Curia

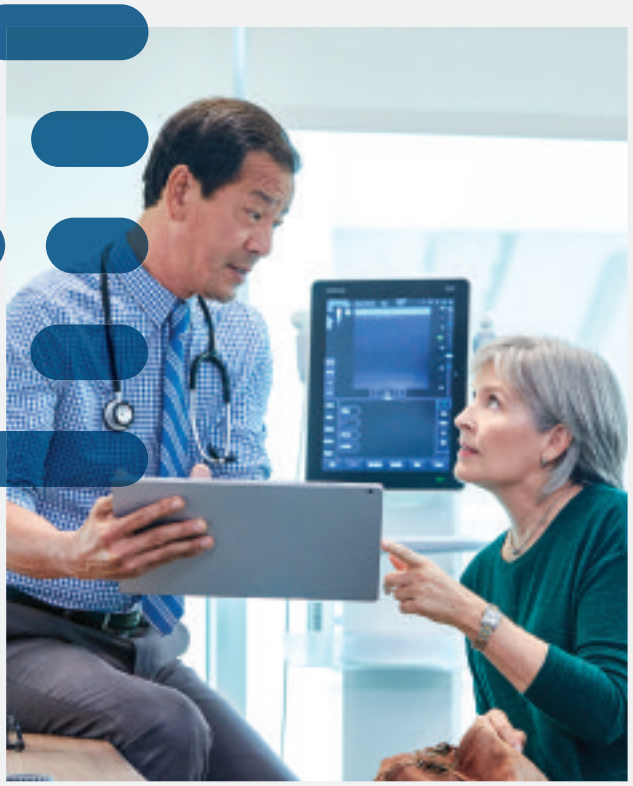
NHS Innovation and Life Sciences Commission:

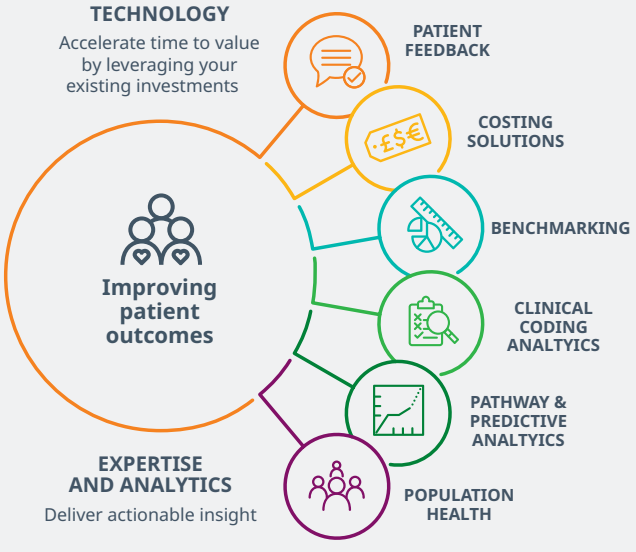
2022 Report

NHS Innovation and Life Sciences Commission

Using data to drive value in patient care

Identify insights you can action immediately to maximise the value of every pound you spend.





IQVIA is uniquely placed to support your part of the NHS in identifying and targeting improvement in patient care and ensure the money you invest achieves maximum benefits to the population. It's never been more important to understand your cost base and identify unwarranted variation in clinical practice.

Our team of experts have decades of experience in working collaboratively with the NHS to achieve tangible success – we can demonstrate how our clients use the outputs of our capabilities time and time again to make a real difference.

- **Our market leading PLICS solution is used by 85 trusts.** Always NCC compliant, yet again we supported all of our trusts to make their annual submissions on time & in full. PLICS ABC costing is a key tool to managing Provider's limited finances and also show value for money.
- **We provide our PROMs & PREMs solutions to over 90% of trusts** and over 120 trusts use our solution for gathering staff experience feedback.
- IQVIA's capabilities are being increasingly used by ICS's to help deliver their Integrated Care Model.

Measuring the staff and patient's experience, and their outcomes, provides a compelling view to providing ***the "most appropriate health system" possible.***

The combination of ***your leadership*** *and our* ***market leading capabilities*** *will ensure you can turn data into intelligence to determine your* ***most effective healthcare decisions.***

CONTACT US

Please get in touch with us for an initial confidential discussion with our experts:

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IQVIA

Foreword

What does the future hold for the UK's health and care systems and what contribution can the research and industry sectors give to solving the multiple challenges we face? Those are the questions that our NHS Innovation and Life Sciences Commission has been attempting to answer during the last sixth months. In our view, there are fewer more important issues for policymakers in the UK to try and address.

Our country has many strengths, including a highly trusted NHS adept at working its way through crises, an innovative economy and some of the best basic science in the world. These combined to superb effect during the pandemic, helping us navigate those dreadful times and discover new therapies and vaccines that have led the global response to Covid-19.

Since then, something of that spirit of collaboration across all sectors of the health and life sciences systems has been lost. We have reverted to the status quo ante, which is simply not enough to tackle the major challenges we face, or to realise the incredible opportunities promised by technological change.

Our commission has conducted hearings with experts on four topics which we believe must form part of the Government and the NHS' strategy to leverage innovation to address our situation. The first concentrated on the potential of our world-leading health data assets; how to make the most of them in a way that carries the public with us? We believe that the Government's 'Data Saves Lives' strategy is the right foundation to build upon and it needs to be implemented without delay. In doing so, the NHS needs to find a way to work with industry to generate value that can be shared fairly between the public and private sectors.

Using our health data better will contribute to two important system improvements, which formed the basis of our next investigations. Our second inquiry focused on the better integration of our health and care services to unblock the bottlenecks – like patients moving from hospitals to social care – that are crippling the system and enable services to move 'upstream' into more personal and preventative health services. Both changes would lead to increased healthy longevity for citizens and less pressure on health and care services.

Our third investigation looked at our clinical research sector, for so long one of the UK's great strengths – as demonstrated through the recovery and other trials during the pandemic. Regaining our position as a world-leader in clinical trials and setting the pace on using the NHS as a platform for the use of real-world evidence to test life-changing new technologies, would bring both health and wealth benefits to the UK. Making sure more of this activity took place in the UK's most disadvantaged communities could make a significant impact on the levelling up agenda too.

It has been five years since the publication of the Government's Life Science Review and there is a sense of marking time, rather than advancement despite the successes during the Covid-19 pandemic. We heard of the fears that the initial enthusiasm, demonstrable during the pandemic have not been sustained and our contributors wish for renewed energy by government, industry, and academia in expanding research across the UK.

Finally, we looked at how innovations – whether in the delivery of services or in new products like medicines and diagnostic tools – could be scaled more easily in the NHS and care systems to improve productivity. The UK does well on early adoption of innovation but often underperforms on scaling at a national level. One reason is cost, which cannot be glossed over in these fiscally constrained times. However, the consequence of underinvestment in technology is a system that is less productive than it should be, putting further pressure on budgets. How to break this vicious cycle is a topic that dominated our discussions.

Our goal throughout these investigations has not just been to identify the problems – there is already plenty of that kind of analysis already – but to make practical recommendations that can be implemented in the near-term. Our intention is to be pragmatic and solution-focused, to be helpful rather than critical. We hope we have achieved that aim and look forward to working with policymakers to implement our ideas.

Co-Chairs - Lord James O' Shaughnessy and Professor Mike Bewick

Commissioners

Lord James O'Shaughnessy

Co-Chairing this commission, James is one of the UK's leading policy advisors. He has operated at the highest levels of government, including as a Minister at the DHSC, as Director of the No.10 Policy Unit, and as an advisor to DHSC Ministers during the Covid-19 crisis.

Professor Mike Bewick

Co-Chairing this commission, Mike is a former Deputy National Medical Director of NHS England and has wide-ranging experience including planning, commissioning, providing services, leading clinical and management teams on a local, regional and national basis, and advising on policy for NHS England to Secretaries of State and Government Ministers.

Professor Gillian Leng CBE

Former Chief Executive at NICE, Gill is a clinician by background, with experience in public health, healthcare, education, and social care. In her current and previous roles she developed close working relationships with the life science industries, patient organisations, professional societies, academia, plus local and national government across the United Kingdom.

Dr Keith Ridge CBE

Keith is a former Chief Pharmaceutical Officer at NHS England and DHSC. He is currently visiting Professor at Imperial College London. While at NHS England, Keith was Senior Responsible Officer for reducing inappropriate prescribing of antimicrobial in the UK AMR Strategy, and led on issues such as medicines optimisation, digital medicines, pharmacy educational reform and transforming pharmacy practice.

Richard Stubbs

Chief Executive Officer at Yorkshire and Humber Academic Health Science Network and Vice Chair of the AHSN Network, Richard is a leading health innovation expert who passionately believes in the role of technology and life sciences in improving patient care and driving economic growth. Through this innovation lens, Richard is very active in health inequalities, diversity, levelling up and international trade agendas.

Dr Harpreet Sood

Harpreet has worked at the intersection of technology and innovation and the impact of this on healthcare delivery and transformation. Harpreet's interest is in new models of primary care and the use of clinical data, innovation and AI enabled interventions in providing healthcare and diagnostics. The founder of two healthcare start-ups, Harpreet is a practising primary care doctor.

Neelam Patel

Neelam is CEO of MedCity, the life sciences cluster organisation for London, set up in 2014 by the Mayor of London and the city's three Academic Health Science Centres. Neelam is a leader with experience in the global pharmaceutical industry, the NHS and not-for-profit sector. A life science expert, strategy, and business advisor.

Corinna Bull

Corinna is our primary policy consultant on this commission. She has over a decade of experience working in the life sciences and health tech sector with companies from start-ups to Fortune 500 organisations. She has a strong belief that policy is an important first step to effect change, but for lasting transformation there must be continued scrutiny, accountability, and learning.

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British In Vitro Diagnostics Association

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Lilly unites caring with discovery to create medicines that make life better for people around the world. We've been pioneering life-changing discoveries for nearly 150 years, and today our medicines help more than 47 million people across the globe. Harnessing the power of biotechnology, chemistry and genetic medicine, our scientists are urgently advancing new discoveries to solve some of the world's most significant health challenges. With each step toward a healthier world, we're motivated by one thing: making life better for millions more people.

As a trusted partner of the UK Government, **IQVIA** is working to turn the UK's potential as a global life sciences superpower into reality. As a global human data sciences company and leading global provider of advanced analytics, technology solutions, and clinical research services to the life sciences industry, IQVIA is the third largest life sciences employer in the UK, employing over 6,100 employees working across the length and breadth of the country.

BearingPoint is a leading provider of consulting, business services, and software solutions. Across all units, BearingPoint develops new, innovative business models together with clients and partners. By working with the Commission, they strive to make the case for more effective stewardship of public services that together are more person-centred and economically resilient.

The Commission has kindly been supported by our sponsored partners who have provided financial contributions to fund the research and report and give input into the advisory board and the research programme.

The work and direction of the Commission is entirely independent and does not advocate on behalf of any external body.

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Contents

Executive Summary

The NHS Innovation and Life Sciences Commission constitutes one of four policy commissions Curia has supported in 2022. The Commission concept came following one of Chamber's Levelling Up the Conversation panel discussions with George Freeman MP, the Minister of State for Science, Research and Innovation. During the event, Freeman stressed the UK's potential as a life sciences superpower. He stated, "In terms of pure research, the UK is incomparable – it is a world leader…we've led the world in terms of sequencing the Covid-19 genome, developing the vaccine and put together the world's biggest clinical trial – bigger than the next ten in the world, fast". The passion of Freeman towards the UK's potential in life sciences and the potential improvements to health outcome inspired Curia to create a dedicated policy commission towards the implementation of health innovation. Chaired by leading health policy experts Lord O'Shaughnessy and Professor Bewick, the Commission has gained thought leadership from across the NHS and life sciences sector to bring their vision to a reality.

The experience of the Covid-19 pandemic response, in which the UK excelled not only in vaccine and therapeutic development, but in clinical trials and the rapid identification of effective interventions, has shown that when there is agreement around the urgency of clinical need, the UK's strengths in basic science, in population health and in operating a single-payer system can align effectively to rapidly scale effective innovations.

Scaling up lifesaving and life-changing innovations within the NHS has been a challenge for many years. While the UK has been an excellent market for early-stage R&D in the life sciences and HealthTech sectors, it has proven a much harder environment in which to achieve high uptake at national scale post-pandemic, despite various government initiatives. Even traditional strengths, such as in clinical trials, are underperforming too. Despite the UK's leading position as an innovator in life sciences, there is a need to give the NHS and clinicians confidence to increase the rate of uptake of clinical and cost-effective technologies that improve patient experience and outcomes. The challenge the UK now faces is to implement the best lessons from the pandemic response across all the main disease areas in the health system and not fall back to the historical mean.

Building on the experience of the pandemic, the commission set its sight on helping decision-makers transform the NHS and industry relationship, into one of a trusting, long-term 'innovation partnership' that benefits patients, the NHS, industry and the economic growth of the UK. For this to occur, there is a need to create an agile infrastructure to enable faster adoption of innovative clinical and cost-effective medicines and other interventions.

Methodology

For too long, credible and effective policy has been produced for the NHS and life science sector, with solutions to improve population health and establish better ways of working. The absence is therefore not of strategy, but the mechanisms and tools to effectively implement credible solutions. Therefore, the commission is not seeking to replicate existing policy, but establish a programme designed to think through the implementation of current strategy, modelling solutions and implementation based on evidence.

This year, the commission brought together leaders in the NHS, life sciences, clinical research, government and the third sector to explore four key focus areas of action. These areas align with the priorities set out in the refreshed NHS Long Term Plan and the Government's Life Sciences Vision. The programme appraised where progress has been made, identifying both positive case studies as well as areas that require urgent attention and considered potential solutions to the UK's structural health innovation problems from both domestic and international sources.

Through detailed inquiry sessions with thought leaders, the commission aimed to establish practical, implementable solutions that will improve both patient outcomes and promote economic growth. Our aim is to measure and resolve any structural problems and to work with those tasked with implementation to apply recommendations designed to overcome these problems. To measure and appraise the outlined recommendations, the report includes defined metrics to test the implementation of these solutions once they are adopted. In doing so, the commission recognises the importance of personalised care and how shared decision making between patients and clinicians is critical.

Inquiry sessions

This programme confronted areas of the NHS, industry innovation and life sciences ecosystem that could benefit from clear changes towards implementation in four main areas where action is required. These are areas where the UK's performance is below what it could be and where we believe there is a significant opportunity for improvement to benefit all parties. The four inquiry areas included health data, integration, clinical research and scaling.

Health Data

The inquiry into health data featured Professor Ben Goldacre, author of the Goldacre Review and Dr Claire Bloomfield, Deputy Director at the Centre for Improving Data Collaboration, NHS England to discuss ways to establish the needed data ecosystem for patient care, NHS strategic planning and research. The priority topics included establishing training frameworks for NHS staff, the needed data infrastructure and equitable commercialisation of patient data. The Goldacre Review and Data Saves Lives strategy were at the forefront of the discussion to establish practical, implementable solutions. The priority for the commission following the inquiry is to ensure adequate investment in the workforce to widen data skills and include data analysts in the workforce plan.

Integration

The integration inquiry focused on achieving greater integration of health and social care services, featuring Professor Dame Clare Gerada, President of the Royal College of General Practitioners (RCGP) and Dr Claire Fuller, author of the Fuller stocktake report. The commission aimed to examine using innovation to deliver more personalised care for patients and better population health management. The priority topics of discussion included integrating the NHS workforce and establishing devolution of authority in the new Integrated Care System (ICS) landscape. Following the inquiry, the commission concluded that greater focus on the purpose and infrastructure of the new ICSs is essential for them to succeed. In parallel, effective workforce planning and local integration with the life sciences sector is needed to improve outcomes.

Clinical research

The Commission's clinical research inquiry session examined solutions to reboot the UK's clinical trials industry, increasing access to trials for patients and encouraging new approaches to clinical research. The discussion, featuring Professor Sir Martin Landray, Professor of Medicine & Epidemiology at University of Oxford and Dr Jennifer Harris, Director of Research Policy at the Association of British Pharmaceutical Industry (ABPI), focused on building the clinical research workforce, incentivising research and improving agent collaboration. The commission concluded that the UK must regain the global leadership role in clinical research, therefore addressing late-stage clinical studies and capitalising on new innovations is essential.

Scaling

The final inquiry looked at scalability and adoption of health innovation. In particular, developing the policy, funding and other levers to help the NHS develop into a world-leading market to scale life sciences and healthtech innovation, in areas of greatest clinical need. The inquiry featured thought leaders such as Professor Ian Dodge, former National Director of Strategy, Primary Care and Community Services at NHS England and Professor Ben Bridgewater, CEO at Health Innovation Manchester, to share their rich experience and discuss how to create the infrastructure, incentivisation and collaborative opportunity to improve the UK's adoption problem. The commission concluded the need to address the local and national infrastructure to allow innovations to be adopted nationally.

Panellists in these inquiry sessions consisted of thought leaders across the NHS, life sciences industry, academia, and local/regional government. The bodies represented includes NHS England, The King's Fund, ABPI, University of Oxford and Stoke-on-Trent City Council among others.

Please note the inquiry write-ups are not an exhaustive account of all areas covered in each meeting, nor all areas the Commission will focus on regarding each topic. Instead, this writeups seeks to highlight key areas of consensus discussed by the panellists, challenges in these areas and some of the suggested recommendations.

Recommendations

A series of inquiry sessions on the above key topics with key system stakeholders over the last 12 months identified solutions for government, the NHS and its agencies to implement. The commission concluded a list of recommendations to implement within each topic of inquiry, including a priority recommendation and the responsible body for implementation.

In summary, the commission concluded there are many aspects of healthcare reform required to achieve the aim of transform the NHS into an "innovation partner". However, key priorities must include investment in the widening of NHS data skills, flexible employee passports to free staff to work in systems not in organisations, use of the NHS app as a gateway into health research participation and a comprehensive reimbursement pathway for digital health technologies. The priority recommendations for each inquiry includes:

Health data

NHS England must ensure that alongside investment in infrastructure, there is commensurate investment in the workforce to widen data skills across the NHS. Data analysts must be included in the workforce plan and within the next five years all relevant staff should be offered role-appropriate training in data skills.

