

HDRUK
Health Data Research UK

UK Health Data
UK Health Data
Research Alliance
Research Alliance



UK Health Data Research Alliance
UK Health Data Research Alliance
Symposium
Symposium

4 February 2020
4 February 2020

@HDR_UK | #hdralliance
@HDR_UK | #hdralliance



Welcome!

The Inaugural UK Health Data Research Alliance Symposium

Andrew Morris, Director, Health Data Research UK

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UK Health Data
Research Alliance

HDRUK
Health Data Research UK



**INDUSTRIAL
STRATEGY**

UK Research
and Innovation

**Our mission is to unite the UK's health data to enable
discoveries that improve people's lives**

It's a complex environment

Establishing processes for large-scale health data research at scale



Interoperability: to work across systems with no additional effort

An alliance of leading healthcare and research organisations united to establish best practice for the ethical use of UK health data for research at scale.

Knotty Issues

- Information governance data access*
- Data quality*
- Sustainability and commercial models*
- Meaningful public engagement*
- Technology strategy and standards*
- Inter-operability*

Design of the Alliance

Inspired by global collaborations

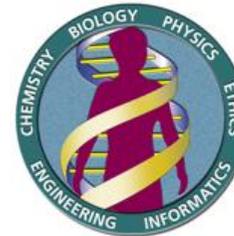
- No single organisation possesses all the information required to address every health and well-being issue facing society.
- Timely access to data across organisations requires:
 - Expertise
 - Trusted governance
 - Interoperability



Inspired by...



Global Alliance
for Genomics & Health
Collaborate. Innovate. Accelerate.



W3C[®]



“As a neutral UK cooperative, we will be defined by our community of data controllers across the UK”.



Why is this important?

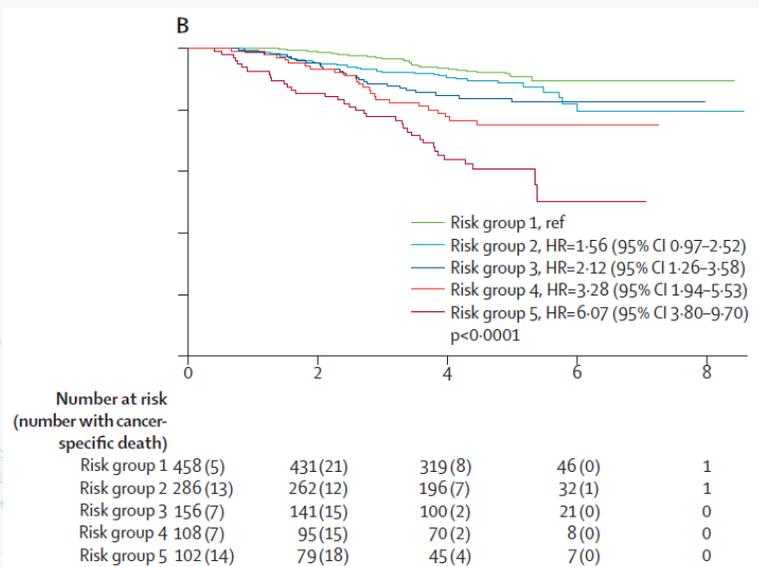
A Case Study



Deep learning for prediction of colorectal cancer outcome: a discovery and validation study

Ole-Johan Skrede*, Sepp De Raedt*, Andreas Kleppe, Tarjei S Hveem, Knut Liestøl, John Maddison, Hanne A Askautrud, Manohar Pradhan, John Arne Nesheim, Fritz Albrechtsen, Inger Nina Farstad, Enric Domingo, David N Church, Arild Nesbakken, Neil A Shepherd, Ian Tomlinson, Rachel Kerr, Marco Novelli, David J Kerr, Håvard E Danielsen

- 12 000 000 image tiles from patients with a distinctly good or poor disease outcome
- Four cohorts used to train a total of ten convolutional neural networks,



Editorial

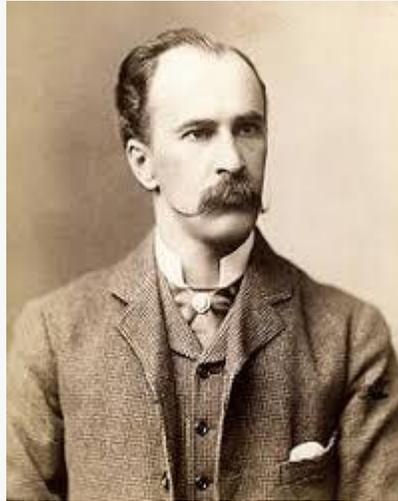
Leaving cancer diagnosis to the computers



- If AI systems are to be developed and used widely, the use of diverse population data will be critical.
- Sharing data between institutes and regions is becoming widely accepted as a necessity to AI research,
- Pledges from NIH, US National Cancer Institute, Wellcome, and the Bill & Melinda Gates Foundation, which will require data gathered from any funded project to be made available to the scientific community.

Aims of the Day

- Build the community engaged with the development and use of the UK health data research infrastructure
- Celebrate and showcase achievements to date across Alliance, Gateway and Hubs
- Gain inspiration from analogous developments and international perspectives
- Help to shape priorities and plans for the future



The best preparation for tomorrow
is to do today's work superbly well

William Osler

July 12th 1849-December 29th 1919

Thank you for listening!

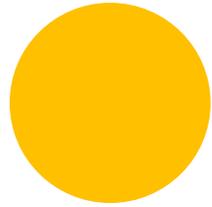
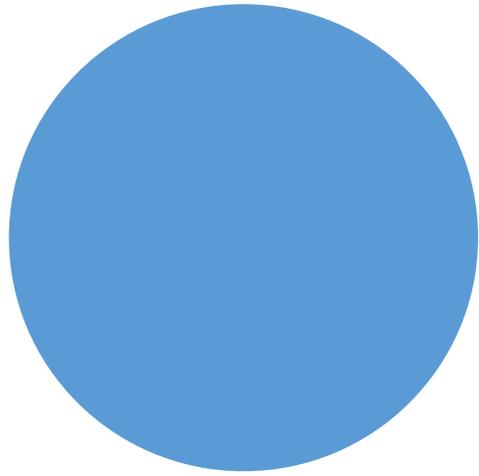


Engaging and involving patients and the public in uniting health data to enable discoveries that improve people's lives

Angela Coulter, Chair, Public Advisory Board, Health Data Research UK

@HDR_UK | #hdralliance





Engaging and Involving Patients and
Public in Uniting Health Data to Enable
Discoveries that Improve People's Lives

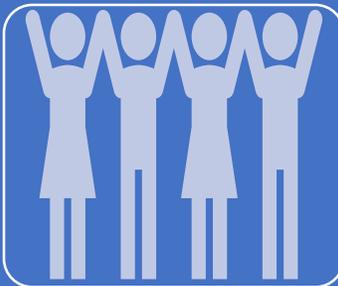
Angela Coulter
HDR UK Public Advisory
Board
@acpatient



Having a clear plan to
inform and involve people



Building confidence about
privacy and security



Demonstrating public
benefit

Core Principles for Engagement (DATA-CAN)

- We will ensure patients are included in our work
- We will ensure our engagement is representative of the diverse, UK wide population
- We will operate according to core principles of clarity, transparency and involvement
- We will act on what our community says is important
- We will enable and empower people to be involved, engage in and influence our work

Safe Projects,
Safe People,
Safe Data,
Safe Settings,
Safe Outputs





Using patient data is vital to improve health and care for everyone

There is huge potential to make better use of information from people's patient records. Data is vital for your individual care, and to improve health, care and services across the NHS. The information can be used to help understand more about disease, develop new treatments, monitor safety, plan NHS services and evaluate policies.

Examples:

Individual care

- Making sure your whole care team, from GP to hospital to care home, has up-to-date information to help give the best and safest care
- Helping people to manage their condition, from psychosis to asthma, using smart phone apps

Understanding disease

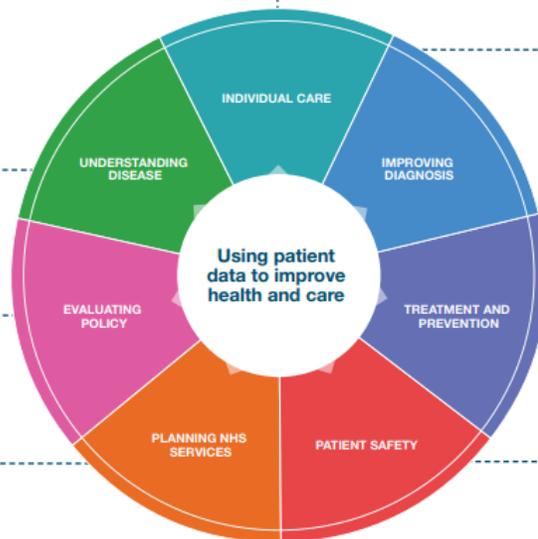
- Exploring why diabetes rates vary between ethnic groups
- Finding out about the biological changes involved in Parkinson's

Evaluating policy

- Comparing cancer survival rates between countries
- Showing the impact of a smoking ban on reducing premature births

Planning NHS services

- Finding out how many people have arthritis to inform planning
- Improving the delivery of kidney dialysis services



Diagnosis

- Demonstrating that bowel cancer screening is effective
- Finding new ways to identify early warning signs of dementia

Treatment and prevention

- Testing a treatment for lung disease in the real world
- Investigating the benefits of giving statins to men who haven't had a heart attack

Patient safety

- Monitoring the safety of whooping cough vaccination during pregnancy
- Checking the safety of hip replacements

