NEWCASTLE HEALTH INNOVATION PARTNERS

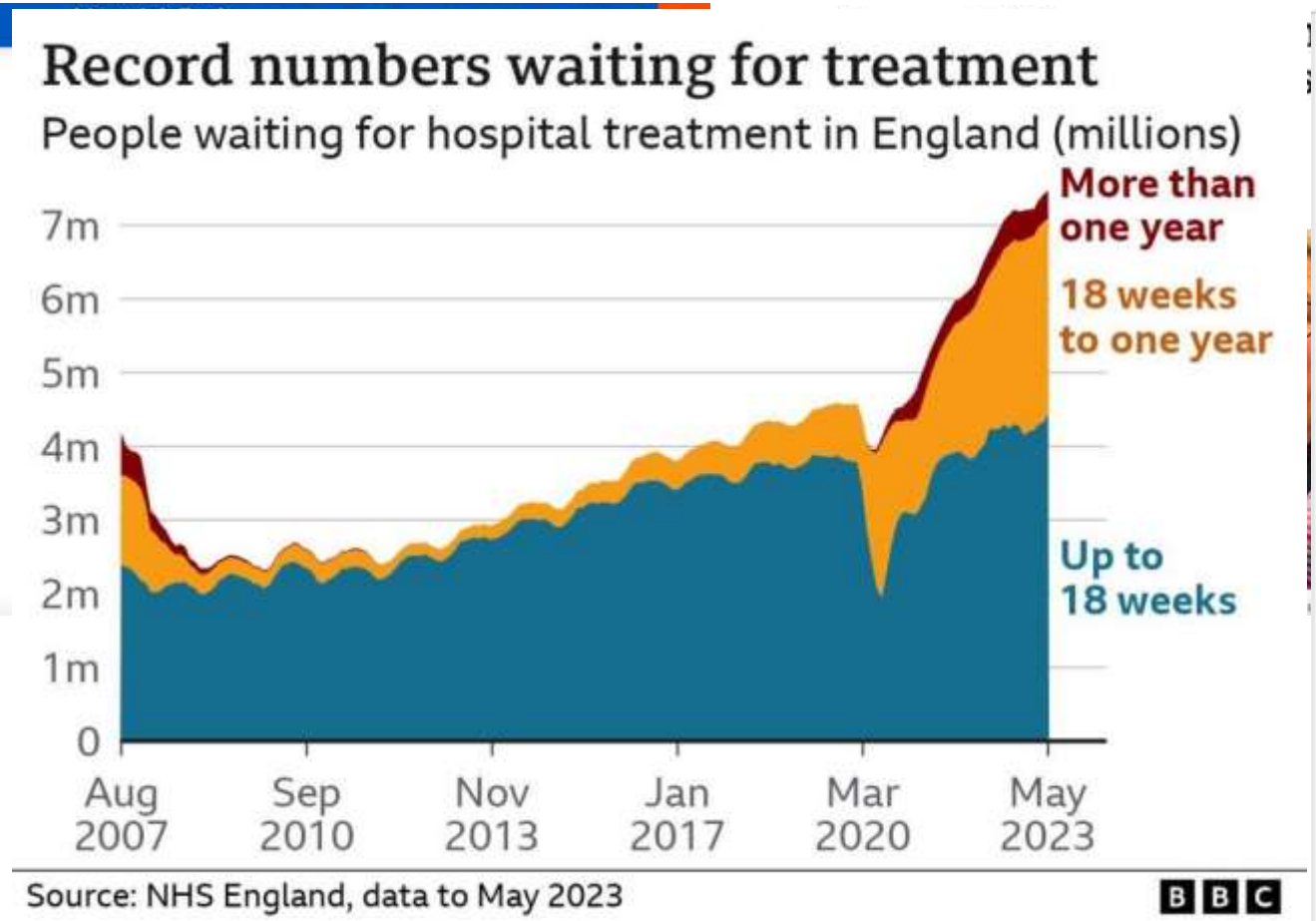
DISCOVER. DEVELOP. DELIVER

AHSS Impact: The Newcastle Experience

David J Burn, Director NHIP

Newcastle University | Academic Health Science Network North East and North Cumbria | Newcastle City Council | NHS The Newcastle upon Tyne Hospitals NHS Foundation Trust | NHS Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust

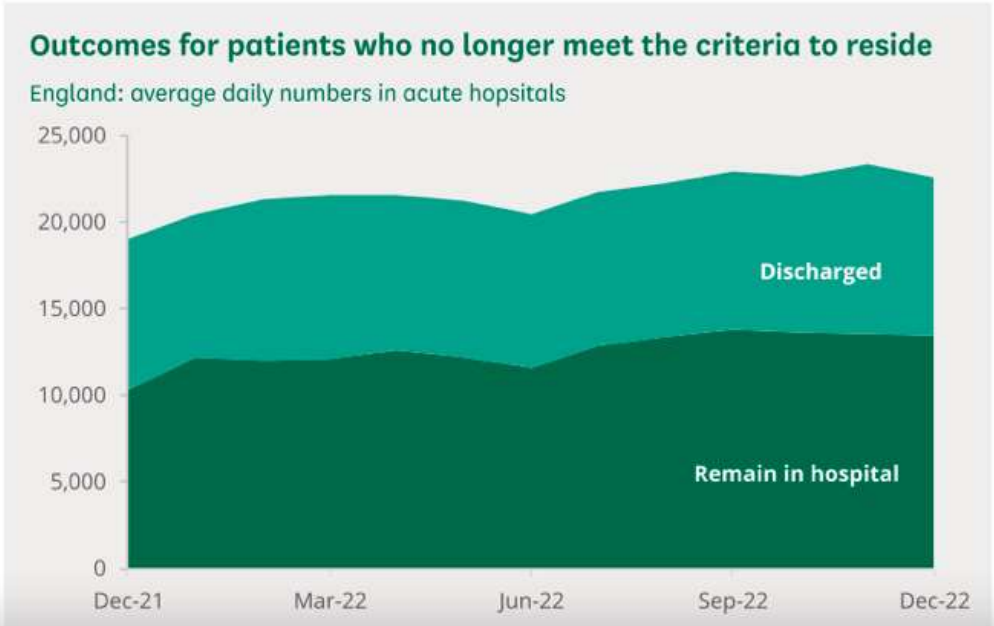
Can AHSCs help with these problems?



Number of delayed discharges

Since December 2021 NHS England has published data on patients in England remaining in hospital who no longer meet the criteria to stay.

The latest data shows that in December 2022, an average of 13,440 patients per day remained in hospital despite being ready to leave. This is 30% higher than the December 2021 daily average of 9,150.



The wider health & social care ecosystem

Evidence of the benefits of being research active

- **Better patient care outcomes**
  - Patients at research active hospitals have more confidence in staff
  - Study activity & mortality rates
  - Cancer survival outcomes in hospitals with high research participation
- **A happier workforce**
  - Retention of staff improved with an increased academic component in job plans
  - Inverse relationship between the amount of time physicians spend on work they find meaningful and risk of burnout
- **Benefit for the health and care system**
  - Research improves clinical practice, reduces the cost of healthcare and drives policy change
  - Transforming health through innovation
  - Engagement of clinicians and organisations in research & healthcare performance

Introduction

- Newcastle Health Innovation Partners came into existence on 1st April 2020
- It is an AHSC designated by the National Institute for Health & Care Research (NIHR) & NHS-England (NHS-E)
- It is accountable, & reports to, both NIHR & NHS-E

- **What we said we would do**
- **The "reality"**
  - **Important points that have emerged**
  - **Work in progress**
- **Some reflections / questions**

