

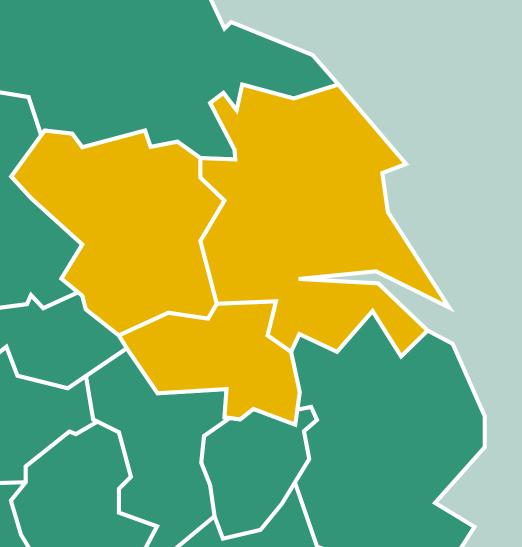






Contents

Foreword	3
Key points	5
Introduction: old challenges and new thinking	8
1. The foundation: three principles	9
2. Health and wealth in Yorkshire and the Humber	15
3. Building on the foundations	22
4. Conclusion and next steps	27
References	- <u> </u>



Foreword

On behalf of Yorkshire & Humber Academic Health Science Network, the NHS Confederation and Yorkshire Universities we are delighted to introduce our report: Levelling Up Yorkshire and Humber: health as the new wealth post-COVID.

Since we held our inaugural YHealth for Growth conference in December 2019, the world has fundamentally changed.

Unemployment has rapidly increased, and inequalities in health and wealth have been thrown into sharp focus. However, as we manage the implications of the COVID-19 pandemic and look towards living with and beyond COVID-19, the need to drive inclusive growth and the messages in this report have become more important than ever.

In this report we explore the role of health in driving economic and inclusive growth in the Yorkshire and Humber region and recognise the clear linkages between health and wealth – we know that a healthy population is a productive and prosperous one and vice versa. We make a series of recommendations at both local and national level that we believe are fundamental to reset and recovery as we emerge from the pandemic.

Yorkshire and the Humber as a region does not punch its weight in terms of economic output or positive health outcomes. However, the region has a huge range of assets and anchor institutions that represent a critical mass in terms of economic geographies, research base, infrastructure and industrial potential. These institutions played a significant civic role before the pandemic, and COVID-19 has accelerated this contribution during the response phase. This work must continue and will be fundamental as we seek to rebuild and recover.





Our report sets out the case for national government and leaders in the region in health, local authorities, business, communities and further and higher education to work together to develop practical approaches and help secure a deeper commitment and collaboration to support a sustainable and inclusive economic growth agenda.

The timing is important. Even before the pandemic, the government had given a clear commitment to 'level up' the regions, which means enabling Yorkshire and the Humber to realise its full potential as part of an overall plan to narrow gaps in prosperity between different parts of the country. The economic aftershock of COVID-19 will hit communities hard – making the levelling up agenda more challenging but even more vital.

In addition, each Local Enterprise Partnership or Mayoral Combined Authority in the region has been producing a Local Industrial Strategy, Strategic Economic Framework and now Economic Recovery Plan prioritising areas and sectors for investment and support. The challenges exposed by the pandemic mean a focus on health is essential in these policies and plans.

We welcome the growing focus nationally on both 'health' and 'place' – and believe in aligning these with a bold ambition for improving quality of life and economic opportunities. This presents a valuable opportunity to improve health and wellbeing for the people of Yorkshire and the Humber.

Richard Stubbs

Chief Executive Yorkshire & Humber AHSN

Niall Dickson CBE

Chief Executive NHS Confederation

Professor Sir Chris Husbands

Vice Chancellor Sheffield Hallam University & Chair Yorkshire Universities

Key points

As we rebuild and recover from COVID-19, this report provides a plan for how we might tackle ever-increasing socio-economic inequalities and boost health outcomes in Yorkshire and the Humber by encouraging and supporting more cross-sector working. We argue that:

- Health and the economy are bound tightly together. Interventions designed to improve health, inclusive growth and wellbeing in Yorkshire and the Humber are in the interests of all local, regional and national partners, businesses and communities and should be a shared priority and endeavour. Leaders and clinicians across the NHS and social care have called for a 'reset' to the way we plan, commission and deliver health and care, building on the rapid progress already made during the COVID-19 pandemic.¹
- Organisations and businesses benefit significantly from healthier and more productive workforces. Through collaboration, the benefits can be even more transformational for individuals and for the wider economy and society.
 COVID-19 has shown the importance of a physically and mentally healthy workforce, and the importance of collaboration for increasing societal resilience.
- On most economic and health measures, Yorkshire and the Humber needs to improve, but the region has many exceptional assets and strong and effective institutions which need to play an even stronger role in the regional recovery. Anchor institutions in the region can make health a much more visible focus for growth through their work with industry, research and development, and acting as large employers and the commissioners of goods and services. They can do this by adopting a stronger health-led and inclusive economic growth agenda, bolstered by increased 'place-sensitive' policy and strategy from government and national agencies.
- The existence of place-based partnerships across the region – including Integrated Care Systems, Local Enterprise Partnerships and Combined Authorities – offers valuable and timely potential to unlock even more of this potential to achieve improved health and inclusive growth for Yorkshire and the Humber.

Key points

We make ten recommendations (see page 28 for more detail).

At national level, the government should:



Increase health research and development spending in Yorkshire and the Humber



Empower local leaders with the tools to improve health outcomes and deliver inclusive growth and wider prosperity



Give greater priority to wellbeing in investment decisions



Ensure health is included as an outcome in all economic development policies



Ensure health as a priority for all departments

Key points

We make ten recommendations (see page 28 for more detail).

Within Yorkshire and the Humber:



Development bodies and anchor institutions should align strategies to deliver inclusive growth



Partners should seek to understand, diversify and strengthen local supply chains



Partners should commit to supporting jointly-funded posts, secondments or exchanges between sectors



Partners should look to strengthen joint analysis and foresight through the establishment of observatories



Anchor institutions should collaborate on transformative change, in areas not within their core domain

Introduction: old challenges and new thinking



In 1862, a concerned resident wrote to the *Leeds Mercury* newspaper that the city succeeds in the 'manufacture of everything but health'.² The mortality rate of Leeds, he wrote, far exceeds that of London (despite the 'evils resulting from overcrowding' in the capital), with too many preventable deaths. He concluded that each life saved is worth £150 for society, a 'very fair percentage of which would have found its way to the municipal exchequer'.

The message from our forebear in Leeds raises two important points. The first is that the UK has been wrestling with local and regional health inequalities long before the devastating arrival of COVID-19. The second is that there is an inseparable and symbiotic connection between individual health and wellbeing and the overall wealth of society and economy – although our understanding of the complex relationship between health and prosperity has become more sophisticated since the 1860s.

This report identifies a plan for how we might tackle spatial health and socio-economic inequalities and boost health outcomes as part of the recovery in Yorkshire and the Humber, by encouraging and enabling more cross-sector working – both regionally and at a local level.³ It builds on the growing body of research that has emerged recently on anchor institutions, inclusive growth and the wider determinants of health. The focus is on the practical actions that the NHS, universities, colleges, local government, communities and businesses in the region can undertake both individually and in collaboration.⁴ All have worked side-by-side in the response to COVID-19 with a focus on solving challenges – we need to continue harnessing this collaboration.

This report is aimed at local executives, chairs and senior leaders from across health and care, further and higher education, the voluntary, charity and social enterprise sector and local authorities, as well as business leaders in medtech and life sciences, and national leaders.

This report is in four parts: first is an introduction to the key principles for post-COVID-19 recovery that underpin success in this area. Second is a summary of the economic and health context for the region, and third are our ideas on how we might proceed to make improvements. Part four proposes a series of bold next steps.

1. The foundation: three principles

There are three key principles that underpin attempts to improve health outcomes and deliver more inclusive and sustainable growth.