Demonstrating Public Benefit

Understanding Patient Data



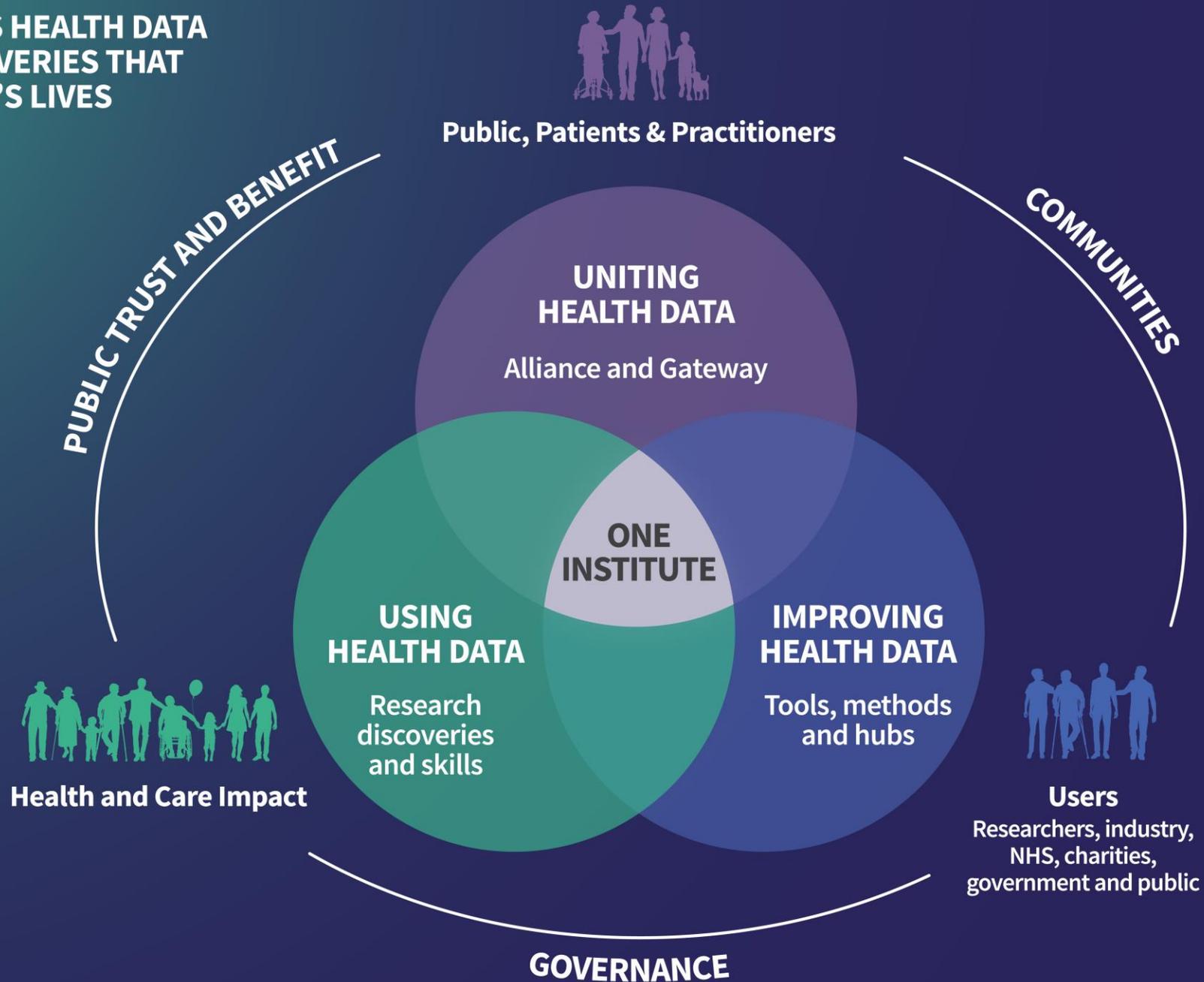
Overview: Health Data Research UK Infrastructure

Caroline Cake, COO & Deputy Director, Health Data Research

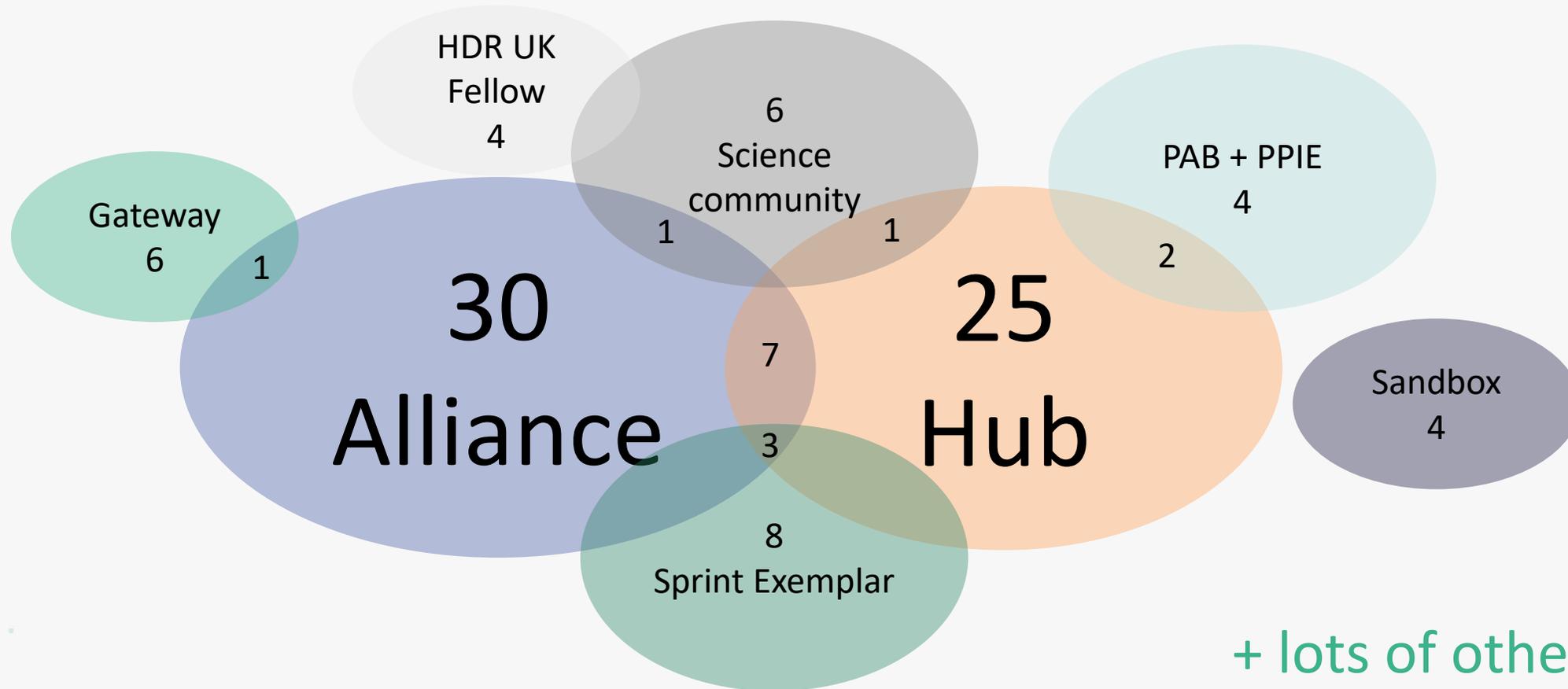
@HDR_UK | #hdralliance



**UNITING THE UK'S HEALTH DATA
TO ENABLE DISCOVERIES THAT
IMPROVE PEOPLE'S LIVES**



Lots of these communities have come together today



Working in partnership with patients, the NHS, universities, business & charities to create a world-leading and robust health data infrastructure

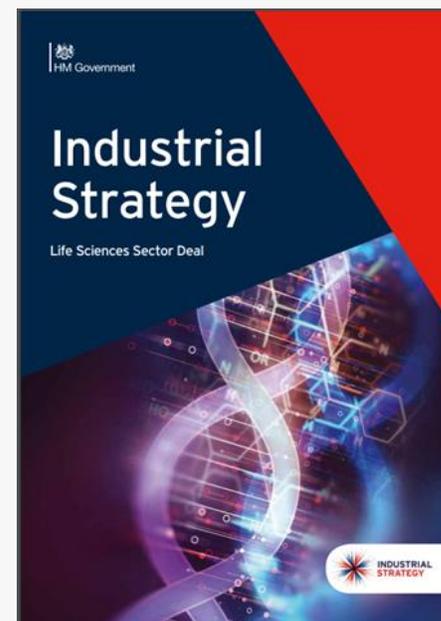
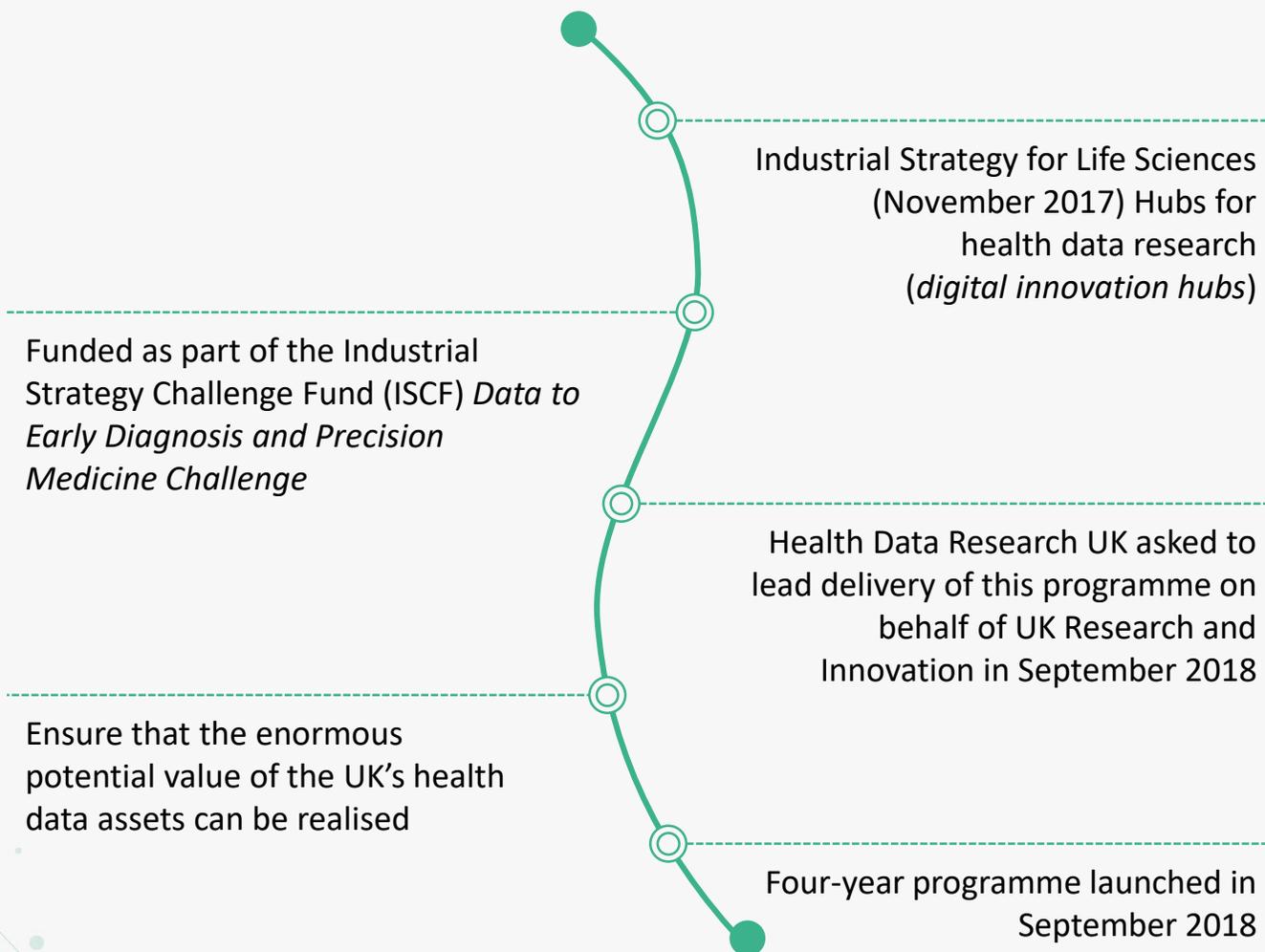


Gearing up the UK for quality health care, research and innovation

Enabling data science and innovation as a catalyst for change

But with big data comes with big responsibilities!