Newcastle Health Innovation Partners

Our Academic Health Science Centre for the North East and North Cumbria

POWERED BY

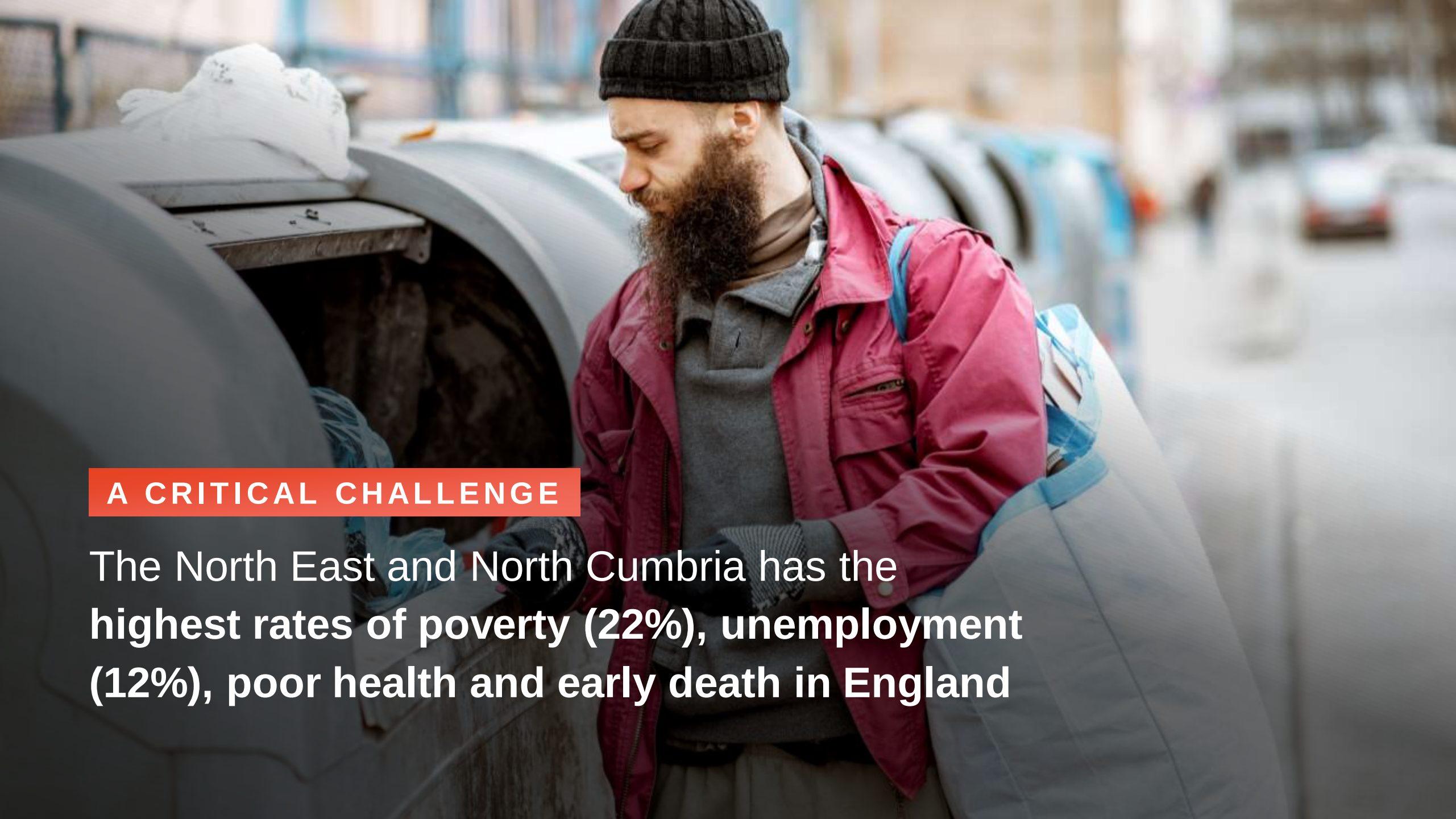
Newcastle University

Academic Health Science Network
North East and North Cumbria

Newcastle City Council

NHS
The Newcastle upon Tyne Hospitals
NHS Foundation Trust

NHS
Cumbria, Northumberland, Tyne and Wear
NHS Foundation Trust



A CRITICAL CHALLENGE

The North East and North Cumbria has the **highest rates of poverty (22%), unemployment (12%), poor health and early death in England**

A POWERFUL PARTNERSHIP

Through this unique and powerful partnership we **leverage immense strength of opportunity and place**

To deliver a bold, new venture to **tackle health, wealth and wellbeing**

And **overcome poor health, poverty and early death in our region**

We are a diverse region of mixed urban and rural geography with a population of 3.2 million

Outstanding
clinical services

Translational
research

Excellence in
education

The success of our Centre will build directly on UK-leading clinical care

Rated **‘Outstanding’** in 2016 and 2019 - the only NHS Teaching Hospital to receive this rating twice

Rated **‘Outstanding’** in 2016 and 2018

Top rankings for research

NUTH 1st in the country for open NIHR portfolio studies (2011-18)

CNTW 3rd amongst Mental Health Trusts for patient recruitment to NIHR studies (2018/19)

How we will address our priorities

Excellence in translational research & education
Outstanding NHS services

Consolidated and expanded partnerships

Highly developed multidisciplinary approach

Multi-partner test-beds for research, training and commercial innovation

Place-based approach for rural and city populations

Co-create with policy makers in health and social care, regulatory science and inward investment

Health, wealth, and wellbeing benefit for the region

We will deliver through the power of our partnership

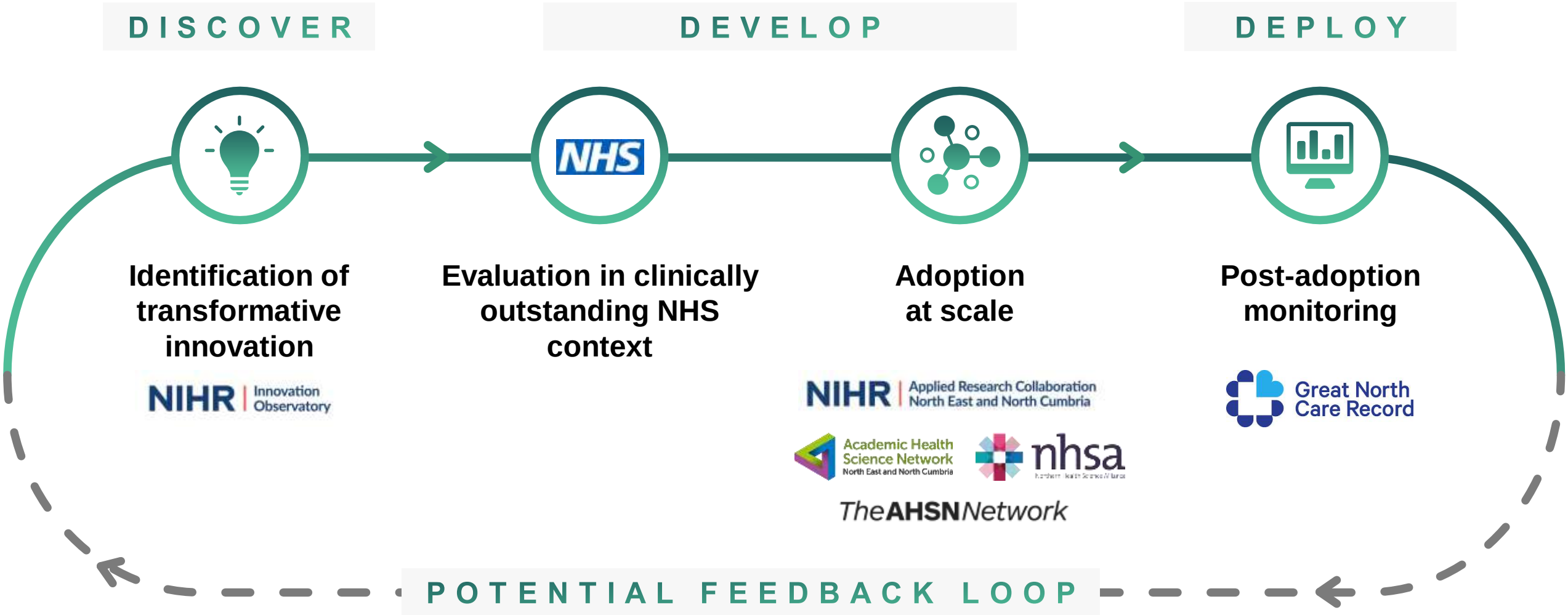
National Innovation Centre Ageing Intelligence - Powered by Newcastle University

