

# The role of data and digital in reducing healthcare inequalities



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**BMJ Future Health Conference**  
**November 2024.**

**The role of data & digital in  
reducing health inequalities.**

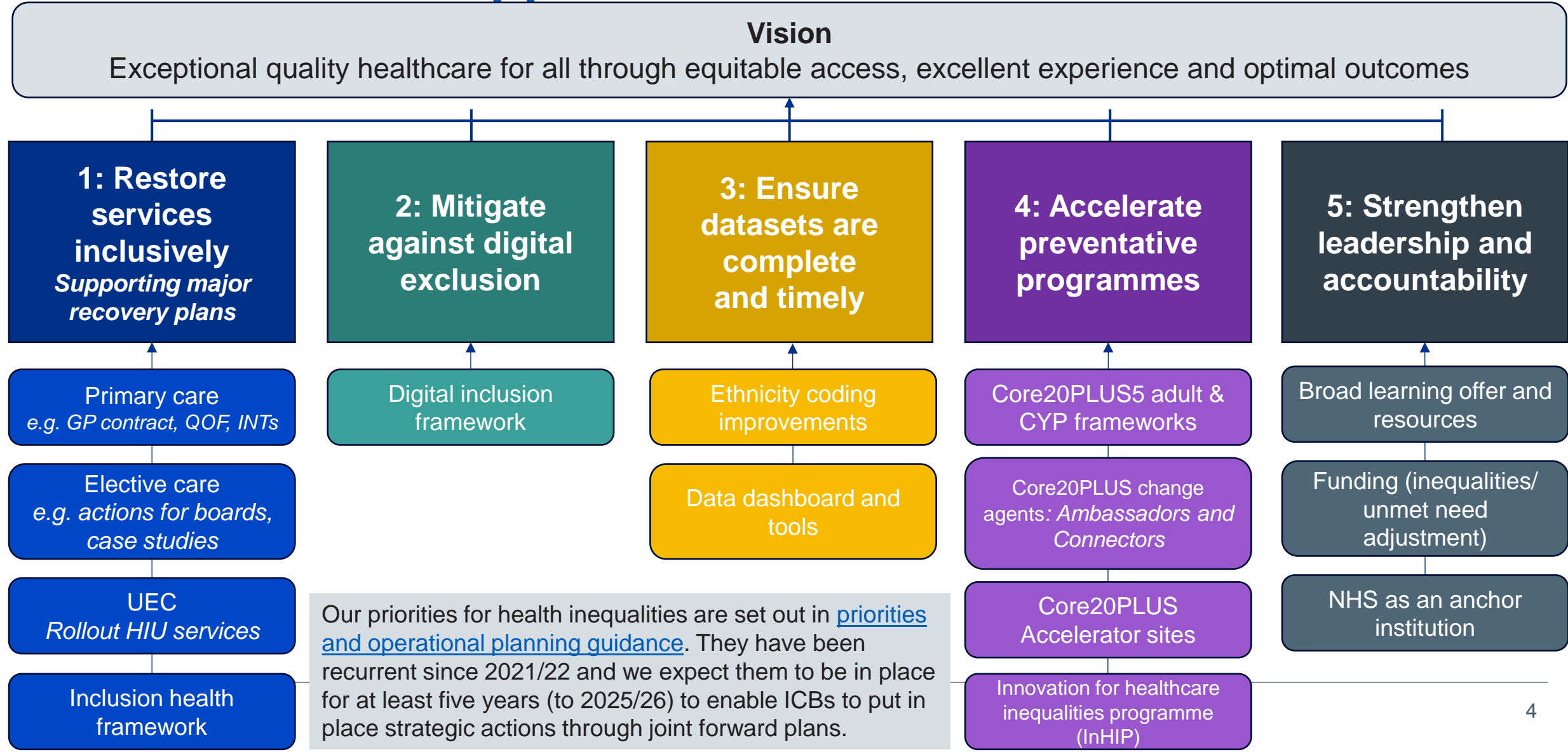
# Our vision to is achieve exceptional quality healthcare for all through equitable access, excellent experience and optimal outcomes

To do this, we need to make several cultural shifts among NHS leaders.

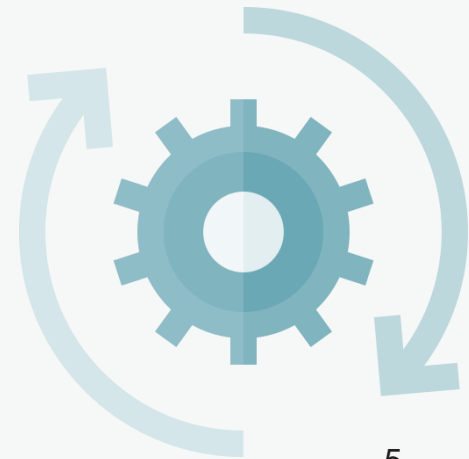


Shift from	Move to
Health inequalities on the 'too difficult' pile; believing change is someone else's responsibility	Focusing on the things we can do within our spheres of influence Identifying practical steps we can all take in our work
Tick box, late-stage consideration of inequalities issues	Ongoing, proactive consideration of inequalities throughout programmes of work, particularly when faced with choices or decisions
Only describing the problem	Creating solutions through innovation and quality improvement
General statements of ambition	Explicit strategies, action plans and deliverables; demonstrable impact