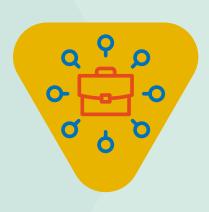
One: there are strong linkages between improving health and economic growth

A rich literature – including evaluation studies – exists on the longterm economic returns and societal benefits of investing more in people's health, particularly efforts designed to prevent ill health and boost wellbeing. Improving physical and mental health does not simply support growth, it can dramatically accelerate it, and more importantly it can do so in more sustainable and inclusive ways.5

Related is the importance attached to the wider determinants of health – the social, economic, commercial and environmental conditions that individuals and communities live and work in and which contribute to approximately 50 percent of the variations in health status.6 These in turn are influenced and perhaps reinforced by structural processes and patterns, such as economic and market conditions, the distribution of power, inequities, policy frameworks, and societal values. The importance of the wider determinants of health are reflected in a growing policy focus on 'population health', and are reinforced in a powerful recent report from Sir Michael Marmot which shows widening health inequalities and regional disparities in life expectancy (including falling life expectancy for the poorest).7

The danger is that the long-term economic impact of COVID-19 exacerbates these inequalities. A briefing paper from the Institute for Fiscal Studies makes uncomfortable reading, referencing a study that showed a one percent fall in employment leads to a two percent increase in the prevalence of chronic illness:

To put this in context, if employment were to fall by the same amount as it fell in the 12 months after the 2008 crisis, around 900,000 more people of working age would be predicted to suffer from a chronic health condition. Only about half this effect will be immediate: the full effect will not be felt for two years. The shock to employment from the coronavirus pandemic is likely to be much larger than this and so we may expect a larger rise in poor health.8





Case study: regional assets and opportunities

South Yorkshire and Bassetlaw mental health partnership

Rates of employment are lower for people with mental illness than for those with any other health condition. South **Yorkshire and Bassetlaw Integrated Care System has** awarded over £1 million in funding to an innovative public and voluntary sector partnership to deliver support to people with serious mental illness to stay in or find work.9

The partnership is led by South Yorkshire Housing Association and includes Citizens Advice Sheffield and all of the region's mental health services providers. The money will be spent on increasing the number of **Individual Placement and Support (IPS) employment** specialists working within NHS secondary mental health services. Their role will be to support patients with severe mental illness in finding sustainable employment.

Case study: regional assets and opportunities University of Hull's COVID-19 response

All of Yorkshire Universities' members have responded to the pandemic with a range of actions with local and global impact.¹⁰ At the University of Hull, two examples showcase the breadth of university expertise being applied in the response. A team at the University of **Hull and Hull-York Medical School have initiated two** international clinical trials for possible treatments for **COVID-19**, which are showing encouraging results. The respiratory clinical trials team is trialling two treatments to tackle the virus and lung inflammation – the main cause of mortality in COVID-19 patients.11

Across the university at the Logistics Institute, a new simulator helps people better understand the impact of leaving lockdown on future cases. The COVID-19 **Resurgence Simulator specialises in simulating a more** localised area, providing an assessment of how easing lockdown measures over different timescales could affect the chances of a second spike of the virus.¹²



1. The foundation: three principles

Two: greater attention should be paid to achieving more 'good forms of growth'

The pandemic will see a surge in unemployment unlike anything seen in our lifetime.¹³ Even when employment begins to recover, accessing a job is not an automatic or sufficient condition to guarantee individual wellbeing and prosperity, as illustrated by the rise of 'in-work poverty'. Researchers have begun to examine and focus attention on how best to ensure that more people benefit from growth. These include large-scale programmes of work on inclusive growth led by the Joseph Rowntree Foundation and Royal Society of Arts, the work of the Centre for Local Economic Strategies on community wealth building, and the UK 2070 Commission, which has produced a blueprint for rebalancing the UK economy – including a recommendation to develop new 'Networks of Excellence' in regional research and development.¹⁴

Although these conversations about growth often have different ideological points of departure and perspectives, they share a set of common threads including the importance of place, and a call for a more comprehensive measure of prosperity that goes above and beyond traditional metrics such as GDP.¹⁵ Instead, there is a desire to give a stronger voice to individuals and communities, to share the benefits of growth in a more equitable way, and to meet the needs of the poorest in society. In line with this, the welcome review of Treasury 'Green Book' spending rules, announced at the March 2020 Budget, suggests wellbeing and addressing regional inequalities will receive greater priority in making investment decisions, and provide a potential boost for the North of England.¹⁶

The pandemic has shown the ingenuity, innovation and resourcefulness of local businesses who have entered the supply chain to fill gaps, and such firms should be encouraged and supported. More emphasis will likely be given to secure and resilient supply chains within the UK and near neighbours post-COVID-19. This means strengthening industrial capacity and domestic manufacturing in the UK, and ensuring the provision of critical goods and services across the country – with clear implications for spatially-aware policymaking and an opportunity for rebuilding local economies.

Wrapped around these discussions, and reinforcing the symbiotic relationship between health and growth, is complementary work on mitigating the consequences of climate change and the disproportionate impacts that the climate emergency will have on poorer people and places.¹⁷ The COVID-19 crisis presents an opportunity to accelerate and capitalise on efforts and widespread shifts in people's ways of living to begin tackling the climate emergency.





There is an intrinsic link between health and climate change. Air pollution – principally driven by fossil fuels, and exacerbated by climate change - damages the heart, lungs, and every other vital organ, and increases the risk of depression, schizophrenia and bipolar disorder.18 Increasing disaster events can also impact upon mental health. The University of Hull-led Aura Innovation Centre will deliver ground-breaking low-carbon projects and kick-start new ideas by bringing together experts at the **University of Hull with businesses in the Humber region** and beyond. The Centre will drive clean business growth by providing a 'front door' for the University of Hull, giving businesses easy access to cutting-edge facilities, specialist funded support and a space to innovate and collaborate with academic and industry experts. The Centre is a key part of the broader 'Energy Estuary': establishing the Humber as an exemplar region for growth from clean energy.¹⁹



Case study: regional assets and opportunities

Leeds City Region health-tech partnership

The Leeds City Region Enterprise Partnership, local authorities, the NHS and five universities in the region signed a memorandum of understanding in August 2019 to drive forward new approaches in improving patient and population health and care through better and faster health-tech innovation. Building on the Leeds City Region Science and Innovation Audit, the partnership will develop personalised and community-based health-tech solutions, share insights into what citizens and patients in the Leeds City Region need, and drive inward investment in health-tech to support inclusive economic growth.²⁰





1. The foundation: three principles

Three: anchor institutions can play a leading role

Universities, colleges, hospitals and councils are considered to be 'anchor institutions': organisations with deep roots embedded in specific places that, through scale, can coordinate economic and social activity in pursuit of shared objectives. These institutions are crucial to integrating activities within and across different localities and regions, and in tackling complex societal problems. However, without strategic direction, leadership and collaboration, anchors can become rigid, bureaucratic and impenetrable organisations to engage with. Anchor institutions can themselves find it difficult to respond quickly to and work with other organisations with different missions, and do not always understand the broad and lasting impact their actions can have.

Sector specific initiatives, including the NHS Long Term Plan and the development of integrated care systems, local industrial strategies, the Independent Commission on the College of the Future looking at further education providers, and the Civic University Commission, have all served to galvanise different actors, and enhance the role of particular institutions as anchors. Encouraging, enabling and rewarding more cross-sector working is essential to the continued success of this mission - as well as ensuring wider participation. Anchor institutions need to support, and be supported by, governments, businesses and communities to make lasting improvements to regional health and growth outcomes.²¹ And all parties need to understand the economic and health context they are working within to produce effective responses.

Case study: regional assets and opportunities Leadership training and peer support

Yorkshire and Humber AHSN ran a programme to develop leadership and change capacity within and between the regional Integrated Care Systems. The programme covered four essential enablers for the successful integration of health and care services across traditional organisational boundaries: strategy, complex projects, change management, and innovation. The three Integrated Care Systems nominated executives, senior leaders and those aspiring for senior leadership over the next couple of years to attend the workshops. The objective of this programme was to strengthen links within and between the three healthcare systems in Yorkshire and the Humber, in addition to sharing knowledge, developing capability, and building a peer network to share learning and support each other to solve common issues and challenges.









