardiovascular disease-related healthcare costs in England were estimated at £7.4 billion per year in 2019, with an estimated cost to the wider economy of £15.8 billion (UKHSA 2019). And in 2012 an Oxford University study also said the cost of cancer to the economy was £15.8 billion. See: https://www.ox.ac.uk/news/2012-11-07-cancer-costs-uk-economy-%C2%A3158bn-year

executive has credited the change to "the relationship we managed to build with every single one of our counterpart provider chief executives" (NHS England 2019b).

The Electronic Frailty Index (eFI), which was developed by academics at the University of Leeds, draws on a wide range of expertise and data at a population level to support personalised care. The index has enabled the identification of people living with mild, moderate, or severe frailty through routine data, including information recorded in GP electronic health records. This can help to prevent frail people from needing to go to hospital, and ensure they receive targeted support when they leave hospital. The use of the eFI is now in the General Medical Services contract. The success of the index shows the benefits of collaboration between academia and those involved in service delivery.

Integration should also enable a greater focus on the driving factors behind poor public health and wider public sector collaboration. For example, Blackpool Council's 2017 report into public health concluded that "an abundant supply of poor quality, cheap housing", may be "driving poor health in the town in a number of ways".[11] There are now efforts to tackle this problem and so reduce avoidable demand on the health service. New housing developments such as Whyndyke Garden Village, which is one of NHS England's 'Healthy New Towns', place an explicit focus on public health.[12] And Blackpool's housing strategy includes a drive to further develop links between housing work and the provision of health and social care.

WHY DOESN'T IT HAPPEN?

There are several well-established challenges to delivering integrated care.

Integrated care is difficult to define, codify and replicate. Practically, the concept can struggle to deliver against the competing needs of the NHS, local government, patients, and those in the third sector or private sector.

Building a more integrated system requires a re-wiring of incentives and performance measures which can meet resistance from organisations and organisational leaders. It also often requires significant cultural change that is difficult to deliver, particularly when resources are under pressure and have recently been subject to competition between organisations.

Good integrated care requires a strong and well-functioning primary and community care system. Both elements have faced significant recent pressures and historically have never been as much of a service priority as the secondary care/hospital sector. The Nuffield Trust, Cancer Research UK, and Genomics PLC all raised this in response to our call for evidence. According to the Nuffield Trust, the proportion of patients who said they "definitely" had enough support from local services or organisations to manage a long-term health condition decreased from 43 per cent to 37 per cent between 2018 and 2021 (Morris 2021).

Shortages in social care and community care services also undermine efforts to provide integrated care, while shortages in mental health services have a knock-on effect on physical health services. Integration efforts also raise the question of what is within the scope of a health and care system. One legal firm told us that the NHS can be seen as "a bit of a default saviour when every other service says no", suggesting that pressure on related services has an impact on NHS efforts to provide more sustainable care.

The focus of performance management within the NHS has been on a clear but often tightly defined set of targets rather than wider public health and population health outcomes that should be the future focal point for a more integrated healthcare system. In response to our call for evidence, Genomics PLC said "payments-by-results style reimbursements which incentivise localised, acute activity rather than collaborative, cross-departmental or cross-service care" were a barrier to integration. In July 2021 Imelda Redmond, then National Director for Healthwatch England, noted the link between performance monitoring systems which "often look at the delivery of care in particular silos" and a fragmented health and care system. As a result, organisations, departments, and professionals have "little time to look up from the day job" and users' experience is "often incredibly intimidating" (Redmond 2021).

Existing safety and management protocols can deter professionals from working beyond their institutions or areas of practice/specialism. In addition, practical problems such as data sharing (see previous section) are clear barriers to integration.

PROPOSALS

If done correctly integrated care is an enabler for a more sustainable health system. The response to the pandemic has seen collaboration take place right across the health and care system, that the aim of further reform should seek to 'lock in'.

The development of integrated care systems should help support 'scaled integration' of health and social care, particularly in building a model of cooperation around key areas such as data, technology, workforce, and capital. At the local 'place' level the pandemic has shown the importance of local health leaders and knowledge to improving public health. The government's integration white paper setting out how to support place-based pooling of resources should help to ensure a balance between place based and at scale integration in the new system.

However, for integrated care to become a reality will require investment in some core enablers.

- **The future integrated workforce:** The NHS is currently looking at the future model of the healthcare workforce over the next 15 years. As part of this, there needs to be much more widespread investment in professionals that can support more personalised and coordinated care, such as link workers and health service managers who can bring different organisations together, build culture and manage change. Greater flexibility also needs to be considered to enable staff to work across organisational boundaries. The government should also set out an urgent plan for building the future primary care workforce, given the ongoing

challenges faced in the sector and the importance of prevention and earlier intervention to taking pressure off the wider health system.

- **An aligned capital investment plan:** The rolling out of community diagnostic hubs following the Sir Mike Richards review presents an opportunity to improve the diagnosis of major conditions such as cancer. However, there is a need for investment in the underlying data infrastructure of healthcare services to support more integrated approaches. A data infrastructure accelerator would support this.

- **Clear measurement and feedback:** The importance of aligning priorities for new health service structures should see a new single outcomes framework developed as set out in the integration white paper. This national framework should be supplemented by locally built and selected outcomes measures, based on local health system priorities and areas for collaboration. It will be critical that any assessment of health system performance considers the different points each system is starting from. Alongside performance outcome measures tracked over time, systems should also provide updates on their local stakeholder engagement and outreach and provide opportunities for key organisations such as charities, community groups, the voluntary sector, and the public to feedback on their progress and plans.

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