National Innovation Centre Data - Powered by Newcastle University

NHS Global Digital Exemplars

Great North Care Record

A “Pathfinder Site” to deliver the Accelerated Access Collaborative



n.s.t.c.
Newcastle Surgical Training Centre

Newcastle Health Innovation Partners

will transform health, wealth and well-being in our region

That’s our promise

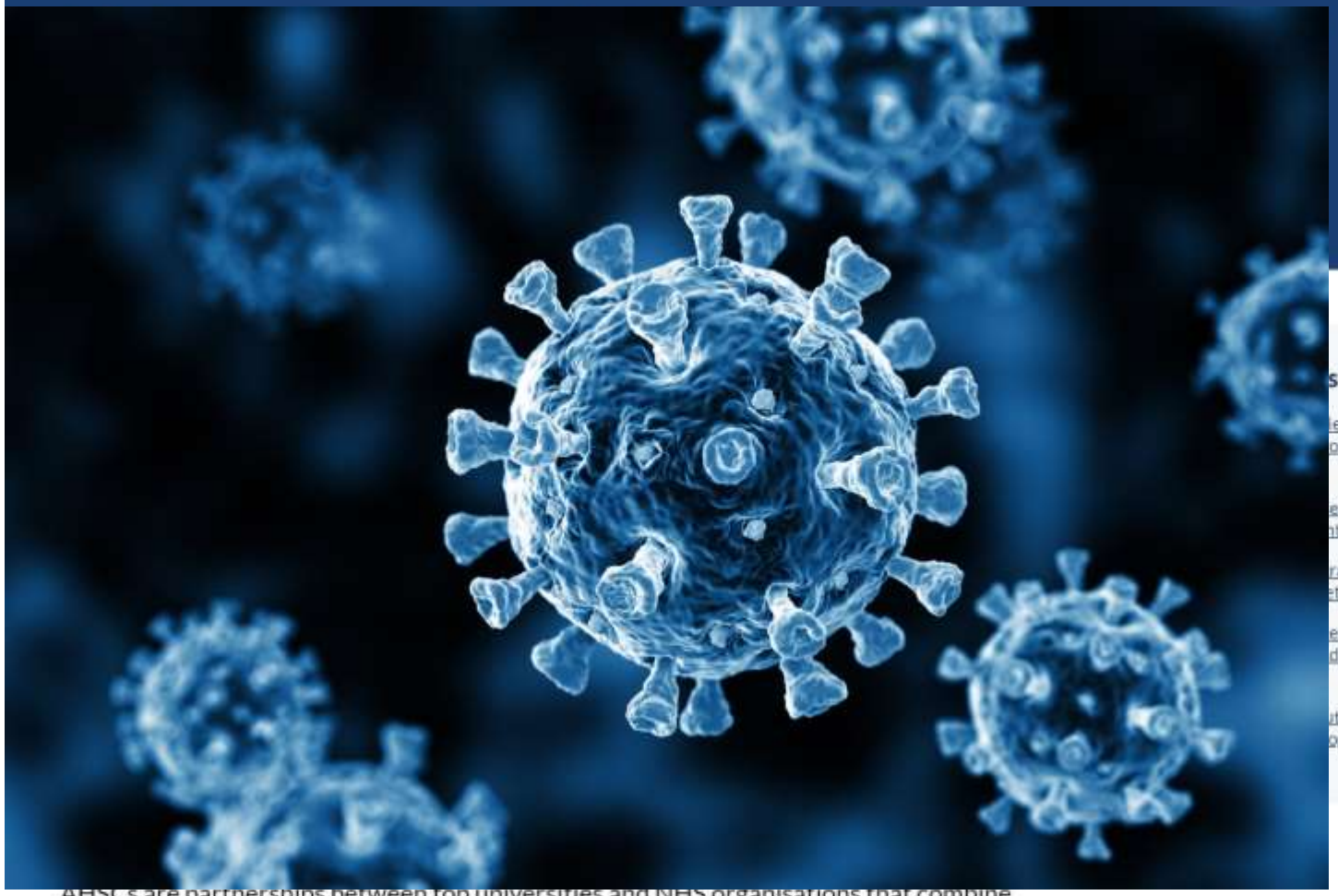
Email 31st March 2020
1800 hrs

Designation active 1st April

NIHR | National Institute for Health and Care Research

Search nihr.ac.uk...

Health and Care Professionals | Researchers | Patients and the Public | Partners and Industry | About us



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AHSCs are partnerships between top universities and NHS organisations that combine excellence in research, health education and patient care.

The newly designated NIHR and NHS England and NHS Improvement Academic Health Science Centres (AHSCs) will harness the strategic alignment of the NHS organisations and their university partners to improve health and care through increased translation of

Who we are

NHIP partner organisations

Newcastle University www.ncl.ac.uk

Delivers world class translational research and academic excellence

NHS The Newcastle upon Tyne Hospitals NHS Foundation Trust

www.newcastle-hospitals.nhs.uk

One of the UK's largest Trusts, with an international reputation for pioneering healthcare

Newcastle City Council www.newcastle.gov.uk

Provides public services, social care and understands the needs of the local population

NHS Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust www.cntw.nhs.uk

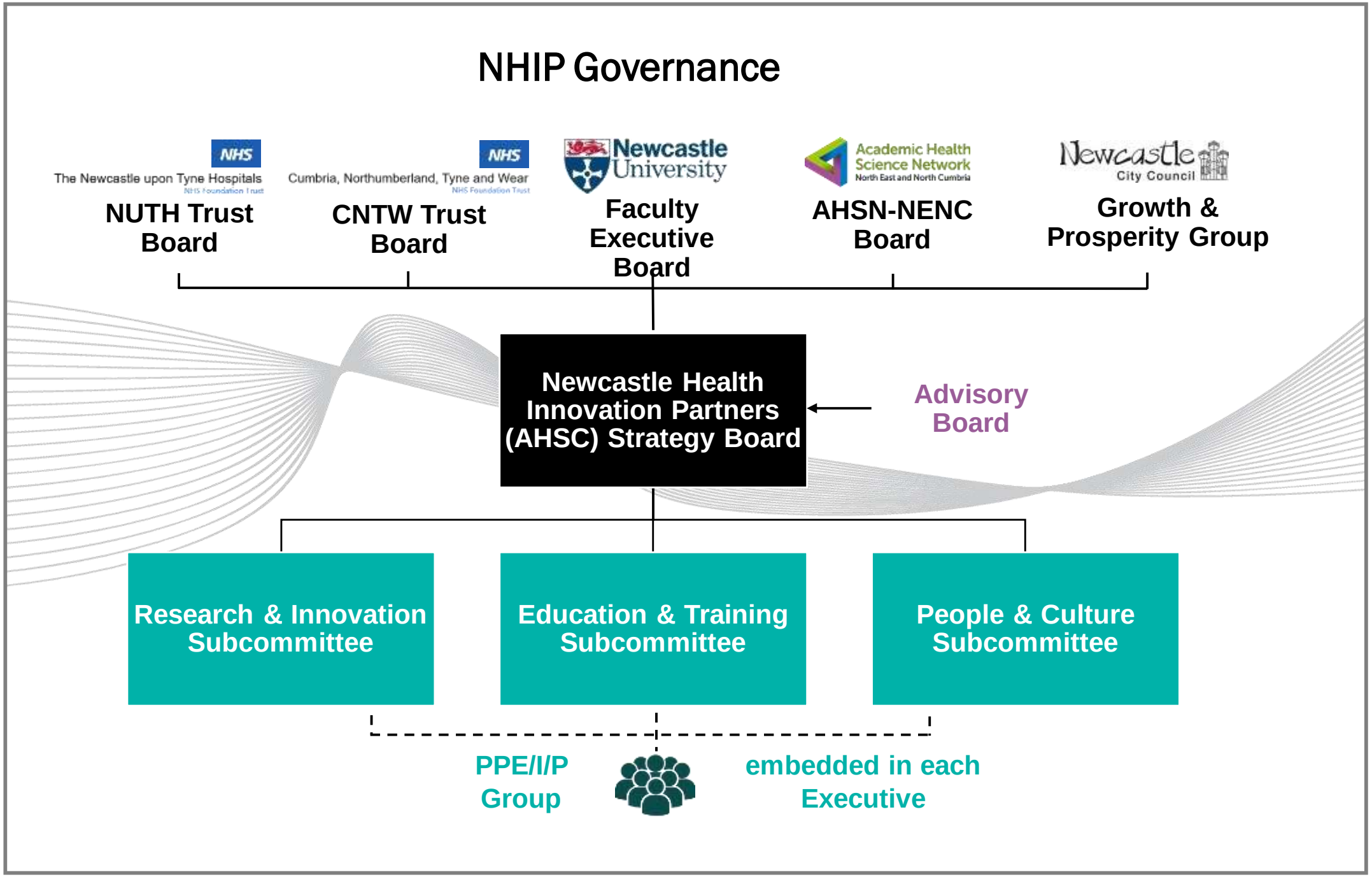
Provides mental health, learning disabilities and neuro-rehabilitation services