47
Non-NHS

Case study: regional assets and opportunities

Yorkshire and Humber Applied Research Collaboration

44 NHS organisations, 47 non-NHS organisations (including the universities of Bradford, Huddersfield, Leeds, Sheffield, York and Sheffield Hallam University) and 15 Local Authorities are partners in the National Institute for Health Research (NIHR) funded Yorkshire and Humber Applied Research Collaboration (ARC) programme. The Yorkshire and Humber ARC supports 'people-powered' research that aims to tackle inequalities and improve health and well-being for local communities. Four priority themes – healthy childhood, mental health and multimorbidity, older people and urgent care – and two cross-cutting themes – improvement science and health economic analysis and evaluation – will draw on university expertise and research to improve services and outcomes for patients.²²

Case study: regional assets and opportunities

Sheffield Health and Care Partnership

One of the largest challenges facing any major region is the provision of long-term health and care for its population. Recognising this challenge and the opportunity that a collective position on health research and innovation can bring to make Sheffield a better place to live and work, three anchor institutions in Sheffield have joined together to form 'The Health and Care Partnership'. The collaboration between the University of Sheffield, Sheffield Hallam University and the Sheffield Teaching Hospitals NHS Trust is initially driving forward a series of research projects which draw on academic strengths and innovation in the health and care system. Areas of research include developing a new system that allows occupational therapists to remotely assess people with mild cognitive impairment in their own home, and a project using data to understand when and how people using palliative care services are brought into urgent and emergency care.



2. Health and wealth in Yorkshire and the Humber

Stubborn and persistent health inequalities between and within regions undermine the economic potential of places. The Health Foundation notes that people born in the most deprived ten percent of local areas are expected to live over 18 fewer years in good health and die a decade earlier than those people born in the least deprived ten percent of local areas. The geographical health gap in the UK is one of the widest amongst OECD countries.²³ There is also a divide between the north and the south of England, with a two year gap in life expectancy and people in the north 20 percent more likely to die early.²⁴

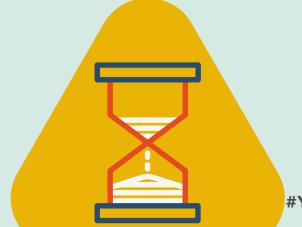
A renewed collective focus on improving health outcomes by sectors and institutions working in partnership can direct resources towards addressing some of the stark inequalities that exist in Yorkshire and the Humber. The statistics make for difficult reading. Healthy life expectancy at birth is lower for men and women in the region compared to the national average (figure 1; note also the variations within Yorkshire and the Humber). Absence from work because of sickness is greater than the national average, but middling overall (figure 2). And mortality rates are uniformly higher (figure 3).²⁵

Life expectancy in Yorkshire and the Humber is 1 year 10 months lower than the average in England.



Men		Women	
Region	Years	Region	Years
England	63.4	England	63.8
Yorkshire and the Humber	61.7	Yorkshire and the Humber	61.5
Barnsley	59.7	Barnsley	61.0
Bradford	60.4	Bradford	59.0
Calderdale	61.6	Calderdale	64.4
Doncaster	61.8	Doncaster	61.1
East Riding of Yorkshire	63.7	East Riding of Yorkshire	63.1
Kingston upon Hull	56.4	Kingston upon Hull	56.9
Kirklees	62.7	Kirklees	58.7
Leeds	62.0	Leeds	64.0
North East Lincolnshire	60.4	North East Lincolnshire	60.1
North Lincolnshire	60.4	North Lincolnshire	61.2
North Yorkshire	64.9	North Yorkshire	68.1
Rotherham	59.3	Rotherham	57.4
Sheffield	62.5	Sheffield	60.1
Wakefield	58.9	Wakefield	56.7
York	65.3	York	64.7

Figure 1: Healthy life expectancy at birth (2015-2017). Darker red shading represents lower healthy age expectancy. *Source:* Public Health England



2. Health and wealth in Yorkshire and the Humber

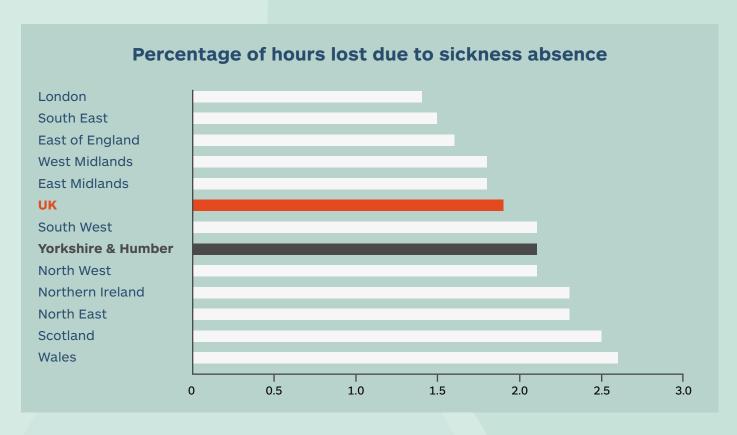


Figure 2: Areas of UK ranked by the percentage of hours lost due to sickness absences (October 2015 to September 2016).

A younger age profile and higher proportion of skilled jobs tend to reduce the sickness rate. Source: ONS

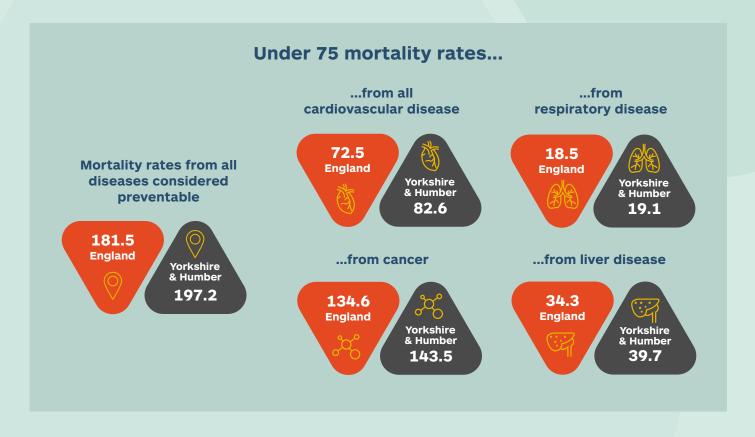


Figure 3: Directly standardised mortality rates - per 100,000 (2015-2017). Source: Public Health England

More generally, there are a wide range of spatial economic and investment disparities. If, for example, we look at the pipeline of infrastructure spending in England until 2021, Yorkshire and the Humber has the second lowest projected spend: £767 per person annually compared to £1,105 in the South West.26 In 2017 (the latest available data), Yorkshire and the Humber saw the lowest annual growth rate in the UK for regional gross value added (GVA), a measure which captures economic activity, recording 0.7 percent growth compared to a UK average of 1.9 percent and a London rate of 3 percent. The region's GVA per head of £21,426 lags behind the UK average of £27,555 (figure 4).27 Some areas of Yorkshire and the Humber - Kingston upon Hull, Barnsley, Doncaster and Rotherham, and North Yorkshire – have productivity levels that are 20 percent below the UK average.²⁸ Owing to the pandemic, output and employment in the region are forecast to decline by more than the UK average in 2020, and to lag the UK during the recovery in 2021.²⁹

The region's GVA per head of £21,426 lags behind the UK average of £27,555.