Part of the industrial strategy



We've been listening and designing a model that's fit for the future of health data research



INDUSTRIAL STRATEGY

UK Research and Innovation

We've engaged with over
2,700
people

We've spoken to over
350 organisations
in the UK and globally
across NHS, industry
and academia

35

Events

32

Interviews with Businesses



With thanks to

We are delivering what patients expect and what industry, NHS and academic data users want



Data: Longitudinal, event-based, multi-modal, curated datasets on disease sub-groups



Speed: Fast response times and streamlined contracting, governance and approvals



Access: Single, easy-to-use route to data



Expertise: Access to domain specialists, AI and applied analytics, phenotyping



Scale: High quality data with UK-wide coverage



Multiple purposes: Real world data, ability to rapidly identify trial cohorts

All underpinned by building people's confidence and trust in how data is used

Creating a clear strategy for engaging patients and public



Kush Kanodia



Rachel Plachcinski



Margaret Rogers



Ben Johnson



Sara Brooke



Claire Cooper



Angela Coulter



Colin Wilkinson

**Our Public Advisory Board is one part of our strategy for involving patients and the public
Ensuring that our work is driven by delivering benefits to patients and the public**

UNITING THE UK'S HEALTH DATA TO MAKE DISCOVERIES THAT IMPROVE PEOPLE'S LIVES

TRUSTWORTHY USE OF DATA



UK HEALTH DATA RESEARCH ALLIANCE
Uniting the UK's health data

UK Health Data Research Alliance

- NHS DATA
- COHORT DATA
- REGISTRY DATA
- TRIALS DATA

Convened by

HDRUK
Health Data Research UK

HEALTH DATA RESEARCH HUBS
Curating disease focused datasets and providing clinical trials and realworld evidence services

HEALTH DATA RESEARCH INNOVATION GATEWAY
Finding and accessing nationally aggregated, usable data

- DISCOVER
- DE-IDENTIFY
- LINK
- ACCESS
- ANALYSE
- PHENOTYPE LIBRARY
- LINK TO TRUSTED RESEARCH ENVIRONMENTS (SAFE HAVENS)

Operated by

HDRUK
Health Data Research UK



Sprint Exemplar Projects – 10 initiatives spanning the UK



Using encryption, linking and discovery for health data research at scale



Cloud-based integration of phenotype and genotype data for rare disease research



Integrated data platform for the largest prostate cancer dataset in the world



Improving care using data from a hospital-wide smartphone application



Using Routine NHS Data to Accelerate Clinical Trial Recruitment



Smart Hearts – Improving the lives of those with heart failure in Greater Manchester



PED4PED – Improving care of epilepsy patients and reducing unnecessary admissions to A&E



MyEyeSite – Using data and technology to improve care for people with rare eye diseases



Improving child health by optimising the use of clinical data for research



Building the knowledge graph for UK health data science

UK Health Data Research Alliance in numbers

27 Alliance members

5 working sub-groups

- **Data Quality & Standards** convening **>30** data officers
- **Practitioner, Public & Patient Involvement and Engagement (PPPIE)**
- Supporting development of the **Innovation Gateway** with **>400** datasets discoverable
- **Promoting participation and improving access** **>300** viewers of live streamed event
- Aligning approach to **Trusted Research Environments**

 Barts Health NHS Trust	 Nottingham University Hospitals NHS Trust	 University Hospitals Birmingham NHS Foundation Trust	 Clinical Practice Research Datalink	 Cystic Fibrosis Trust	 The Brain Tumour Charity
 NHS Digital	 NHS England	 NHS Scotland	 NHS Wales	 Health and Social Care Northern Ireland	 NHSX
 Genomics England	 UK Biobank	 National Institute for Health Research (NIHR) Bioresource	 Public Health England	 HQIP	 Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC)
 Avon Longitudinal Study of Parents and Children (ALSPAC)	 Guy's and St Thomas' NHS Trust	 UKCRC Tissue Directory and Coordination Centre	 University Hospitals of Leicester NHS Trust	 University College London Hospitals NHS Foundation Trust	 Human Fertilisation and Embryology Authority
 Great Ormond Street Hospital for Children NHS Foundation Trust	 Nottinghamshire Healthcare NHS Foundation Trust	 South London and Maudsley NHS Foundation Trust			

7 Health Data Research Hubs



UK Health Data Research Hubs in numbers

100% of the **7** hubs met milestone 1;
involving **>100** organisations from NHS,
academia, industry and charities involved
in **22** locations across England, NI, Scotland &
Wales

>4 high profile global partnerships

Discover-NOW
AstraZeneca

INSIGHT
Health Data Research Hub
Roche

Gut Reaction
Health Data Research Hub
Microsoft

NHS DigiTrial
NOVARTIS

6 disease areas prioritised

Cancer
Diabetes
Respiratory health
Inflammatory bowel disease
Eye health
Acute care

Quality of datasets



Level 4: Full technical submission

Demonstrated technical maturity and capability to submit
quality metadata

- DATA-CAN
- DiscoverNOW
- INSIGHT
- Gut Reaction

Hubs meeting milestone 1: data, PPIE, teams and locations



1 Making Datasets Available

1.1 Activities enabled following completion of 'Milestone 1'

Consideration and approval of data requests relies on existing/established governance processes provided through the Data Access and (independent) Steering Committees of the NIHR BioResource (Alliance member). The primary purpose of the BioResource is to use data to facilitate participant recall to experimental medicine studies - this interest is already increasing with the BioResource Steering Committee approving four IBD-related recall studies in December, including one industry led study. Uptake is expected to rise further with the Hub's enhanced data holding and visibility of metadata via the Gateway. 'Use-cases' are in development with collaborating NHS Trusts and industry - for PPI/E review by Apr-20.

1.2 Metadata upload to the HDRUK National Gateway

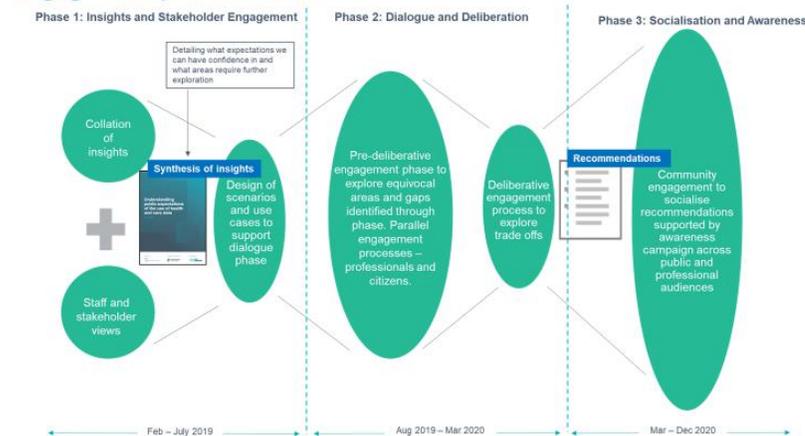
We are pleased to confirm that metadata from seven IBD datasets (listed in Figure 1) below have been returned and successfully uploaded to the national gateway. Figure 1 is taken from a screenshot of the metadata exchange dashboard.¹

Figure 1: Gut Reaction - IBD metadata uploaded to the National Gateway

Title	Metadata Status	Last Updated
Health and Lifestyle Questionnaire	A B C D E F	2019-12-20 09:49:56.0
Case report form	A B C D E F	2019-12-17 15:21:53.0
SNP chip data	A B C D E F	2019-12-20 15:46:10.0
Sample holding	A B C D E F	2019-12-20 15:34:44.0
Contact detail	A B C D E F	2019-12-19 18:20:46.0
Consent records	A B C D E F	2019-12-20 08:15:24.0
Demographic	A B C D E F	2019-12-20 09:00:02.0



Engagement plan overview



2 Demonstrating the hub physical environment is operational

To facilitate collaboration between researchers and innovators from multiple organisations and sectors across the UK we need a mixture of **physical work-spaces, online collaboration tools, and a secure cloud research environment**

2.1 Physical space

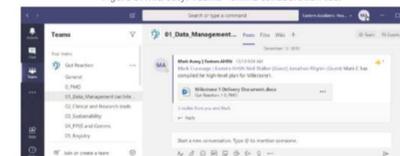
Physical spaces (where people can meet and talk in person) are provided on the Cambridge Biomedical Campus at either the NIHR BioResource or Cambridge University Health Partners, or at Eastern AHSN offices at Magog Court where the programme management office (PMO) is based and meeting rooms / hot-desks are also available. Meetings are also hosted by our partners; Crohn's & Colitis UK, the UK IBD Registry, AIMES, Privitar, and the Sanger Institute.

Figure 2: Team photo from our first Programme Board meeting at Magog Court, Cambridge.



2.2 Online collaboration environment

Figure 3: Microsoft Teams - online collaboration tool

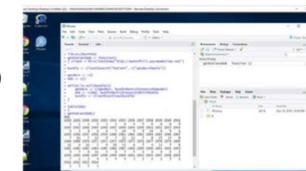


Given the geographical spread of our team members, our default is to meet online and collaborate / file-share etc. using **Microsoft Teams**.