# To support our vision, we have set five strategic priorities with associated support and initiatives



# Context and case for change



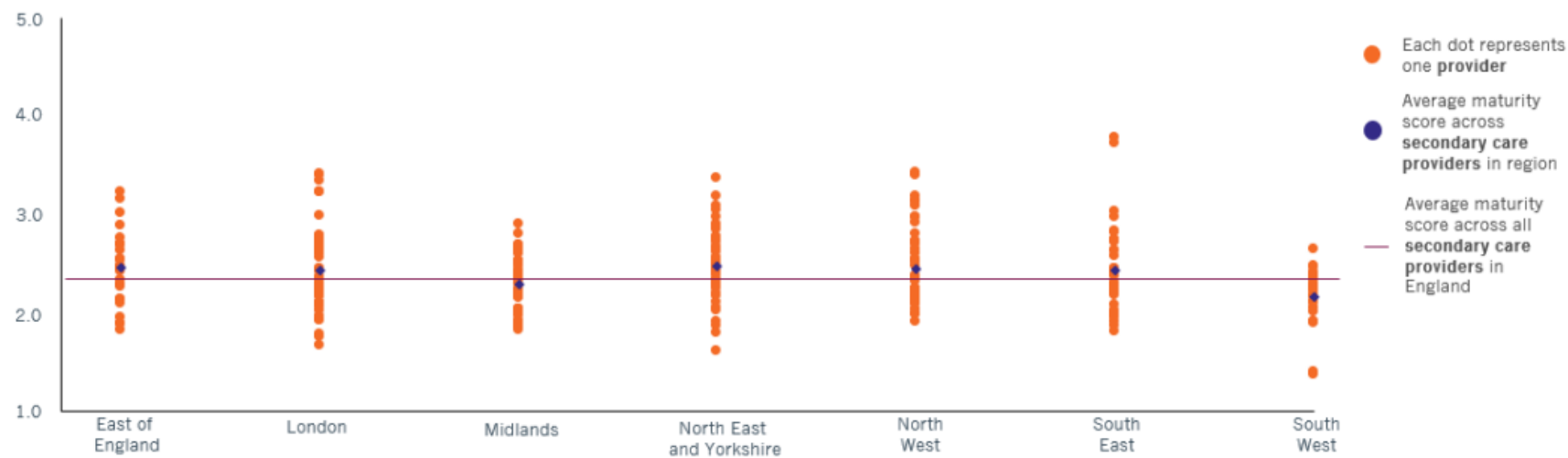
# Lord Darzi Independent Investigation of the NHS

## *“Tilt towards technology:*

*There must be a major tilt towards technology to unlock productivity. In particular, the hundreds of thousands of NHS staff working outside hospitals urgently need the benefits of digital systems. There is enormous potential in AI to transform care and for life sciences breakthroughs to create new treatments.”*

**Digital maturity is still low across much of the NHS.**

Figure V.3.5: Digital Maturity Assessment secondary care provider scores (out of 5)



# Research regarding the case for change



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## Health inequalities in 2040

### Current and projected patterns of illness by deprivation in England

April 2024

About 1 mins to read

[Ann Raymond](#) | [Toby Watt](#) | [Hannah Rose Douglas](#) | [Anna Head](#) | [Chris Kypridemos](#) | [Laurie Ratchet-Jacquet](#)

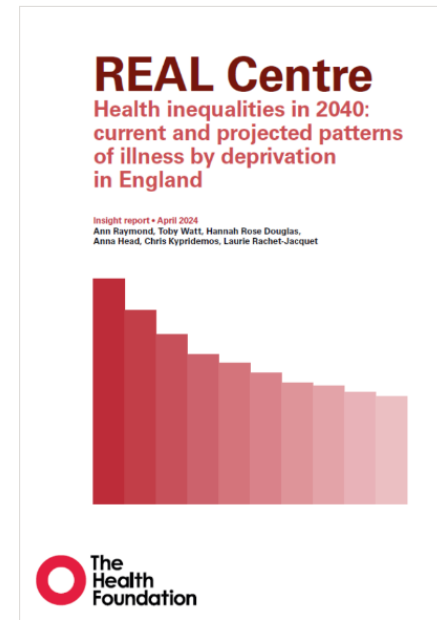
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# The people cost of healthcare inequalities... ...the pandemic has exacerbated inequalities

**Disproportionate deaths from COVID-19** between those living in the most deprived areas and those living in the least deprived areas.

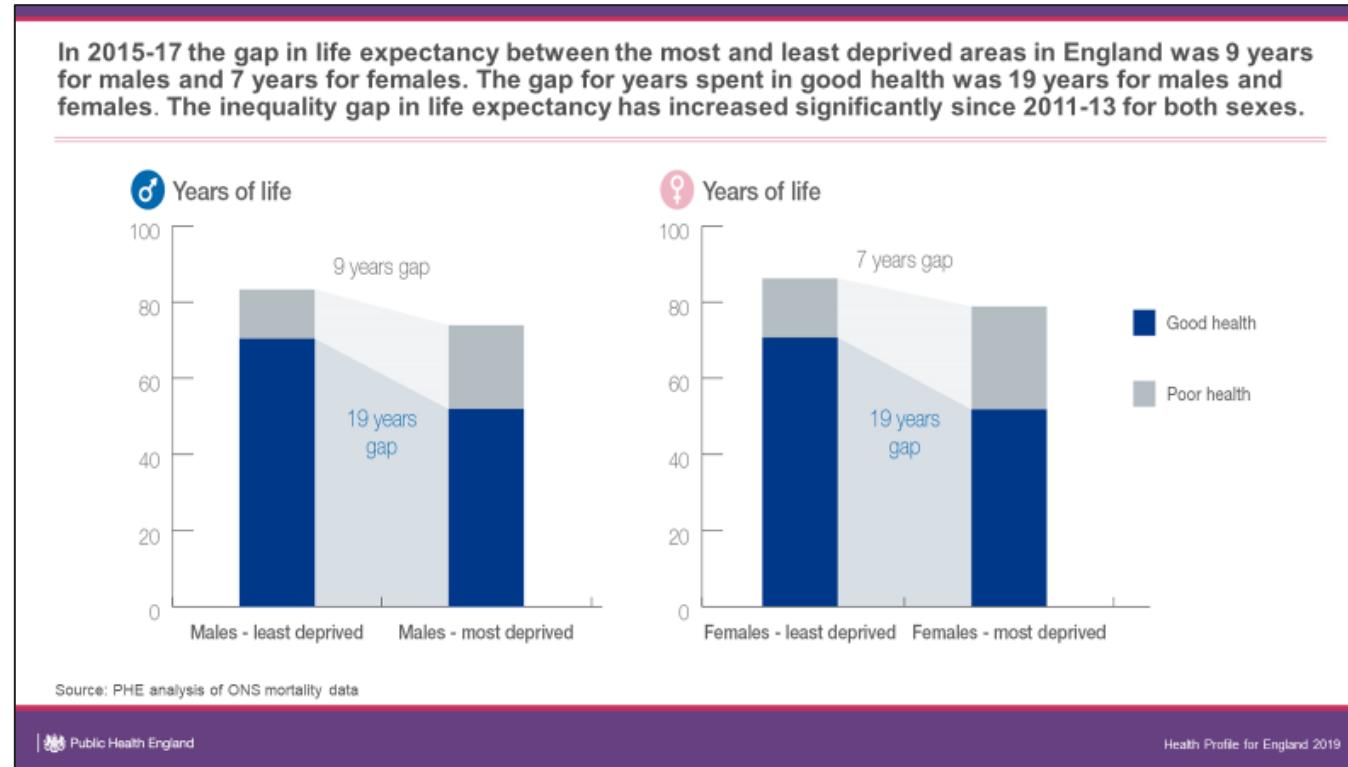
People in more **deprived areas** spend more of their shorter lives in ill health than those in the least deprived areas.