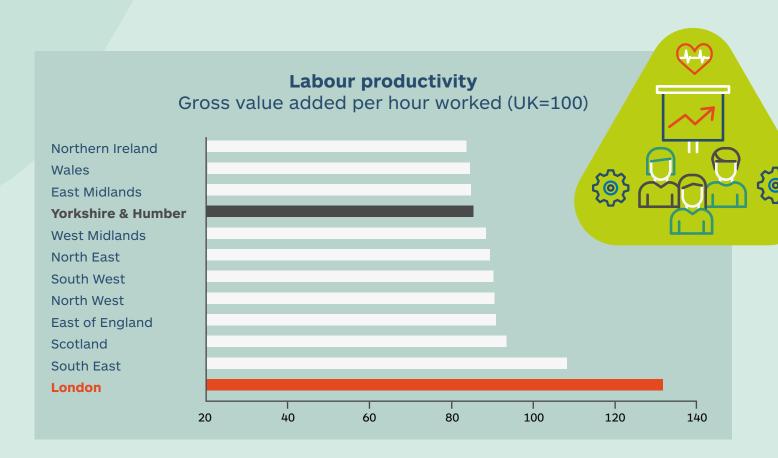


Figure 4: Labour productivity (gross value added per hour worked) by region, 2017 (UK = 100). Source: ONS

2. Health and wealth in Yorkshire and the Humber

For health research investment specifically, public and charity-funded health relevant research in the region was 4.6 percent of the UK total in 2018, a fall of 1.14 percent since 2004/05.³⁰ A recent letter to Boris Johnson signed by 22 hospital chief executives and university medical school heads highlighted that just £21 is spent per person on health innovation and research in the North compared to a £62 average in the 'golden triangle' of London, Oxford and Cambridge.³¹

Research by the Northern Health Science Alliance has demonstrated the impact that lower health outcomes have on productivity in the Northern Powerhouse. ³² The case is clear: 30 percent of the gap in productivity between the North of England and elsewhere in England is due to ill health, and reducing this health gap would generate an additional £13.2 billion in gross value added (GVA) for the UK economy. For Yorkshire and the Humber to make a similar contribution means making even more of the significant health-related assets and institutions that exist in the region.

Case study: regional assets and opportunities

The Advanced Wellbeing Research Centre

The AWRC, at Sheffield Hallam University, is a unique centre for research and innovation into physical activity. With state-of-the-art indoor and outdoor laboratories and access to academic expertise across health, engineering, robotics, software design, psychology, design, and the arts, the centre co-designs innovations and undertakes world-leading research that aims to prevent and treat chronic disease by helping people move. This work is conducted in partnership with communities and industry, and provides world-class research and design capability for SMEs including incubation, acceleration and consultancy services that take initial concepts through to commercialisation. As an example of responding to the pandemic, a new project from AWRC researchers will ensure that elderly and vulnerable people can stay active throughout lockdown with a specially-designed booklet.33 The AWRC have also recently launched RICOVR, a new research and innovation unit to support people to recover and rehabilitate from COVID-19.



Case study: regional assets and opportunities

Leeds Anchors Network

Leeds City Council has launched the Leeds Anchors Network where many of the biggest organisations in the city will work together to maximise the local benefits from their spending, services and recruitment. The network is chaired by Professor Peter Slee, Vice Chancellor of Leeds Beckett University, and also includes Leeds City College, Leeds College of Building, Leeds **Teaching Hospital NHS Trust, Leeds Trinity University,** Leeds and York Partnership NHS Foundation Trust, the **University of Leeds, Leeds Community Healthcare NHS** Trust, NHS Digital, and Yorkshire Water. The network is looking at opportunities to direct more spending locally: 2017 analysis by the Joseph Rowntree Foundation of ten anchor institutions in Leeds found that nearly 50p in every pound 'leaks' out of the local economy, and if these anchors could shift ten percent of their total spending to suppliers in the region this could be worth up to £196 million each year (when multipliers to reflect the circulation of money multipliers are factored in). Other areas of joint work will include initiatives on healthy workplaces and helping local people to access jobs in anchor institutions.34



The Leeds Anchors Network will allow many of the biggest organisations in the city to maximise local benefits from their spending, services and recruitment.

Case study: regional assets and opportunities

Yorkshire & Humber AHSN supporting an innovative regional economy

Creating a more innovative regional economy will be instrumental to recovering from the consequences of the pandemic and lockdown. Important work has been taking place to support the growth of small to medium size medtech enterprises through the Propel@YH programme, a six-month digital health accelerator programme run by the Yorkshire & Humber Academic Health Science Network (AHSN).35 The AHSN has shown what is possible with the adoption of AttendAnywhere to transform out-patient appointments via video calls, and embracing artificial intelligence initiatives such as Pinpoint to streamline the backlog of cancer diagnostics.³⁶ The region's digital infrastructure, such as the £10 million Northern Pathology Imaging **Co-operative and the Yorkshire & Humber Care Record for population** health management will be powerful enablers of transformation through innovation.³⁷ Data-driven, rapid research focusing on public health interventions on mental health, domestic violence and the wider determinants of health will enable the AHSN to scale up the most effective projects to tackle these complex issues.

Case study: regional assets and opportunities

Joint workforce planning in West Yorkshire

Senior representatives of universities in Leeds City Region are working with counterparts in the West Yorkshire and Harrogate Health and Care Partnership to strengthen collaboration in light of the COVID-19 pandemic. The first area of focus is research and innovation, whilst the second will concentrate on skills, training and workforce planning. Proposals include establishing a regional health and social care observatory to lead an evidence-based approach for workforce planning in the region.

There has been an extraordinary mobilisation of people into different health and care roles as part of the pandemic response, and this has provided an insight into the potential for greater flexibility in the way staff and services can adapt and respond to changing circumstances. Workforce demand will continue, yet there is also a need for greater recognition and reward for the key worker roles that are often considered 'low skilled'. There is a key role for local anchor institutions in developing and supporting these jobs.

3. Building on the foundations

Yorkshire and the Humber has a strong health (and especially health-tech) industry and research base. World-class assets include the Advanced Wellbeing Research Centre, the Institute for Data Analytics, the Leeds Centre for Personalised Medicine and Health, the Sheffield Olympic Legacy Park, Nexus Leeds, York Science Park, and four of the eleven national Medtech and In vitro diagnostics Co-operatives (MICs) (funded by the National Institute for Health Research). Leeds is also home to several national NHS organisations, including NHS Digital and the recently-merged NHS England and NHS Improvement.

The region's health, local government and higher education institutions cover 5.4 million local residents. 22 Acute Trusts (of which six are also Teaching Hospitals, including St James's University Hospital – Europe's largest teaching hospital), five Mental Health Trusts and 770 GP practices represent £12 billion in health and social care investment annually and directly employ over 135,000 people.³⁸ Yorkshire Universities' members are 12 higher education institutions, attracting over 196,000 students, spending £250 million in local supply chains, and securing over £150 million in collaborative research funding.³⁹ Between 2004 and 2018, the region secured just under £50 million of grants from Innovate UK for healthcare and life sciences (figure 5), and over half a billion pounds of Research Council life sciences grants.⁴⁰

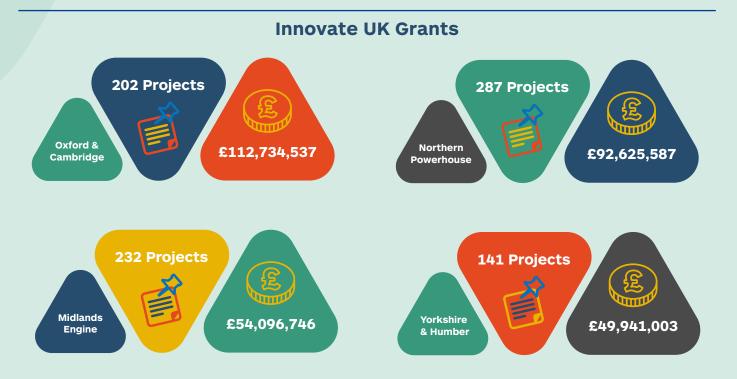


Figure 5: Innovate UK Grants in the Life Sciences Field from 2004 to 2018. Source: Smart Specialisation Hub

3. Building on the foundations

57,000 in healthcare workforce

Case study: regional assets and opportunities One Leeds workforce

The Leeds Health and Care Academy is a collaboration between health, care and university partners in Leeds. The Academy's vision is to create 'one Leeds workforce': a single, joined up approach for innovative learning and development for all 57,000 people working in health and care in the city. This will mean better planning for systemwide workforce requirements, enhanced social mobility and a pipeline of local staff across health and care, and a more seamless experience of health and care services for patients.41

Case study: regional assets and opportunities

Neuroscience research at the University of Sheffield

The Sheffield Institute for Translational Neuroscience (SITraN) based at the University of Sheffield works to translate rapidly emerging developments in neuroscience into new treatments and improved quality of life for patients with neurodegenerative disorders such as Parkinson's Disease, Motor Neurone Disease, **Dementia and Alzheimer's Disease and Multiple** Sclerosis. The work of the university was recognised with a Queen's Anniversary Prize in 2019, highlighting research which has improved the life-expectancy and quality of life for those living with neurodegenerative disorders.42





There are a rich set of connections between the region's research and innovation assets, businesses, local government, health care organisations and universities.