2.3 Secure Cloud Research Environment

Through our HDR UK Sprint Exemplar Innovation Project - we have delivered a 'proof of concept' **secure cloud research environment** in MS Azure - providing a secure location for the integration of federated NHS, phenotypic & genomic data (via APIs) and provides secure data 'access' (rather than 'sharing') and data analysis/modelling tools.

Figure 4: Cloud Research Environment 'RStudio' screenshot

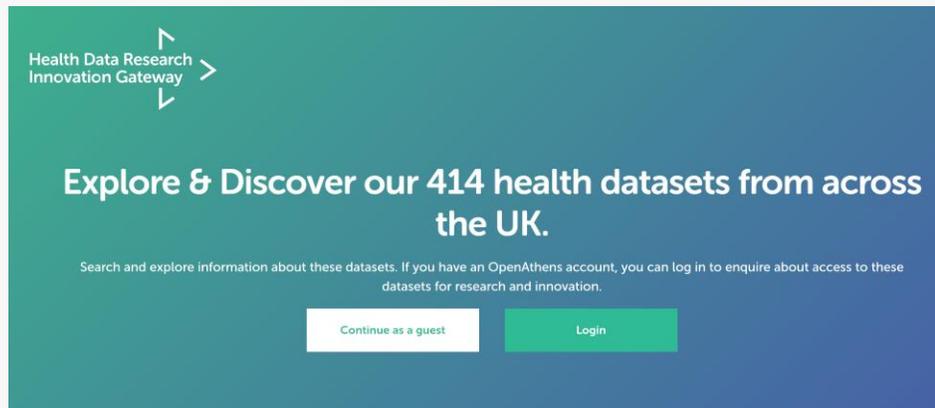


Involvement: PPIE will be core to everything we do, and how we do it

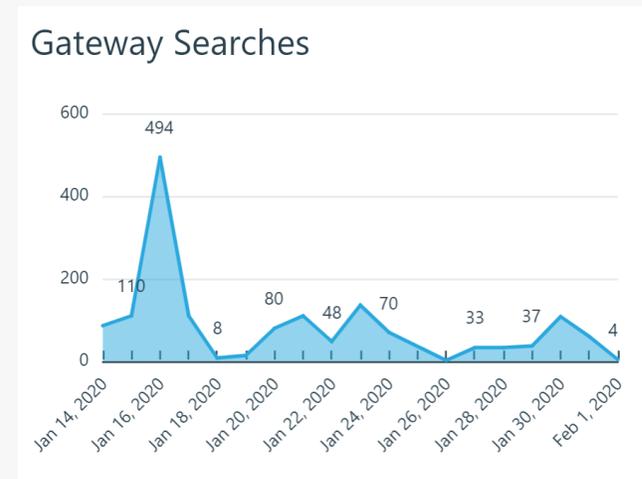


UK Health Data Research Innovation Gateway in numbers

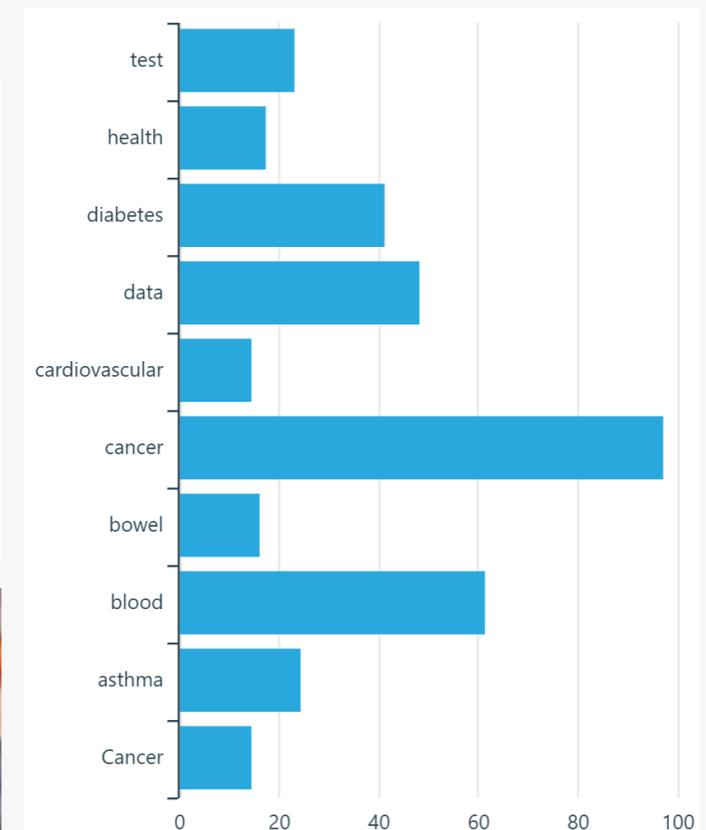
414 datasets in **Minimum Viable Product**



1,543 searches



Top **10** Gateway searches



16 organisations registered interest for the **Technology Partnership**

7 applied

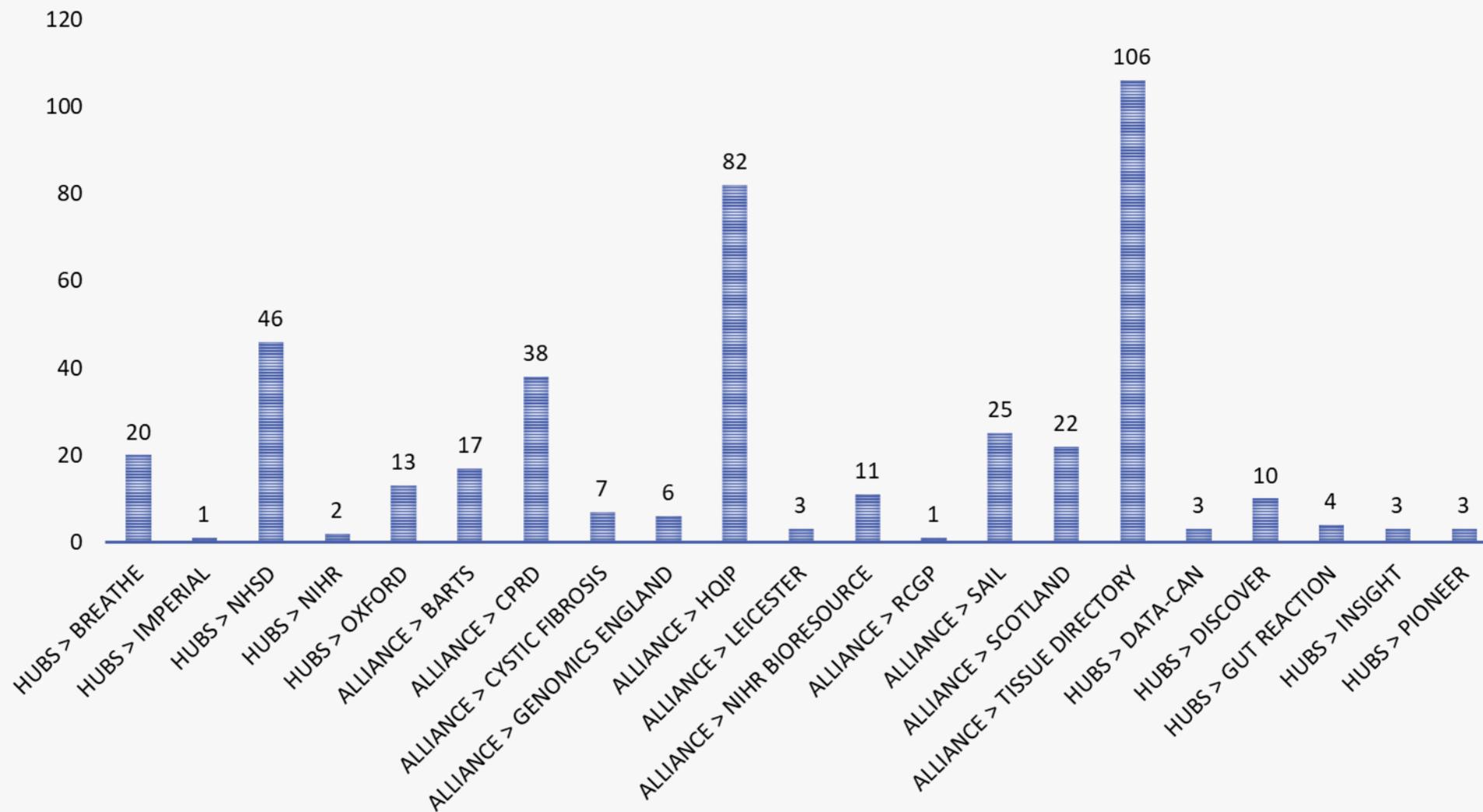
3 selected for Rapid Development Task

1,036

users



Where the data has come from



This is just the start. We can achieve a lot more together....