Integration

ICBs should work towards the introduction of 'employee passports' to facilitate staff working across a local system, irrespective of employer.

Clinical Research

The NHS App should be given a new focus as a location for individuals to consent to participation in health research, with a target of 50 per cent of the population having opted-in to being contacted about relevant research by 2025. This should be incorporated with existing initiatives such as NHS Digitrials, Find, Recruit and Follow Up and National Institute for Health and Care Research's (NIHR) Be Part of Research.

Scaling

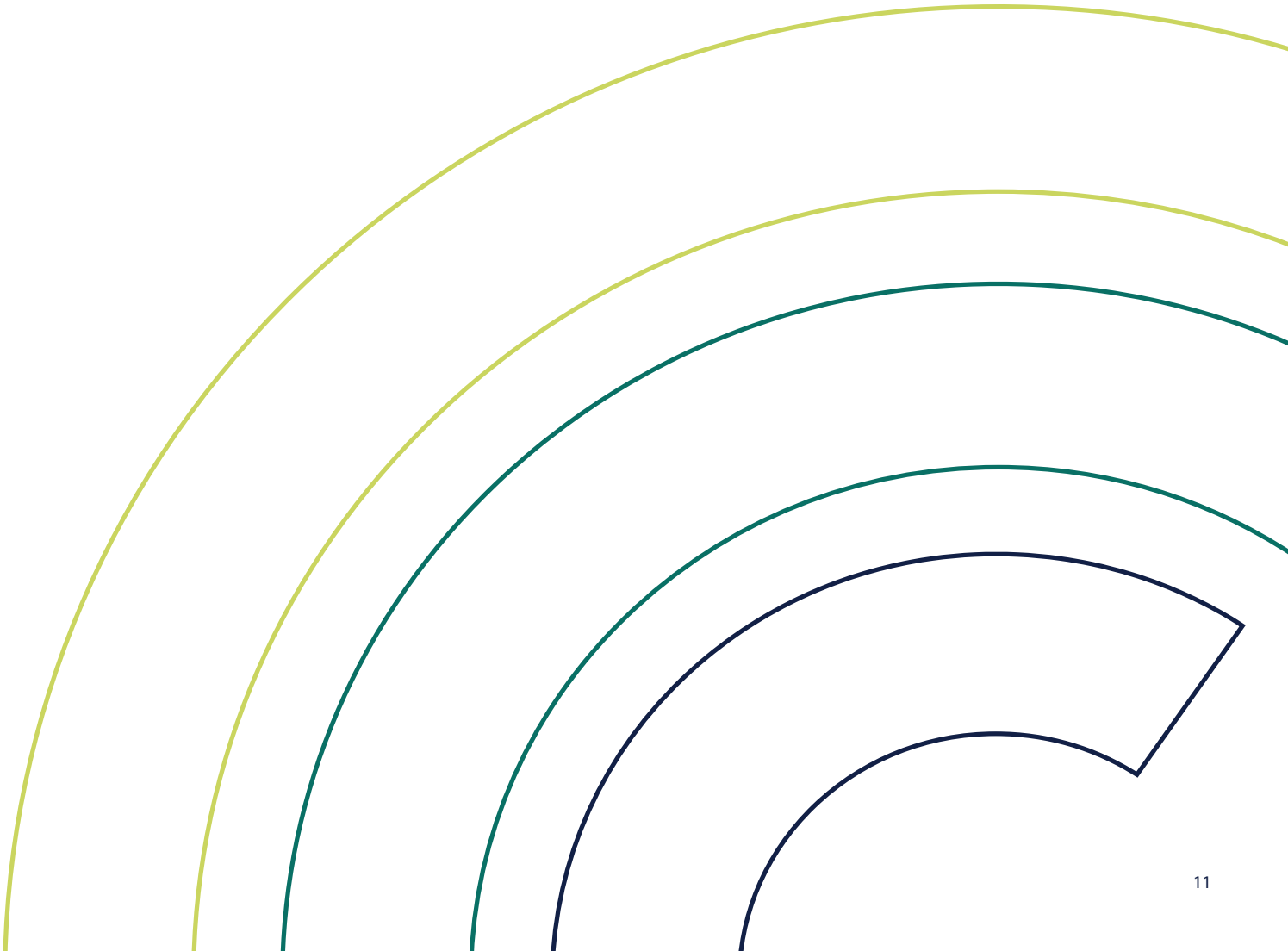
NHS England should design a comprehensive reimbursement pathway for digital health technologies, similar to that for medicines, for implementation before the end of the next Parliament. This should have a tiered approach to assessment, based on risk and a clear link between assessment and reimbursement.

Context

The write-ups and complete recommendations of each inquiry area are accompanied with written contributions from panellists and relevant case studies that give the recommendations a real-world context. It is our ambition to highlight examples of best practice to be adopted and spread nationally, improving population health outcomes and generating prosperous life sciences ecosystem.

To precede the Commission's work, it is important to highlight the current state of population health, health inequalities in key therapeutic areas and the level of clinical trials across the country. Powered by our partners, Vuit, a series of health data maps are included to state the real-world health context. They represent why progress in health innovation is needed. Vuit is a data visualisation software that shows health data analysis across a range of health and population data in England.

The commission looks forward to working with our partners to implement these recommendations, improve health outcomes and ensure the UK achieves its potential in health and life sciences.

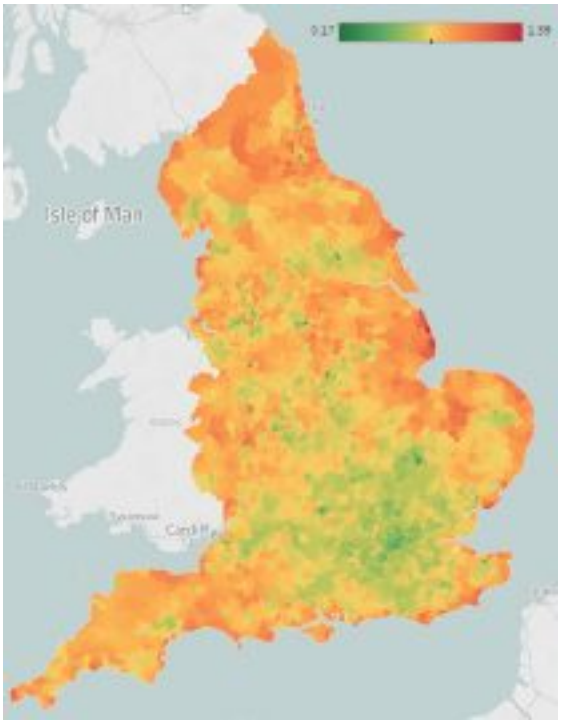


State of The Nation: Population Health and Inequalities

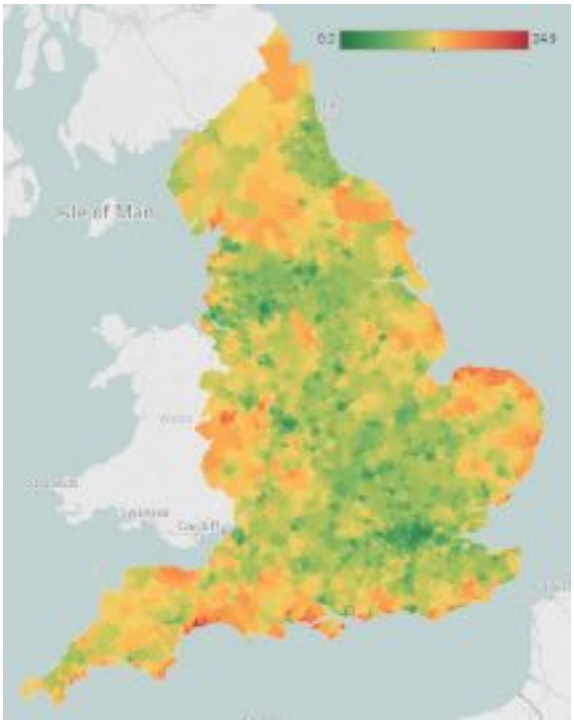
The UK boasts a universal healthcare system in the NHS, a leading position in life sciences and the fifth largest economy in the world. The NHS is a world leader in equity of access, acute care and the management of long-term health conditions. Within clinical research, the UK has been an excellent market for early-stage R&D, seeing incredible accomplishments in providing innovative solutions to patients. These accomplishments have no greater example than the incredible feats seen during the Covid-19 pandemic, allowing life-saving research in vaccinations to overcome a public health crisis.

Despite the traditional strengths in health, life sciences and the wider economy, the UK holds significant population health issues and widening inequalities not expected of a leading, prosperous country. Across the nation, there is worsening health outcomes in key therapeutic disciplines and stark disparity between geographic areas, often within a single ICB. Disparities in levels of primary care and prevalence of long-term health conditions are also extensive. Nevertheless, it is important to examine the wide range of indicators which produce different population health needs.

To highlight these disparities, VUIT has produced health data maps on a series of therapeutic areas and population health indicators across the country. The data analysis uses available data published by NHS England.

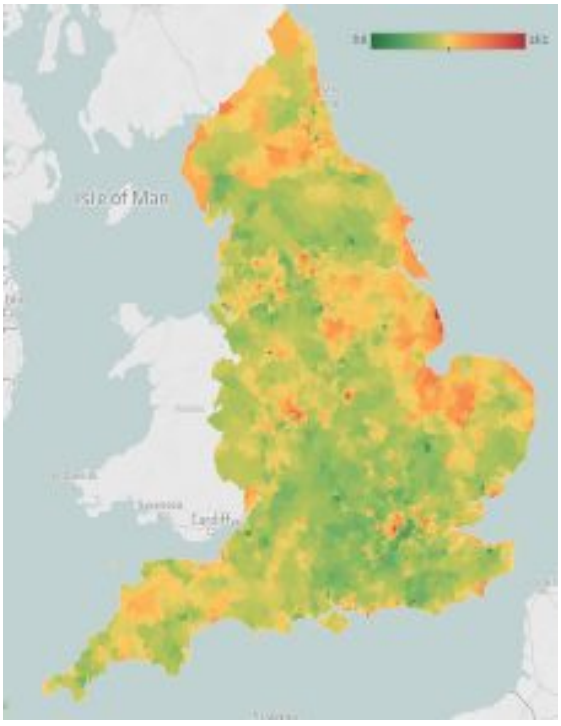


*English **Lower Layer Super Output Area** Map of Average Number of Long Term Conditions Per GP Registered Patient*

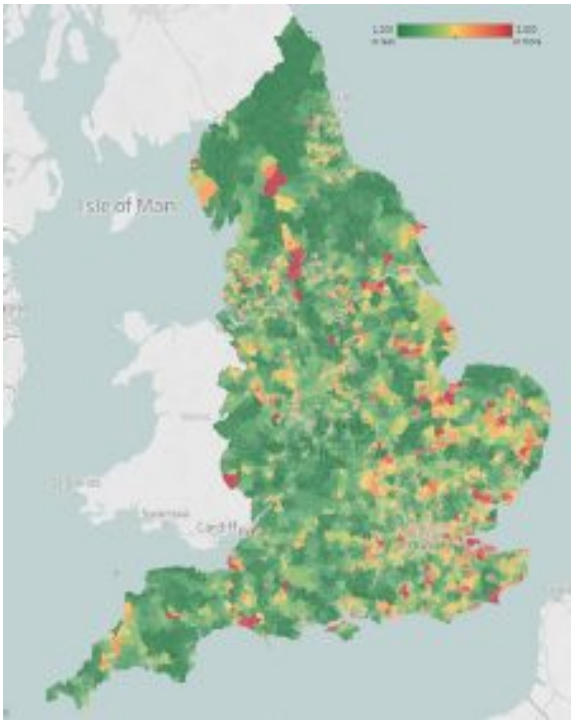


*English **Lower Layer Super Output Area** Map of **percentage** of GP Registered Patients Aged 75+*

These maps represent the prevalence of long term conditions comparatively with the geographical differences in the 75+ population. Given the data, we can identify the specific Lower Layer Super Output Area (LSOA) where increased attention and potential health innovations could markedly improve health outcomes.



*English **Lower Layer Super Output Area** Map of **percentage** of GP Registered Patients on Diabetes Register*



English LSOA Map of GP Registered Patients Per GP FTE

The first population health map indicates the prevalence of patients on the Diabetes register, highlighting pockets of urban or coastal areas in the north and southwest of England in particular. This geographical trend is likely to be contributed by the socio-economic determinants that contribute to obesity across the country.

The next map represents the number of registered patients per GP across England, showing the extent and variance of pressure on primary care and GP services in particular.

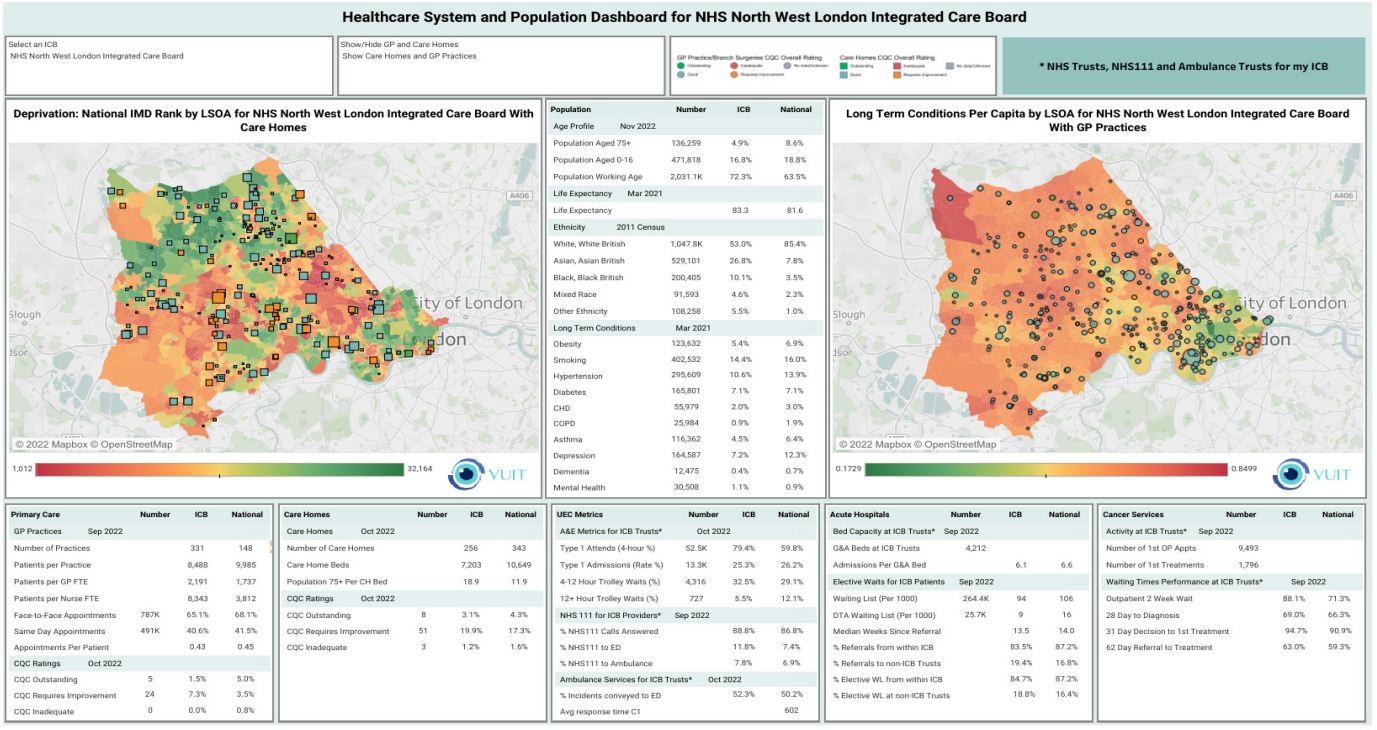
The four nationwide data maps show completely different profiles and shapes of need. The rollout of innovations must be driven by mapping the relevant hotspots of population need.

Snapshot into Integrated Care Boards

The national variance of population health and prevalence of conditions is also seen significantly within a single ICB. The following dashboards represent insights into the ICBs of North West London, and Cambridgeshire and Peterborough respectively.

Using VUIT data mapping, the demographic variance can be identified between communities and the performance of emergency care, acute care and elective waits and cancer services.

Understanding this variance in the population is essential to maximise the effectiveness of treatment and care, but also to ensure health innovations are correctly targeted to the patients and communities of greatest need. There is a need to move beyond measures of health deprivation and ensure the context of population health runs in parallel to implementable solutions. Utilising the available data, the commission seeks to ground the recommendations in the needed real world context.