Academic Health Science Network North East and North Cumbria

www.ahsn-nenc.org.uk

Works with NHS, Universities and life sciences industry to identify, evaluate, adopt and disseminate innovations for healthcare benefit

NHIP Governance



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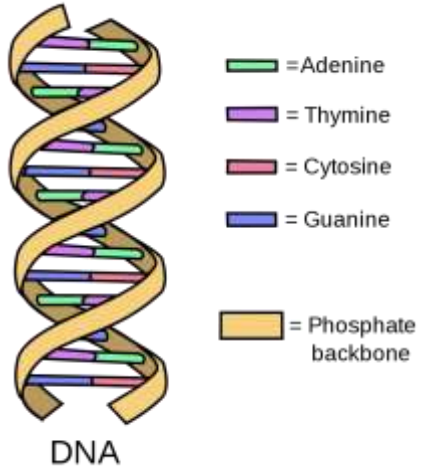
Important points

- Partner CEO commitment critical
- English AHSCs do not come with funding
  - Partner contributions
  - Leveraging other funding
- Reporting has evolved to both NIHR & NHS-E
  - Implications
- Levers & amplifiers to effect impact & reduce inequalities
- Chief Operating Officer appointment
- Branding, communications & integrating into organisational DNA
- Integrated Care Strategy NENC



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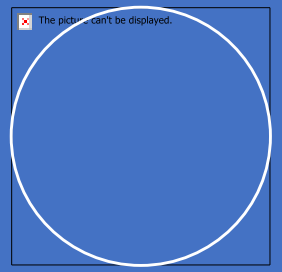
Research pillars (our “USP”)

Ageing & MLTCs



Rare diseases

Diagnostics

Therapeutics

Data Science & health inequalities

NIHR | National Institute for Health Research

NHS

Academic Health Science Centre (AHSC) Scheme Level Logic Model

Aims & Purpose of AHSCs:

- Harness strategic alignment of the NHS organisations and their university partners to improve health and care delivery/service through increased translation of discoveries from early scientific research into benefits to patients and population health.
- Deliver and harness world-class research, excellence in health education, and excellence in patient care (tripartite mission)
- Facilitate acceleration of improvements to healthcare through both local and national collaborations and by working with other AHSC and NIHR infrastructure
- Contribute to local and national economic growth by broader engagement of local authorities and industry
- Support delivery of commitments and goals in the NHS Long Term Plan, Life Science Industrial Strategy and Accelerated Access Collaborative

Inputs

- **Partners** – NHS organisation and University partnership, including the NIHR Infrastructure within the partnership to support the programme

***AHSC Collaborators/delivery partners**– for example: other AHSCs, AHSNs, NHS Trusts, NIHR infrastructures, Charities, NGOs, Local Councils, hospitals, Social enterprises, Commissioning groups, life-science organisations (SMEs, multinational companies), patient/ population groups, NIHR infrastructure, STP/ICS

***National bodies** – for example: DHSC, NHSE/I

Activities

Improve awareness of the AHSCs
- Engage with local and national health and care delivery/service organisations, including STP/ICSs
- Build public trust and understanding
- Engage with SMEs, life science organisations and key industries

Form collaborations and partnerships
- Build alignment within the AHSC partnerships
- Establish strategic partnerships with local business and industry partners
- Actively encourage involvement of patients as partners in the system and directly engage with wider communities
- Exploit and develop digital infrastructure across the AHSC that supports interoperability
- Identify and develop a pipeline of research and innovation activity aligned to priorities of the NHS members of the AHSC, and engaged at all levels of NHS organisations

Maximise the talent across the workforce through staff development and health education
- Actively promote engagement and learning across a range of disciplines from the NHS organisation and university partners of the AHSC
- Increase creation of new roles and inter-disciplinary programmes for current R&D and NHS staff
- Enhance capacity building assignments, e.g. onsite training, online training, workshops, conferences

Participate in and drive local, regional and national research agendas
- Identify local and national gaps, unmet need, and align to priorities in STP/ICS where relevant
- Identify areas where the AHSC have a system leadership role that support the development and early implementation of transformative technologies

Outputs

Established collaborations and partnerships
- Appropriate structures and processes support strategic interactions across AHSC partners and with research centres outside the region, around a collective agenda
- Long-term underlying partnership strategy and processes are embedded in STP/ICS to surface needs and priorities
- Structures and support mechanisms are in place to connect life sciences research, industry and enterprise
- Long term strategy and structures to ensure diverse patient and population groups actively engaged

Increase in talent, staff development and staff retention
- Enhanced capacity building and staff development
- Greater focus on career pathways for staff development
- Increased retention of individuals

Established as system leaders
- Increased opportunities for regional and national engagement
- Playing an active role in supporting LTP and AAC
- Prioritised pipeline of R&D/new innovations with commitment from AHSC partners to support further development and early adoption
- Increased focus on interoperability of patient and research datasets

Outcomes (5-7 years)

Effective collaborations and partnerships
- AHSC deliver on a collective agenda
- Increased local, national and international partnerships driving innovations and supporting improved patient outcomes
- Accelerated translation of innovative products and services and innovation in healthcare delivery

Strengthened innovation pipeline
- Strengthened links between research and health care delivery
- Research is embedded across the AHSC, at all levels of NHS organisations
- Everyone within AHSCs have research and innovation as part of their role
- AHSCs are system leaders for innovation and best practice, being the first in the UK to support early implementation of transformative technologies in the NHS and providing real world evidence to support wider adoption and spread
- Implementation of innovations across STP/ICS linked to the AHSC
- Decisions guided by near real time/real world time data availability

Improved health care delivery/service
- Improved patient care and experience
- Accelerated adoption, access and diffusion of transformative technologies in health and care organisations for patient benefit
- Interoperable digital systems integrated across research and clinical care across the AHSC delivering benefits to patients and researchers
- AHSC is informed by patients and the public voice

Excellence in staff development and health education
- Sustainable pipeline of talent and skills to underpin future of life sciences success
- Improve equality, diversity and inclusivity across life sciences and healthcare delivery/service
- AHSCs are a national hub for clinical staff training

Impact (7-10 years)

Improved health care delivery and services for the AHSC partners through a better-connected infrastructure

Improved research delivery through development of an upskilled workforce who incorporate different disciplinary perspectives

Economic growth and job creation delivering economic benefits to AHSCs nationally

Research has relevance to AHSC partners and there is a credible innovation pipeline

Improved experience and utilisation of healthcare delivery systems by diverse patient and population groups accessing AHSC organisations

New innovations have changed practice across AHSCs and been adopted more widely across regions/nationally.

External factors
- AHSCs are reliant on leveraging funds and changes in the funding landscape may impact resourcing levels
- Significant contributions made to aid the national Covid-19 recovery at the expense of other activity areas
- Changes and restructuring within the NHS landscape (esp. Over next 12 months - Integrated Care System), plus impact of Brexit
- Reluctance in adoption and spread of inventions by others poses a challenge
- Lack of incentivisation or capacity of ICS' to engage with the AHSCs

Assumptions:
- AHSCs are regional structures with critical mass of scientific and clinical expertise, encapsulating universities, research institutes and hospitals, community, local authority and social care partners, working collectively to support the adoption and spread of innovations, with outputs that have national coverage/reach.
- AHSCs drive research and innovation which is developed in partnership with the health and care system, and work closely with AHSNs to support implementation and early adoption.
- Each AHSC has a local or regionally specific operating model and governance structures, as may have their own logic model to represent these differences.

Integrated Care System North East & North Cumbria

ICSs have been born in difficult times. The answer is not simply more money, although of course that is needed, particularly in social care. Unless we transform our model of health and care, as a nation we will not achieve the health and wellbeing we want for all our communities - or have the right care and treatment available when it is needed.

Hewitt Review April 2023

9.3.1 Research and innovation

The ICP is home to many research and innovation organisations, institutes and infrastructure, that collectively result in a vibrant ecosystem that is unique across England.