Recurrent **hospital admissions** (for acute exacerbations of chronic respiratory disease) are more prevalent in more deprived neighbourhoods.

**Social isolation** and loneliness are associated with a **30% increased risk of heart disease and stroke**

**Economic disadvantage** is strongly associated with the prevalence of **smoking, obesity, diabetes, hypertension**

Living in **poverty** in early childhood can have **damaging consequences for long-term health**



For women in the most deprived areas of England, **life expectancy** fell between 2010 and 2019

In the areas of England with the lowest healthy life expectancy, **more than a third of 25 to 64 year olds** are economically inactive due to long-term sickness or disability



# A business case for tackling healthcare inequalities

Increased NHS treatment costs

- > £5 billion

Losses from illness associated with health inequalities

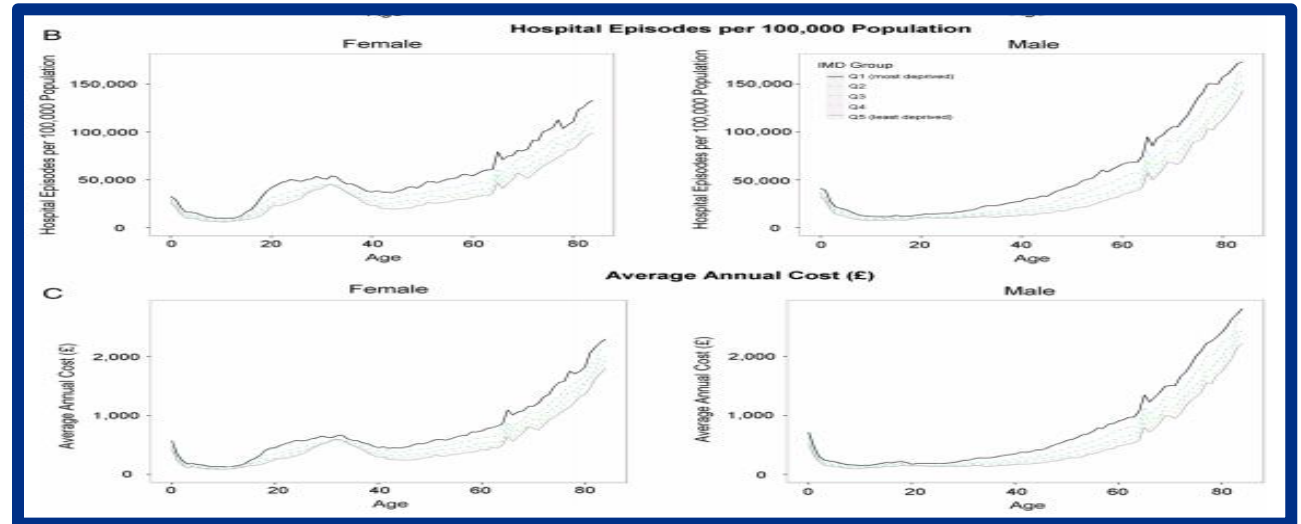
Productivity losses

- £31 billion - £33 billion

Reduced tax revenue and higher welfare payments

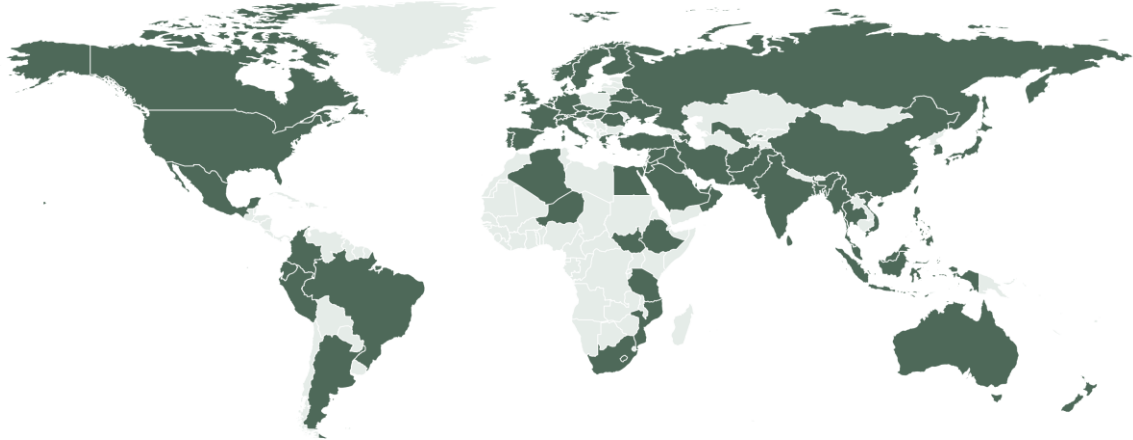
- £20-£32 billion


People from the most deprived areas have a lower life expectancy compared to those in more affluent areas, yet the per capita cost of healthcare due to emergency admissions, LTCs, prolonged LOS & spend on healthcare is higher for those from more deprived areas