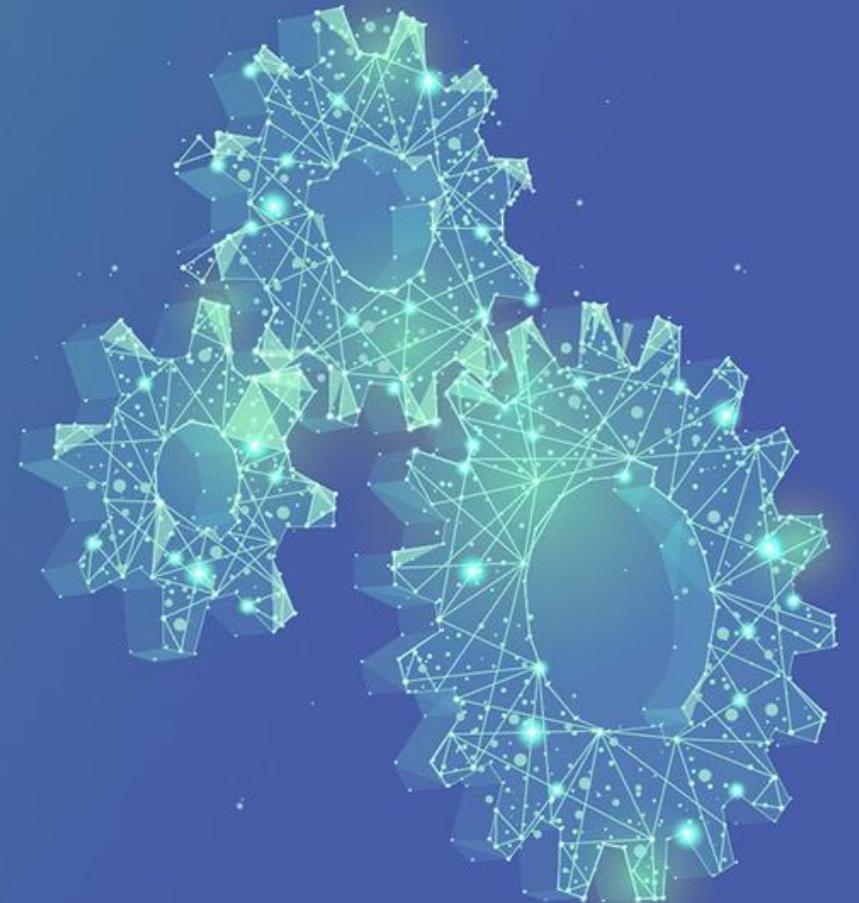


**“Alone we can do so little;
Together we can do so much.”**
Helen Keller

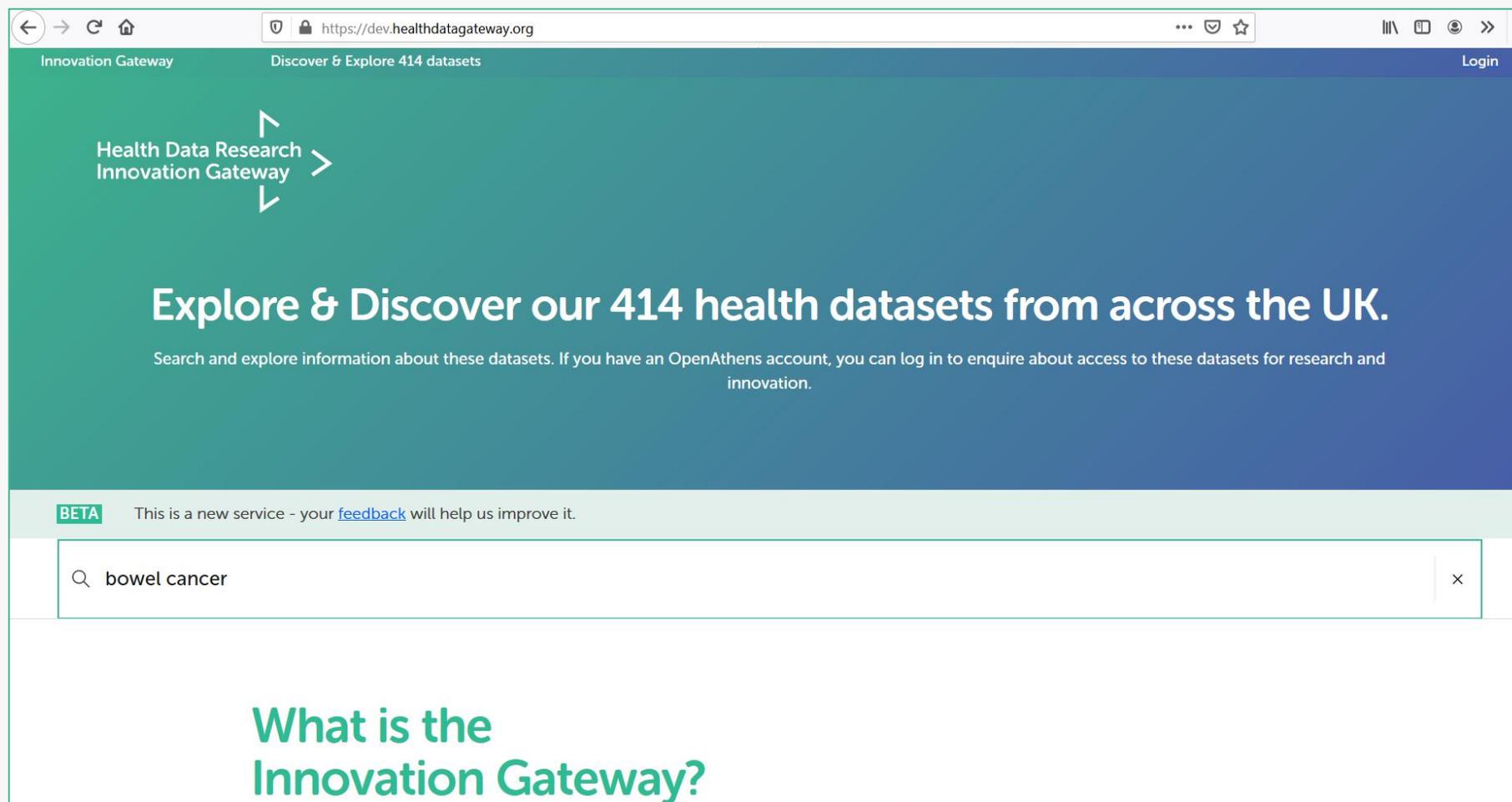


Innovation Gateway

Gerry Reilly
Chief Technology Officer
Health Data Research UK



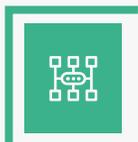
A Gateway is born (healthdatagateway.org)



The screenshot shows a web browser window with the URL <https://dev.healthdatagateway.org>. The page header includes "Innovation Gateway" and "Discover & Explore 414 datasets" with a "Login" link. The main content area features the "Health Data Research Innovation Gateway" logo and the headline "Explore & Discover our 414 health datasets from across the UK." Below this, a sub-headline reads: "Search and explore information about these datasets. If you have an OpenAthens account, you can log in to enquire about access to these datasets for research and innovation." A green "BETA" banner states: "This is a new service - your [feedback](#) will help us improve it." A search bar contains the text "bowel cancer". At the bottom, a section titled "What is the Innovation Gateway?" is partially visible.

The MVP continues to evolve

Since soft launch 16 January



Source available in GitHub
(@HDRUK/gateway-mvp)



Institutional Login



Usage Dashboard



Status monitoring



Enhancements to
landing page



Enhancements to Dataset page

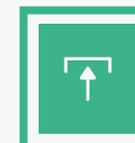
- Link to Metadata Catalogue



Improved mobile / tablet
rendering



Improvements to Dataset
Enquiry Form



Updates to privacy notice,
cookie handling and notice
and various bug fixes

and in the backlog



Social Login
(LinkedIn & Google)



Improved usability



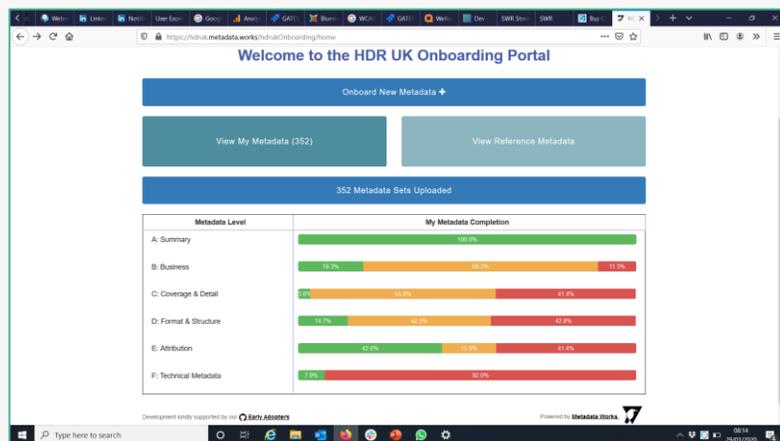
Search history



Multiple dataset
requests

We would also like you feedback to help us continue to improve the MVP email: support@healthdatagateway.org

Improving The Metadata



The Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC) primary care sentinel network and database

[Make enquiry](#)

DATE RELEASED: 11/12/2019 PUBLISHER: RCGP and University of Surrey (to be superseded by University of Oxford) LICENSE: In Progress REQUEST TIME: 2-3 months

STANDARD: RCGP RSC hold data in a granular, generalized data warehouse model (see section F Technical Metadata for details) and can provide data in formats which conform to standard data model formats as requested, subject to cost.

The RCGP RSC network database is one of the freshest data sources of primary care data. Data are refreshed twice weekly. Through our network of we can (1) Identify and recruit patients for trials/studies, (2) Collect specimen, (3) conduct questionnaires.

Data Access

DATA CONTROLLER: The Royal College of General Practitioners (RCGP) is a policy level Data Controller for RCGP RSC. Currently RCGP has a contract with University of Surrey to be the Data Controller holding these data, this is migrating to University of Oxford during 2020.

DATA PROCESSOR: Not Applicable

ACCESS RIGHTS: Please complete our data request form at: https://www.rcgp.org.uk/-/media/Files/CIRC/Research-and-Surveillance-Centre/RCGP_RSC_Data_Request_Form_2018.ashx?la=en Our data can be used for SOUIRE purposes: Surveillance Quality Improvement Research Education There is no restriction on who can use our data, just the purpose. RCGP Study Approval Committee and possibly Ethical approval will also be required. General information about our network is at: <http://www.rcgp.org.uk/rsc>, <https://clinintf.eu/index.php/rcgp-rsc/> <https://clinintf.eu/index.php/wlo/>

Coverage

JURISDICTION	GEOGRAPHIC COVERAGE	DATASET START DATE	DATASET END DATE	PERIODICITY
GB	England	1960-01-01	Not specified	Twice weekly

Demographics

STATISTICAL POPULATION	AGE BAND
4000000	Any Age

Related Resources

PHYSICAL SAMPLE AVAILABILITY: Access is available to influenza virology samples. Public Health England (PHE) genotype all the Influenza viruses they isolate. These genotypes are available from PHE. Over the next 30 months they will be linked to RCGP RSC data through a collaborative grant from the Wellcome Trust. PHE also holds physical samples for 5 years of virology samples. Access may be available on request.

Related Datasets

GROUP: Not Applicable

LINKED DATASETS: Data is linked using an NHS Digital approved process. Linkage to: Hospital Episode Statistics (HES) Office for National Statistics (ONS) Cancer registry (CANREG) We can also link to virology samples and genetic data, subject to ethical approval.