Working alongside regional centres of excellence, hospitals and universities are local and regional businesses. The response to COVID-19 and a focus on solving challenges has further strengthened joint working between industry and health, with many businesses repurposing their facilities and their work to support the health sector's operational response. Over a fifth of the total digital health jobs across England and Wales are based in Leeds alone.⁴³ There over 670 life sciences companies in the region and around 500 of these are in medtech – more than Oxford and Cambridge combined (350).⁴⁴ And many of the 97,000 employers in Yorkshire and the Humber are working to improve occupational health and wellbeing.⁴⁵

There are a rich set of connections between the region's research and innovation assets, businesses, local government, health and care organisations and universities. But there is the potential for wider and deeper connections, and stronger cross-sector collaboration, to unlock better health and economic outcomes. Bodies such as the Yorkshire & Humber AHSN (Academic Health Science Network), Yorkshire Universities and the region's Local Enterprise Partnerships, Combined Authorities, local authorities, businesses and the voluntary and community sector can play a key role here – in addition to bridging local and sub-regional activity with national and international work, and that of the Northern Powerhouse and NP11.⁴⁶ The three Integrated Care Systems (advanced partnerships between NHS organisations and local councils) and four local industrial strategies in Yorkshire and the Humber provide further impetus for collaboration. ⁴⁷

Areas in emerging local industrial strategies	Where health features
Innovation	Particularly medtech, life sciences, digital, Al and data, and clean growth
Skills	General employability, apprenticeships and T-Levels, in-work progression and new business models
Inclusive growth	Workforce wellbeing, addressing low pay, youth employment and the links between health and productivity
Infrastructure	Housing, transport, ICT and energy
Economic growth	Through NHS as anchor institutions and greater use of social value

Table 1: Areas where health features in the emerging local industrial strategies. *Source:* Health in all Local Industrial Strategies? (NHS Confederation briefing paper, June 2019).

3. Building on the foundations

Section four sets out some ideas as to how these partnerships can be strengthened in practice. Collaborative activities range from increasing local procurement and sharing data to lobbying government, and can be extended to strategic priority areas (for example improving graduate retention). The mechanics of cross-sector collaboration will vary from project to project and local geographies, but we believe that there are three phases where there is shared interest and common cause:

- 1. Opening up communication between partners across different sectors. Building personal relationships, understanding areas of overlap and shared objectives, and appreciating the diverse languages and cultures of other organisations is an essential first step for long-term collaboration.⁴⁸
- 2. Building on conversations with actions, and extending these to involve a wider range of organisations, and people within these organisations.
- 3. Moving towards proactively tackling challenges facing the region (ideally before they emerge). Organisations thinking strategically about long-term joint activity.

Two points are worth bearing in mind. First, strong relationships that result in effective collaboration can take time to build. Moving too fast, or starting with complex partnership structures, can be problematic. For example, the NHS testbed programme brought together companies, academia, the voluntary sector and different levels of the NHS and sought to improve services and make them more cost efficient through the use of technology. Lessons learned include not underestimating the time required to develop mutually beneficial partnerships, and to avoid involving too many partners (one testbed had 19 partners, leading to difficulties in the decision-making process).⁴⁹ Similarly, it is important to take the time to understand and reconcile potential conflicts between the output targets of individual organisations, and the broader societal outcomes and public benefit that such collaborations are trying to achieve.

At the same time, new relationships forged in the response to COVID-19 should be maintained and strengthened. New collaborations have rapidly come together across the health system and between health and other sectors. The ability and appetite to work in an agile manner, forming rapid collaborations around specific outcomes which are not over burdened with governance, needs to be sustained.

Second, the interconnectivity of policy areas, local challenges, and their importance as wider determinants of health.⁵⁰ For example, calculations suggest that poor housing costs the NHS £1.4 billion a year, and improving the quality of homes can cut visits to local doctors almost by half.⁵¹ Finding and collectively addressing these opportunities is key for achieving better economic and health outcomes. The final section proposes some practical next steps to advance this agenda.



Born in Bradford is working with the NHS and communities to improve child health and wellbeing

Case study: regional assets and opportunities Born in Bradford

Bradford is the sixth largest city in the UK, with a diverse and multi-ethnic population of more than half a million people. However, Bradford suffers from high levels of deprivation as well as having some of the highest rates of childhood illness in the country. Born in Bradford is a birth cohort study helping to unravel the reasons for this ill health and explore the determinants of childhood and adult disease. It is providing a catalyst for communities to work with the NHS and the local authority to improve child health and wellbeing.⁵²

Case study: regional assets and opportunities Aligning strategies in the Leeds City Region

The West Yorkshire and Harrogate (WY&H) Health and Care Partnership and the Leeds City Region Enterprise Partnership are working to join up action between the Leeds City Region Local Industrial Strategy and the WY&H Five Year Strategy for health and care. A health focus enables both bodies to address some of the region's biggest challenges in an inclusive way such as increasing productivity through healthy workplaces. By aligning strategies there are four initial areas of collaboration: responding to the climate emergency, driving good work to build good health (by building skills, increasing opportunities for good work, and creating healthy workplaces), ageing well, and putting people's lives being at the centre of plans for regional growth and wellbeing.⁵³

4 areas of collaboration



Climate emergency response; driving good work to build good health; ageing well; and people at the heart of regional growth

Tackling stubborn inequalities and driving recovery and growth through a renewed focus on health requires bold actions. It means prioritising health in its widest sense: from improving societal health to strengthening research and development with industry on health technologies. It means anchor institutions – hospitals, universities, local and combined authorities – working together to engage communities and other partners on these efforts, but also boosting the role they themselves play as large employers and economic actors (who in turn will benefit from a healthier workforce).

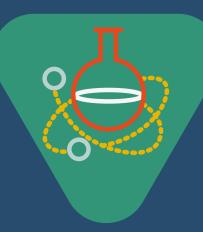
Throughout the COVID-19 pandemic we have made incredible progress in a number of these areas, but the pandemic has also greatly increased health and wealth inequalities across the North and significantly shrunk the regional economy. It is important that we learn from the rapid progress we have made, sustain these changes, and use the momentum gained to work collectively to tackle the stark inequalities facing our society.

The challenges are complex and the political environment in Yorkshire and the Humber – in relation to devolution – has been evolving. However, the recent positive developments with the Sheffield City Region Deal, coupled with the announcement in the March 2020 Budget Statement of a new devolution deal for West Yorkshire, presents a genuine opportunity to progress this agenda, and enact real change. There is also a commitment by the government to progress negotiations around other devolution deals in York and North Yorkshire, as well as Hull and East Riding, which also provides grounds for optimism.⁵⁴

Therefore, a framework exists for partners within and across the region, and the wider Northern Powerhouse, to promote the role of health in economic and inclusive growth. In doing so they should work with national government, which has announced plans in the March 2020 Budget to 'level up' every part of the country and increase investment in research and development.⁵⁵

The following ten recommendations offer a basis for taking this forward.