Fair Society, Healthy Lives The Marmot Review of Health inequalities in England post 2010 - PowerPoint PPT Presentation  
[https://www.slideserve.com/daniel\\_millan/fair-society](https://www.slideserve.com/daniel_millan/fair-society)

# Gaps in Global Health Data

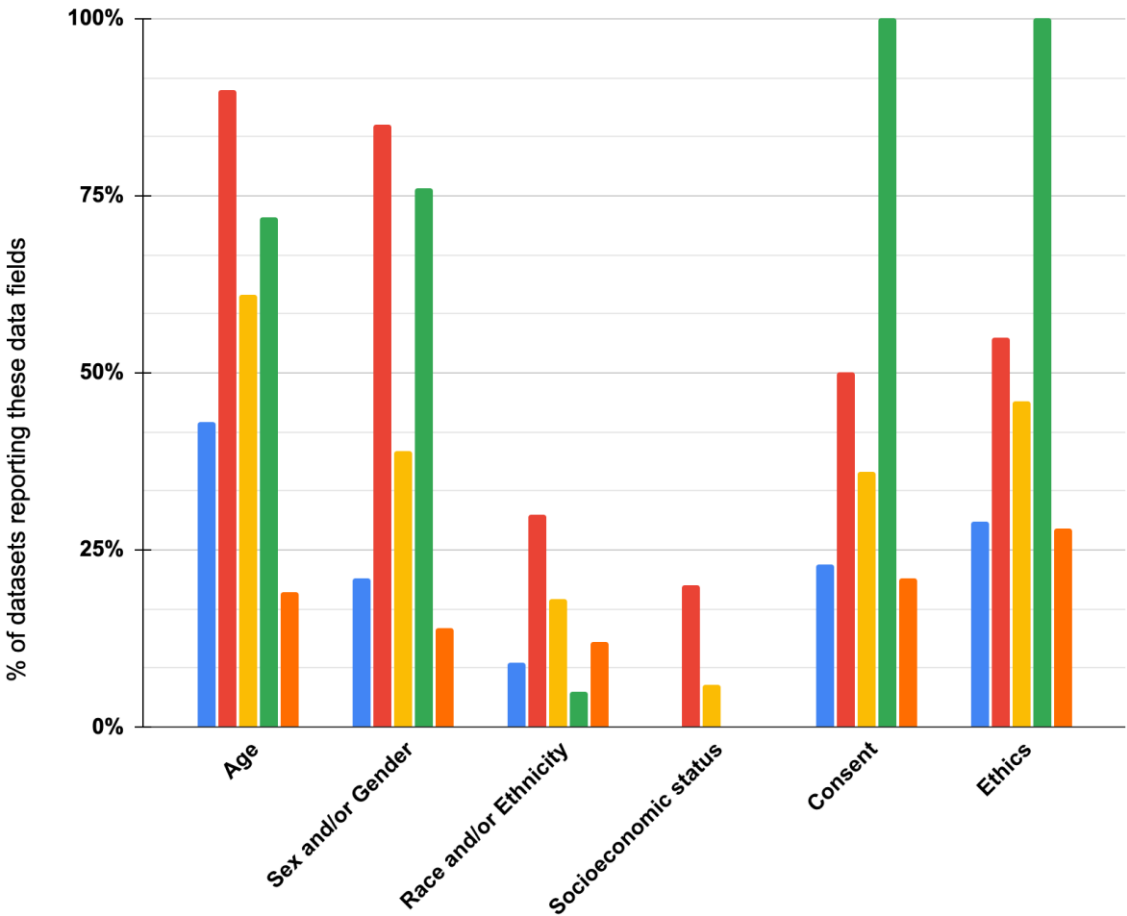


 Countries / territories consistently not represented in healthcare datasets

Alderman JE, Laws E, Palmer J et al. Machine Learning for Healthcare, 2024. Adapted from: Khan et al (The Lancet Digital Health, 2021), Wen et al (The Lancet Digital Health, 2022), Alderman et al (The Lancet Digital Health, in press), Laws et al (submitted for peer review), and Laws et al (unpublished).

With thanks to Dr Elinor Laws, Dr Xiao Liu, Professor Alastair Denniston, Dr Joe Alderman, Dr Jo Palmer and Jaspreet Gill from **Standing Together** for their work on the AI Health Data Landscape.

■ Covid 19 (%) n=119 
 ■ Heart Failure (%) n=20 
 ■ Mammography (%) n=28 
 ■ Skin Cancer (%) n=21 
 ■ Ophthalmology (%) n=94