Population	Number	ICB	National
Age Profile Nov 2022			
Population Aged 75+	136,259	4.9%	8.6%
Population Aged 0-16	471,818	16.8%	18.8%
Population Working Age	2,031.1K	72.3%	63.5%
Life Expectancy Mar 2021			
Life Expectancy		83.3	81.6
Ethnicity 2011 Census			
White, White British	1,047.8K	53.0%	85.4%
Asian, Asian British	529,101	26.8%	7.8%
Black, Black British	200,405	10.1%	3.5%
Mixed Race	91,593	4.6%	2.3%
Other Ethnicity	108,258	5.5%	1.0%
Long Term Conditions Mar 2021			
Obesity	123,632	5.4%	6.9%
Smoking	402,532	14.4%	16.0%
Hypertension	295,609	10.6%	13.9%
Diabetes	165,801	7.1%	7.1%
CHD	55,979	2.0%	3.0%
COPD	25,984	0.9%	1.9%
Asthma	116,362	4.5%	6.4%
Depression	164,587	7.2%	12.3%
Dementia	12,475	0.4%	0.7%
Mental Health	30,508	1.1%	0.9%

Primary Care	Number	ICB	National
GP Practices Sep 2022			
Number of Practices		331	148
Patients per Practice		8,488	9,985
Patients per GP FTE		2,191	1,737
Patients per Nurse FTE		8,343	3,812
Face-to-Face Appointments	787K	65.1%	68.1%
Same Day Appointments	491K	40.6%	41.5%
Appointments Per Patient		0.43	0.45
CQC Ratings Oct 2022			
CQC Outstanding	5	1.5%	5.0%
CQC Requires Improvement	24	7.3%	3.5%
CQC Inadequate	0	0.0%	0.8%

Care Homes	Number	ICB	National
Care Homes Oct 2022			
Number of Care Homes		256	343
Care Home Beds		7,203	10,649
Population 75+ Per CH Bed		18.9	11.9
CQC Ratings Oct 2022			
CQC Outstanding	8	3.1%	4.3%
CQC Requires Improvement	51	19.9%	17.3%
CQC Inadequate	3	1.2%	1.6%

UEC Metrics	Number	ICB	National
A&E Metrics for ICB Trusts* Oct 2022			
Type 1 Attends (4-hour %)	52.5K	79.4%	59.8%
Type 1 Admissions (Rate %)	13.3K	25.3%	26.2%
4-12 Hour Trolley Waits (%)	4,316	32.5%	29.1%
12+ Hour Trolley Waits (%)	727	5.5%	12.1%
NHS 111 for ICB Providers* Sep 2022			
% NHS111 Calls Answered		88.8%	86.8%
% NHS111 to ED		11.8%	7.4%
% NHS111 to Ambulance		7.8%	6.9%
Ambulance Services for ICB Trusts* Oct 2022			
% Incidents conveyed to ED		52.3%	50.2%
Avg response time C1			602

Acute Hospitals	Number	ICB	National
Bed Capacity at ICB Trusts* Sep 2022			
G&A Beds at ICB Trusts	4,212		
Admissions Per G&A Bed		6.1	6.6
Elective Waits for ICB Patients Sep 2022			
Waiting List (Per 1000)	264.4K	94	106
DTA Waiting List (Per 1000)	25.7K	9	16
Median Weeks Since Referral		13.5	14.0
% Referrals from within ICB		83.5%	87.2%
% Referrals to non-ICB Trusts		19.4%	16.8%
% Elective WL from within ICB		84.7%	87.2%
% Elective WL at non-ICB Trusts		18.8%	16.4%

Cancer Services	Number	ICB	National
Activity at ICB Trusts* Sep 2022			
Number of 1st OP Appts	9,493		
Number of 1st Treatments	1,796		
Waiting Times Performance at ICB Trusts* Sep 2022			
Outpatient 2 Week Wait		88.1%	71.3%
28 Day to Diagnosis		69.0%	66.3%
31 Day Decision to 1st Treatment		94.7%	90.9%
62 Day Referral to Treatment		63.0%	59.3%

Demographic

Predominantly working age population with lower than average under 16's and over 75's.

Significant ethnic diversity vs UK average.

Much lower prevalence of long term conditions than the national average.

Primary care

Lower than average patients per GP with much higher GP Nurse numbers and smaller than average practice size point to good levels of GP provision. However practices requiring improvement from the Care Quality Commission (CQC) is significantly higher than the rest of the UK.

Care homes

Although the number of care home beds is lower than the ICS average, the number of beds per over 75's is much higher due to the demographics. Although this is the case there is a significant amount of care homes categorised as requiring improvement CQC which may be correlated.

Emergency care

Four hour performance is well above average however poorer performance on four hour trolley waits not correlated to 12 hour waits, points to issues with flow rather than overall bed capacity.

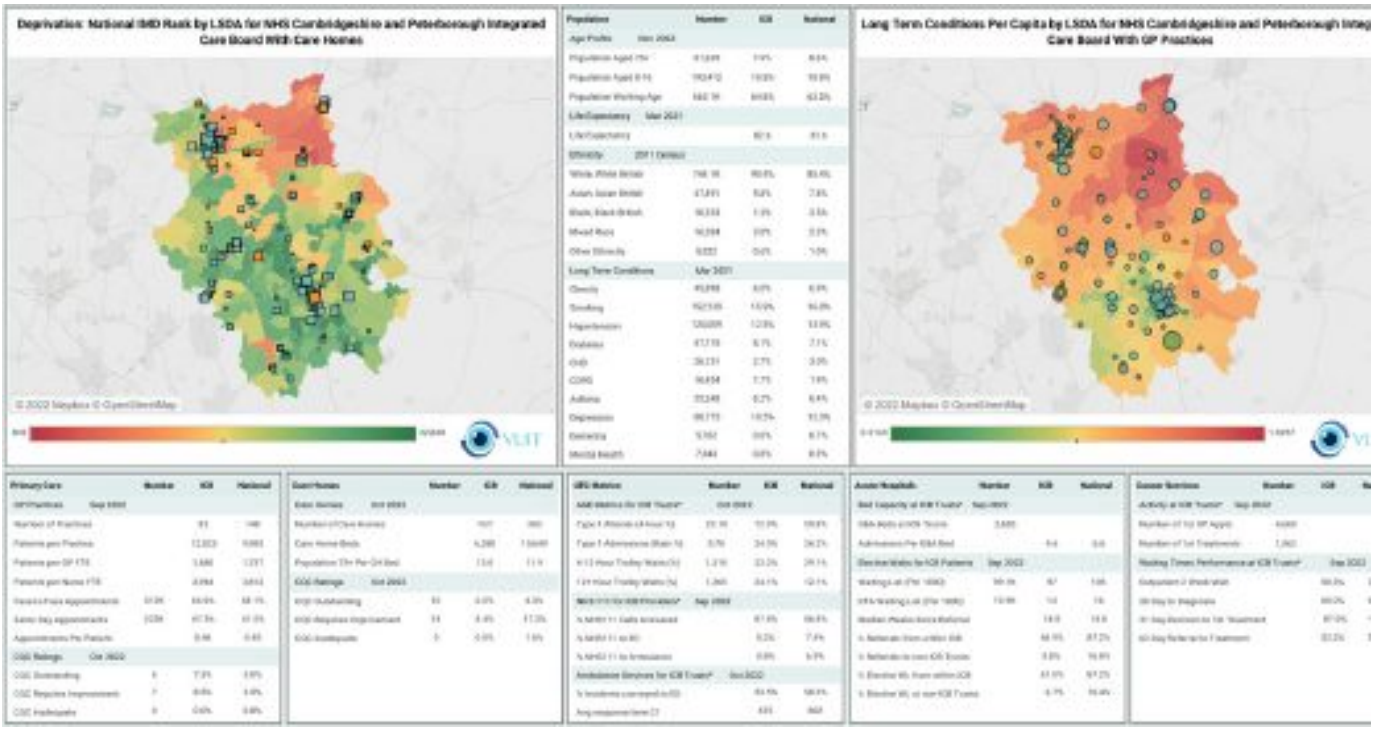
111 and 999 activity both show higher than average disposition into UEC flows with 111 to ED particularly high.

Acute capacity and elective waits

Admissions to elective beds is lower than the Integrated Care Board (ICB) average as is the overall waiting list size. However, 2.5 percent more of the ICB waiting list is serviced by other ICBs than the average.

Cancer services

Cancer services are performing much better than the ICB average against all statutory measures.



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Lower than average patients per GP with much higher GP Nurse numbers and smaller than average practice size point to good levels of GP provision. However, practices requiring improvement from the CQC is significantly higher than the rest of the UK.

Care homes

Although the number of care home beds is lower than the ICS average the number of beds per over 75 is much higher due to the demographics. Although this is the case there is a significant amount of care homes categorised as requires improvement from the CQC which may be correlated.

Emergency care

Four hour performance is well above average however poorer performance on four hour trolley waits not correlated to 12 hour waits, points to issues with flow rather than overall bed capacity.

111 and 999 activity both show higher than average disposition into UEC. flows with 111 to ED particularly high.

Acute capacity & elective waits

Admissions to elective beds is lower than ICB average as is the overall waiting list size. However 2.5 percent more of the ICB waiting list is serviced by other ICB's than the average.

Cancer services

Cancer Services are performing much better than the ICB average against all statutory measures.

HEALTH DATA

Co-chaired by Lord James O'Shaughnessy and Professor Mike Bewick, the first inquiry session of the *NHS Innovation and Life Sciences Commission* was held on the 28th June. This session focused on fostering the health data ecosystem bringing together the recommendations of leaders in healthcare, life sciences and local government/regional authorities.

Session One: NHS Staff and Best Practice

The first half of the inquiry session focused on the role of NHS staff in health data infrastructure and on establishing best practices to achieve greater health outcomes and reduce inequalities. The panel for this session included:

- Professor Ben Goldacre MBE (Director, Bennett Institute)
- Breid O'Brien (Director of Innovation & Digital Health, NHS England and Improvement)
- Dr Claire Bloomfield (Deputy Director, Data for R&D, NHS Transformation Directorate)

Training programmes and competency frameworks

The first topic of discussion centred on how NHS staff and current leadership teams can enhance their digital and data skills and what programmes or frameworks are needed to achieve this at scale. Opening the session, Professor Ben Goldacre outlined his research when writing the Goldacre Review. He noted the three main groups of NHS staff that require focus in achieving the skills and competency needed across the NHS:

1 - NHS analysts

Analysts find opportunities to optimise care delivery logistics, which involves improving the quality of the safety and cost-effectiveness of NHS delivery. At present, these positions are neglected, yet the Government Economic Service (GES), Government Statistical Service (GSS) and Government Operational Research Service (GORS) provide a clear roadmap of how new technical professions could be created. The core recommendations of the Goldacre Review highlight how policymakers should mirror the Government Analyst Function, focusing on career pathways and training pathways in the NHS, which has been taken up the least energetically in the data strategy.

2 - Senior leaders with technical skills

Senior strategic leadership roles are needed for developers, data scientists, data architects, etc. There is also a missing emphasis on leadership training for existing technical roles and how to make these roles more attractive to people from technical backgrounds.

3 - Crossover technical skills

There must be an emphasis on crossover skills, combining software development skills with domain knowledge of NHS data, the basics of epidemiology and administrative structures.

To achieve this, the NHS may need to enforce a 'golden handcuffs' approach, meaning that the health service will ensure that staff who are paid to train in new data processes are contracted to stay within the system for a length of time. However, the only issue with implementing this approach is that the NHS is 'recruiting' instead of 'selecting.'

Further to this, the issue of who sets these standards and how they are measured was discussed in relation to achieving success across NHS analysts, senior leaders and crossover technical skills. Professor Goldacre explained that the NHS should follow the GES and GSS model, further noting that the external Due Diligence Assessment (DDA) framework has real value in relation to this issue.

Professor Goldacre noted the problem that people with practical technical skills are not certificated, disregarding 'formal' training as an indication of true value. The NHS also struggles with new forms of technical competency. Despite being able to tier job descriptions, salaries, etc. to existing roles, the health service cannot provide the same for new software developers and data architect roles. On available solutions, he explained the need to focus on getting people with deep technical skills into senior leadership roles, not to write the code itself but to manage and recruit such people. Professor Goldacre explained that this will take a "couple of years," but that it is achievable and will allow the NHS to plant the seed for progress, which will snowball moving forward.

On establishing a Chief Officer role over these training and competency frameworks, Professor Goldacre explained the need to combine multiple heads of professions from different areas. The case of NHS England showed that the existing organisational structures for new frameworks and training programmes are simply not there; with NHS analysts continuing to operate in very isolated groups. He detailed that expecting analyst groups to self-subsidise and self-organise was not going to work. Instead, we need to pay for the structures to be built.

Supporting existing staff and data analytical roles

Led by Richard Stubbs, the next section of this topic focused on supporting the existing staff within the NHS in fostering the data infrastructure. Breid O'Brien emphasised the need to capture data and for data to be engaging and accessible for staff, patients, carers and the voluntary sector. It is important to ensure frontline systems are user-friendly and accessible. For NHS staff specifically, a significant focus on data is needed within their training. However, the biggest challenge is changing the public perception of the use of data. Implementing a narrative around data to "tell a story" should help break down barriers that exist in this respect.

In addition, Dr Claire Bloomfield stated the need for a technical workforce, but also a multiplicity of expertise and for bringing together different disciplines to harness the UK's health data potential. Currently, NHS leaders are leaving data to technological people, but a more wide-ranging approach is needed. Dr Bloomfield emphasised the need to focus on the quality of the data, alongside how we are using it for insights. To achieve this level of quality, NHS leaders must question why this matters and "what the goals and the impact of the high-quality data will be." Finally, she addressed the need for partnerships across the ecosystem; as the NHS cannot compete with the expertise from industry and academia, a level of fluidity between organisations and collaborative ways of working, is needed to cross-fertilise different areas.

On incorporating data education into healthcare professional training, Dr Bloomfield emphasised integrating higher education into the NHS England 'family' but that the previous attempts to integrate genomics showed that specific programs needed to be created for the clinical workforce. Unfortunately, there is not a 'silver bullet' training course to achieve success, but incorporating academic institutions is needed to kickstart this process.

Professor Goldacre noted the points within his review on training in clinical informatics, data fluency for senior leaders and reciprocity. In his view, the more data that is used, the higher its quality will be. He said that more needs to be given back to people for using their data, as they will pay more attention to improving it. Regarding the workforce, Professor Goldacre explained the tendency to look in the "pools of light" and neglect other areas. He explained that NHS data analysts are successful in completing a single analysis with a finished dataset but what the NHS health data leaders neglect is the vitally important pathway from raw data being collected to its curation and secure storing.

> **"The ABPI told us during the [Goldacre] review that 80 per cent of the work in an NHS data project, as far as they were concerned, was 'data curation' and they said that 80 per cent of the spend from government should therefore be on 'data curation', and that that's still an area that's being neglected."**
>
> **– Professor Ben Goldacre**

On Lord O'Shaughnessy's question on ensuring needed public trust in the use of patient data and curation, Dr Bloomfield explained that there are two strands of curation: curation at source as data is generated and curation for specific research. The NHS is responsible for driving the quality up, but the wider industry needs to ask questions on how we are curating and reusing data from research to optimise efficiency. There is better scope for these conversations between industry, academia and the NHS on how trusted research environments can be curated, who does this and how data is retained and reused.

Infrastructure requirements for patient data storage

On the technical and infrastructure requirements, Professor Goldacre stated that critical change is needed to move away from the pseudonymisation of copied records and instead consolidate all analytic work for self-improvement, academic research and innovation in shared Trusted Research Environments (TREs) or Secure Data Environments. He explained the importance of this with several reasons:

When data is disseminated out of numerous places, it is inherently unsafe and duplicates risk. People are knowledgeable of this now, which is a good thing and helps to avoid privacy catastrophes. He also noted the three million people who are currently opting out of health data use.

None of the data that is over-duplicated is portable between different environments, which is a disaster for joining up co-ordinated work across industry, academia and the health service.

He noted that the challenge is in how the NHS creates TREs, avoiding the mistakes of the past, particularly non-delivery. There is a need for a delivery-orientated approach, in particular a workforce with a "knowledge commons" and a high status 'cadre' of people who create great platforms for others to use. In the past, TREs have either been procured by giving money to closed organisations or giving money to people with adjacent skills.

"We need to talk with UK Research and Innovation (UKRI) and the NIHR in particular about how we can support a rich, collaborative and competition ecosystem around data curation, secure analytics and platforms for others to use.

> **"We also need to think very carefully when we procure large data infrastructure from the NHS about how we can avoid the risks of 'vendor lock-in,' which is another form of monopoly and another form of obstruction to a shared ecosystem where people are competing and collaborating."**
>
> **– Professor Ben Goldacre**

On delivering this within a changing health policy landscape, Dr Bloomfield explained that there will be a shift over the next three years in what we see in terms of the wider system architecture. The policy will push people one way by requiring TREs to be accredited and the default means by which NHS data is accessed. However, these services need to be effective and deliver so that there is a cultural, operational and policy opportunity to move the system in the right direction.

> **"We will need an ecosystem-wide approach, with NHS England, UKRI, NIHR and others all pulling in the same direction as we try and reshape what the landscape looks like over the next three to five years."**
>
> **- Dr Claire Bloomfield**

Removing barriers around data and public trust

On the barriers that currently exist, O'Brien noted the importance of framing the upcoming publication of the target data architecture for different audiences, as language is extremely important. She re-emphasised the significance of multiple uses for curated data, but also noted that most people want to know that they can access their data when needed.

On the issue of public trust, Dr Bloomfield stated the nature of an ongoing conversation that needs to happen between patients and those using their data. The UK needs to establish a far more comprehensive, overarching conversation at the national level; backed up locally and regionally about how data is used across care planning, population, health and research. Through this, understanding the perspectives of different regions around data is achievable and public confidence can be ensured.

Ensuring shared care records for population health management at an Integrated Care System level

Dr Bloomfield opened the discussion on care records, noting there is a clear gap that exists with social care records and what the NHS currently holds, highlighting the need to learn lessons from the past and 'leapfrog' social care data with learnings from the NHS. There is significant weight placed on each ICS in co-ordinating this activity, yet there is huge variability in the components for ICSs and regions to work through. The NHS cannot fix everything overnight but there should be a focus on what can be a 'quick win' and what, over time, will improve interoperability and standards that will allow other data sources to feed and flow.

She listed two priorities which will help in this regard:

- Embedding the research requirement into ICSs
- Through R&D in data, the NHS investing in ICSs and TREs

In addition, Professor Goldacre noted the importance of having practical, shared code and methods to facilitate data curation for others in the ecosystem to use. Particularly with social care, building within this space openly so that others can learn more is essential. On the issue of services operating within 'black boxes' he said, "There has been no culture or expectation of people sharing the technical work that they did 'under the bonnet' to produce a shared dataset, a shared technical environment and so on."

Professor Goldacre also noted that data curation, secure analytics and running platforms for others are the most difficult challenges at hand, exacerbated by the lack of an open "knowledge commons" and a competitive and collaborative ecosystem.