NENC ICS Strategy Dec 2022

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Research & Innovation Initiatives

Effective primarily through convening & catalysis

- Research satellites
- Secure Data Environment for citizen benefit
- AI Multiply
- Dragon's den
- Workforce mapping

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Research Satellites

- Areas of perceived emerging strength
- At least two partners, usually more
- Forum for discussion of emerging ideas & funding opportunities
  - Robotic surgery
  - Advanced therapeutics
  - Mental physical health interface
  - Sustainability linked to healthcare
- Pump-priming support possible

The Topol review & digital health

The review proposes **three principles** to support the deployment of digital healthcare technologies throughout the NHS:

1. Patients included as partners and informed about health technologies
2. The healthcare workforce needs expertise and guidance to evaluate new technologies, grounded in real-world evidence.
3. The gift of time: wherever possible the adoption of new technologies should enable staff to gain more time to care

And **four themes**:

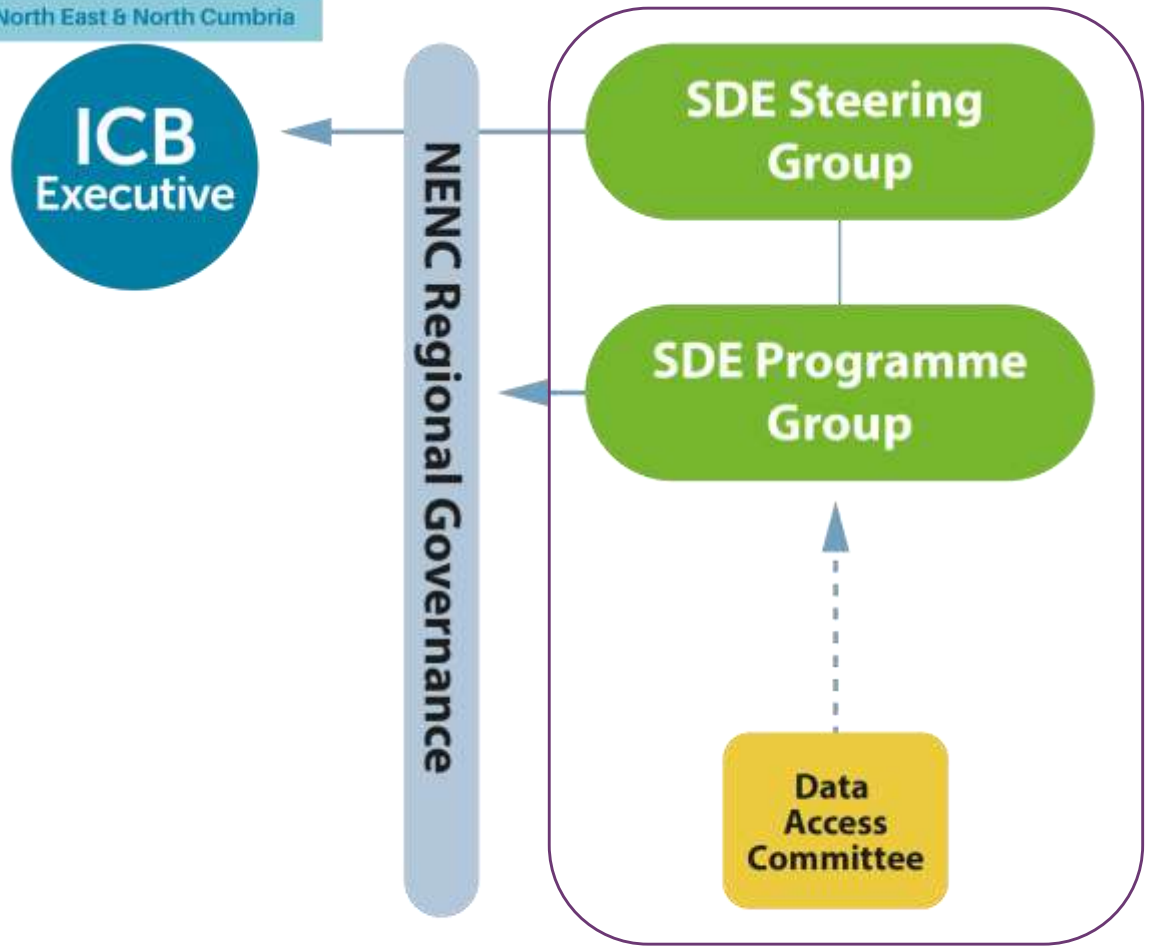
1. Genomics

2. Digital medicine

3. AI & robotics

4. Organisational development

Secure Data Environment governance



Clinical/ healthcare professionals

Research and development

SDE Public Advisory Group

NENC SDE Academic (EPSRC)

Possible Advisory Groups

SDE Steering Group

- Approves the SDE governance and hosting / services arrangements
- Leads regional SDE strategy, hosting, governance and service development
- Approves strategy/policy/investment decisions for SDE
- Establishes strategic priorities
- Holds quarterly performance reviews of SDE strategy, plans and deliverables

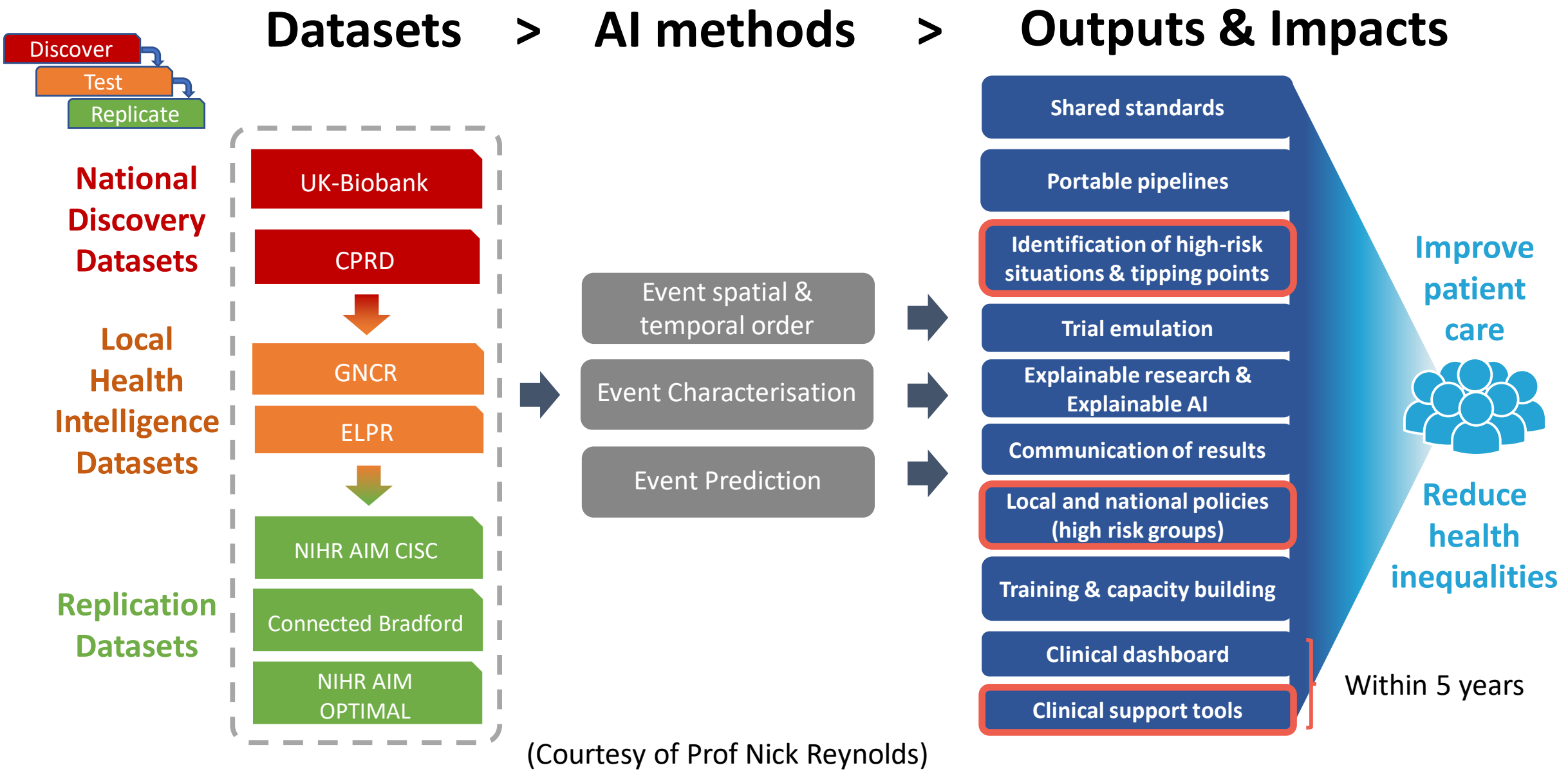
SDE Programme Group

- Planning/monitoring of the SDE implementation
- Partnership development/management (collaboration agreements
, accession)
- Approves projects and governs pipeline and tracks implementation
- Quarterly performance reviews
- Finance and procurement monitoring