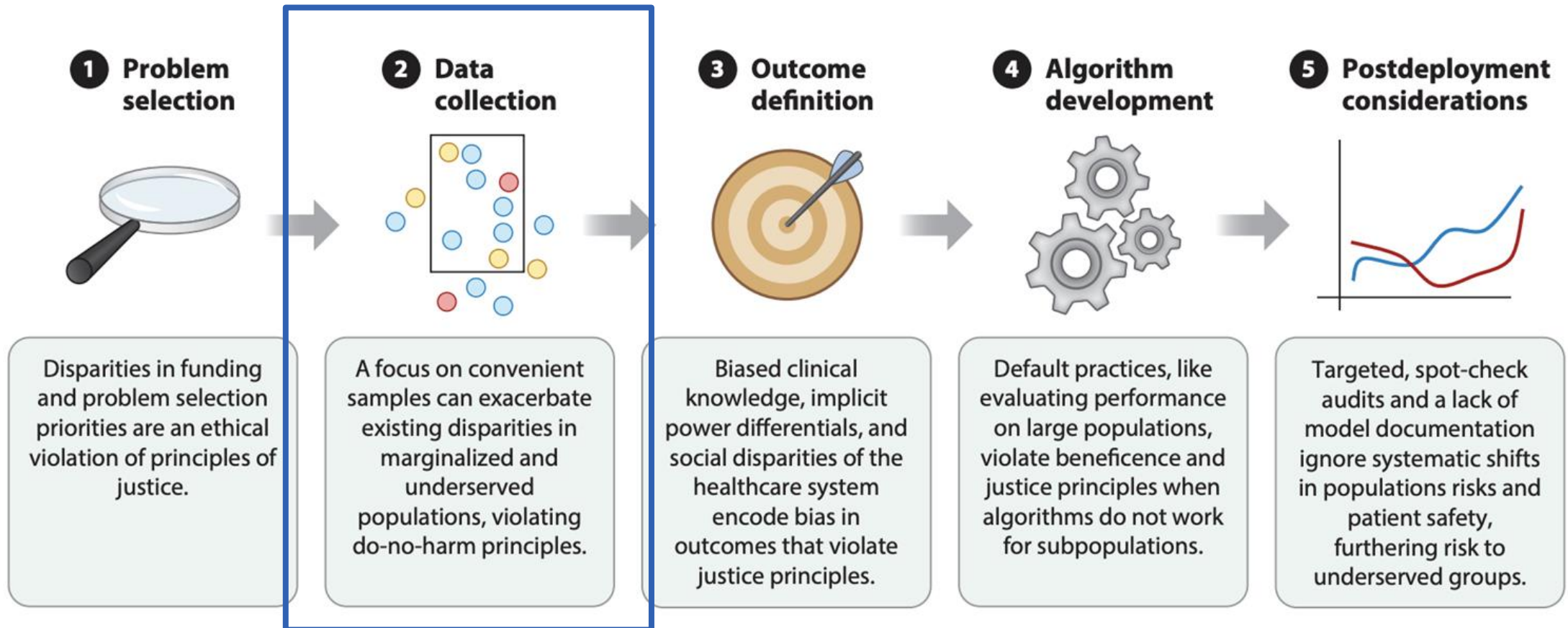
# Algorithmic bias can arise from any step of the AI lifecycle

STANDING  
Together



*Annual Review of Biomedical Data Science*  
Ethical Machine Learning  
in Healthcare

Irene Y. Chen,<sup>1</sup> Emma Pierson,<sup>2</sup> Sherri Rose,<sup>3</sup>  
Shalmali Joshi,<sup>4</sup> Kadija Ferryman,<sup>5</sup>  
and Marzyeh Ghassemi<sup>1,6</sup>



# With Thanks to...



**Dr Xiao Liu**

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Birmingham NHS  
Foundation Trust &  
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Birmingham, UK



**Professor  
Alastair Denniston**

University Hospitals  
Birmingham NHS  
Foundation Trust &  
University of  
Birmingham, UK



**Dr Joe Alderman**

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Birmingham NHS  
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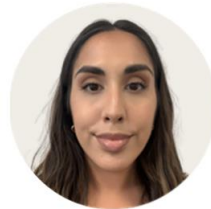
**Dr Jo Palmer**

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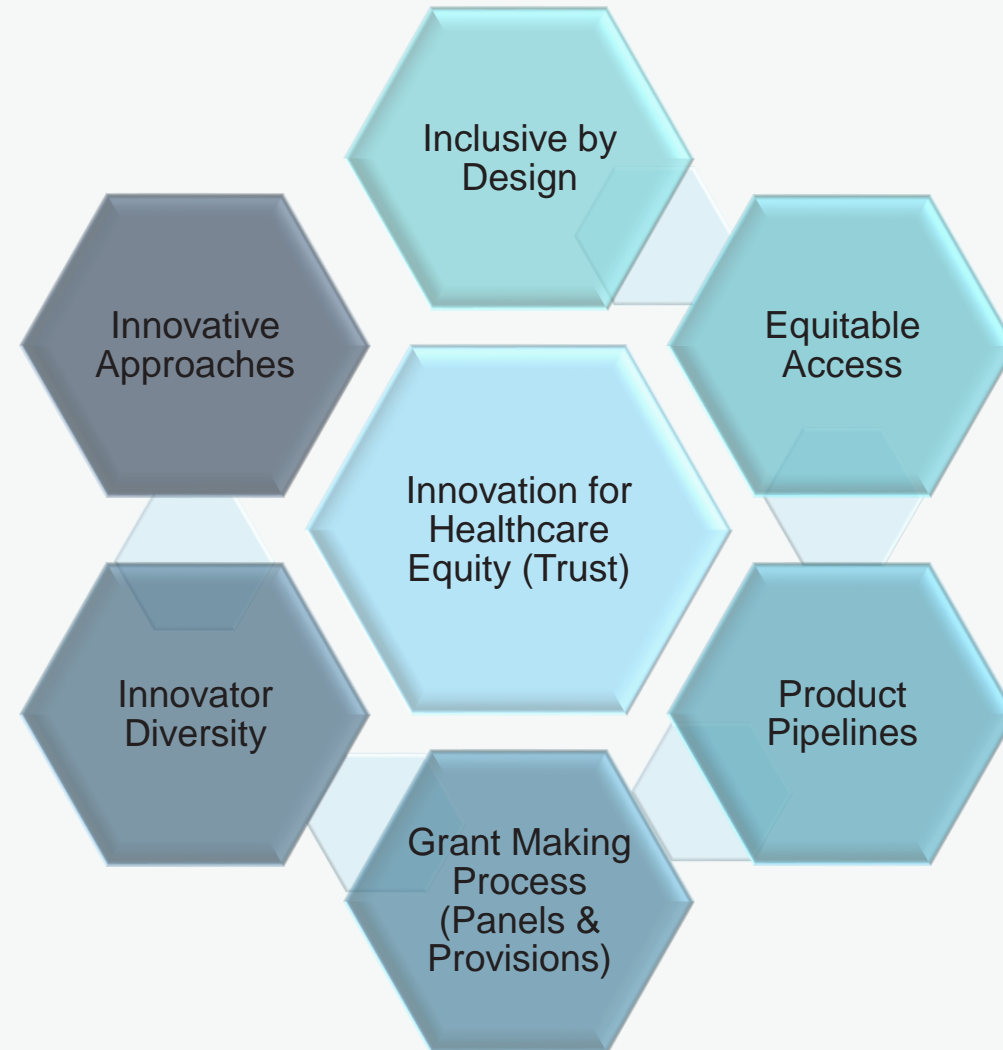
[www.datadiversity.org](http://www.datadiversity.org)