Recommendations at a national level:



The government should increase health research and development spending in Yorkshire and the Humber. This would allow the region to take advantage of its distinct health-based research assets and capabilities, but also begin addressing some of the most profound health inequalities in the country.⁵⁶



The government should empower local leaders with the tools to improve health outcomes and deliver inclusive growth and wider prosperity. This means devolving powers, funding and responsibilities closer to the point of delivery, and closer to the communities who will benefit. It also means giving the national NHS procurement framework greater flexibility to support local economic recovery.



The government should give greater priority to wellbeing in investment decisions. Plans to emphasise wellbeing alongside efforts to narrow productivity gaps in the Treasury's 'Green Book' – which provides guidance to officials when appraising investment projects – are welcome. After decades of prioritising national economic growth, the government should ensure that any changes in technical rules are aligned to broader post-COVID-19 recovery strategies and accompanied by a shift in culture.



The government should ensure health is included as an outcome in all economic development policies. This includes deals and agreements at a local level, including local industrial strategies and devolution and town deals, and forthcoming funds such as the UK Shared Prosperity Fund. To do this effectively means ongoing consultation with the NHS and other regional anchors.



The government should embed health as a priority for all departments. The pandemic has exposed the need for joined-up approaches for better health policies, infrastructure and outcomes and this should be reflected by all government departments including a focus on health in their work.

Regional partners need to collectively make the case to government to achieve these asks. An expert group from health bodies, universities and industry should be convened to share ideas on how to attract further funding through joint working, build on local assets, and develop a pipeline of potential projects.

Recommendations within Yorkshire and the Humber:

6

Development bodies and anchor institution strategies from all sectors should have the explicit aim of delivering inclusive growth and prioritising health outcomes, including measurements of impact. Institutions in the region are increasingly adopting agendas such as inclusive growth and environmental sustainability in their policies and strategic plans, and including health as a cross-cutting theme. Areas of overlap and alignment should be identified, joint activities developed, data and metrics shared, and gaps addressed (such as marginalised communities or workforce development needs). Where local industrial strategies and other plans have been drafted without an explicit focus on health, these should be 'reset' and redeveloped. This means NHS plans need to consider economic impact, and economic plans need to reference population health.

7

Partners should seek to understand, diversify and strengthen local supply chains for key health and public services. The pandemic has underscored the need to understand the complex supply chains for essential health, care and public services, and to make these more resilient. It has also shown the ingenuity, innovation and resourcefulness of local businesses who have entered the supply chain to fill gaps – such firms should be encouraged and supported.

8

Partners should commit to supporting jointly-funded posts, secondments or exchanges between sectors with the aim of deepening collaboration and delivering inclusive growth and better health outcomes. These initiatives can be highly effective, particularly if they have a clearly defined mandate across both institutions. Any potential 'boundary spanners' – individuals who are well-placed to develop new projects that involve partners from across the region – should be supported and encouraged. This is likely to require a (relatively small) pot of money, especially if partners outside of large anchor institutions or in rural areas are to be involved. We have seen the emergence of blended teams within NHS England during COVID-19. Over time, new career pathways following these exchanges can be opened up between organisations and sectors.

Recommendations within Yorkshire and the Humber:



Partners should look to strengthen joint analysis and foresight through the establishment of observatories (or similar structures), in order to inform effective public policy and interventions by sharing local data and other evidence from across sectors. Pooling and aligning different datasets, and opening these up for external analysis, can generate new insights and drive decision making around, for example, labour markets, public service reform and how to best utilise regional assets.

Anchor institutions should collaborate to coordinate and align their roles in transformative place-wide change, including areas **not immediately within their core domain.** Institutions should also increase work beyond traditional organisational footprints. This may be through supporting innovators to co-develop solutions with staff and patients, or helping SMEs to deliver wider social value. It may involve hackathons or sprint-like events with students, or involving communities in cross-sector leadership training, or making new connections within and beyond the region.

Achieving these recommendations means focusing on the fundamentals of effective cross-sector collaboration and looking at how these can be expanded and embedded. There is already excellent work that can be opened up to new partners and replicated elsewhere across Yorkshire and the Humber. This will likely mean extending the geographic scope of work to areas that are less involved (such as to towns), and actively encouraging organisations who are not engaged to take part.



About the Authors



Richard Stubbs
Chief Executive, Yorkshire & Humber
Academic Health Science Network
@richarddstubbs

Richard is the CEO of the Yorkshire & Humber AHSN. The organisation connects health systems, academic organisations, local authorities, the third sector and industry to facilitate change across whole health and social care economies. He is also a member of the NHS Assembly, a national forum that helps shape the delivery of the NHS Long Term Plan.

Richard is also a private sector board member of the Sheffield City Region Local Enterprise Partnership (LEP) and chairs their Policy Board. He is a Visiting Fellow at Sheffield Hallam University and chairs the strategic advisory board of its Advanced Wellbeing Research Centre (AWRC), a £14m research institution established to develop innovations that will improve population health and physical activity. He is also a director of Legacy Park Ltd - the independent organisation which hosts the unique Sheffield Olympic Legacy Park where the AWRC and other leading bodies are based. He is a Fellow of the Royal Society of Arts and a Leadership Fellow of St George's House, Windsor Castle. Richard is passionate about promoting diversity and recently instigated a national campaign to champion the role of diversity across the health innovation ecosystem.



Professor Sir Chris Husbands
Vice Chancellor, Sheffield
Hallam University and Chair
of Yorkshire Universities
@Hallam_VC

Professor Sir Chris Husbands is a university leader, academic, educationist and public servant. He has served as Vice Chancellor of Sheffield Hallam University since January 2016.

Sir Chris graduated with a double starred First in History from the University of Cambridge, where he went on to complete a doctorate in Geography. He was a teacher and senior manager in urban secondary comprehensive schools before becoming a university lecturer. His academic expertise lies in education policy and practice; his work has been developed in fifteen books and over four hundred papers and





Niall Dickson CBE Chief Executive, NHS Confederation @NHSC Niall

Niall has served in some of the most prominent national roles in health and care. Before joining the NHS Confederation, for seven years he was the chief executive and registrar of the General Medical Council, where he oversaw a raft of major reforms. For six years before that he was chief executive of the King's Fund which under his leadership pioneered work on managing long term conditions and the reform of social care funding.

For sixteen years (from 1988 to 2004) he was a senior correspondent for BBC News, latterly as Social Affairs Editor. Early in his career he was the editor of Nursing Times and of a journal for allied health professionals.

presentations. He has advised local and national governments in the UK and internationally, across four continents.

In 2016, Sir Chris was appointed by the Government as the Inaugural Chair of the Teaching Excellence and Student Outcomes Framework (TEF) heading up the assessment panel that will make decisions on awards. He was subsequently re-appointed as Chair until August 2021. In 2018, Sir Chris was awarded a knighthood in the Queen's Birthday Honours for services to higher education. In May 2019, he was elected to the Board of Universities UK.

Organisations Involved





Yorkshire & Humber AHSN is one of 15 AHSNs set up by NHS England to operate as the key innovation arm of the NHS. We act as a bridge between health care providers, commissioners, academia and industry. By connecting these sectors, we help to build a pipeline of solutions for the NHS from research and product development through to implementation and commercialisation. At Yorkshire & Humber AHSN we believe in the power of new ideas to improve lives and our ambition is to work together with all our partners to make life better for the people in our region by improving their health and care and by creating a thriving economy for everyone.

info@yhahsn.com www.yhahsn.org.uk @YHAHSN

The NHS Confederation is the membership body that brings together and speaks on behalf of organisations that plan, commission and provide NHS services in England, Northern Ireland and Wales. We represent hospitals, community and mental health providers, ambulance trusts, primary care networks, clinical commissioning groups and integrated care systems.

We have three roles:

- to be an influential system leader
- to represent our members with politicians, national bodies, the unions and in Europe
- and to support our members to continually improve care for patients and the public.