Session Two: Data Infrastructure and Commercialisation

The second half of the inquiry session focused on the wider health data ecosystem and the commercialisation of patient data for NHS benefit. The panel for this session included:

- Professor Ben Goldacre MBE (Director, Bennett Institute)
- Shane Tickell (CEO, Temple Black)
- Professor Cathie Sudlow (Director, British Heart Foundation, Data Science Centre)
- Dr Maureen Baker CBE (Chair, Professional Record Standards Body)
- Tim Sheppard (SVP & General Manager, Northern Europe, IQVIA)

Commercialisation of data to generate value for the NHS

Shane Tickell opened on the topic of commercialising data in a fair and effective way, noting that citizens should be willing to have their data used as it does not cost the individual anything; but that the wider importance of sharing this to the NHS and ecosystem needs emphasising. Commercialising personal data is perfectly reasonable if we can directly demonstrate the value it is bringing to the NHS, including improved services, better outcomes, etc.

Tickell also argued for a 'pence per citizen' model to be unified and encouraged into the workings of ICSs to ensure clarity and prove that value is indirectly going back to the population. This would also allow levelling up of health outcomes and inequalities between areas.

Professor Goldacre added that the existing model of "disseminating data to different sources" has caused issues around protecting patient privacy and highlighted the moral questions of commercialisation. It is feasible that we can assure the public that their privacy is protected and further ensure that the NHS will receive benefit from a commercial company using this information. Professor Goldacre also noted the importance of 'deep-dives,' such as citizens' juries, to find out about and validate these processes. It is extremely important to evaluate which factors have injected the most value into the service within the innovation pipeline. It is also important to strike a balance that allows commercial companies and the NHS to capture value as public databases are used.

Professor Cathie Sudlow added that there are large, consented research studies that service as good models for how to attract inward investment and yet provide health benefits to the global population. She noted the UK Biobank as a national success story.

Tim Sheppard emphasised the need to keep the barriers to entry as low as possible, but also noted that there is a need for a test, so that researchers can demonstrate the benefit to the NHS. If researchers are asked this question and must articulate what that value is, ensuring patients are happy with commercialisation is achievable. On the international comparison, Sheppard noted other countries are boasting of their data environments to encourage research and he explained that there is no reason we cannot achieve the same.

Maureen Baker emphasised the need to incorporate the views of professionals as well as patients. As a vital part of the health data equation. Baker explained that the professional voice is essential to foster the data infrastructure needed to improve population health.

> **"It's really important to get professional communities on board. One way of doing that is to be able to clearly demonstrate the views of the public through the correct mechanisms."**
>
> **– Maureen Baker**

Ensuring data use is supported by patients and attracts life science investment

Baker opened this topic by highlighting the reality that professionals are extremely sceptical, as such schemes have previously failed to capture the views of patients and the dangers around personal data. There is a need to incorporate patient and professional views throughout the data ecosystem. On the potential of a shared decision-making process, Baker explained the Patient Records Standards Body (PRSB) shared decision-making standard and the need to engage all relevant stakeholders within decision-making.

Sheppard highlighted that the unclear nature of how data is accessed and the rules around it have hindered attracting global researchers. Spelling out the rules by which TREs access data for global researchers is needed and a level of consistency is required to establish confidence. This will further reassure patients that their data is being used appropriately and consistently. On the 'opt-in, opt-out' dilemma, Sheppard explained that the technology exists to keep patients informed every step of the way and that they can 'opt in and out' as they please. He felt that by giving them the option, trust is built.

Professor Goldacre stated the need to be cautious in creating the governance frameworks, citing the example that his review found that 6,000 GP practices were left to make decisions separately on data access. He explained the issue of "overwhelming individual choice" in attaining consent for every use of patient data establishing trust between patients and practices using their information is a sensible direction.

Ensuring privacy and security of patient data to scale TREs

Professor Sudlow explained the lack of a 'one size fits all' to different data use cases, some requiring only aggregate data and others being far more specific. She noted the need to think through what structures are required within TREs to enable diverse types of technical solution.

Tickell argued that there is the technological ability and duty to provide security on patient information, citing the ability to anonymise and de-anonymise data for the right access. However, as a sector, this is currently imbalanced. Tickell explained his personal experience of holding data on over 500,000 diabetic patients in North West London, yet with the multitude of email addresses and phone numbers for each patient, 98 per cent of those patients were not being communicated with. He also noted that both healthcare and informatic professionals should be trusted with data and held accountable.

Enabling patient agency and control

Professor Goldacre opened this topic by stating that the most important starting point is to stop sending copies of patient data to unknown and unaccountable destinations. He explained that previously failing to recognise this had resulted in 1.5 million people opting out of their data being used and that another 1.5 million people also opted out last year. He noted that colleagues have come round to this understanding and that hopefully, these lessons have now been learnt by the sector. His current concern lies with the suggested "data aggregation projects," with public trust being damaged by privacy issues in the past.

> **"The starting point has to be that you earn that trust by taking provable, transparent and credible steps to protect patient privacy and being transparent about everything that you do with that data. I think nothing matters as much as that, nothing at all."**
>
> **– Professor Ben Goldacre**

Regarding TREs, Professor Goldacre explained that the NHS must implement this at the heart of their structure. TREs must be shared environments, have privacy-preserving tools and hold absolute transparency about every action performed with the data in question. Implementing this will build public trust. He noted that they hold support from professional groups and campaigners such as medConfidential. He finished by stressing that "endlessly asserting what we do is good is going to get us nowhere."

Professor Sudlow added that there is a need for this to be implemented in a language that is accessible to place health data sharing, in a context that all patients can understand. Baker added that there is a tendency within the sector to assume that people know what 'health data' is. Therefore, NHS leaders must outline a narrative to provide this accessibility without assumptions and jargon.

On the data pact, Tickell stated that the name should be changed from a 'pact' to a 'promise.' The NHS and stakeholders in health data assume that people will want to give access to their data, but this will only come after showing a track record of respect and care. He added the importance of providing an ability to 'opt in and out' throughout their healthcare journey, as this will allow granting access to individual patient data to appeal to the majority.

Personal Contribution

Shane Tickell – CEO, Temple Black

What I think the process of the inquiry has done is given an opportunity to talk to people, with wide ranging views and experience about how things could be and more likely should be.

During 2022, we have seen the effect of waiting for leadership at senior government levels to make decisions. Whilst Westminster and Downing Street (whomever is in power) works to a timetable, health and wellbeing does not - it is a gradual real time process. Just look at the speed of growth in elective care waiting lists since the Covid-19 outbreak, circa 7 million. Look at the time it takes an ambulance to arrive for a category 1 call, then the time to handover the patient to the emergency department. In different parts of the system, the time it takes to discharge a patient to a safe care environment, the growth in delays and harm from the system when admitting frailty patients who could be treated in their home. What this highlights in health and care is that we cannot wait for policy direction and funding. We have the ability to bring together actors and experienced leaders to look across the current, learn from the past and propose a future that is more encompassing than multiple government policies and strategies put together.

We may not be able to enact our recommendations wholly or widely as we might wish. However we might move towards them within the bounds of our limitations, whilst continuing to strive for the best.

Not all suggestions are right, the best leaders maybe get 65 percent of things right, that means getting a third of things wrong, but great leaders take the lesson, re-engage and make better decisions with some pace. Government cannot do that in an agile fashion, but those of us who have lived a working generation in our respective spaces know that there are cycles, change in leaders that make tactical difference, but the system needs strategic longer-term thinking, multi-generational direction and ambitions that cannot happen in a parliamentary term.

I hope the findings of this inquiry are valuable to that strategic direction we need as a country, as a society as individuals.

Case Studies

Health Informatics CPD programme: addressing the digital skills gap

Context

In 2019, Health Education England North East and North Cumbria approached the institute of Coding at Newcastle University to co-develop an introductory Health Informatics CPD programme[1] for healthcare professionals, with the aim of working towards addressing the digital skills gap in the NHS. Following the publication of the Topol Review in 2019, the future of digital healthcare and necessary skills for the NHS workforce was clear to Health Education England (HEE).

The process of the Health Informatics CPD programme was iterative in nature and based on feedback and input from domain experts and regional stakeholders. The programme was also informed by literature review of peer-reviewed international publications.

Intervention

The launch of the CPD programme consisted of 10 courses of at least three hours learning each. The programme covers a wide range of topics including:

- Leadership in Health Informatics
- Interoperability standards
- Digital Ethics
- Human Computer Interaction
- Clinical Information Systems
- Data Privacy and Protection
- Cyber Security
- SNOMED CT
- Digital Health
- Clinical Informatics in Practice.

The courses are delivered by clinical and academic experts. Delegates participating in the whole programme receive a broad overview of key informatics and computing topics, with each course also available as a standalone session.

In 2019/20, 21 delegates participated in the programme, including a cohort from Health Education England North East and North Cumbria. Participants included doctors, nurses, allied healthcare practitioners, IT professionals, clinical coders, and senior managers.

Benefit

96% of participants agreed or strongly agreed that the content was relevant to their job and 100% stated that they thought that the course was well structured. The programme was such a success in its first year that was re-commissioned and moved fully online in 2020/21 due to the Covid-19 pandemic. This made learning more convenient for busy healthcare professionals and allowed access for participants from across the UK.

Relation to recommendations

The Health Informatics CPD programme provides a great example of successful investment into the widening of data skills across the NHS. The future of more digital healthcare requires a breadth of data skills in all relevant disciplines.

[1] Newcastle University, 2019. Co-creating CPD to address the healthcare digital skills gap. [online] Available at: https://www.ncl.ac.uk/computing/engagements-partnerships/industry/cpd/health-informatics/

Engaging the population with their data: COPD Care Checklist

Context

Around two percent of the UK population have been diagnosed with chronic obstructive pulmonary disease (COPD), a group of lung conditions that cause breathing difficulties, with a far greater number of patients undiagnosed. COPD costs the NHS over £400 million a year, primarily on hospital treatment which could be reduced with better management of patient conditions. The COPD Care Checklist[2] was created in 2011 by NHS Redbridge and the Health Foundation. The ongoing programme is a way of informing people with COPD about their treatment and encouraging them to become more involved in managing their condition. By promoting better interventions the checklist aims to stop a person's COPD from getting worse and avoid unnecessary and expensive hospital admissions.

The Checklist includes a range of data about the person with COPD, including whether they have recently had their annual COPD review and whether they had been on a pulmonary rehabilitation course. The data shown was based on the National Institute for Health and Care Excellence (NICE) guidelines for the care, tests and interventions that patients with COPD should be receiving.

Intervention

This project used a new approach for engaging people with COPD, providing them with personalised information about their condition, what treatment they should be expecting to receive and what that costs the NHS. It was designed by involving people with COPD to make sure that the intervention was appropriate for them.

The final checklist is a short document, laying out various aspects of someone's treatment and grading it with a traffic light system, such as a redlight indicating someone without a self-management plan. The Checklist encourages people to use it as a prompt when speaking to their GP or nurse. It also lays out the NHS costs of routine treatment against emergency treatment. For example, it clearly explains the difference in cost of using an inhaler correctly compared to calling an ambulance.

This work involved sharing individuals' own data with them and so did not require any special permissions. However, personalised medication information was not included due to concerns about confidentiality.

Benefits

In the evaluation of the project, the Checklist created long term behaviour change by giving people a better understanding of their condition, allowing them to be better engaged and actively self-manage their COPD. The project team also found that the Checklist made GPs and nurses more aware of prevention at their level and the need to develop good partnerships with people with COPD.

This project demonstrated the importance of giving patients improved access to information about themselves, in particular for conditions like COPD that benefit so significantly from improved self-management.

Relation to recommendations

The COPD Checklist presents the clear opportunities to improve population health when patients are further engaged with their health data. Integrating patients into their care pathway allows for greater self-management of conditions, and improves awareness of preventative health with clinicians to achieve higher standards of treatment and care.

[2] Innovation Unit, 2017. Getting people with COPD more involved in their own healthcare. [online] Available at: https://www.innovationunit.org/wp-content/uploads/2017/04/COPD-checklist-example.pdf

IQVIA: enabling patient centric care via integrated data and communication at an ICS level

Context

With information spread across multiple systems, clinicians at the Humber Foundation NHS Trust were unable to access patients' complete medical history when needed in a single place. Unifying patient data into a single source remains a challenging obstacle for the NHS.

The trust needed a solution to ensure continuity of care services by empowering its 1000+ strong clinical workforce to provide consultation and counselling services virtually, with all the relevant information immediately to hand and via telephone, to improve patient care and access to treatment as directed via patient pathway analytics.

Intervention

Upstream Health, an IQVIA UK solutions partner, was provided the contract to implement IQVIA's Healthplug platform at the Humber Foundation NHS Trust to overcome these challenges[3]. Healthplug integrates information from LORENZO, SystemOne and PCMIS, creating a unified clinical repository of all patient records across care settings. Clinicians at the Trust can now access unified patient records via the Healthplug Clinical Portal.

Benefits

As part of the YHCR programme, the Humber Foundation NHS Trust is now able to make unified patient information available to other participating healthcare organisations on a consent driven access model in FHIR format.

The Healthplug solution now enables over 1,000 clinicians at Humber Foundation NHS trust to schedule and complete video consultations with their patients anywhere, anytime on any device.

The consultation solution seamlessly integrates with the unified EMR, enabling clinicians to access complete history during the consultation.

Relation to recommendations

The provision of integrated data access and its benefits shows the importance for Secure Data Environments to be developed at scale. Providing the NHS and life sciences ecosystem with secure patient data is vital to improve population health and achieve greater working methods at the local and system level.

[3]IQVIA, 2020. NHS Recovery and Integrated Care Systems. [online] Available at: https://www.iqvia.com/-/media/iqvia/pdfs/uk/publication/nhs-recovery-and-ics-iqvia-briefing-paper.pdf

Health Data Recommendations

The Commission was strongly of the view that the main recommendations of the Data Saves Lives Strategy and Goldacre Review should be implemented. In particular, we would prioritise the following action based on these reports: **(indicates priority recommendation)**

- Within their first 12 months of operation, each ICB should publish a strategy on engaging their population with the use of data for research, service planning and improving care, overseen by a Board lead for patient data.
- On a national level, the Department of Health and Social Care (DHSC) should establish a team with a remit to improve public understanding of and trust in health data. This should be completed before the end of this Parliament.
- NHS England should establish a framework to guide 'data controllers' in fostering data-sharing partnerships and commercial arrangements, ensuring they are fair, beneficial and have patient benefit at their heart. This guidance must ensure that in any agreement between an NHS organisation and a commercial entity which involves the use of anonymised patient data for research, some benefits from the research, in financial and service improvement terms, should be returned to those NHS organisations who contributed the data.
- NHS England must continue to invest across a longer timeframe in the rapid adoption of TREs where NHS analysts, academics, third sector and life sciences companies can access NHS data for research and development in a secure and controlled environment, preserving privacy of patient data.
- **NHS England must ensure that alongside investment in infrastructure there is commensurate investment in the workforce to widen data skills across the NHS. Data analysts must be included in the workforce plan and within the next five years all relevant staff should be offered role-appropriate training in data skills.**

Recommendation	Responsible Body	Completion Timeline
Strategy for data use	ICBs	Within 12 months
Intermediary health data body established	DHSC	Before end of this Parliament
Commercial agreement framework	NHSE	Within 12 months
TRE Usage	NHS England and DHSC	Procurements to begin asap, with SDEs commissioned by mid-2023
Workforce Skills	DHSC (Plan)/ NHSE (Training)	Within 5 years

INTEGRATION

Chaired by Lord O'Shaughnessy and Professor Bewick, the second inquiry session of the NHS Innovation and *Life Sciences Commission* took place 26th June. This session focused on achieving greater integration of health and social care services, bringing together the recommendations of leaders in healthcare, life sciences and local/regional authorities.

Session One: NHS Workforce and Achieving True Integration

The first half of this inquiry session focused on the changing role of the NHS workforce and the vision for integration, within and between the NHS, social care and life sciences sectors. The panel for this session included:

- Professor Dame Clare Gerada (President, Royal College of General Practitioners)
- Hamish Dibley (Consulting Director, BearingPoint)
- Dr Neil Modha (Chairman, Greater Peterborough Network)
- Stephanie Harvey (NHS Collaborations Manager, Eli Lilly and Company)

Freedom for health systems to reorganise staff deployment

The first topic of discussion centred on how new health systems, such as ICSs and ICBs, can have the freedom and capacity to rethink how staff are deployed and utilised to achieve greater outcomes and the barriers to achieving this. Opening the session, Dr Neil Modha explained that the main barriers include staffing of the NHS and the pressure on services, rendering other solutions ineffective unless more staff are brought into the NHS. Dr Modha cited the General Practitioner (GP) surgeries in Greater Peterborough as an example of how people without previous healthcare experience can train as healthcare assistants (HCAs). He noted the need to have faith in the training of staff and establishing trust across the workforce.

Dr Modha explained the place-based agenda, which in his area of Greater Peterborough involved introducing a "GP liaison service" to integrate primary and secondary care. He noted the difficulty of integrating different services with different structures. If the NHS can focus on the value added to patients at a fundamental level, he said better ways of working can be achieved.

Commissioner, Dr Keith Ridge asked how the barriers between integrating GPs as primary care "contractors" with hospitals can be overcome. Dr Modha explained that GPs work on fundamentally the same contract as hospitals. He noted there has been significant investment in primary care, not directly into budgets, but into the field of Advanced Recovery Systems (ARS) and the Primary Care Management (PCM) agenda. Dr Modha concluded that integration has worked in his GP practice through bringing multiple specialisms together including physios, pharmacists and the voluntary sector to work within and outside the practice. He said, Primary Care Networks (PCNs) encourage primary care organisations to "think beyond their walls."

Dr Ridge asked whether this applies to all contractor groups in primary care. Dr Modha noted his experience of bringing together dentists, optometrists and pharmacists in Greater Peterborough, which showed that primary care can achieve integration to solve issues for communities and alleviate the pressures on the NHS.

Professor Dame Clare Gerada added the need to reform the legislation in primary care, particularly the performance list legislation and contractual arrangements. Professor Gerada used the example of having an elderly care physician working in her practice, who would still need to have their Responsible Officer (RO) present, which would not alleviate the quotas of numbers under current contracts.