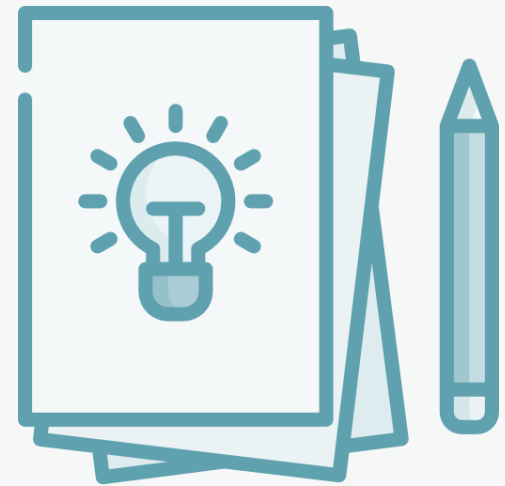
# Narrowing Healthcare Inequalities - Data



# Narrowing Healthcare Inequalities - Innovation



# Creating change

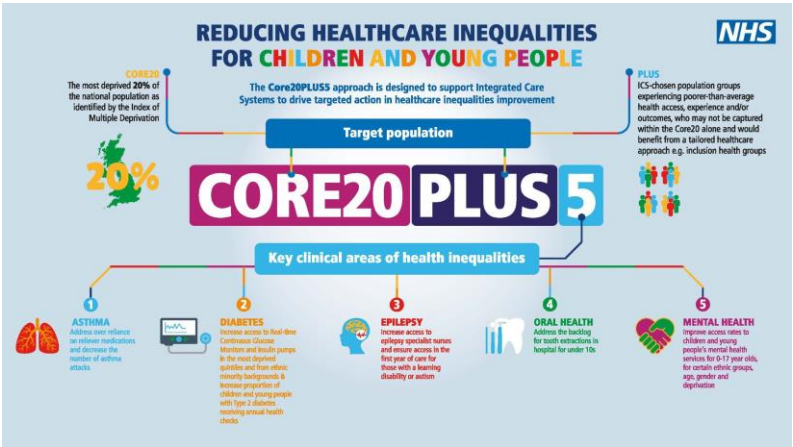
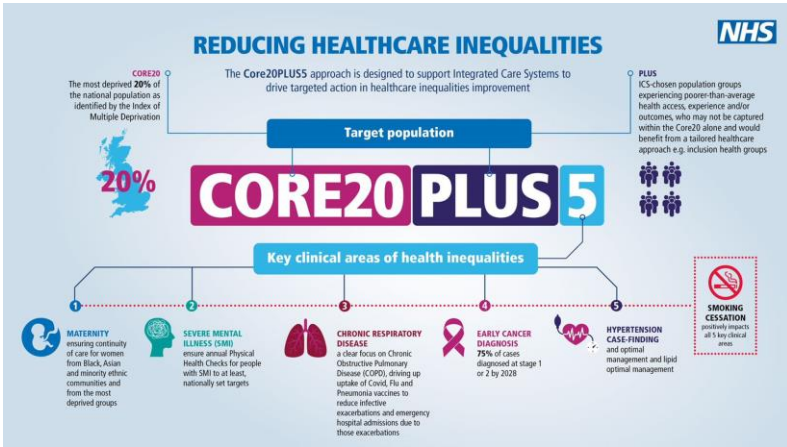


# The Core20PLUS5 approach

**Core20PLUS5 adults:** We introduced the **Core20PLUS5** as a framework to support systems to focus on clinical priorities where the NHS can address the social gradient in the most common cause of death, and stark inequalities faced by other groups.

**Core20PLUS5 children and young people:** Similarly focuses on inequalities in disease areas where the NHS can make a specific contribution that will complement the work of wider partners

**Core20PLUS5 ecosystem**  
The Core20PLUS5 approach is supported by people – both professionals and those with lived experience – appointed to help to encourage change





# Purpose of the digital inclusion framework

The [framework](#) is designed to help NHS staff enable and encourage **greater access to and improved experience** of healthcare, and increased adoption of digital approaches where appropriate.

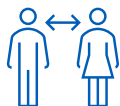
Recognising that:



Digital inclusion is a whole-of-society issue, requiring collaboration at different levels and across sectors



It is essential that the NHS maintains non-digital healthcare and access routes to complement digital offerings



User-centred or human centred design is essential for development of great, inclusive digital approaches

# Five domains for action

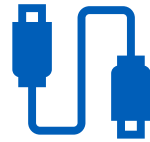
The rapid adoption of digital technologies in healthcare is reshaping service delivery. In 2021, 10 million more people used NHS websites or apps compared to 2020. However, **access** to these benefits is **not universal**.

Ensure all populations, especially vulnerable groups, can access and benefit from digital health services.