Data Access Committee

- Trusted authority comprised of members who are responsible for overseeing access to NENC health and care data for research and development
- Provides advice / recommendations to the Programme Group as to whether to release the data to the project

AI MULTIPLY



(Courtesy of Prof Nick Reynolds)

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Dragon's Den

- Glucose monitors & dietary advice to reduce day case surgery cancellations
- Information for under-served communities / non-English speakers for drugs in pregnancy
- Developing a journal for children with significant head injury to aid integration of care
- Developing a light source to aid colour-appropriate design of prostheses & artificial eyes
- Understanding the needs of carers for patients with adult-onset mitochondrial diseases

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Workforce Mapping

- Where does our workforce come from? Which communities?
- Why is recruitment non-uniform across both city & region?
- Can we encourage engagement from under-represented communities?
- Data & engagement project
  - NHS & Council workforce: which communities?
  - Where are the gaps?
  - Engage with those communities to understand attitudes / blocks
  - Develop strategies to attract these communities into the workforce

Clinicians from medical, dental, pharmacy, allied health, healthcare sciences & nursing professions already form an essential part of our research & education community

We have extended our programmes into public health, social care & applied research methodology to reflect emerging national opportunities & priorities

Dave Jones
Director

Niina Kolehmainen
Deputy Director

Amy Brown
Manager

NHIP Academy

- Doctors and Dentists
- NMAHPs, Pharmacists, Healthcare Scientists
- Methodologists
- Public Health and Social Care researchers

NEWCASTLE HEALTH INNOVATION PARTNERS ACADEMY

NHIP Academy (September 2023)

NEWCASTLE HEALTH INNOVATION PARTNERS ACADEMY

Infrastructure

- NHIP Academy core team in place and co-located
- Pillar leadership established and active communities building
- Processes for fellowships and mock interviews *for all* established
- Successful external launch in April 2023 https://youtu.be/G78wT7YUKIk

Highlights

- Supported training across awards – total value approx. £59m in the past 12m
- Awaiting outcome for awards of approx. £16.5m
- First MRC CARP award for a NMAHP
- First NIHR Advanced Fellowship awarded in palliative care research
- NIHR IAT outcome – 12 CLs and 28ACFs
- "Know Your Funder Series" established, Fellows Forum launch Oct 2023 https://www.newcastlehealthinnovation.org/events/

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Engagement projects

Health checks in Newcastle's Grainger Market

Mental health & food poverty in Newcastle

Health innovation neighbourhood

A digital health testbed

People first. Adaptive & varied. Green. Spacious. Active

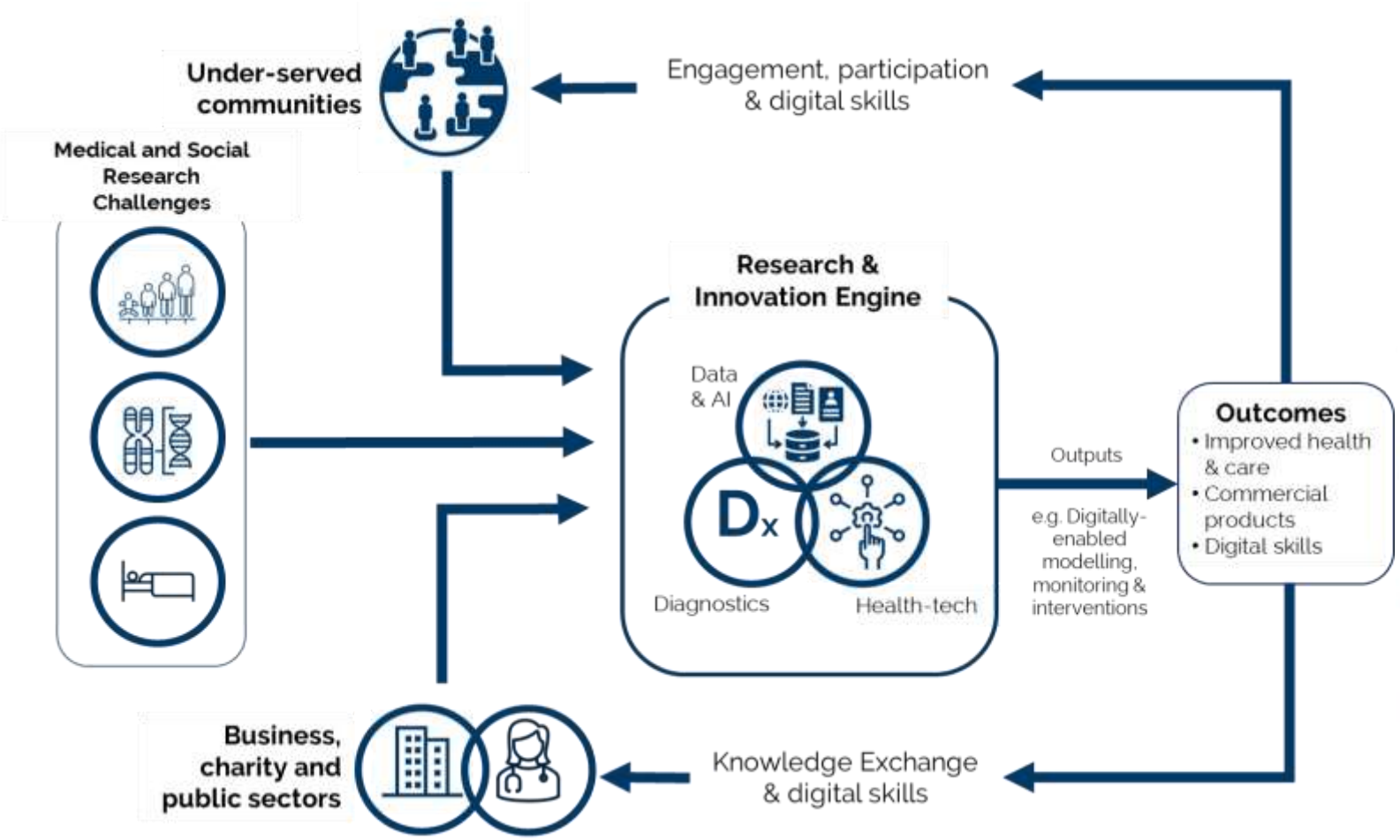
Health innovation neighbourhood: achieving the vision