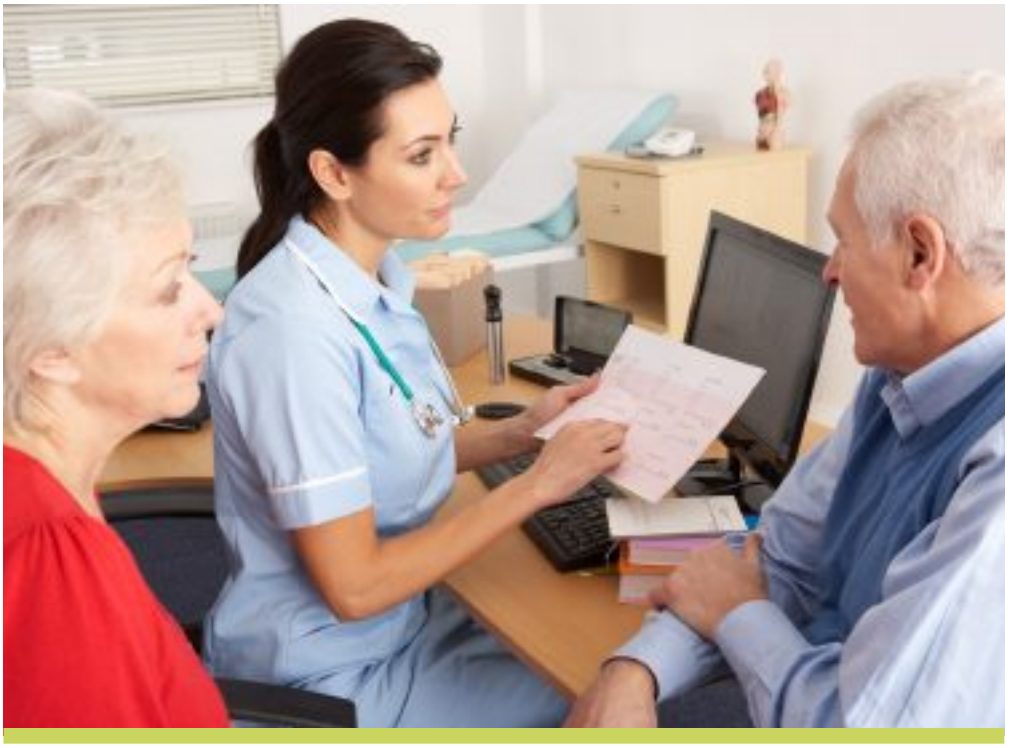
Professor Gerada added the issue of "working to the top of our licence" as GP practices and the need for "omnicompetent clinicians" and a multiplicity of providers. In the longer term, she cited the need for all primary care clinicians, regardless of "endpoints," to work in primary community care. Professor Gerada explained that patients today have complexities and multiple morbidities, meaning every clinician needs to be able to "manage those in their totality." She noted she wanted to see any non-doctor speciality working in general practice, including primary care clinicians, pharmacists etc. She concluded that proper competency checks must be in place when bringing doctors and nurses into the system, which is a practical issue at the system level that needs addressing.

Delivery of workforce planning and education at the local and system level

Commissioner, Professor Gillian Leng asked how workforce planning at the local system level is co-ordinated and delivered and how that links back to regional and national planning policy. Professor Gerada explained the co-ordination of workforce planning must be led by local teams, moving responsibility for training out of Health Education England (HEE) into the "local area" and ICSs which are better suited to determine their workforce planning and training.

Professor Gerada added the NHS needs to think more imaginatively about integrating paramedics and pharmacists into primary care; an issue which needs to be incorporated into the narrative at a senior level. She added that workforce planning needs to be moved away from universities.

Professor Gerada also noted the importance of the Health and Social Care Select Committee's report in highlighting the chaos and complexities involved in bringing doctors and nurses into the NHS, particularly ensuring they have done the appropriate training. She also raised an international comparison of the Netherlands, which has a long-term outlook in its twenty-year workforce planning agenda.



Achieving true integration in the health and life sciences ecosystem

Commissioner, Stubbs asked to establish what true integration looks like and how to achieve this with stakeholders from across the ecosystem. Consulting Director at BearingPoint, Hamish Dibley explained the need to move away from "silo thinking" in the health and social care system, to a "preventative wellbeing system" that is driven around the identification of the needs of populations. He explained this system must be locally focused, and place relationships and the continuity of care at the heart of its design – moving away from a "task-driven function design of work." Dibley added that the health service needs a "responsibility system" that enshrines the principles and practices around continuity of care and around patients – accounting for their experience and outcomes. He added the need to "free up" healthcare professionals so they can lead and manage more appropriate, system-wide interventions for people when they need them.

Dibley noted the importance of performance measurement and explained the current system produces positive results in one part of the system, yet negative results in another. He explained the need for "purpose-driven measures," a focus on effectiveness and a more holistic approach to the end-to-end effectiveness of treatment and care. To conclude, he argued the need to focus on the reconciliation of money "at the back end, not the front end" and "one budget for one system," which empowers those with authority to spend accordingly with "ownership and continuity."

> **"This is always the thing where we've fallen down over the last few decades. For me, it's like how you eat an elephant, it's one bite at a time. It's thinking about proof of concepts, not trying to tackle an entirety of a healthcare system overnight."**
>
> **– Hamish Dibley**

In response to Stubbs' question on whether the health system has all the right stakeholders involved, Dibley argued the discussion around health integration is too narrow. He explained the need to bring down barriers from a medical perspective but also at the managerial level, furthering his previous point on designing services that focus on prevention and have a holistic approach in treatment and care. In terms of agencies, Dibley outlined the need to incorporate the voluntary sector into the system.

Stephanie Harvey noted the significant challenges in fostering collaboration both for industry into the NHS and between NHS agents. She explained that given the lack of national strategy and guidance at an ICS level, there is a gap in potential partnerships with the life sciences industry.

Harvey explained that despite the existence of "innovation accelerator initiatives," these schemes have limitations in terms of their impact; citing her own experience of her work ending up on NHS "playbooks" which have not been adopted and scaled. She added that the biggest gap in integration is that clinical teams identify and innovate solutions, however there is no process of taking clear "blueprints" and scaling them. Harvey explained that the current method is to ask clinical teams to gain stakeholder buy-in at the higher level in advance, which they should not have to do. To conclude, she noted how the life sciences industry is trying to be the "change managers" within the NHS, taking on the responsibility of proving concept pilot success when this should be a responsibility of the NHS.

Dr Modha added to the discussion on population health, arguing primary care must focus on wellbeing as much as clinical health in exploring the wider determinants of health. He added the need for an effective data system that would allow primary care practitioners to work more effectively with the voluntary sector and charities.

Assessment criteria of Integrated Care Systems to ensure long-term population health

In concluding the first session, Professor Bewick asked how ICSs can collectively be assessed to ensure improved population health. Dr Modha explained the need to progress from a "commissioner-provider relationship to a system that meets people's needs," with a uniform thinking that the health system is about the individual's needs as opposed to budgets. He added the need for data collection and measurements to support the health system and track progress.

Professor Gerada noted the difficulty of setting shared outcomes around continuity, as this differs between primary and secondary care. She added that a positive outcome would be an absence of referral letters, as they signal a "failure of communication and indicate the lack of a shared electronic record and patient systems that can move patients into the right place."

Professor Gerada noted the "revolving door" of treatment and care that patients face must be addressed. She explained that the current system will move patients between different trusts and refer them to separate healthcare teams when a system with greater continuity is possible. She explained her thoughts of a "week, a month, a year, forever" system, where patients can self-refer into the system, providing continuity across the primary to secondary care interface.

Professor Gerada added that the health system must set itself "brave targets" and move away from "disjointed care pathways into a single health system which ICSs have the potential to be." She furthered Dr Modha's point on the impact of data and the "digital revolution" the NHS is going through and the potential this has in establishing a more coherent system of patient placement.

> **"We are in the very early stages of learning how to use digital consultants and digital systems, but actually the future is there, the future is digital systems supported by AI"**
>
> **– Professor Dame Clare Gerada**

Harvey noted the influx of the digital focus since the Covid-19 pandemic, yet the barriers between primary and secondary care still exist and must be lowered to gain the benefits of these developments.

Session Two: Devolution of Authority and Commercialisation

The second half of the inquiry session focused on supporting ICS integration and bringing the life sciences sector into the integration agenda. The panel for this session were:

- Jon Rouse CBE (City Director, Stoke-on-Trent Council)
- Professor Des Breen (National Clinical Advisor for System Transformation, NHS England/Improvement)
- Dr Claire Fuller (Chief Executive Officer, Surrey Heartlands Health and Care Partnership)
- Richard Murray (Chief Executive, The King's Fund)

Achieving autonomy and integration for Integrated Care Systems

The first topic of this session focused on how ICSs can retain autonomy to innovate freely whilst also achieving significant integration of health and care services. As the Chief Executive of Surrey Heartlands Health and Care Partnership, Dr Claire Fuller explained that she is accountable for the financial sustainability and delivery of the system. However, there is a statutory responsibility to meet as part of the NHS system. Dr Fuller noted the existence of an ICB and an Integrated Care Partnership Board (ICPB), which gives the ICS leadership both democratic and statutory accountability. She added that if there is a focus on just the ICB agenda, the potential of ICSs to establish true partnerships and address wider determinants of health will be diminished.

> **"The NHS on its own can only improve health outcomes by twenty percent. Unless we work across the full partnership, we are not going to maximise the outcomes for our population"**
>
> **– Dr Claire Fuller**

Jon Rouse explained his experience of having the "wrong conversations" in accountability meetings, which focused on measurements such as waiting times but not health outcomes, quality of care, or quality of aftercare. He added there is a tendency in NHS leadership to focus narrowly on a relatively small number of process measures; the NHS must then align with the ICS and national interest.

Rouse added the issue of resources he faced as Chief Officer of Greater Manchester Health and Social Care Partnership. He explained having transferred transformation resources from the national level to Greater Manchester, he was confident resource allocation and decision-making were more efficient. Rouse added the combination of access to resources and the right leadership was essential when dividing resources across different areas.

Following Lord O'Shaughnessy's point on whether ICSs have the freedom or confidence to reject national targets, Dr Fuller noted that ICSs are currently monitored on their constitutional requirements. She said that until these are met uniformly, ICSs will not have that degree of freedom. However, she added that the strategy of her ICS will be focused on local population needs, experiences and access to improve outcomes and reduce inequalities. She added these outcomes will be measured by the ICPB, rather than the ICB and the latter will be for more traditional, constitutional NHS targets. Rouse agreed that the freedom and confidence is not there, but suggested a compromise was needed to accept a minimum number of national targets to combine with local targets. NHS England as the central body must then take interest in local indicators so that it can establish the needed, balanced conversation.

Integrated Care Board finance planning to prevent competition for resources

On the issues of delegating finances, Professor Des Breen noted the need for a "behavioural change" in ICBs to adequately allocate resources effectively. He added this was not a "panacea" and would take time to develop. He argued the ICBs do not currently have total autonomy but will slowly be able to tackle priorities in population health, health inequalities and wider strategic commissioning.

> **"It's about shared purpose. It's a cultural change. It's a behavioural change. It's getting the things that we want to achieve and getting the members of the ICB to actually commit and do it."**
>
> **– Professor Des Breen**

Professor Breen explained the need for personalised care to be at the heart of the agenda, which will allow ICBs to strategically commission and find solutions to the "problems to solve" rather than the "targets to hit."

Richard Murray noted the existence of a "mirage of control" in the financial autonomy of ICBs from NHS England, arguing for the financial system to be more straightforward. He added the importance for ICBs to gather analytical support based at a place level. He noted that NHS England and the DHSC have allocated resources effectively when this has been shown previously.

Murray explained the disparities that exist between regions, which previously were Care Commissioning Groups (CCGs) matched with the local government structure and other areas that are now organising these structures. For this reason, conflicts between place and provider collaboratives are going to be a process. He added the challenge exists with the other imbalances that exist within ICBs, mainly ensuring primary care, local government and the voluntary sector have a voice in the delegation of resources from providers.

On Stubbs' point on how a restructure could be implemented, Murray explained the need for the role of partnerships in assessing if the ICB is delivering on what is agreed and to check resources are allocated appropriately. He noted the difficulty of burdening ICBs with the representation of all voices, yet methods to bring in a wider number of bodies into the decision-making of the ICBs are needed.

Professor Breen added most transformation does not happen at the ICB level, which are only "peppered by the right types of stakeholders" and is instead found at the ground level. He noted the ICBs hold an opportunity to be very inclusive and stick to outlined principles, but unless steps are taken the new boards risk becoming "too NHS and too acute focused."

Integrating the life sciences sector into the integration agenda

Rouse gave an overview of his experience in Greater Manchester Health and Social Care Partnership in providing a dedicated space for collaboration with the pharmaceutical and biotech industries. He noted that the success in integrating the life sciences industry was due to creating Health Innovation Manchester, an innovation hub with its own governance structure and accountability mechanisms. It was entrepreneurial with a "light touch gateway process" allowing innovation. He added the system in Greater Manchester allowed a "push and pull" with the life sciences industry – so that solutions were a two-way process. Underpinning this success, Rouse explained the Greater Manchester Care Record provided anonymised datasets that supported individual research projects and was vital to this success. He concluded that innovation hubs across the country could achieve the same.

Professor Breen furthered the point that the life sciences industry must be embedded within ICBs and innovation hubs, to support the collection of the right data and interventions. He added the incorporation of life sciences companies could support the data infrastructure and subsequently, improve visibility of health issues for the NHS. Professor Breen noted the potential for "co-design" between the NHS and industry, yet the life sciences sector could be more flexible in the transfer of research from controlled environments found in research to the uncontrolled environment of the real world.

Shared practices, cultural change and data collection to ensure adoption

Rouse shared case studies of success during his time at Greater Manchester Health and Care Commissioning. He explained that an ongoing program is the embedding of chip technology into fitted heart devices, which allows remote monitoring and inputs into a wider algorithm for the prediction of traumatic events. He added another example of success in the 'Polypharmacy Project,' which targeted elderly patients taking more than ten medicines. The project worked out which combinations were having adverse impacts. Rouse explained the problem was the lack of a mechanism to take this learning into national consideration.

On Professor Gillian Leng's point on which institutions or bodies would provide this mechanism, Professor Breen added the Academic Health Science Networks (AHSNs) could have a real part to play in supporting this. However, he argued that the rollout will need to start in a few areas and then multiply nationally.

Professor Breen gave the example that ten high-impact interventions were passed two years ago, yet only half were adopted into the whole system, some of which had plausible concerns whilst others should have been adopted at scale. He added the financial cost of adoption is a drawback and implementing a "safety scan" to improve safety would add to such cost concerns.

Dr Fuller argued the reason innovations are not being adopted at scale is the absence of a "theory of change" and delivery program at the national level. She added the NHS must improve on describing to clinicians the impact and benefit for patients, as this will drive change quicker.

> **"Often with the interventions that we're talking about, we will target a sector rather than a pathway. The examples of things that have worked well have stayed within a sector, but actually will be targeted upon by hospital clinicians and then fails when it comes out into the community; either because of different funding models or because of different distribution models"**
>
> **– Dr Claire Fuller**

Murray noted the adoption of innovation is "something people should want to do and that sells itself," meaning the influx of "performance management" could be restrictive.

Case Studies

BearingPoint's Humanising Healthcare: patient centred integration

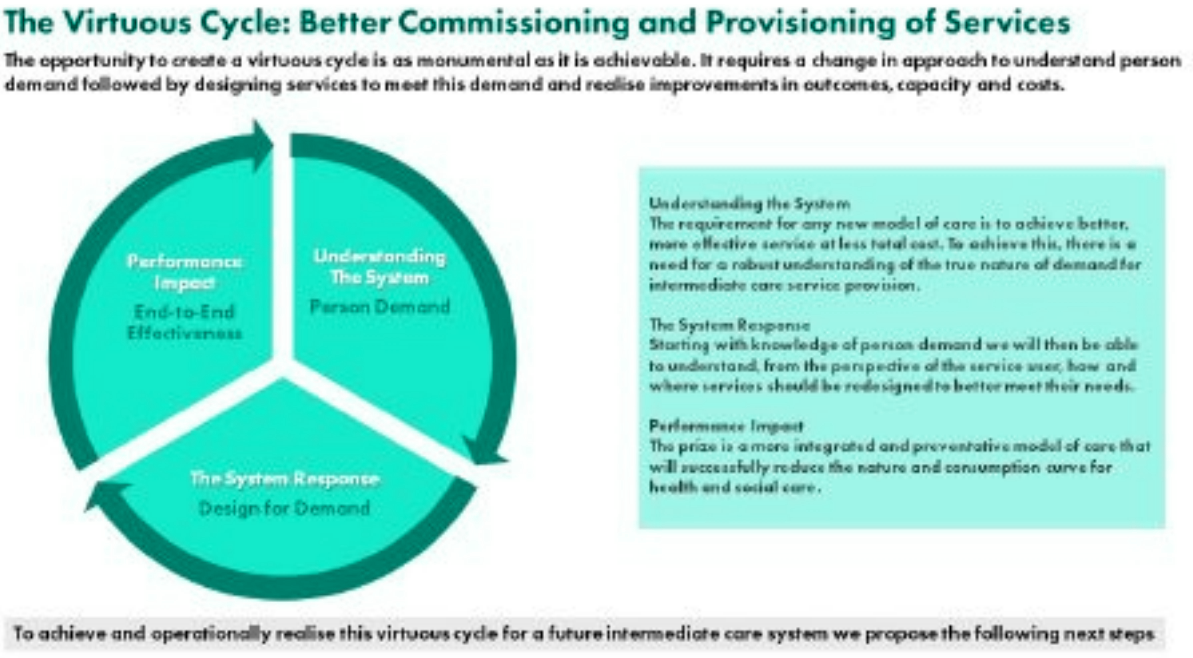
Context

NHS and local authority system partners recognised that their current intermediate care services were activity driven, piecemeal with consequentially disjointed services historically commissioned in isolation. This has led to ineffective and high-cost service provision and sub-optimal outcomes for the local service population.