All of our work is underpinned and driven by our vision of an empowered, healthy population supported by world-class health and care services; and our values of voice, openness, integrity, challenge, empowerment.

enquiries@nhsconfed.org www.nhsconfed.org @nhsconfed



Founded in 1987, Yorkshire Universities (YU) is a charity and company limited by guarantee. The vice-chancellors and principals of twelve higher education institutions in Yorkshire and the Humber are the members of the company and form YU's board of directors. YU's mission is to maximise the contribution of higher education to the region, through collaboration, where this generates greatest impact and public benefit, and aspiration and opportunity are supported. YU is a unique partnership based on a shared commitment to improve the economic and social prosperity and wellbeing of people and places in Yorkshire and the Humber.

enquiries@yorkshireuniversities.ac.uk www.yorkshireuniversities.ac.uk @YorkshireUnis



This report is part of the two national campaigns below:

The **AHSN** Network Supporting the Health and Care Reset



The AHSN Network Health and Care Reset Campaign aims to support and drive Reset across England's health and care system following the COVID-19 pandemic. This national campaign will bring together work being conducted by individual AHSNs and the wider Network which identifies. evaluates, and seeks to sustain positive changes and rapid innovation brought about by the COVID-19 pandemic which are relevant to the future. Insights and best practice identified through local activity will be spread across the country, as well as exploring larger strategic topics e.g. culture and digital transformation.

NHS Reset is a new campaign led by NHS Confederation, seeking to contribute to the public and political debate on what the health and care system should look like in the aftermath of the COVID-19 pandemic. The campaign will focus on: recognising how the system and its workforce has responded to the pandemic, rebuilding services to meet new and continuing demand, and driving reset of the health and care system's ambition for what the health and care system of the future should look like.

www.nhsconfed.org/supporting-members/nhs-reset

www.ahsnnetwork.com/the-ahsn-network-resetcampaign

Acknowledgements

The authors would like to thank the following people for their support and contribution to the report:

Peter O'Brien

Yorkshire Universities @obrienpeter72

Sean Clarkson

Yorkshire and Humber AHSN

@sean_clarkson



James Ransom

Yorkshire Universities

Michael Wood

NHS Confederation

@NHSLocalGrowth

References

- 1 See: https://www.nhsconfed.org/NHSreset.
- 'The Public Health in Leeds', letter in The Leeds Mercury, Friday October 17, 1862; issue 7649. British Library Newspapers, Part I: 1800-1900.
- 3 An early version of this report was developed for the YHealth for Growth conference, hosted by the Yorkshire & Humber Academic Health Science Network (AHSN), NHS Confederation and Yorkshire Universities in December 2019 in Leeds, and this report has subsequently been informed by the lively discussions that took place at this event (https://yorkshireuniversities.ac.uk/2019/12/20/exploring-the-role-of-health-in-economic-and-inclusive-growth/).
- 4 For examples of this literature, see: Reed, S., et al, 2019, Building healthier communities: the role of the NHS as an anchor institution (Health Foundation) (https://www.health.org.uk/publications/reports/building-healthier-communities-role-of-nhs-as-an-chor-institution); Inclusive Growth Commission, 2017, Making our economy work for everyone (RSA) (https://www.thersa.org/discover/publications-and-articles/reports/final-report-of-the-inclusive-growth-commission); Donkin, A., et al, 2018, Global action on the social determinants of health, BMJ global health, 3(Suppl 1), p.e000603; https://www.kingsfund.org.uk/publications/economic-influence-nhs-local-level.
- 5 Jamison DT, Summers LH, Alleyne G et al. Global health 2035: A world converging within a generation. The Lancet, 2013; 382(9908): 1898–955.
- 6 Webber, L., Chalkidou, K., Morrow, S., Ferguson, B. and McPherson, K., 2018. What are the best societal investments for improving people's health?. BMJ, 362, p.k3377. Healthcare provision itself is only responsible for between 15% and 43% of health outcomes (https://www.progressive-policy.net/downloads/files/Beyond-NHS.pdf).
- Marmot, M., Allen, J., Boyce, T., Goldblatt, P. Morrison, J. 2020. Health Equity in England: The Marmot Review 10 Years On (https://www.health.org.uk/publications/reports/the-marmot-review-10-years-on). For more on population health see: https://www.kingsfund.org.uk/publica-tions/vision-population-health). Https://www.kingsfund.org.uk/publica-tions/vision-population-health
- 8 Banks J., Karjalainen H., Propper C., 2020. Recessions and health: The long-term health consequences of responses to coronavirus. IFS Briefing Note BN281 (https://www.ifs.org.uk/uploads/BN281-Recessions-and-health-The-long-term-health-consequences-of-responses-to-COVID-19-FINAL.pdf).
- 9 https://www.healthandcaretogethersyb.co.uk/about-us/whychange/latest-news/new-1million-project-help-those-serious-mental-illness-work.
- 10 An initial mapping of this impact can be seen here: https://york-shireuniversities.ac.uk/wp-content/uploads/sites/15/2020/06/YU-Statement-final-9-June-2020-web.pdf.
- 11 https://www.hull.ac.uk/work-with-us/more/media-centre/ news/2020/university-partnership-launches-international-clinical-trials-in-hunt-for-covid-19-treatment.
- 12 https://www.hull.ac.uk/work-with-us/more/media-centre/ news/2020/logistics-institute-covid-19-simulator-helping-to-predict-life-after-lockdown.
- 13 As of June 2020, more than a quarter of the workforce are being paid through the Government's furlough scheme: https://www.bbc.co.uk/news/business-53060529.

- 14 UK2070 Commission, 2020. The Final Report of the UK2070 Commission: Make No Little Plans – Acting At Scale For A Fairer And Stronger Future (http://uk2070.org.uk/wp-content/uploads/2020/02/UK2070-FINAL-REPORT.pdf).
- 15 'Inclusive growth' has become something of a buzzword with differing interpretations, although the focus on equitable outcomes for all and the attention being given by policymakers is welcome. For a constructive analysis see: Lee, N., 2019, Inclusive Growth in cities: a sympathetic critique. Regional studies, 53(3), pp.424-434.
- 16 https://www.gov.uk/government/publications/budget-2020-documents/budget-2020.
- 17 Here, too, anchor institutions have a role to play in shaping wider changes but also reforming themselves. The NHS accounts for 40% of public sector carbon emissions, and reducing this is a key part of the NHS Long Term Plan: van Hove, M. and Leng, G., 2019. A more sustainable NHS. BMJ (Clinical research ed.), 366, p.14930.
- 18 https://www.citymetric.com/horizons/here-s-why-air-pollution-af-fects-mental-health-4901.
- 19 https://www.hull.ac.uk/work-with-us/more/media-centre/ news/2019/universitys-climate-change-commitment-strengthened-as-aura-innovation-centre-reaches-major-milestone; https:// www.hull.ac.uk/work-with-us/business/case-study/energy-estuary-2.
- 20 https://www.abhi.org.uk/resource-hub/file/9291.
- 21 For more on increasing the role of businesses in improving the health of society, see: Health Foundation and Blueprint for Better Business, 2018, How can businesses contribute to people's health? (https://www.health.org.uk/publications/how-can-businesses-contribute-to-people%E2%80%99s-health).
 - For more on universities and local government working more effectively with communities, see part three of: Ransom, J., 2019, Smart Places: How universities are shaping a new wave of smart cities (British Council) (https://www.britishcouncil.org/education/ihe/knowledge-centre/partnerships-collaboration/smart-cities).
- 22 https://www.arc-yh.nihr.ac.uk/home.
- 23 Elwell-Sutton, T., et al, 2019, Creating healthy lives: A whole-government approach to long-term investment in the nation's health (Health Foundation) (https://www.health.org.uk/publications/reports/creating-healthy-lives).
- 24 NHSA, 2018, The Northern Powerhouse in Health Research: A Science and Innovation Audit (http://www.thenhsa.co.uk/2019/03/northern-powerhouse-in-health-science-research-science-and-in-novation-audit-published/).
- 25 Data from Public Health England dataset on Wider Determinants of Health: https://fingertips.phe.org.uk/profile/wider-determinants/; and ONS dataset on sickness absence: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/sicknessabsenceinthelabourmarket/2016.
- 26 Yorkshire and Humber is second lowest to the West Midlands, with £737 per person annual spend in the pipeline from 2018/19 to 2020/21. This data has numerous caveats, but is a useful signal of investment intent. For full tables with breakdowns by central and local government and private sources: Infrastructure and Projects Authority, 2018, Analysis of the National Infrastructure and Construction Pipeline (https://www.gov.uk/government/publications/national-infrastructure-and-construction-pipeline-2018).
- 27 ONS, Regional economic activity by gross value added (balanced), UK: 1998 to 2017 (https://www.ons.gov.uk/economy/grossvalueaddedgva/bulletins/regionalgrossvalueaddedbalanceduk/ 1998to2017).
- 28 ONS, Regional and sub-regional productivity in the UK: February 2019 (https://www.ons.gov.uk/employmentandlabourmarket/ peopleinwork/labourproductivity/articles/regionalandsubregionalproductivityintheuk/february2019#results-for-nuts1-regions-and-countries).