Actions for **all NHS staff** that contribute to commissioning or the design of digitally enabled services

Actions for **senior leaders at ICS, PCN and provider level**

Actions for **senior leaders in national or regional programmes** and functions



Access to devices and data

e.g., provision of data enabled devices working with partners



Accessibility and ease of using technology

e.g., follow tips in [Creating a highly usable and accessible GP website for patients](#)



Skills and capability

e.g., develop of tools/scripts or support to enable NHS staff to explain the purpose and benefits of tech



Beliefs and trust

e.g., promote use of lower-risk transactional appointments to try-out digital services

Supported by:



Leadership and partnerships

e.g., join up between health inequalities and digital transformation leads, develop digital inclusion strategy or a section within digital strategies

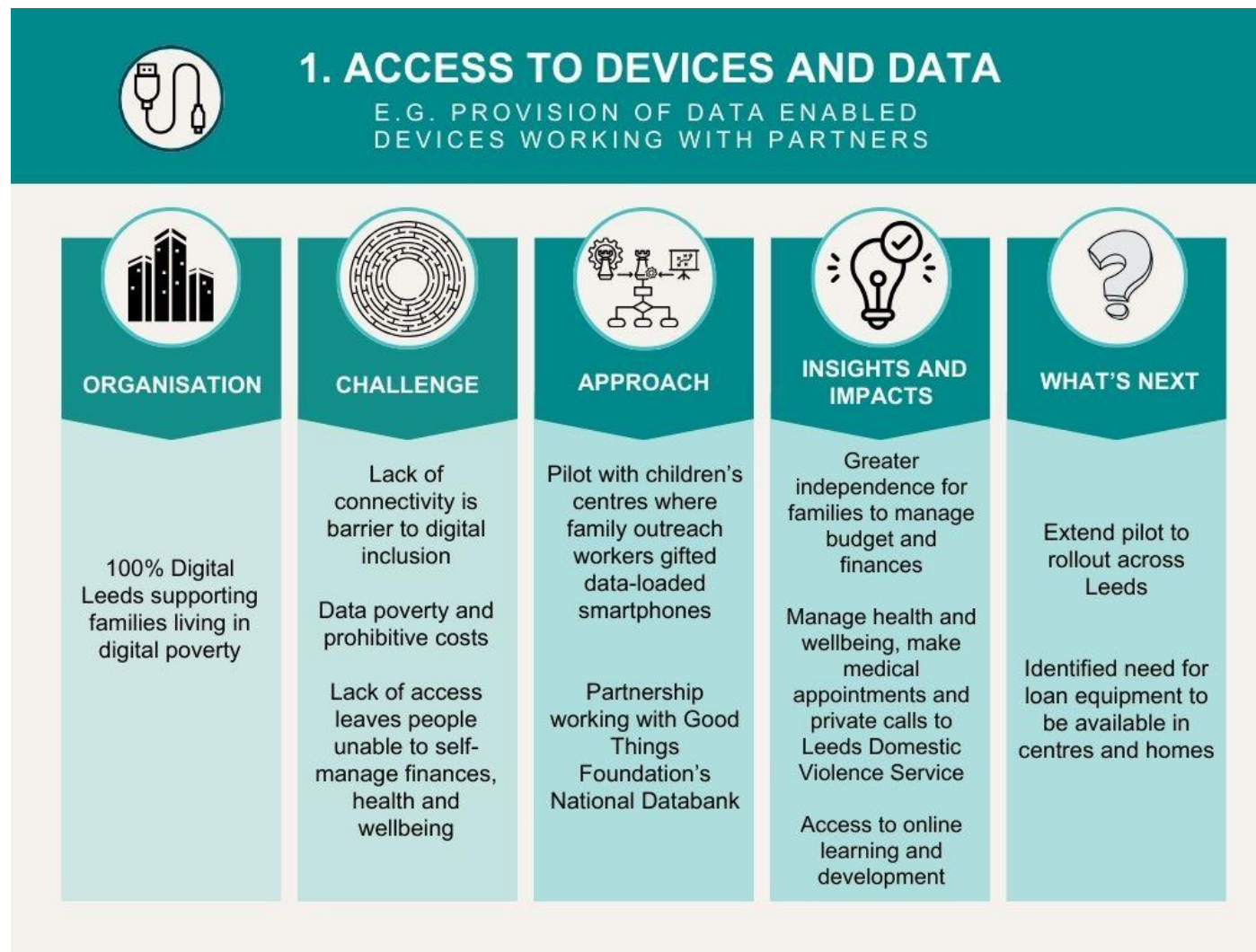
Among the public and staff

# Story bank for NHS action on digital inclusion framework

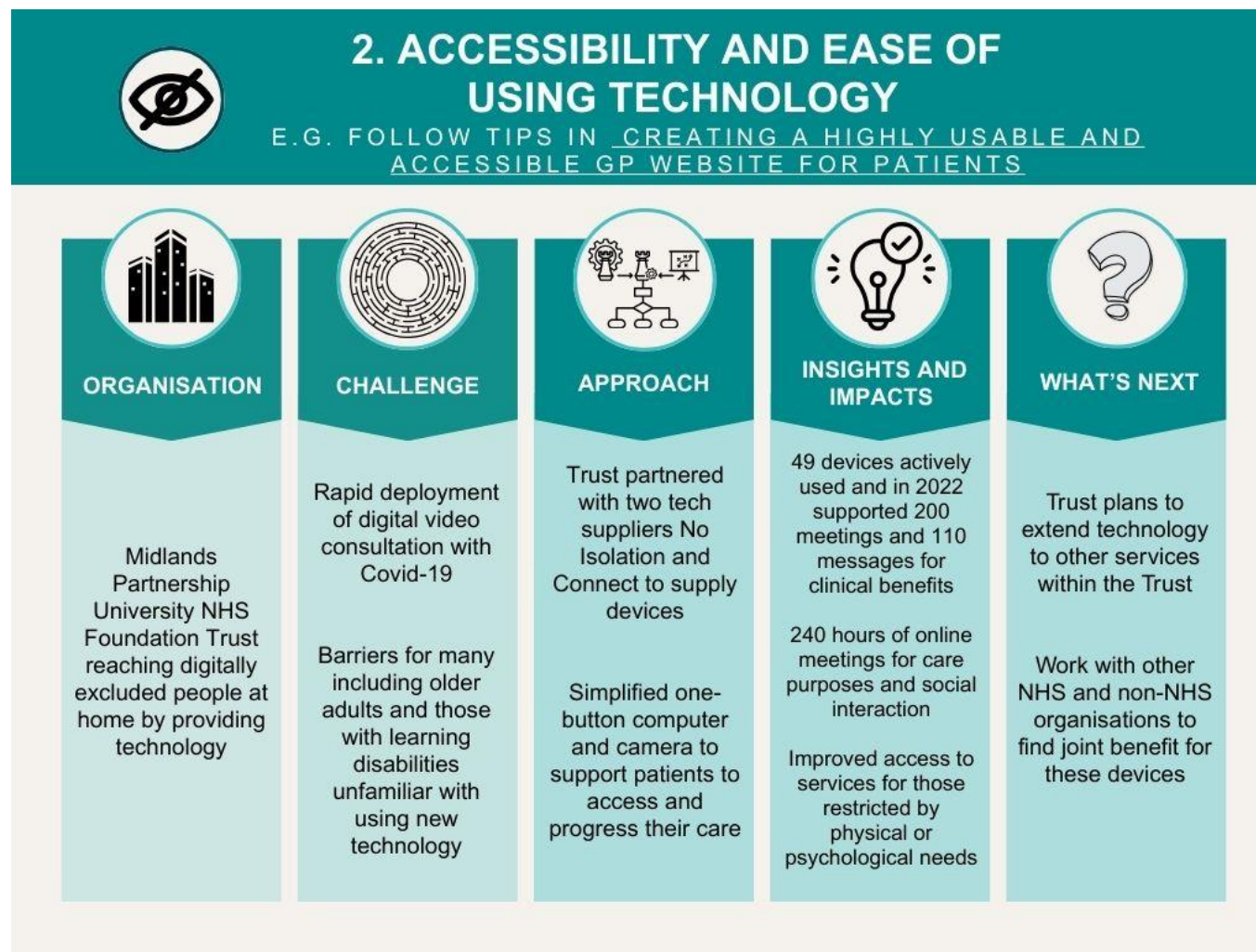
The framework identifies five domains where action is needed:

1. access to devices and data
2. accessibility and ease of using technology
3. skills and capability
4. beliefs and trust
5. leadership and partnerships


# 1. Access to devices and data



## 2. Accessibility and ease of using technology








# 3. Skills and capability




### 3. SKILLS AND CAPABILITY

E.G., DEVELOP OF TOOLS/ SCRIPTS OR SUPPORT TO ENABLE NHS STAFF TO EXPLAIN THE PURPOSE AND BENEFITS OF TECH






 ORGANISATION	 CHALLENGE	 APPROACH	 INSIGHTS AND IMPACTS	 WHAT'S NEXT
Good Things Foundation helping people use online health services through 'Learn My Way' bite-sized courses	Many lack confidence to use online services like NHS 111, NHS App or GP online access  Literacy, language, income, age, disability and limited access are just some of the barriers	Community settings working with Digital Champion staff and volunteers to support with access and skills  Free training and meet-ups provided through the Foundation's National Digital Inclusion Network	Almost 100,00 people have used Learn My Way to improve digital skills  Over 2400 Digital Inclusion Hubs use or deliver sessions through Learn My Way  95% of Learn My Way users feel more digital able and safe  96% of Learn My Way users feel happier and better off	Growing the National Digital Inclusion Network working with local medical practices, charities, libraries and community-based organisations  Providing resources like Learn My Way alongside devices and data