BearingPoint have been working with the Integrated Care System to humanise healthcare and realise the ambitions for integrated working across health and social care system providers. Their intent is to deliver better outcomes for patients and re-focus care from an acute hospital setting into the community to deliver integrated care closer to home. Applying the Humanising Healthcare operating approach[4], system leaders want to commission and provide intermediate care services in a new, more genuinely integrated way for the benefit of the patient population.

Intervention

Working across the health and care system, BearingPoint identified and analysed a series of organisational data systems and operational trackers and reports, adding better insight and context to the data. Combined with operational analysis, the data enabled us to understand how individual patients created demand in the system as opposed to looking at service level activity alone.



Looking at demand in person-terms, BearingPoint found that patient demand was stable and predictable, but uneven. In this case, less than 900 people – out of a local population of 300,000 - were responsible for 50% of the totality of the work. These are the 'vital few' who consume disproportionate levels of professional activity.

[4] BearingPoint, 2020. Humanising Healthcare. [online] Available at: https://www.bearingpoint.com/en-gb/industries/health-social-care/humanising-healthcare-uk/

The work uncovered predictable indicators of waste in the system. From lack of history about patients to work referrals which were not appropriate for service users; work handoffs to other service teams to complete to services being available but not responding in a sufficiently timely manner.

The intermediate care system was experiencing high levels of representing and failure demand amongst relatively small numbers of the local population:

- 43% of patients didn't get the service requested in their referral or received no commissioned service
- 29% of patients got a service but not the one that was requested for them. The same person was often referred several times due to the impact of other parts of the system
- The system was receiving 38% more referrals than people and the increase in work activity came from 60% more referrals than people

A reoccurring theme related to the fragmented design of intermediate care and its service composition. The system continuously struggled to achieve clean, effective workflow - the right work being rarely achieved first time. Capacity and resource eroded by the need to undertake rework, workarounds, duplication of activity and multiple hand-offs.

Benefits

The objective in redesigning out of hospital care is to create a service system that has a clear patient-centred purpose of upholding dignity and greater levels of independence along with a firm-minded concentration on providing better continuity of care and undertaking only work that is of value to patients. As wasteful work is removed, service capacity increases and overall costs fall.

The principle of improvement is to first understand and manage against cohorts of high-consuming patients – doing the right thing at the first point of contact between the patient and the service. Patient demands define the value work that takes place ('what matters' to them – their needs) and the associated level of workforce expertise required.

Patients receive a quick decision following a joint assessment. Service design is to give patients all the options including costs as quickly as possible. Levels of representing demand, where the patient is assessed not eligibility for help, only to reappear later at greater expense, are therefore reduced.

The process or workflow changes to one assessment, one service provision and one review form. Assessment, service provision and evaluation are continuous and faster. The need for panel procedures to determine 'health needs' is removed.

New measures are put in place that focus on improving end-to-end service capability and our ability to get the right care to the right patient the first-time and reducing representing demand – the number of times a patient keeps returning requiring support after being deemed not to require help.

Service benefits include:

- A reduction in work activities that add no value to the addressing the needs of patients
- Greater service capability and capacity which offers better information and help at first point of interaction with patients
- Correspondingly faster assessments that focus on helping to address the patient needs
- Faster, more appropriate service provision.

And this positively impacts on finances too. A study of corresponding costs of random and representative cases typically reveals cost savings of between 25-50% in patient care.

Relation to recommendations

The innovative approach taken by BearingPoint to integrate the care system around the patient shows greater ways of working are achievable. Improving workforce planning and achieving integration across the NHS and life science sector is essential to overcome demand pressure following the pandemic.

Supporting primary care: UCLPartners Long Term condition frameworks

Context

Primary care services are under significant pressure to deliver treatment and care for millions across the UK. The pandemic has exacerbated waiting lists and disrupted pathways of care for primary care practitioners. In order to support the patient population and avoid further exacerbation of long-term conditions, primary care teams must be supported. UCLPartners are one of 15 AHSNs established across England to bring together NHS organisations and harness research and health innovation.

Intervention

In 2020, UCLPartners has developed a series of long-term condition frameworks[5] (Type 2 diabetes, hypertension, COPD, asthma, atrial fibrillation and lipid management) to support the restoration and improvement of services post Covid-19 in primary care. The frameworks are built on four key principles: virtual first, mobilising the wider workforce, step change in self-management, and digital technologies. The frameworks include:

- Search tools built for EMIS and SystmOne that risk-stratify patients based on clinical features, co-morbidity and ethnicity.
- Pathways that map interventions and staff roles to level of risk. For example, patients at high risk are prioritised to 'see' a clinician soon, and phased over time all patients have virtual consultations with staff such as HCAs or link workers to support education, self-management and lifestyle change.
- Digital and online resources that support remote management and self-management.
- Scripts and protocols to guide HCAs, link workers and others in their consultations.
- Training for staff (including health coaching and motivational interviewing) to deliver self-management support and education for patients.

UCLPartners' support for implementation includes clinical and project management support for local pathway adaptation.

Benefits

UCLPartners are working with local systems to ensure the tools fit with local contexts and priorities. This has led to adaptions in the hypertension search and stratification tools. For local systems, UCLPartners are working with local clinicians to provide condition specific training that can then include local preferences, pathways and innovations already in existence. UCLPartners have shared these insights via a monthly community of practice with representatives from across the AHSN Network.

The frameworks are now being rolled out at scale in North Central London and North East London ICSs, with alignment of local incentive schemes, and by a growing number of CCGs across England supported by other AHSNs.

The comprehensive frameworks are proving very popular with GPs across England because they respond to the urgent need to restore proactive care to patients in a way that improves the quality of care for patients and reduces workload for front line clinicians by mobilising the wider workforce.

Relation to recommendations

The long-term conditions framework established by UCLPartners shows the potential AHSNs have to support primary care, and other health services within and across ICBs. Utilising innovative programmes and techniques to alleviate pressure on primary care allows clinicians to improve their standard of treatment and care.

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[5] UCLPartners, 2020. Supporting primary care. [online] Available at: https://www.ahsnnetwork.com/case-study-2-supporting-primary-care

Integration Recommendations

The Commission was of the view that greater attention needs to be given to the purpose of ICSs and the core infrastructure that will enable them to succeed. In particular, this requires a focus on workforce planning (human capital), transparency on performance, and better local integration with the life science and innovation sectors. The recommendations include: **(indicates priority recommendation)**

- NHS England and HEE must meet their target of publishing a comprehensive workforce strategy by the end of 2022, focused on attracting and retaining talent in the NHS and social care sectors.
- ICBs should have a responsibility to develop training programmes to encourage cross professional collaborations, training staff to work in a different, more collaborative way to deliver population health and integrated care.
- **ICBs should work towards the introduction of 'employee passports' to facilitate staff working across a local system, irrespective of employer.**
- The ICS metrics due for publication in Autumn 2022 should be published as a matter of urgency, with a clear focus on patient outcomes.
- Every ICB should have a lead for life sciences, who oversees a local life sciences partnership committee which includes representatives from the life sciences sector, including health tech, SMEs and the local AHSNs with the aim of embedding innovation in the ecosystem.
- AHSNs should be recommissioned to work within and across ICBs, supporting the adoption of innovation locally, providing the connection with life sciences industries and ensuring that good practice spreads between geographies. Evidence-based innovations identified as nationally impactful should be mandatory adoption priorities for ICBs.

Recommendation	Responsible Body	Completion Timeline
Workforce Strategy	DHSC (Strategy), ICBs (training programmes)	Within 6 months (strategy)
Patient centric metrics	ICBs	Within 12 months
Life Sciences Lead	ICBs	Within 12 months
Employee Passport	ICBs/NHSE	April 2024
Role of AHSNs	NHSE	April 2023

CLINICAL RESEARCH

Chaired by Lord O'Shaughnessy and Professor Bewick, the third inquiry session of the NHS Innovation and Life Sciences Commission took place 7th October. This session focused on boosting clinical research and innovation, bringing together the recommendations of leaders in the NHS and life sciences industry.

Session One: Research Workforce and Incentivisation

The first half of this inquiry session focused on establishing the needed clinical research workforce and incentivising research in the UK. The fundamental theme throughout the discussion was enhancing the clinical research infrastructure through these mechanisms. The panel for this session were:

- Lindsey Hughes (Director of Research and Engagement, NHS England)
- Professor Sir Martin Landray (Professor of Medicine & Epidemiology, University of Oxford)
- Professor Chris Butler (Professor of Primary Care, University of Oxford)
- Dr Nicole Mather (Non-Executive Director, Health Research Authority)

Improving recruitment of clinical trials staff

The first topic of discussion centred on how the NHS can improve the recruitment of clinical staff to effectively manage and optimise trials. Opening the session, Professor Sir Martin Landray suggested that it is easier to deliver more trials with the existing workforce if the trials themselves are made as easy as possible for NHS staff. It is therefore essential to remove the initial barriers that exist for the workforce. Professor Landray explained these barriers include requiring extensive additional training for staff, insisting such training is not necessary and the main requirements are basic skills such as good notetaking. He added the need for staff to be thought of as "enablers rather than sole deliverers," citing the need to establish rewarding careers that incentivise staff to join and remain in clinical research.

> **"One of the challenges is around long-term and sustainable positions, so if each trial requires a nurse for six months or so, then there is uncertainty about the continuation of jobs. It is then very difficult to retain good people. We could think about changing things around, like year-by-year costs or trial-by-trial costs and decide on a more sustainable model."**
>
> **– Professor Sir Martin Landray**

Dr Nicole Mather added that focus should be placed on making trials and the process of trials, as attractive as possible for all involved. She suggested steps should be taken to address the strictness of regulations, as well as a greater user experience by addressing the barriers that Professor Landray noted. Dr Mather concluded the discussion by calling for clinical research to be embedded into all medical training and a culture of respect towards research and its impacts be established.

Professional roles and training to support research diversity

Hughes advocated the need for new professional roles and training programmes to support the existing research workforce. Hughes argued the NHS and life science sector must focus on ensuring diversity within participants of trials, by providing equal access to clinical research and special toolkits to help the workforce engage with communities that are otherwise neglected. She argued the next hurdle is to ensure diversity can be integrated into research design, development delivery and in reporting and publication.

Professor Chris Butler added to the discussion, suggesting the following points:

- New and modern trial designs should be adopted, allowing for greater flexibility in clinical research.
- Instead of going for project-based funding, researchers must go for longer plan funding. For research staff, this allows continuity and "keeps people in post" to gain expertise in research areas.
- There is an extreme skillset shortage in healthcare for Bayesian statistics, recruitment must address this with wider experience of statistics and datasets.
- Connections should be bridged between NHS and research departments with dedicated roles to promote inclusion and diversity.

Strategies for Integrated Care Systems to optimise capacity for clinical research

On the possible strategies ICSs could implement to optimise clinical research, Hughes argued the answers are not yet clear. In her role as Director of Research and Engagement at NHS England, she explained her team is looking at options to streamline approvals and research delivery. She added the importance of flexibility within the institutions and the infrastructure surrounding clinical research, focusing particularly on improving the process of acquiring funding for research. Hughes noted the opportunity ICSs provide to view research differently.

Professor Butler provided an example of success during his role as Professor of Primary Care at the University of Oxford. He explained his team were able to secure a large grant through a seamless process for their work on Covid-19 treatments; the ability for optimised research is therefore possible with adequate support.

Incentivising the wider ecosystem to conduct clinical research

Commissioner, Neelam Patel introduced the topic of ensuring all areas of the health and life sciences ecosystem, other than secondary care, are incentivised to conduct research. Professor Butler explained the enabling features he believed would incentivise world-class research, these include:

1. Readily available and effective funding:
    - Funding plays the most integral part in any trial. With access to appropriate funding, Professor Butler and his team were able to initiate and finalise trials smoothly and effectively.
2. Access to advice from the ethics committee:
    - Approval from the ethics board is necessary to conduct clinical research. Professor Butler cited his experience that when adequate access was there, he felt confident to clear up any confusion, hence speeding up the approval procedure significantly.
3. Prioritising trials for public health:
    - The NHS receives multiple clinical trial approval requests, but a majority do not recruit enough candidates and waste time and precious resources. The NHS must continue to assign special badges to trials that concern public health, so that their funding process is completed without interruptions.
4. A therapeutic panel to determine and assign drugs to be used.
5. Improved access to data:
    - The availability of real world data is a growing issue for clinical research and must be improved.

Dr Mather added the NIHR and UKRI need to be more aligned to incentivise and facilitate world-class research. She noted that approval processes and local recruitments have room for improvement and that centralising approval can accelerate the needed processes. Dr Mather explained that in her experience during the Covid-19 pandemic, it was far easier to prioritise trials, but the issue of which treatment areas to prioritise, such as cancer or paediatrics, is made significantly harder. She agreed with Professor Butler's point on assigning badges for priority but added issues around priority would be difficult.

Hughes furthered Professor Butler's points on ensuring flexible and innovative trial design that enables research. She noted the NIHR is already responding to the infrastructure need regarding clinical research networks that align with the NHS. Therefore, fostering the infrastructure needs discussed should be a priority.

Bringing clinical research into primary and secondary care

On the topic of involving both primary care and secondary care in clinical research, Dr Mather stated that research was previously thought of only as a "preserve of hospitals." However, excellent studies such as Professor Butler's work during the pandemic show that similar research is possible in other settings. Dr Mather added that given pressure is increasing on NHS services, there must be an emphasis on looking beyond the primary care sector and engaging differently. She cited the need for creative, innovative ways to reach people and access different trial settings – working with social care and third-sector organisations that engage with user groups to alleviate pressure on the NHS.

Professor Butler argued that the aspect of "self-care" must be considered alongside primary and social care when targeting study groups. He added that current regulations are not designed for such a wide-reach, decentralised approach to clinical research. A review of the regulations is therefore needed, arguing more dynamic regulations that can fit around research purpose is essential.

Hughes added the need for studies to be delivered in areas which are convenient, ensuring access and wider participation. Widening accessibility should be a founding principle of future trials and will further improve some of the recruitment issues currently seen in clinical research across the UK. Hughes concluded that creating awareness about opportunities to participate in research is vital, noting the NIHR is working on solutions within the NHS app and website to ensure the public is more aware of such opportunities.

Panellist recommendations

In concluding remarks, Lord O'Shaughnessy asked the panellists to present their personal recommendations for the health and life sciences ecosystem to improve clinical research. Dr Mather argued the need for user-centred design across clinical research, placing the experience of the user at the heart of research will reduce friction between researchers and patients. She added the importance for a single, central approvals process.

Professor Butler restated the need for regulations and laws to fit according to a more diverse range of studies, improving accessibility to targeted study groups. He noted a potential proposal could be provided with shorter, simpler recruitment forms and terms to enter a study, or reducing formalities with patients who opt-in to their health data being accessed.

Hughes argued for commitment to ensure it is as easy as possible to undertake research in the NHS, wherever that setting is. Moreover, it is important to seek and understand the barriers and duplication of efforts that exist. She also noted the need to empower people to participate in research, with a greater influence granted to the participant within the study.

Session Two: Agent Collaboration and Adoption

The second half of the inquiry session focused on the structural changes needed to align agencies and support adoption. The panel for this session were:

- Professor Gary Ford (Chief Executive Officer, Oxford Academic Health Science Network)
- Dr Jennifer Harris (Director of Research Policy, ABPI)
- Stuart Carroll (Director of Market Access and Policy Affairs, Moderna)
- Dean Summerfield (Senior Vice President, Real World and Commercial Solutions EMEA, IQVIA)

Practical changes to ensure streamlined working

On the necessary changes the Medicines and Healthcare products Regulatory Agency (MHRA), Health Research Authority and Health Technology Assessment (HTA) bodies must implement, Dr Jennifer Harris acknowledged the incredible alignment and collaboration seen during the pandemic and with the Innovative Licensing and Access Pathway (ILAP). In addition, the introduction of a combined review, whereby a single clinical trial application goes to both the Medicines and Healthcare products Regulatory Agency (MHRA) and a research ethics committee (REC), has helped reduce the time for clinical trial approval down to 60 days. Dr Harris added this development brings the UK in line with the European standards issued with the EU Clinical Trials Regulation (EU CTR). However, the UK still faces challenges with study set-up timelines in the NHS. Dr Harris noted the international disparity in this area, citing best practice from Spain, whereby costing and contracting has been streamlined, with negotiations conducted in parallel to regulatory and ethics approvals and a reduction in contracting timelines seen, from 117 days in 2016 to 90 days in 2020.

On improving connectivity between agencies, Dr Harris noted the potential within the ILAP, such as bolstering the toolkit that sits alongside it in areas of surrogate, novel endpoints, and innovative trial designs. She added ensuring early dialogue is established between regulators and the HTA agencies is essential, allowing evidence generation that not only receives marketing authorisation, but can push through the HTA. Dr Harris concluded her remarks by stressing the importance of implementing changes to the UK Clinical Trials Regulation (UK CTR) as soon as possible.

Stuart Carroll furthered Dr Harris' points on alignment but emphasised the importance of horizon scanning which allows effective alignment earlier. Carrol added the need for real world data and for the MHRA to consider such data where appropriate to supplement clinical trials. To implement real, practical changes, Carrol argued the NHS and regulatory bodies must take learnings from how industry process became efficiently streamlined during the pandemic. Despite the context of emergency approvals, a blueprint for bringing stakeholders together was shown from the NHS and life sciences sectors response.

On Professor Leng's question on what the hardest barriers were to efficiently align, Dean Summerfield added it is important to note that global clinical trial investors simply do not have a presence in the UK. He explained the biggest barrier is the fragmented application process and decision-making system which deters foreign companies looking to enter the UK market and hold trials.

Professor Gary Ford emphasised that alignment between the HRA and MHRA is essential for streamlined working, particularly for digital and diagnostic technologies. He added the importance of curating real world data efficiently and in a timely manner to inform every stage of research and drive adoption.

Collaboration and support to increase marketing authorisation

On the topic of supporting the MHRA and HTA effectively, Professor Ford noted the concerning prevalence of trials given approvals based on proving clinical effectiveness rather than cost-effectiveness. Professor Ford added the difficult financial challenges the NHS faces in which areas of treatment and care to fund; therefore, cost-effectiveness must be considered. He added that a national agreement for early access and data generation that produces high-value products should be put in place. Instead of focusing on the cure, researchers must examine prevention with higher priority.