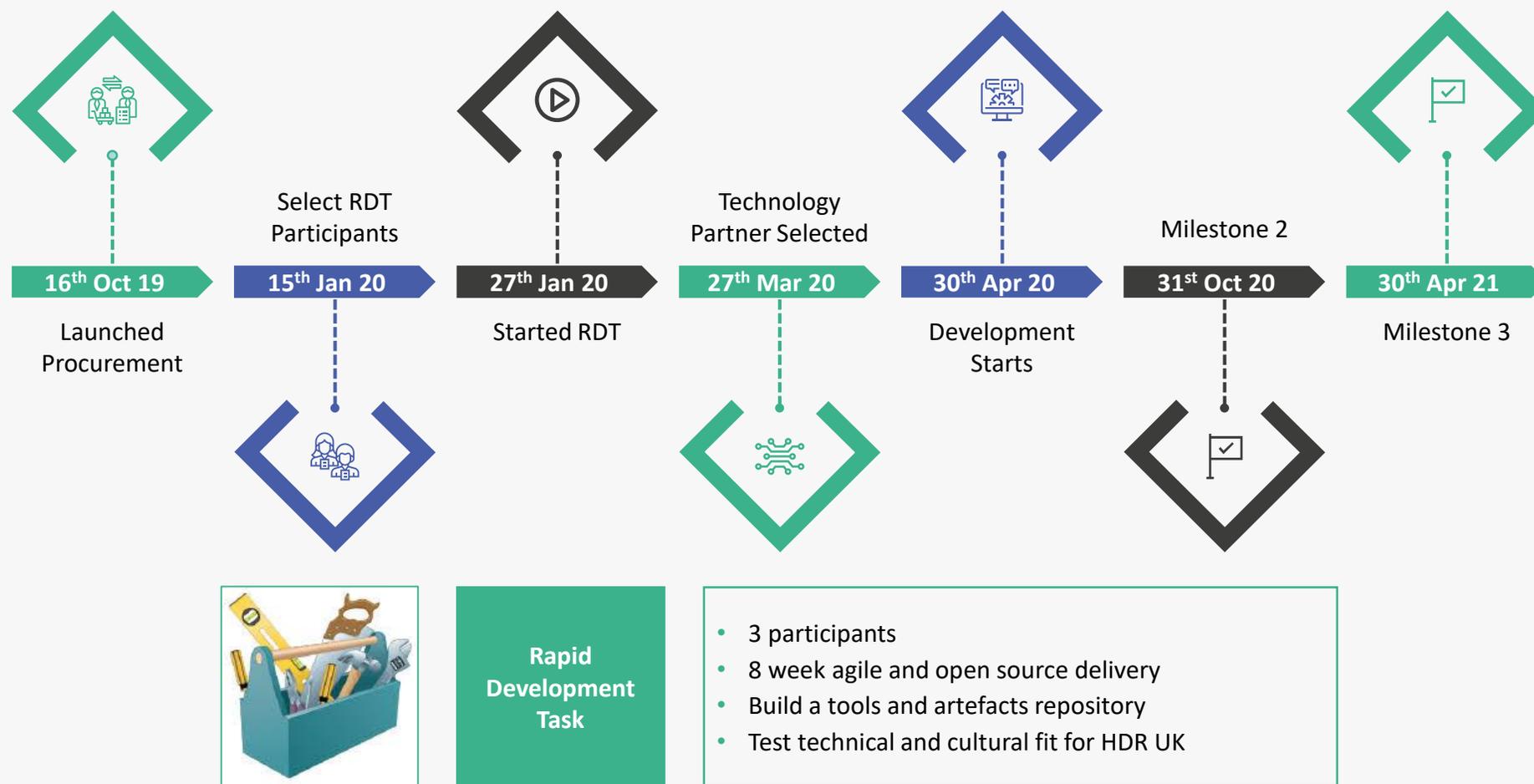
DERIVED DATASETS: The entire database is available to researchers, through the data access process. Pre-defined extracts are available at minimal cost (based on the principle that extraction processes previously developed will be re-used, thus incurring minimal costs for future researchers). These pre-defined extracts cover: Charlson comorbidity score • Frailty Index • Extracts of our monitored conditions. • Risk scores including: CHA2DS2-VASc score

Attributions

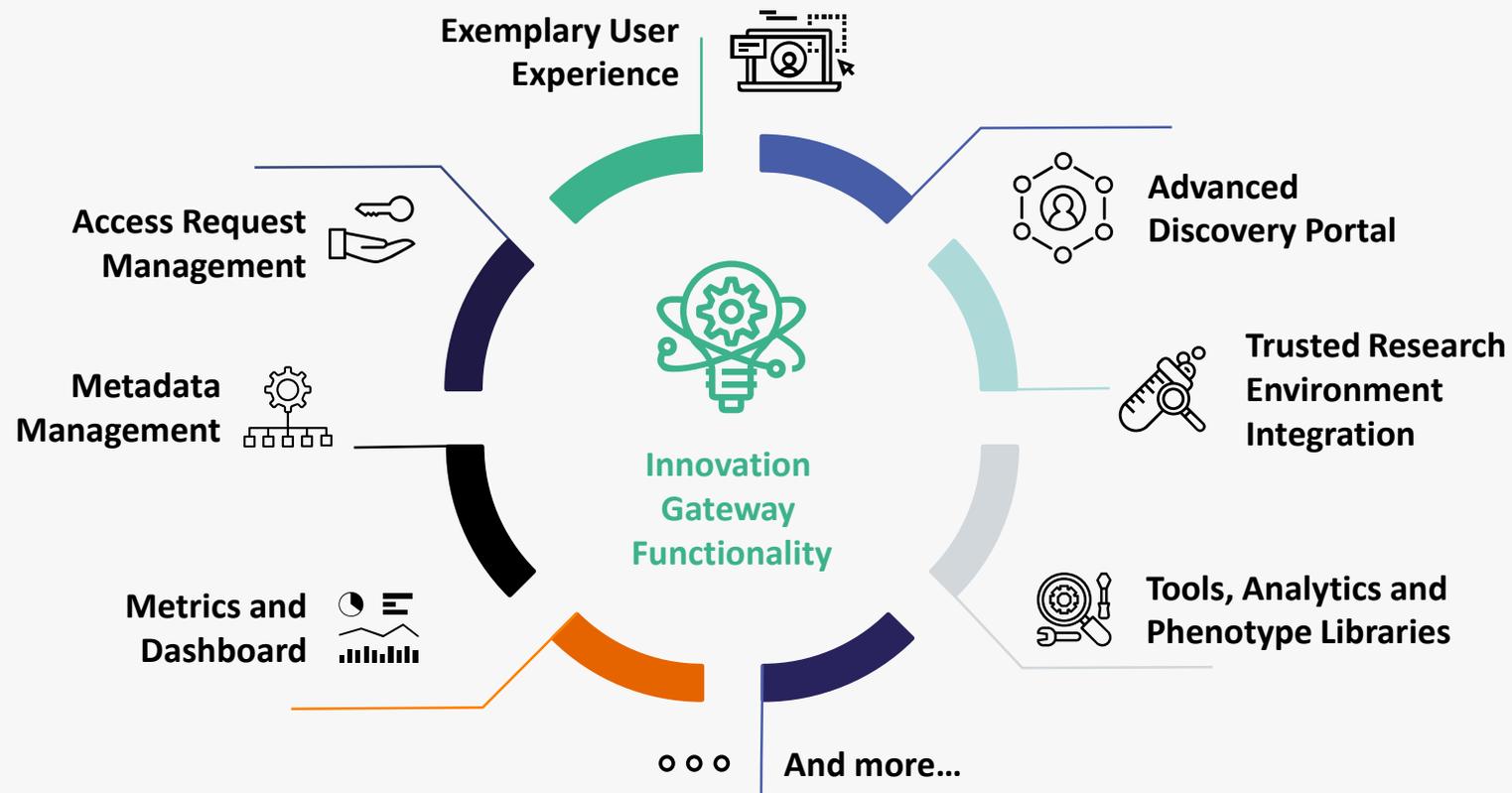
Next steps

- Improve metadata maturity across member organisations through continued support
- Iterate metadata specification and complete outstanding attributes
- Improve tooling and process automation
- Support members to create sustainable metadata pipeline
- Encourage members to publish an organisation metadata strategy

Innovation Gateway, building a Technology Partnership



Towards an End to End User Journey



“

Finally, please try the Gateway at
www.healthdatagateway.org

”

Thank you!

“

and provide feedback to
support@healthdatagateway.org

”

HDRUK

Health Data Research UK



THANK YOU



www.healthdatagateway.org

support@healthdatagateway.org





UK Health Data Research Alliance – Uniting the UK's health data

Jane Ingham, CEO, HQIP
Yvonne Silove, Associate Director, HQIP

David Seymour, Partnerships Director, Health Data Research UK

@HDR_UK | #hdralliance



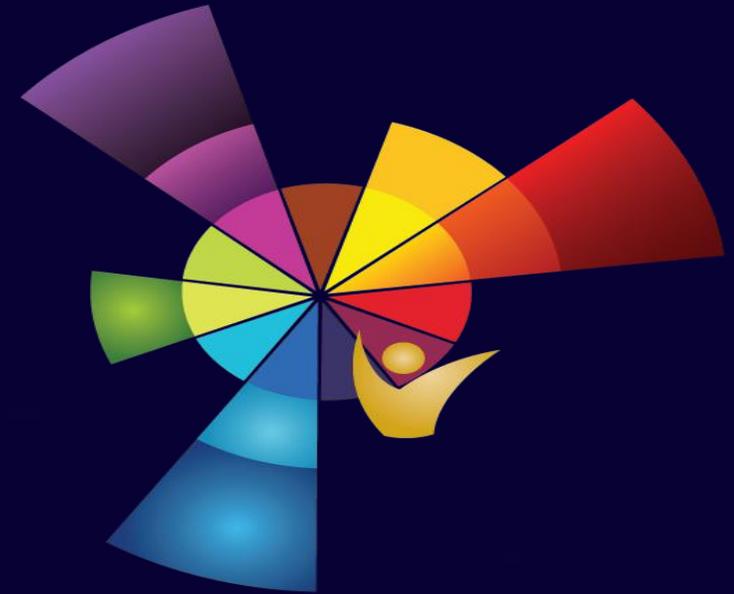
HQIP as a member of the Alliance - the journey so far

Jane Ingham

CEO

Yvonne Silove

Associate Director



Who is Healthcare Quality Improvement Partnership?