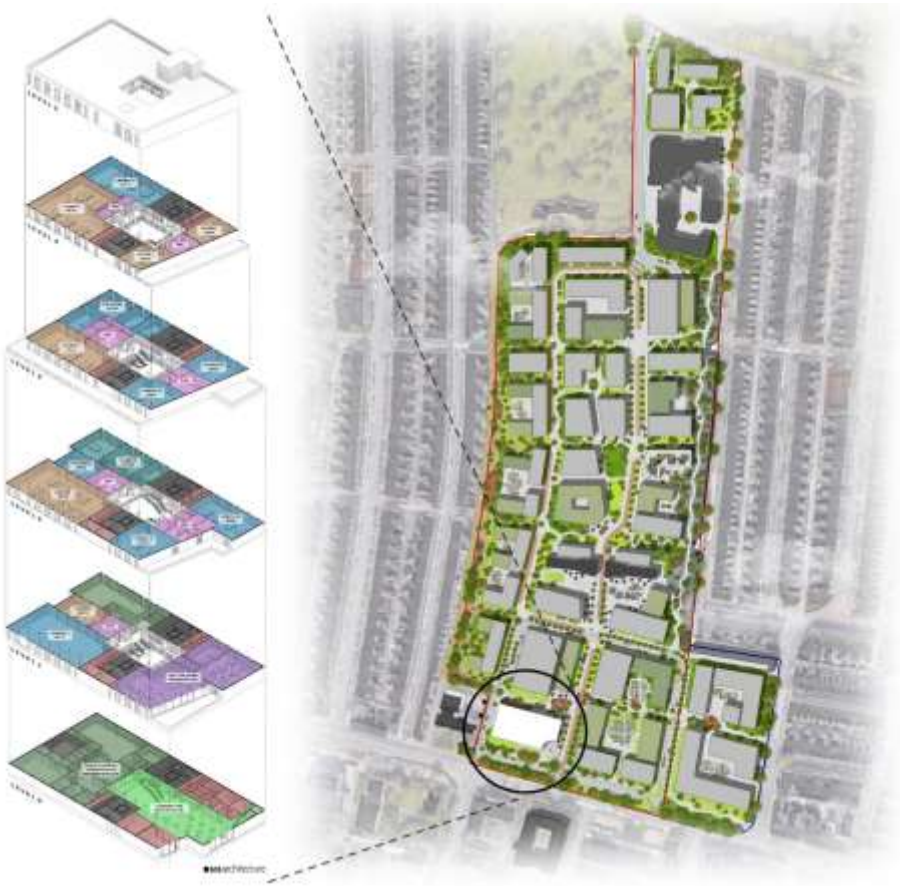
Leverage our assets & expertise in:

- Ageing & health
- Cities, places & sustainability
- Data
- Creative arts

To maximise both the environment on the neighbourhood for the community and its potential as a living lab to answer critical questions facing policy makers around the globe

A hub for digitally enabled care everywhere (DigECarE)





Some Reflections / Questions

AHSCs are "international currency" & widely regarded as badges of excellence

- What is the primary purpose of an AHSC?
  - *centre versus system?*
- If un-funded, what is their added value? How does it effect meaningful change?
- Where does an AHSC operate on the translational research spectrum?
- Which body is it primarily accountable to? How will this shape future strategy?

Who we are

Strategy Board Members

Caroline Wroe
Director, NIHR LCRN for NENC

Avan Sayer
Director, NIHR Newcastle BRC

Eileen Kaner
Director, NIHR ARC for NENC

Andy Husband
Director, NIHR PSRC

Maurya Cushlow
Chair of P&C Committee,
Newcastle Hospitals

John Isaacs
Chair of R&I Committee,
Newcastle Hospitals

Dave Jones
Chair of E&T Committee
NU/Newcastle Hospitals

Dame Jackie Daniel
Chief Executive
The Newcastle upon Tyne Hospitals NHS FT

David Burn
Pro Vice Chancellor
Newcastle University

NEWCASTLE HEALTH INNOVATION PARTNERS

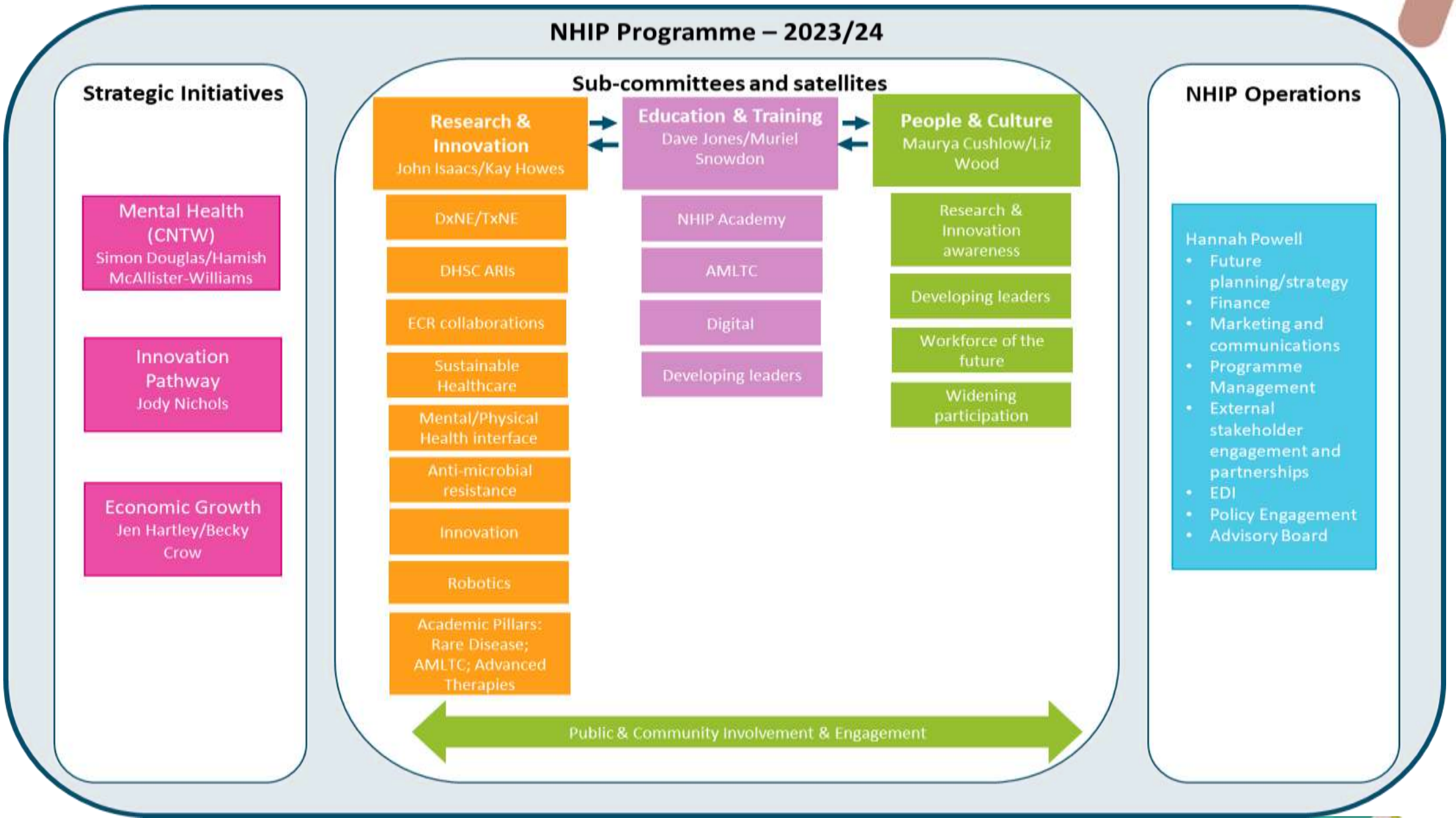
Strategy Board Members

Pam Smith
Chief Executive
Newcastle City Council

James Duncan
Chief Executive
Cumbria, Northumberland, Tyne and Wear NHS FT

Nicola Hutchinson
Chief Executive
The Academic Health Science Network for NENC

NHIP Structure: Programme Overview



Impacts we aim to make

Improved healthcare delivery and services for the AHSC partners through better-connected infrastructure

e.g., creation of local, national and international partnerships driving innovations and supporting improved patient outcomes

Improved research delivery through development of an upskilled workforce who incorporate different disciplinary perspectives

e.g., enhanced capacity building and staff development, career pathway development for staff and increased retention of individuals

Economic impact, net health benefits, increased sustainability of the health and care system

e.g., cost savings or efficiency gains for the health and care system, improving productivity and effectiveness of NHS, net health benefits, revenue generated, broader economic gains, including collaboration with industry *etc*

Strengthened innovation pipeline linking research and healthcare delivery

e.g., embedding research across the entire AHSC and at all levels

Improved experience and utilisation of healthcare delivery systems by diverse patient and population groups accessing AHSC organisations