Summerfield added that certain therapies, such as cell and gene therapy treatments, are extremely costly. Instead of dismissing these treatments, there is a need to adopt innovative approaches to funding which will allow the NHS to meet the cost challenges.

> **"If we are just looking to maximise the collaboration between HTA and MHRA and focus on the drug cost rather than money that can be saved in the provision of health and population health gain, we will slow down our adoption of innovations in the neurological sector."**
>
> **– Dean Summerfield**

Innovative approaches for regulatory and Health Technology Assessment bodies to ensure international competitiveness

On Dr Harpreet Sood's question on which approaches are necessary for regulatory and HTA bodies to ensure competitiveness, Carroll stated that real world evidence data must supplement decision-making within the regulatory framework, particularly around population-based interventions. He added that a planned budget allocation is key to better performance and emphasised the need for regulatory and HTA bodies to rethink investment, efficiency and cost-effectiveness.

Dr Harris added that the UK is currently "mid-pack for access and uptake, and certainly very low down when it comes to clinical trials." The life science ecosystem therefore needs to be cautious about the UK's global ranking in clinical research, particularly by funding regulatory agencies to ensure competitiveness and improve delivery of NHS services.

Needed policies at the national and local level to improve adoption

On Stubbs' question on the required levers to adopt technologies more successfully, Professor Ford emphasised the need for a national framework for clinical research that is responsible for the quick and easy adoption of innovative technologies. He referred to past experiences where the NHS had experienced positive changes in the 2000s that allowed the adoption of technologies, particularly the cardiac networks that formed. Professor Ford added that access to national databases is fundamental to the planning of effective strategies and achieving early adoption of technologies. Moreover, the removal of local and financial barriers that may hinder the adoption of innovative technology is essential.

Carrol stated that keeping the procedures of adoption as simple as possible is needed, yet there must be an accountability framework that holds organisations accountable, in case of discrepancies or unlawful activity. He added the importance of fully trained staff that are recruited efficiently and in adequate numbers as required, aiding the workforce and implementation issues around research and adoption.

Dr Harris advocated the need for a mechanism that solves the growing issue of vacancies, which itself impedes practitioners to conduct high-quality research. Having protected time for research would make a significant difference, enabling more healthcare professionals to get involved in research which in turn improves job satisfaction and staff retention.

Summerfield and Professor Ford both agreed upon the lack of connection between the present infrastructure of research, adoption and implementation. Therefore, a managerial and scientific position is required to adequately conduct a clinical study.

The role of the Integrated Care Systems to eliminate variation in adoption

On what role ICSs have in addressing the significant variation of adoption, Professor Ford argued clinical networks should be created within each region, bringing people together and enhancing data to find the reasons for variations.

Adding to the discussion, Carroll emphasised the importance of 'levelling-up' government funds for the healthcare sector, addressing health disparities. Summerfield stressed the importance of informing the patients about the benefits of the treatments so that they can make an informed decision and move forward with the treatment.

Panellist recommendations

In concluding remarks, Professor Bewick summarised the session by asking panellists to present their personal recommendations for the NHS and life sciences ecosystem. Dr Harris concluded that regulatory reform by implementing changes to the UK CTR, streamlining of industry study setup processes and greater cross-agency working would be a welcomed start.

Carroll recommended a focus on horizon scanning, greater joint working and the use of real world data wherever available before using the NHS data.

Professor Ford suggested considering all the associated benefits of innovative technologies and designing the studies and data in such a way that reflect the need for and importance of adoption.

Summerfield argued to "bring our research and clinical practice worlds together," emphasising working in a continuous flow rather than fragmented segments. He argued this fragmentation makes the UK healthcare system globally uncompetitive.

Personal Contributions

Dr Nicole Mather – Non Executive Director, Health Research Authority

Patients and healthcare professionals need to be involved from the design stages of clinical trials, so that products and the way they are trialled and presented are built with empathy for the users. Ethically, public involvement is a right, but designing with and for users will also optimise the use of products, driving engagement and ultimately uptake, adherence and clinical outcomes.

User-centred design is a core concept for the development of digital tools. Exploring the different personas, needs, pain points and flow through a process allow technologies to be developed which enhance experience and streamline the practice behind a transaction: Apple devices provide a well-known example[6].

This same design approach can be modified to enable the development of clinical trials – fully understanding the patient personas and needs, as is patient journey and pain points along with developing a desired, to-be journey with suitable touchpoints. This will mean that products and the trials to prove them can be delivered with patient-centricity at their heart.

A golden thread of patient engagement can run through the trials process, considering the patient's point of view through the process: streamlining patient onboarding, maintaining engagement during trials through use of the right channels in the right way and supporting easy recording of patient data.

Specific elements of the journey could be developed to simplify the patient pathway such as:

- Streamline onboarding processes using CRM packages – analytical techniques used in retail to give personalised info.
- A dynamic consent engine – supporting patients to provide informed consent for trials or procedures through a simple interface which draws on the selected Patient Information Leaflets (PIL) and supports transparency, impact and patients changing their minds.
- Data integration via APIs which connect to wearables such as Fitbit, Apple Fitness, or Samsung Health, enabling data collection without requiring proactive changes to the volunteer's lifestyle.

[6] https://www.apple.com/uk/ios/health/

Dr Jennifer Harris – Director of Research Policy, ABPI

The ABPI-PWC report[7] estimates the UK will yield significant benefits if it can preserve and grow its life sciences sector, including an additional £68 billion of GDP over 30 years from increased R&D investment and a 40% decrease in total attributable burden of disease.

Realising these benefits requires a life sciences ecosystem that is innovative and competitive end-to-end. However, new data shows the UK's ability to attract and deliver industry clinical trials is deteriorating, posing a growing obstacle to delivering on these ambitions:

- Patient access to industry research has fallen dramatically. The number of participants recruited to industry clinical trials on the National Institute for Health and Care Research Clinical Research Network (NIHR CRN) has fallen by 44% from 50,112 in 2017/18 (5.9% of total recruitment) to 28,193 in 2021/22 (2.2% of total recruitment).
- Industry trial activity is at its lowest point. The number of industry clinical trials initiated in the UK per year has fallen by 41% between 2017 and 2021, and the UK's global ranking for Phase III industry clinical trials has dropped from 4th in 2017 to 10th in 2021[8]

These declines diminish patients' access to innovative treatments and threaten the long-term future of industry clinical research in the UK – and the benefits it brings to patients, the NHS and the economy.

In the short term, the ABPI recommends the Government support the NHS to:

- Prioritise interventional industry clinical trials
- Improve set-up processes for industry clinical trials
- Leverage industry trials to boost research capacity and culture

These actions will help to stabilise and increase industry clinical trial activity in the UK, but sustainable growth can only be achieved through long-term government commitments to:

- Embed clinical research into the healthcare system
- Reform and streamlining approvals
- Increase and diversify patient recruitment to clinical trials
- Adopt innovative clinical trial design and delivery approaches
- Improve how the UK reports on clinical research performance

[7] ABPI, 2022. PwC - Transforming lives, raising productivity. [online] Available at: https://www.abpi.org.uk/publications/pwc-transforming-lives-raising-productivity/

[8] https://www.abpi.org.uk/media/fjhnjz34/rescuing-patient-access-to-industry-clinical-trials-in-the-uk.pdf

Case Studies

Diverse patient engagement: Sanofi's approach to clinical trial development

Context

In order to maximise clinical studies, diversity of ethnic, gender, geographic area and other data is essential. Too often clinical trials in the UK have not achieved the needed level of diversity. To improve the country's place in clinical research, the NHS and life sciences sector needs to improve on engaging communities.

In 2011, Sanofi acquired Genzyme, a mid-sized pharmaceutical company focused on rare diseases which routinely engaged patients in study planning and design. Appreciating that everyone with a condition has their own experience and narrative, Sanofi began to apply this practice to other therapeutic areas to ensure diversity was achieved across all clinical trials.

Intervention

Sanofi identified and contracted patients from various patient advocacy groups to serve on patient advisory panels for relevant studies. Through these panels, feedback on the design of trials were drawn from the patient perspective to continuously improve the approach of clinical research. The panels also allow an understanding of the diversity of patients enrolled in trials, enabling Sanofi to find patients that share needed demographic profiles to achieve more diverse research.

However, patient engagement takes time and requires continuous adjustments. Difficulties presented themselves in maintaining relationships with patient advocacy groups and contractual negotiations of the advisory panel. Involving patients within the design of trials also requires a cultural shift for researchers conducting trials.

Benefits

Engaging patients and ensuring diversity in study design has allowed Sanofi to simplify research and improve validity of trials. The company have reported integrating patient perspectives and diversity has been fundamental to creating world-class clinical research. The use of patient advisory panels has continuously aided the company in:

- reducing the number of procedures within a protocol, thus lessening patient burden
- reducing the number of required visits to the study sites and clinics
- broadening eligibility criteria, enabling greater participant access to research
- extending the dosing window from a required time to a time range, increasing flexibility and compliance
- considering logistical support mechanisms in protocols, including mobile health technologies and home administration where feasible

Relation to recommendations

Identifying and engaging different communities and groups to input into trial design clearly has significant benefits in fostering patient centric and diverse research. Ensuring all patient groups have access to participate in trials is a needed improvement for the UK's life sciences ecosystem to achieve its potential.

Clinical Research Recommendations

The Commission strongly urges the Government to ensure the UK rediscovers its global leadership role in clinical research. This means addressing the decline in late-stage clinical studies that was happening before the pandemic as well as grasping the opportunities presented by technology and innovation to make clinical research a fundamental part of every clinician and patient's experience of the NHS. The recommendation include: **(indicates priority recommendation)**

- **The NHS App should be given a new focus as a location for individuals to consent to participation in health research, with a target of 50% of the population having opted-in to being contacted about relevant research by 2025. This should be incorporated with existing initiatives such as NHS Digitrials, Find, Recruit and Follow Up and NIHR's Be Part of Research.**

- In line with the ICSs' duty to facilitate research, as set out in the Health and Social Care Act 2022, metrics to measure research activity should be developed at a national level and built into local accountability frameworks.

- DHSC should incentivise and encourage the use of NIHR Guidance on diversity in clinical trials. This includes ethnic, gender and other relevant biological data, as well as diversity in location to make sure to under-represented groups from disadvantaged areas have equal opportunity to take part in trials.

Recommendation	Responsible Body	Completion Timeline
NHS App for research	NHSE	50% of population by 2025
Diversity in Data	NIHR	By April 2024
Research Metrics	ICBs	Within 12 months

Scaling

Co-Chaired by Lord O'Shaughnessy and Professor Bewick, the fourth and final inquiry session of the NHS Innovation and Life Sciences Commission took place 7th November. This session focused on improving the scaling of health innovations, bringing together the recommendations of leaders in the NHS and life sciences sector.

Session One: Rewarding Innovation and Establishing Infrastructure

The first half of the inquiry session focused on establishing the necessary culture, workforce and digital infrastructure to support the scaling of health innovations. The panel for this session were:

- Professor Ian Dodge (former National Director of Primary Care, Community Services and Strategy, NHS England)
- Dr Rowland Illing (Director & Chief Medical Officer, Amazon Web Services (AWS))
- Charlotte Augst (former CEO, National Voices)

NHS mechanisms and resources to facilitate innovation uptake

The first topic of discussion focused on the environment the NHS must establish to allow innovation uptake and scalability. Opening the session, Charlotte Augst discussed her experience working with the Accelerate Access Collaborative (AAC), noting that the focus on innovation was localised within the AAC. Instead, she argued this focus and the presence of innovators should be dispersed across the NHS at every level.

Dr Rowland Illing furthered this point, highlighting this localised focus that exists in health systems across the globe and the challenge of integrating innovations from research into the real world. He noted the importance that scaling innovations has for population health and stimulating economic growth for economies. Dr Illing added incentives must align between the NHS and life science sector to scale adoptions, but also highlighted the end-user must be involved.

Professor Ian Dodge noted the importance to "distinguish innovation with adoption and wider spread" as there is a natural dependency to become focused purely on innovation, instead of reproducing innovative success elsewhere. He added local systems have entrenched behaviours to seek national answers which do not always fit local contexts. It is therefore vital to get the balance between national and local contexts correct when working to uptake innovations. Professor Dodge explained the example of Covid-19 antivirals, arguing the NHS should move away from a quality-adjusted life year (QALY) calculation to one which estimates how local hospital capacity would be impacted.

Rebalancing funding from research to scaling

Led by Dr Ridge, the next topic of discussion centred on whether the UK is correctly balancing funding between R&D and the scaling of innovations. Augst noted her experience as CEO of National Voices in dealing with this challenge, noting a clear dissemination problem with current awareness below required levels. She added that alignment between the NHS and the NIHR has not yet been achieved to allow progress in dissemination and the prioritising of research effectively. Augst stated the need for the innovation adoption problem to be felt and understood in local health systems, which will help to make adoption a higher priority.

Professor Dodge agreed with the need for clearer demand-signalling into what clinical research is prioritising, moving away from traditional academic research models into answering "how do you understand the nature of a hypothesis around a problem with an expected benefit that has been defined." Research models that use real time data to provide clarity. He noted the disparities between clinical research funding and the application of that research, particularly between the Government and the life sciences industry, which unfortunately dwarfs adoption drivers such as AHSNs. Professor Dodge added there are difficulties in adopting models from one area to another, noting there are always opportunity costs relevant to the region, which must be considered cautiously.

Regarding international comparisons, Dr Illing noted that other countries also find adoption extremely difficult. However, the UK has successful examples of centrally co-ordinated, national scale programmes such as Genomics England. He applauded Genomics England for their achievements in communicating with the wider bodies and ecosystem, establishing significant data access with privacy and security. Dr Illing emphasised that real-time accessibility and implementation is vital in allowing health issues to be dealt with quickly and effectively.

Dr Illing detailed his experience working in Lancashire and South Cumbria, helping to develop their ICS. He enabled holistic support for patients and allowed access to patient health data at the point of need. He furthered Professor Dodge's point that scaling models directly to other regions and particularly nationally is very difficult. Dr Illing also explained the incredible work he saw in India during the pandemic, establishing tele-medicine consultations in four states within 19 days. The clear, reproducible method in which the system was built allowed other states, and eventually the whole country, to adopt the system. This was vital for linking patients to clinicians during the pandemic. He concluded that the UK can certainly learn from the repurposing of structures and systems that has been seen internationally.

NHS measures to ensure standardised evidence generation

On Professor Leng's question on the measures necessary to ensure standardised evidence generation, Dr Illing noted there have been notable examples within the UK of ground-level data generation achieving outcomes, specifically the recovery trial during the pandemic. If the NHS could move towards a more flexible approach with a stronger data architecture, the UK could see marked improvement in the adoption of innovations.

Professor Dodge added the primary focus in ensuring effective and standardised data, is "to have the data in the first instance." He argued the Covid-19 vaccination programme showed the feats possible in health data, providing accessible insights to both clinicians and the population. In some instances, these insights provided incentives for specific groups to become vaccinated. Professor Dodge noted that if health innovations themselves are not clear in the expected benefits to patients, including specific metrics to measure success, then the NHS and wider patient population are not as likely to push for those innovations. He added to previous comments that this must move beyond using QALYs to measure, instead looking at the impact on GP appointments, bed capacity and other pressures.

Alignment between clinicians and decisionmakers to support adoption

On the fostering of alignment between clinicians and decision makers to ensure adoption, Augst noted that funding should be contingent on "evidence that the group asking has worked with patients in communities and understands the problem on the ground level." It is therefore necessary to co-ordinate not just between clinicians and decision-makers, but also with patients within the line of communication. Augst emphasised the importance of the inverse care law - the principle that the availability of good medical or social care tends to vary inversely with the need of the population served. During the pandemic, the UK saw a more diverse collection of data which provided granular insights into diverse groups. Such granular data is no longer apparent within primary, or secondary care.

Dr Illing furthered the importance of demand signalling at the ground level and the data architecture he referenced previously. He also explained that patient engagement must develop alongside this alignment, citing examples in the US and South Africa which produced citizen engagement platforms that allowed patients to access support during the pandemic. These systems also provided feedback for patients to describe their experience, which constitutes a powerful tool for governments to learn and adapt their health systems.

Professor Dodge concluded the topic by re-emphasising the importance of fixing the UK's data generation issue, as other mechanisms will not allow adoption without adequate health data. Augst added that the inequalities mechanism within the AAC does not extend far enough in ensuring inequalities are reduced resulting in marginalised communities becoming left behind. Professor Dodge noted the importance of health equity, suggesting the formation of an organisation that focused on medicines equity and the improvement of data.

Session Two: Collaborative Opportunities and Frameworks

The second half of the inquiry session focused on structural approaches the NHS and life sciences ecosystem must take to allow effective adoption.

- Professor Ian Dodge (former National Director of Primary Care, Community Services and Strategy, NHS England)
- Professor Ben Bridgewater (CEO, Health Innovation Manchester)
- Daniel Ratchford (Senior Director, Healthcare, IQVIA)
- Andrew Davies (Digital Health Lead, Association of British HealthTech Industry (ABHI))

Collaborative approaches for NHS and industry

Professor Bewick opened the second session on the necessary approach for the NHS and industry to improve collaboration. Andrew Davies emphasised the importance of co-design, as collaboration works better with combined objectives and goals. However, he suggested there has been a breakdown in communication between the NHS and life sciences sector in achieving common goals. Davies argued that the correct framework for collaboration is vital and if the ecosystem installs a value-based approach, the adoption of innovations could be markedly improved.

Professor Ben Bridgewater noted the differences in background that exist between actors within the healthcare and life sciences industry. Therefore, aiming to improve collaboration between actors must be a high priority. He added the benefit of professionals gaining experience in different sectors of health and life sciences. He argued that these experiences enrich understanding and improve conversations between actors. Consequently, if the ecosystem can better understand each actor's priorities, challenges and goals, then a more unified and successful approach to scaling innovations is possible.