References

- 29 https://www.icaew.com/technical/economy/economic-insight/coro-navirus-uk-economic-outlook-differences-across-regions.
- 30 UK Health Research Analysis 2018 (UK Clinical Research Collaboration, 2020) (https://hrcsonline.net/reports/analysis-reports/uk-health-research-analysis-2018/).
- 31 https://www.yorkshirepost.co.uk/news/politics/end-research-funds-gap-level-uk-northern-health-chiefs-urge-boris-johnson-2003771.
- 32 Bambra, Munford, Brown et al, 2018, Health for Wealth: Building a Healthier Northern Powerhouse for UK Productivity (Northern Health Sciences Alliance) (http://www.thenhsa.co.uk/app/uploads/2018/11/NHSA-REPORT-FINAL.pdf).
- 33 https://www.shu.ac.uk/research/specialisms/advanced-wellbeing-research-centre; https://www.shu.ac.uk/research/specialisms/ advanced-wellbeing-research-centre/our-impact/staying-active-in-lockdown.
- 34 http://www.leedsgrowthstrategy.co.uk/anchor-institutions/. For details of the procurement study, see: Devins D. et al, 2017, Maximising the Local Impact of Anchor Institutions: A Case Study of Leeds City Region (Joseph Rowntree Foundation) (www.jrf.org.uk/report/maximising-local-impact-anchor-institutions-case-study-leeds-city-region). The JRF have also worked with Leeds City Council to create a useful framework to 'help organisations to capitalise on their power and role as an inclusive anchor institution': Leeds City Council, West Yorkshire Combined Authority, Joseph Rowntree Foundation, Harnessing the Power of Anchor Institutions A Progressive Framework (Joseph Rowntree Foundation) (https://democracy.leeds.gov.uk/documents/s181576/4%20 Anchor%20Institution%20Progression%20Framework%20Toolkit.pdf).
- 35 https://propel-yh.com/about-us/.
- 36 https://www.pinpointdatascience.com/; https://www.pinpointdatascience.com/;
- 37 http://www.virtualpathology.leeds.ac.uk/npic/.
- 38 NHS Hospital and Community Health Service and GP Workforce combined headcount. Source: NHS Digital (June/July 2019) (https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics). The region also hosted NHS Nightingale Yorkshire and the Humber based at Harrogate Convention Centre as part of the COVID-19 response.
- 39 Yorkshire Universities: HE in Yorkshire (https://yorkshireuniversities.ac.uk/facts-figures/).
- 40 £588,752,893 in grants from MRC and BBSRC, compared to £742,957,142 for the Midlands Engine, £1,352,421,678 for the Northern Powerhouse and £1,458,774,073 for Oxford and Cambridge. Walker-Harrison, C., 2018, Benchmarking the Life Sciences Sector in the UK (Smart Specialisation Hub) (http://smartspecialisationhub.org/publications/life-sciences/).
- 41 https://www.leedsacademichealthpartnership.org/projects/leedshealth-social-care-academy/.
- 42 https://www.sheffield.ac.uk/news/nr/royal-recognition-for-sheffield-neuroscience-1.873501.
- 43 Leeds Inclusive Growth Strategy 2018-2023 (Leeds City Council) (http://www.leedsgrowthstrategy.co.uk/).
- 44 Walker-Harrison, C., 2018, Benchmarking the Life Sciences Sector in the UK (Smart Specialisation Hub) (http://smartspecialisationhub.org/publications/life-sciences/).
- 45 House of Commons Library, 2018, Business statistics briefing paper number 06152 (https://researchbriefings.parliament.uk/ ResearchBriefing/Summary/SN06152).
- 46 The recent 'Manifesto for the North' recognises the importance of improving health outcomes, and lists health innovation as a key capability for the north: NP11 and Convention of the North, 2019, A Manifesto for the North (https://www.np11.org.uk/wp-content/uploads/2019/11/ManifestoForTheNorth-November2019.pdf).

- 47 The three Integrated Care Systems are South Yorkshire and Bassetlaw, West Yorkshire and Harrogate, and (as of April 2020) Humber, Coast and Vale. The four local industrial strategies, under development, are led by the region's Local Enterprise Partnerships. For an excellent summary see: Wood, M., 2019, Health in all Local Industrial Strategies? (NHS Confederation) (https://www.nhsconfed.org/resources/2019/06/health-in-all-local-industrial-strategies). The House of Commons Library has also published a helpful summary of Integrated Care Systems: https://commonslibrary.parliament.uk/insights/nhs-reform-integrated-care-systems/.
- 48 This applies irrespective of field or topic. The Leading Places programme developed by the LGA, the former Higher Education Funding Council for England and Universities UK provides an excellent example of how basic principles of collaboration were applied, as pilots, to different challenges. The Shropshire pilot involved eight local partners working together to meet the health needs of a dispersed and aging population: https://www.local.gov.uk/topics/devolution/leading-places. Boundary spanners' people familiar with working in different sectors can accelerate the process. For more on boundary spanners see: Ransom, J., 2019, Smart Places: How universities are shaping a new wave of smart cities (British Council) (https://www.britishcouncil.org/education/ihe/knowledge-centre/partnerships-collaboration/smart-cities).
- 49 Arntzen, S. et al, 2019, Testing Innovation in the Real World: Real-world testbeds (Nesta) (https://www.nesta.org.uk/report/testing-innovation-real-world/).
- 50 An analysis of systematic reviews suggests interventions in the fields of housing and the work environment can be particularly effective: Bambra, C., Gibson, M., Sowden, A., Wright, K., Whitehead, M. and Petticrew, M., 2010. Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews. Journal of Epidemiology & Community Health, 64(4), pp.284-291.
- 51 The Institute of Engineering and Technology and Nottingham Trent University, Scaling Up Retrofit 2050 (https://www.theiet.org/impact-society/factfiles/built-environment-factfiles/retrofit-2050/).
- 52 https://borninbradford.nhs.uk/.
- 53 https://www.wyhpartnership.co.uk/application/ files/9615/7478/1205/23-19 Health and Growth - Local Industrial Strategy.pdf; https://westyorkshire.moderngov.co.uk/documents/s14509/Item%207%20-%20Local%20Industrial%20Strategy. pdf.
- 54 https://www.yorkshirepost.co.uk/news/politics/tory-minister-will-travel-to-leeds-next-week-in-search-of-a-west-yorkshire-devolution-deal-1-10213870; https://www.lgcplus.com/politics/devolution-and-economic-growth/exclusive-berry-confirms-fresh-devo-talks-with-east-and-north-yorks-17-01-2020/.
- 55 https://www.gov.uk/government/publications/budget-2020-documents/budget-2020.
- 56 Yorkshire Universities and N8 have jointly made the case that there needs to be a greater emphasis on both place and developing regional research and innovation ecosystems in research funding policy: N8/YU, 2019, Joint Response to David Sweeney Questions about Place and Research and Innovation (N8 Research Partnership/Yorkshire Universities) (https://yorkshireuniversities. ac.uk/2019/11/10/n8-yorkshire-universities-joint-response-to-david-sweeney).