Our vision: enabling those who commission, deliver and receive healthcare to measure and improve services



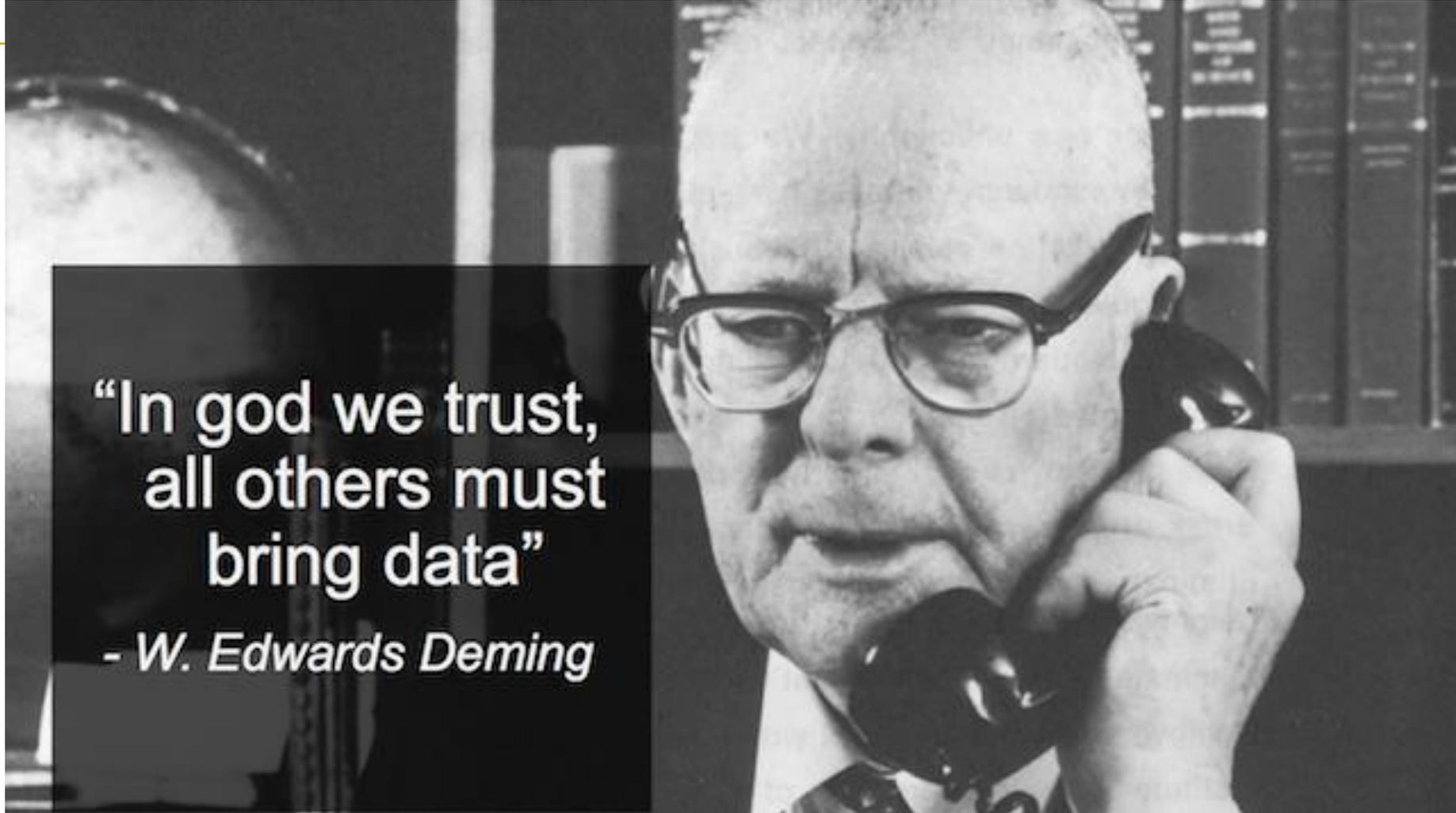
Our values: independent, working in partnership with patients and health professionals to improve practice



Our history: established in 2008, governed by the AoMRC, National Voices and RCN

ACADEMY OF
MEDICAL ROYAL
COLLEGES





“In god we trust,
all others must
bring data”

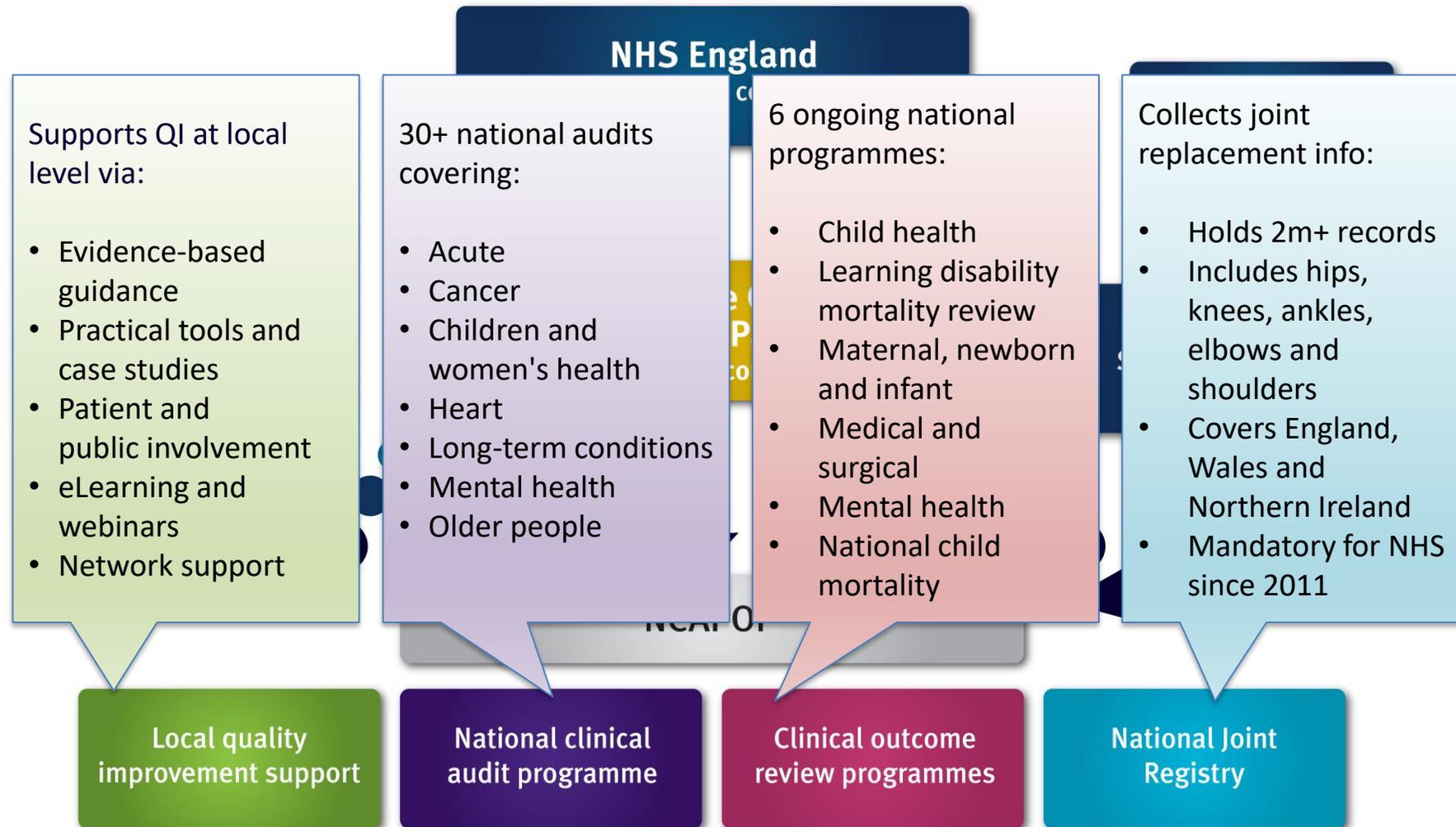
- *W. Edwards Deming*

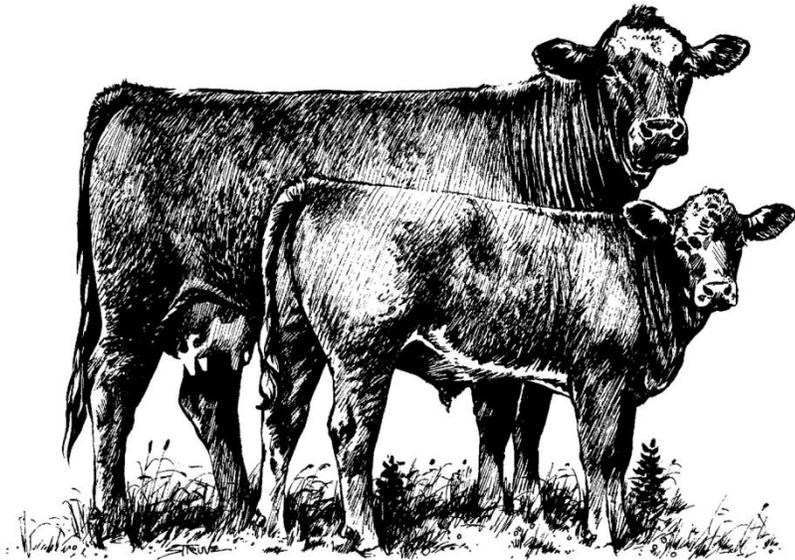


HQIP

Healthcare Quality
Improvement Partnership

A description of HQIP work programme





“You cannot fatten
a cow by weighing it”
- Palestinian Proverb

Use of data for improvement

Manchester Royal Infirmary
 Central Manchester University Hospitals NHS Foundation Trust
National Audit of Dementia