Professor Bridgewater noted there is sentiment against the life sciences industry within some parts of the NHS, and this must be recognised and understood. Leaders within the NHS should therefore install a culture that ensures collaborations with industry are indeed partnerships to improve health outcomes for patients.

Professor Ian Dodge noted there are encouraging signs within NHS England, particularly the development of the Commercial Medicines Unit (CMU) that has opened conversations between the pharmaceutical industry and the NICE. However, he noted these developments are still far from the level of collaboration needed between the NHS and industry.

Daniel Ratchford argued the NHS is slowly becoming less suspicious of the pharmaceutical industry, as conversations are starting to occur more regularly. Ratchford furthered Professor Bridgewater's point about building understanding and communication between different actors to facilitate collaboration. On the collaborative deals, he argued transparency in terms of gains and risks is essential.

Contractual changes to NHS commissioning

As a response to commissioner Patel's question about contractual changes to facilitate collaboration, Ratchford highlighted virtual wards as an exciting innovative practice that is showing different approaches from ICBs in its implementation. He noted that his experience of working with ICBs on virtual wards has given him confidence in the collaborations that are possible.

Professor Bridgewater noted the inherent difficulty of balancing the rigorous approach of academic researchers with the fast-paced innovation mindset of industry. He explained that his experience at Health Innovation Manchester pushed his inclination towards a faster approach to innovations, yet this dilemma has not been overcome. He concluded that before the NHS seeks to embark on contractual reform in the early stages, it needs to build relationships, ways of working and push for proof of value. Building on these steps will therefore improve the ability for innovations to be scaled more effectively.

On his experience working with the healthtech industry, Davies noted the difference in contractual arrangements between digital technologies and medical devices to diagnostics. He added to Professor Dodge's point about CMU, noting the importance of structures to facilitate collaboration and innovation. However, within digital technologies and diagnostics, these structures are behind medicines and require time to evolve.

> **"The structures are still growing, and they are starting to take place with things like the MedTech directorate. However, outside that central area, you never know quite who you will be interacting with at a more local level. Further clarity in who does what would be a welcomed step forward"**
>
> **– Andrew Davies**

Professor Dodge noted there was a promise in the NHS Long Term Plan for a clearer innovation pipeline, including allowing innovators to have greater conversations. He argued that this has not yet come far enough in achieving the "necessary fluidity" for innovation adoption. On Professor Bridgewater's mention of purposeful design, he stressed the importance of context and clarity when presenting early discovery models as opposed to a proven standardised model. Professor Dodge concluded that collaboration between different national actors such as NICE and NHS England and the connection of national actors with local systems is paramount.

The Accelerated Access Collaborative and government responsibility

On the role of the AAC and the responsibility of government to improve adoption, Professor Dodge explained the AAC, and other mechanisms highlighted the adoption issue the UK faces. Therefore, a more substantial effort is needed to achieve the levels of adoption needed. He added that ultimately the life sciences ecosystem must prioritise solutions to alleviate the burden on the NHS. In addition, it must focus on producing reproducible, standardised methods to allow adoption and scaling to improve.

> **"The AAC has shone a light on the need to be really clear about what the hypotheses are around expected benefit and the methods for driving it. And then there's the question on how you get there through really effective engagement."**
>
> **– Professor Ian Dodge**

Professor Bridgewater noted collaboration is a "contact sport" that needs agencies to drive it, which must be fit for purpose and held accountable for being effective. He added the importance of the RACI matrix as a key ingredient to understanding who is responsible and accountable for the adoption of innovation.

Ratchford argued that the AAC and AHSNs have been successful to an extent. However, there is a much bigger picture of needed adoption which the UK is not currently delivering. He argued the NHS and government must encourage the needed conversations, starting at the local level and particularly within ICPBs.

Davies argued that responsibility for improving adoption must be shared between the public and private sectors. Currently the NHS is not sufficient in adoption, yet the UK economy is not investing enough in innovations, with many companies moving abroad to attain the required investment. For solutions, he added a rebalancing of the R&D tax credit from research to development is a simple fix, as well as further utilising pension funds.

Reimbursements for technologies and accountability for innovation in Integrated Care Boards

Lord O'Shaughnessy asked the final question on achieving reimbursements for health technologies and leadership responsibilities within ICBs to promote scaling. Professor Bridgewater noted the conversations in improving reimbursements and promoting innovation within ICBs are starting. He explained in the Greater Manchester ICB, they have agreed innovation priorities and criteria to measure success. The next steps are to agree priorities with all actors, at all levels.

> **"There has to be national accountability if you want national scale"**
>
> **– Professor Ian Dodge**

Professor Dodge added national accountability falls within NHS England, but must be assisted by national actors such as the Government including DHSC and NICE. He furthered Professor Bridgewater's point on aligning local priorities between actors and added accountability and leadership for adoption must be centred in NHS England.

> **"The question on alignment is, to what extent it is informed by a co-production process? To what extent do you have all the AHSNs, ICBs etc. providing their inputs so that you have NHS England speaking on behalf of all its constituent parts rather than just inventing something that is disconnected"**
>
> **– Professor Ian Dodge**

Written Contributions

Daniel Ratchford – Senior Director, Healthcare, IQVIA

I have had the benefit of working across public, private and voluntary sectors, in the NHS and local government and at national and local levels. As a result, I have seen many attempts at creating structures around innovation and scaling in different forms. And they can be helpful. In our current systems, initiatives like the AAC and the AHSN are useful; but we cannot rely solely on them to generate and scale the innovations our health service needs. Such structures – with the inevitable bureaucracy they require – can often stifle innovation to a significant extent as well.

In my experience, involvement outside these structures – around real issues, real problems and real innovations is often better – and not least, where there are burning platforms as incentives. Of course, we have seen so many notable examples around Covid-19 vaccines, testing and data sharing over the last few years. Most of these come not from the local 'Innovation Director' (we are seeing a growing number these posts in the NHS and in local government), but from partnerships of clinicians, managers, researchers and industry.

It is also important to consider the structure of the sector itself. In the private sector, much innovation comes from risk-taking start-ups and smaller SMEs, often scaled when larger corporates invest. In local government, innovations tend to come from individual local councils, rather than through national organisations and the relevant government department; and are then copied by others – with most improvement, recovery and innovation peer led through conversations with neighbours. At times, the NHS can be a very top-down structure in comparison. In this context, ICS could be a great opportunity – particularly when they bring together the rights sets of partners. Virtual Wards is an interesting example: NHS England has said they need to be in place; pharma, system suppliers, change consultants, are all trying diverse ways of putting them together, with the better ICSs leading the way in many areas. They put the patient firmly at the focus of the strategies that develop.

Professor Ben Bridgewater – CEO, Health Innovation Manchester

Scaling evidence-based innovation across the NHS continues to be a 'hard nut to crack.' Current challenges for the NHS as it recovers from Covid-19 are well documented and it seems obvious that just doing more of the same will not deliver the better population health outcomes, shorter waiting lists, more productive workforce and greater equity that is both a moral and economic imperative. We need to be more effective at innovation. Whilst Covid-19 has many terrible consequences, it has demonstrated that the UK can rapidly and effectively develop and deliver innovative diagnostics and treatments at population scale. If we can do this for Covid-19, why not for other problems?

Failure to scale innovation is not new and previous initiatives have attempted to provide solutions with some limited success. However, the introduction of ICSs gives real opportunity. In Greater Manchester (GM) we have been working as an integrated system since devolution in 2016 and recent introduction of new legislation should enable us to go further and faster. As one of the instruments of devolution, GM partners established Health Innovation Manchester (HInM) as an integrated academic health science and innovation system. Our current organisational form includes the academic health science centre, AHSN, the GM NIHR Applied Research Collaborative and the city region NHS digital transformation office. We have worked hard on integrating these structures into a unified operating model. We engage with industry and academia, the GM Health and Care system/economic development agencies and local authorities, to discover, develop and deploy innovation at pace and scale. The ICB is a key partner, but only one partner, in HInM.

The ICB has agreed that innovation is a key activity and we have accepted that alignment of priorities is essential to success. Of importance this includes alignment between national actors (NHS England, NIHR, Office for Life Sciences etc.), NHS regional structures and local agencies. It is striking how poor alignment of priorities can be at present.

To address this, we have conducted detailed discussion with the ICB and its constituent parts on innovation and agreed that we settle on a relatively small number of innovation priority activities each year (possible up to six). These activities should deliver significant outcomes and impacts within 12 months but be achievable within the context of a system which is working so hard to deliver business as usual. Essential in this is co-creation from the start with clinical, institutional and citizen engagement.

The priorities we are developing are for innovation projects which need to specifically address prioritised problems. Transforming cardiovascular outcomes would not be an innovation project in this context, it would be a priority problem to address – introducing a novel medication into the cardiovascular disease (CVD) pathway could be one priority innovation activity. It is also useful to note these innovation activities are not quality improvement activities, nor introduction of standard models of working. These nuances in definition are important.

We have co-created a series of criteria with the GM system to support decision making – innovation activities should:

I. Improve the efficiency and/or effectiveness of health and care services

II. Address inequalities and improve population health outcomes

III. Have a clear evidence base with demonstrable social, economic or fiscal outcomes and understanding of 'total cost of deployment' of the innovation

IV. Be deliverable at scale with minimal/manageable disruption of the existing healthcare delivery operating model

V. We must be able to monitor progress and impact against key performance indicators and have defined critical success factors and effective risk/performance management.

We are currently in the process of agreeing/refining these criteria with relevant actors across GM and we will then prepare a shortlist of candidate innovations for presentation to the GM ICB decision making structures for signoff next year, with clear attribution of ongoing responsibilities.

However, there are two other critical bits of the jigsaw here.

The first is method – people, processes, culture, tools and technology are all critical in the method for adoption of innovation at scale. Processes need to be agile and include co-creation with absolute clarity on project timescales, scope, budget and deliverables. Many innovations will come from industry and so the culture must be industry friendly. The tools we apply in our organisation are state of the art project management and data visualisation tools and we have invested heavily in this. Technology underpins everything. This leaves us with people. As always, this is the critical bit and the right human capacity and capability working effectively and efficiently in a supportive organisational form is key. People and culture are the biggest drivers of change but can also be the biggest obstacle.

The final critical piece is the interface between those who develop innovation (industry, academia etc.) and those who commission and deliver care. This part of the landscape needs investment, development and holding to account every bit as much as other bits of the innovation ecosystem.

Case Studies

Health Technology Wales: continuous glucose monitoring

Context

As a prevalent and long-term condition, Diabetes is a key therapeutic area for the NHS. Innovative solutions to uphold treatment and care for the condition are vital as the NHS deals with increased pressure following the pandemic. Commissioned by the Welsh Government and the NHS Wales National Clinical Lead for Diabetes, Health Technology Wales appraised evidence on the effectiveness of using continuous glucose monitoring technology to monitor the condition of pregnant women with type 1 diabetes[9].

Intervention

In 2020, Health Technology Wales consulted with a wide range of stakeholders during their evidence review, including diabetes specialists, diabetologists and academic researchers. The manufacturers of the glucose monitoring devices and patient groups also formed a key part of the evidence review in assessing the effectiveness of the health technology. The monitoring technology provides an alternative to the self-monitoring of blood glucose by patients.

Benefits

Health Technology Wales found the implementation of the glucose monitoring technology resulted in better control of blood sugar levels and reduces the rate of complications linked to diabetes in pregnancy. Through collaborating with a wide range of relevant stakeholders, the health benefits of the innovation were clear alongside the financial saving of avoiding complications through better condition management. Health Technology Wales concluded that if the glucose monitoring technology for type 1 diabetic mothers achieved a 50 percent uptake, NHS Wales could save up to £1,029 per pregnancy.

Relation to recommendations

The clear benefits of adopting health technologies highlights the opportunity for innovations to improve population health and reduce the financial burden of treatment and care. Without a comprehensive reimbursement pathway to adopt technologies at scale, heath innovations will fail to achieve the potential benefits for patients across the country.

[9]Health Technology Wales, 2020. Continuous Glucose Monitoring [online] Available at: https://healthtechnology.wales/case-study-cgm/

Healthcare Science Apprenticeships Career Pathways: University Hospital Southampton

Context

University Hospital Southampton NHS Foundation Trust offers a wide range of laboratory and pathology services, employing 180 Healthcare Science Staff to undertake this work. In 2021, the service undertook over 6.2 million clinical laboratory requests to help the diagnosis, monitoring and treatment of a broad range of conditions and diseases.

To meet the high demand, there was a need to ensure all healthcare science staff were fully trained and competent, and for them to be offered a career pathway once they were employed in laboratory roles[10]. Training courses are expensive and funding for education required for progression was limited. There were limited courses available at the correct level and specifically for Healthcare Science.

The Trust were not able to 'grow your own' Healthcare Scientists or support keen and capable staff to progress to more senior roles, which the service required. In turn this lack of opportunity and progression led to staff attrition.

Intervention

The Trust has taken advantage of apprenticeships to support staff progression. The development of new apprenticeship standards in recent years, which are offered from entry levels 1 and 2 through to degree and post graduate level, has gathered momentum. As the Trust, like all large employers, has to pay an Apprenticeship Levy it makes economically viable to utilise these routes to fund training and qualifications and engage local FE Colleges and universities to help invest in and develop staff.

Currently, the Trust is trying to implement apprenticeship programmes to train a backlog of their existing employees who are keen to progress and could not otherwise access expensive qualifications to meet their career goals and the service staffing needs. However, as apprentices need to spend 20% of their time training 'off the job', there is a challenge around back-fill and funding which limits the number of apprentices that can be supported.

Benefits

The Trust has seen staff progress from levels 2,3 and 4 via apprenticeships to move forward in their careers and fill the Assistant Practitioner roles. Some of these staff will go on to do the level 6 Healthcare Science Practitioner Degree Apprenticeship, which is offered by Westminster University to develop as a Band 5 Biomedical Scientist- the portfolio of evidence required for Health and Care Profession Council (HCPC) registration is embedded in the programme.

The Trust reports a gradual change in the approach from managers. They have always understood the importance of training and qualifications particularly in laboratories where staff need to be taught how to undertake a task to a high standard but have only more recently come to realise how important career progression is to staff and ultimately the service. Apprenticeships offer a route to gain qualifications and ultimately support the opportunity for career progression which is important to staff and in turn supports the service.

Relation to recommendations

The apprenticeship pathway is an innovative approach to widening healthcare science skills across the workforce, ensuring the laboratory demands of the Trust are met. Ensuring clinicians expand their knowledge and gain skills relevant to the life science sector, such as a Clinical Fellows scheme, would foster a more collaborative relationship between the NHS and industry.

[10]Health Education England South East, 2021. Healthcare Science Apprenticeship Career Pathways. [online] Available at: https://wessex.hee.nhs.uk/wider-workforce/cancer/11-cancer-and-diagnostics-careers-a-helpful-resource-guide/06-case-study-healthcare-science-apprenticeship-career-pathways/

Scaling Recommendations

The Commission believes the UK has an outstanding record in discovery and translational science, but that too often innovation gets "stuck" and fails to achieve national scale. That requires a set of actions at local and national levels to make sure the NHS make the most of new therapies, devices, diagnostic tools and digital health technologies. The recommendations include: **(indicates priority recommendation)**

- **NHS England should design a comprehensive reimbursement pathway for digital health technologies, similar to that for medicines, for implementation before the end of the next Parliament. This should have a tiered approach to assessment, based on risk, and a clear link between assessment and reimbursement.**
- The NHS England Medical Director, working with NHS Chief Professional Officers, should work with the ABPI to develop a Clinical Fellows in Industry scheme offering clinicians the opportunity to be seconded to life sciences and health tech companies for a year, sharing skills and expanding knowledge, with a reciprocal 'industry into the NHS' pathway.
- The NHS should design and implement a 'change model' for innovation that invests in building quality improvement capacity with a focus on redesigning processes and pathways to support the implementation of innovation. The Life Sciences sector should support the development of this "engineering mindset" capacity and capability through joint working and via local AHSNs.
- The DHSC MedTech Directorate should publish a strategy to drive uptake and scaling of medtech innovation within the next 6 months. Medical technologies that are demonstrated by NICE to be cost-saving should receive automatic reimbursement support from NHS England.
- NHS England should develop a medical device formulary, broken down by disease area, through which commissioners and clinicians can access a product summary. Development should be done by a committee drawn from regulatory and HTA bodies, national and regional NHS organisations, clinical directors and the third sector, including patient representatives. A pilot disease area should be agreed and completed within 12 months.

Recommendation	Responsible Body	Completion Timeline
Reimbursement Pathway	**DHSC**	**End of next Parliament**
Clinical Fellows Scheme	**NHSE**	**End of this Parliament**
Quality Improvement Capacity	**ICBs**	**April 2024**
Med Tech Uptake Strategy	**DHSC**	**Within 6 months**

Conclusion

The NHS Innovation and Life Sciences Commission's 2022 report has aimed to outline the policy landscape of health innovation and identify priority areas that the UK must address to achieve greater health outcomes and a robust life sciences sector.

Through the thought leadership of experts across the NHS and life sciences ecosystem, the commission has been granted insights into the areas of health data, integration, clinical research and scaling. The aim to implement these recommendations will continue through utilising real-world data and examples of best practice to scale nationally.

The commission looks forward to working with colleagues and relevant bodies to implement the recommendations set out in the four areas of inquiry.

In 2023, the commission will appraise the progress of the recommendations and continue to evaluate the real-world context of population health and gain further case studies to highlight good practice. Further inquiries will be held on specific therapeutic areas including a dedicated neurodegenerative diseases commission and inquiries including oncology, rare diseases and women's health. The commission seeks to utilise the inquiry areas this year to find pragmatic, implementable solutions to specific patient populations, improving health outcomes and reducing inequalities.

To access our online library of case studies and full recommendation implementation plan, please scan our QR code below:

About Us

Independent, cross-party and not-for-profit, as a policy institute Curia turns policy into practice as the UK's first "do tank". Curia hosts four commissions including NHS Innovation and Life Sciences, Levelling Up, ED&I and Education. Curia provides evidence-based consultancy services, due diligence and socio-economic and environmental analysis. Commissions share best practice through partner publishing and broadcasting agency Chamber UK.

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