# 4. Beliefs and trust




## 4. BELIEFS AND TRUST

E.G., PROMOTE USE OF LOWER-RISK TRANSACTIONAL APPOINTMENTS TO TRY-OUT DIGITAL SERVICES






 ORGANISATION	 CHALLENGE	 APPROACH	 INSIGHTS AND IMPACTS	 WHAT'S NEXT
Sus-IT funded by all five UK Research Councils encouraging belief and trust in technology among older people	<p>Some older people find it hard to start using digital technologies</p> <p>Lack of support, difficult technical jargon and poorly designed hardware and software</p> <p>Physical challenges including dexterity, mobility, lack of confidence</p>	<p>50+ Older People's Forum in Long Eaton built trust to encourage IT use</p> <p>Drop-in service linked to topics selected by users combined with social activities</p> <p>Training delivered by Forum peers on smartphones, digital photography, online shopping, booking travel</p>	<p>Long Eaton group has seen continued take-up and use of their service</p> <p>A 'good' day will see 20 visitors seeking support</p> <p>Evidence has informed a well-developed proposition for socially embedded IT support</p>	<p>Work on exploring and understanding user needs</p> <p>Work with local councils, business, schools and partners for help and support</p>

# 5. Leadership and partnerships



## 5. LEADERSHIP AND PARTNERSHIPS

E.G. JOIN UP BETWEEN HEALTH INEQUALITIES AND DIGITAL TRANSFORMATION LEADS, DEVELOP DIGITAL INCLUSION STRATEGY OR A SECTION WITHIN DIGITAL STRATEGIES

 ORGANISATION	 CHALLENGE	 APPROACH	 INSIGHTS AND IMPACTS	 WHAT'S NEXT
Cheshire and Merseyside ICB using a heatmapping tool to identify digitally excluded hotspots across Cheshire and Merseyside	Provide 150 personal computers to residents, on a fair share basis, to support digital access  Identifying those living in digital poverty and where they live	Working group across different systems shared data and intelligence with Thrive by Design partner to co-produce virtual, interactive, digital exclusion heatmapping tool	Heatmap tool developed in six months in 2022 and supports projects and further research into barriers to digital inclusion  Cheshire and Merseyside since collaborated with VOLA to research and map community digital inclusion activities by layering this data on existing information to help target resources	Deliver a campaign to improve digital adoption including use of the NHS app  Use the heatmapping tool to build trust and confidence amongst digitally excluded groups



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## Thank You



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