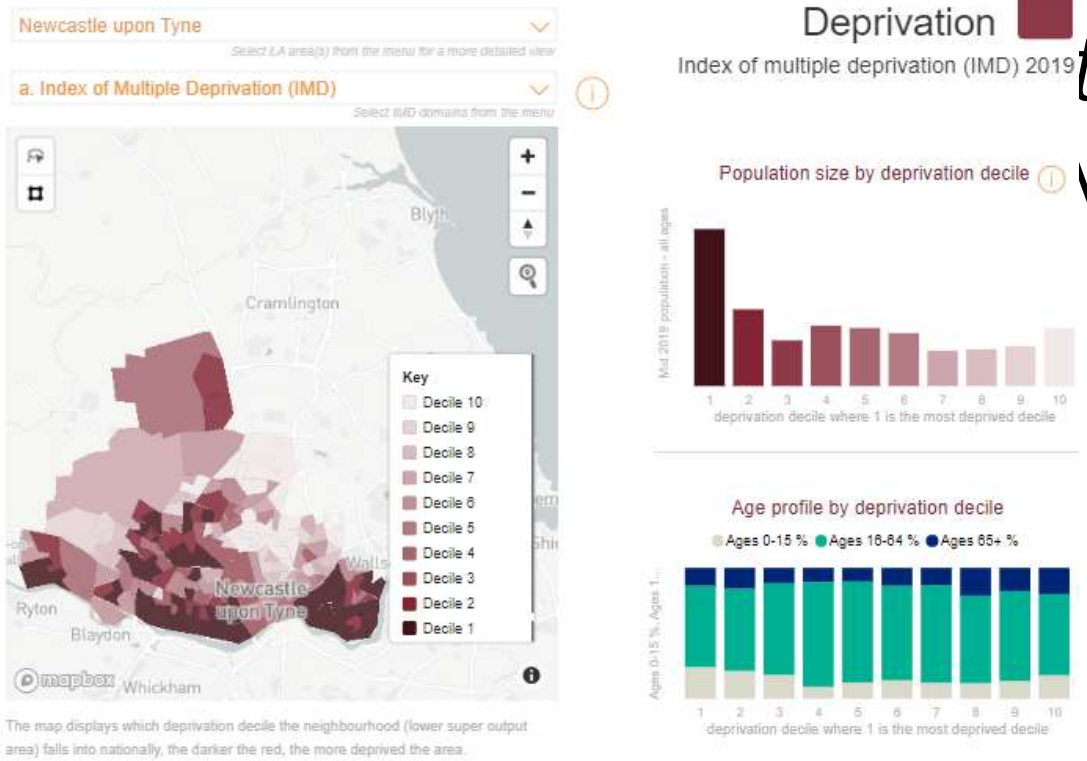
e.g., activities resulting in improved patient safety (reduced errors, changes in care coordination), commissioning OR decommissioning of a service as a result of research, improving service quality, changes to patient/care pathways, improved management of disease or condition, reduction in health and care inequalities

Innovations that have changed practice across AHSCs and been adopted more widely across regions/nationally

e.g., activities that have improved quality of life, improved QALY/ DALYs, influenced policy, and/or led to clinical guidelines or service improvement

- Data intelligence programme & health inequality

Duplication to Personalisation combines health & care data across two major NHS Hospital Trusts, Newcastle telligence system enabled via National Innovation Centre-



- 25% of residents live in the most deprived decile 1 & a further 12% in decile 2
- Core20 population is 37%

- D2P comprises a vast dataset (> 3 million “contacts” with 300,000 individuals over a rolling 2 year period)

- D2P aims to help partners reduce health inequalities & variation in care for targeted groups & individuals, whilst making better use of finite collective resources

Duplication to Personalisation

Hypotheses we are testing as we improve services

1. There are very high intensity users where a **non-health solution** would be more appropriate - if we take an 'asset' based approach, really listen to what they need, and use our resources flexibly to meet those needs.
   "once I joined the group I made a couple of friends, and quickly started to notice my mental health and other symptoms improved"
2. Some **people who most need services aren't getting them** (due to access barriers etc) until its too late. If we can reach them earlier by changing how we deliver services we will enable them to have better health and wellbeing.
   'Homeless people and those with learning disabilities, both miss lots of outpatient appointments and both die 30 years younger'
3. Some people have multiple agency input where the responsibility would be **better given to one single person / team**.
   "Some weeks I get visits from 4 different people – I'm pretty sure they don't know that and none of them seems to get stuff sorted"
4. Some people who use emergency or crisis services lots could be **better managed in a planned way**.
5. From the **data you can identify who will become high intensity users ahead of time** so you can do something about it.
6. There are **assets in local communities that can help** improve people's health, wealth and wellbeing if health and care professionals engaged with them and behaved differently.
7. In looking at duplication and confusion between different partner organisations we will identify where there is **duplication and confusion within a single provider** that they themselves can fix.

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Data

System transformation

D2P

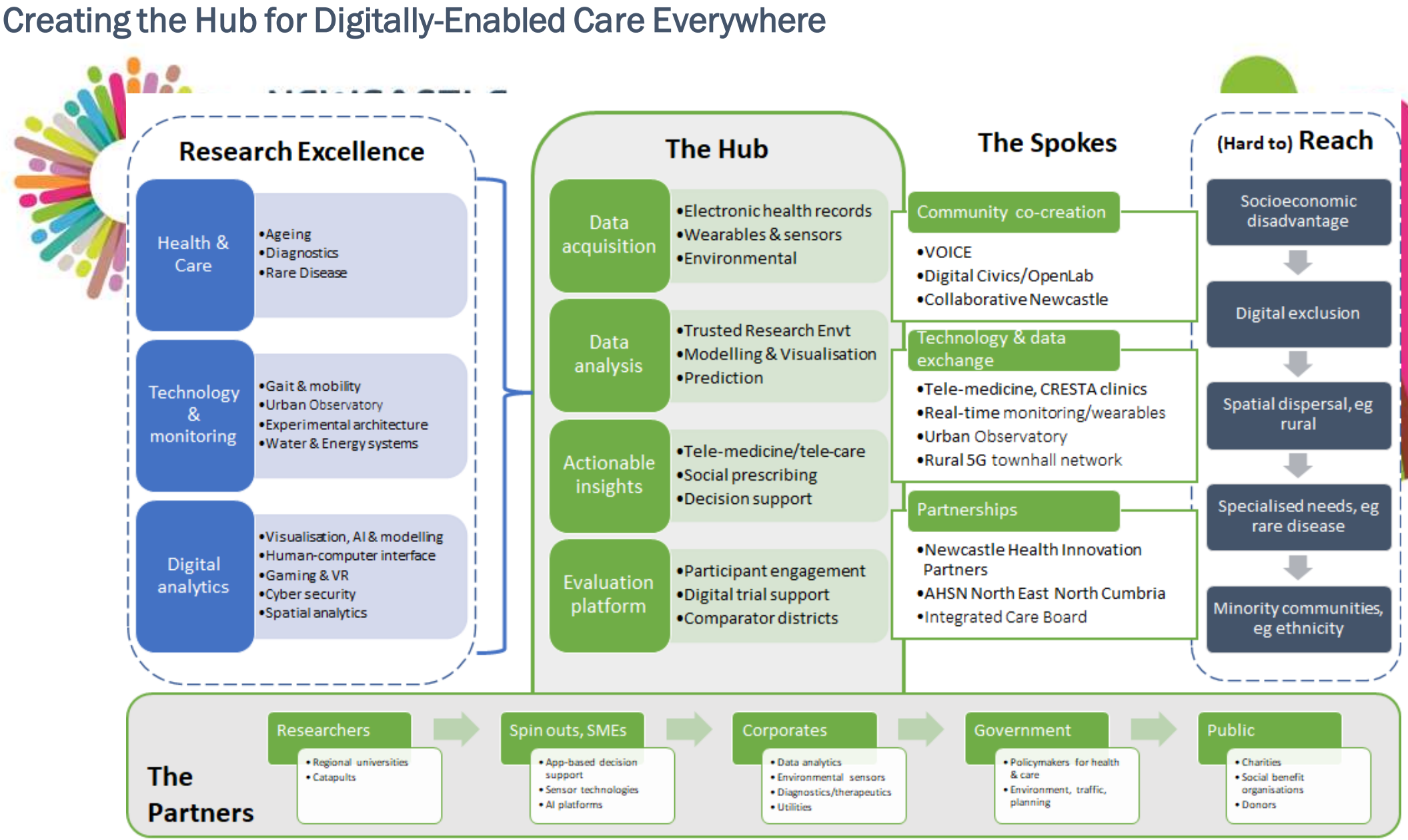
Analysis

Outcomes will be informed by data analysis and clinical oversight.

A focus on influencing system changes and improving collaboration and coordination between services.

Economic analysis

Cohort identification and definition

Clinical understanding

- Creating the Hub for Digitally-Enabled Care Everywhere