Metric	CQC Key Question	2017 Report ¹	National Aggregate (England)	National Standard	Comparison to other sites	
20 carers	Percentage of carers rating overall care received by the person cared for in hospital as Excellent or Very Good	Caring	80.00%	68.90%	N/A	8.7 60.0 76.7 100
110 staff	Percentage of staff responding "always" or "most of the time" to the question "Is your ward/ service able to respond to the needs of people with dementia as they arise?"	Responsive	78.80%	77.70%	N/A	30.8 71.4 84.6 100
55 casenotes	Mental state assessment carried out upon or during admission for recent changes or fluctuation in behaviour that may indicate the presence of delirium	Effective	20.00%	44.90%	N/A	0 27.8 61.4 98.0
39 casenotes	Multi-disciplinary team involvement in discussion of discharge	Effective	71.80%	81.90%	N/A	21.2 75.9 92.5 100



www.rcpsych.ac.uk/dementiareport2017

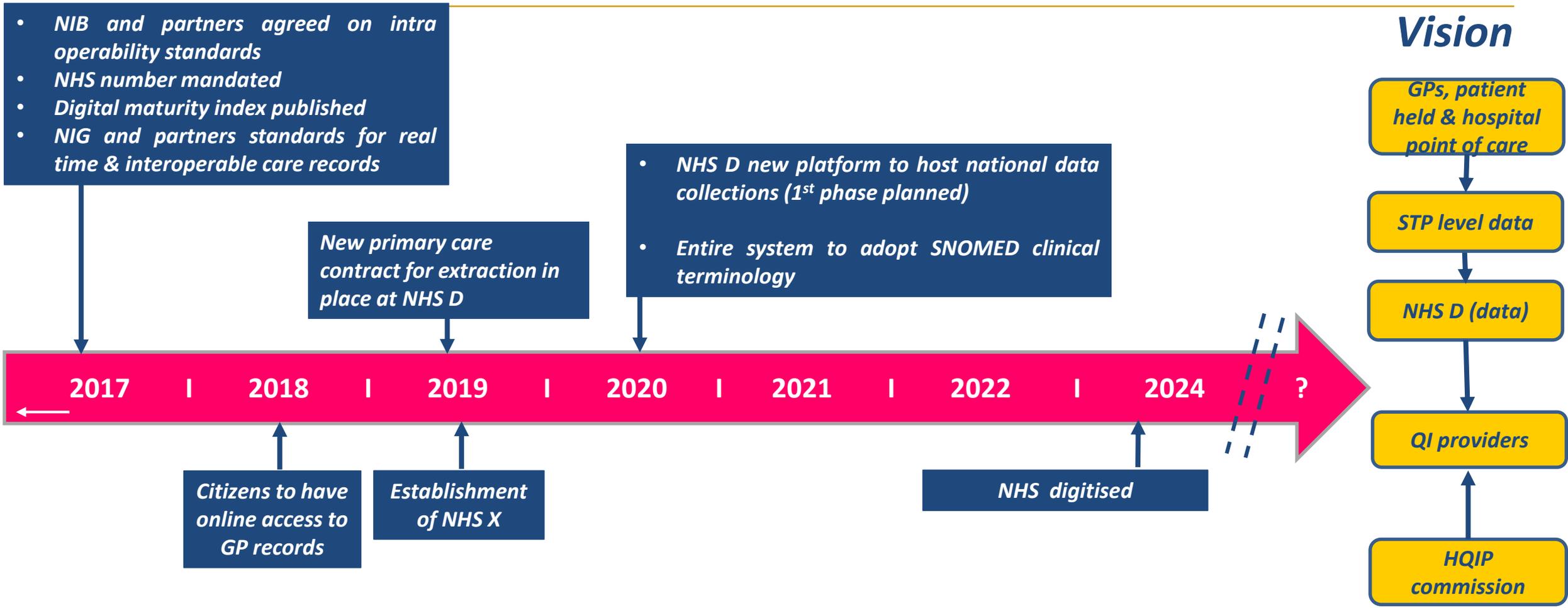
Produced by HQIP
 in partnership with the



KEY ONLY

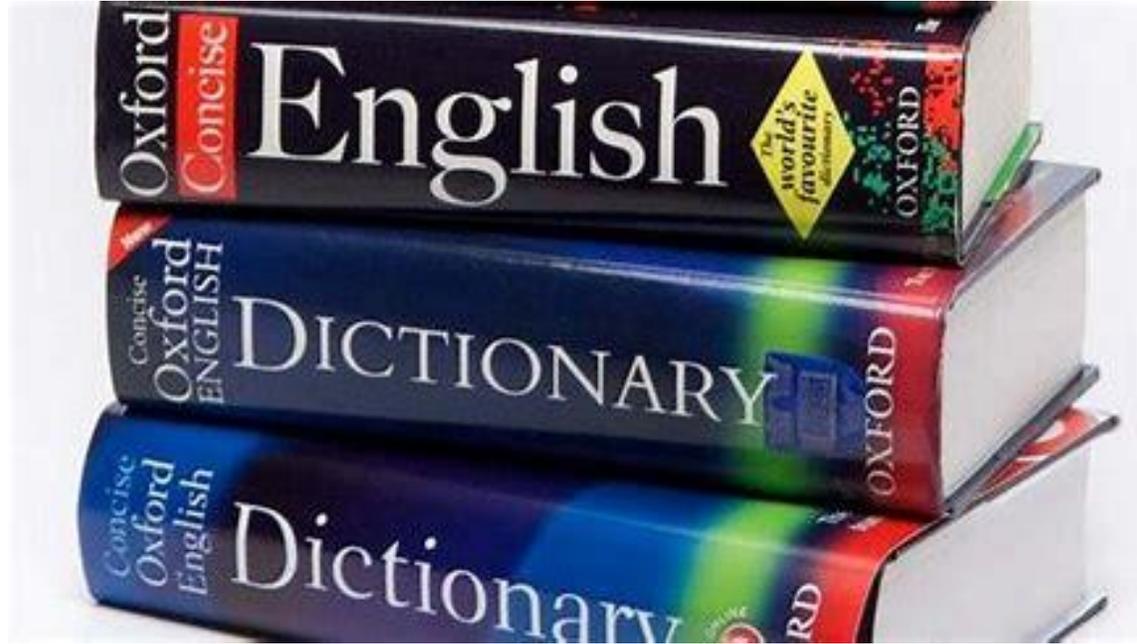


Information for QI in a digital NHS – steps to the *Vision*



Questions:

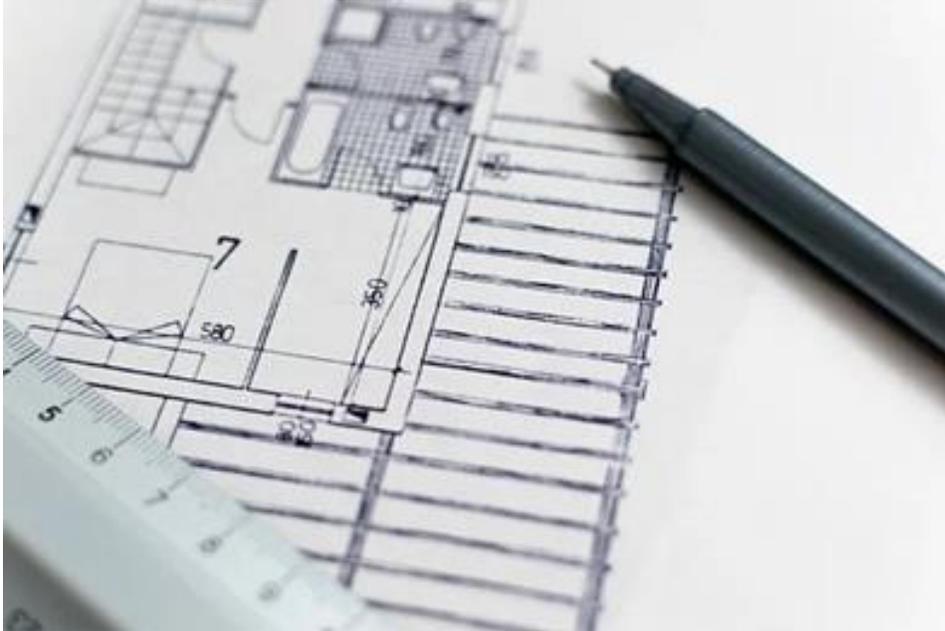
- Role and update of HES
- Patient objections - management of impact
- Influencing /positioning with EHR providers



Reflections on our journey so far...



Understanding the ambition, scope, design, ethos



Metadata Onboarding



Metadata Onboarding



Understanding Practice in Clinical Audit and Registries tool: UPCARE-tool

A protocol to describe the key features of clinical audits and registries

The Data Officers' Group



The Data Officers' Group



Clinical audit: New team registration



Complete this form to register a new team on the SSNAP webtool.

[Download Form](#)

SSNAP domains and key indicators

1. Scanning	
1.1	Proportion of patients scanned within 1 hour of onset
1.2	Proportion of patients scanned within 2 hours of onset
1.3	Proportion of patients scanned within 3 hours of onset
1.4	Proportion of patients scanned within 4 hours of onset
1.5	Proportion of patients scanned within 5 hours of onset
2. Stroke unit	
2.1	Proportion of patients directly admitted to a stroke unit within 8 hours of onset
2.2	Proportion of patients directly admitted to a stroke unit within 12 hours of onset
2.3	Proportion of patients directly admitted to a stroke unit within 16 hours of onset
2.4	Proportion of patients directly admitted to a stroke unit within 20 hours of onset
2.5	Proportion of patients directly admitted to a stroke unit within 24 hours of onset
3. Thrombolysis	
3.1	Proportion of eligible patients receiving intravenous thrombolysis
3.2	Proportion of eligible patients receiving intravenous thrombolysis within 4.5 hours of onset
3.3	Proportion of eligible patients receiving intravenous thrombolysis within 6 hours of onset
3.4	Proportion of eligible patients receiving intravenous thrombolysis within 7.5 hours of onset
3.5	Proportion of eligible patients receiving intravenous thrombolysis within 9 hours of onset
3.6	Proportion of eligible patients receiving intravenous thrombolysis within 10.5 hours of onset
3.7	Proportion of eligible patients receiving intravenous thrombolysis within 12 hours of onset
3.8	Proportion of eligible patients receiving intravenous thrombolysis within 13.5 hours of onset
3.9	Proportion of eligible patients receiving intravenous thrombolysis within 15 hours of onset
3.10	Proportion of eligible patients receiving intravenous thrombolysis within 16.5 hours of onset
3.11	Proportion of eligible patients receiving intravenous thrombolysis within 18 hours of onset
3.12	Proportion of eligible patients receiving intravenous thrombolysis within 19.5 hours of onset
3.13	Proportion of eligible patients receiving intravenous thrombolysis within 21 hours of onset
3.14	Proportion of eligible patients receiving intravenous thrombolysis within 22.5 hours of onset
3.15	Proportion of eligible patients receiving intravenous thrombolysis within 24 hours of onset

An easy to follow breakdown of SSNAP's 10 domains and 44 key indicators

[SSNAP domains and key indicators \(PDF\)](#)

SSNAP methodology



Overview on the methods of data collection, submission, and analysis on SSNAP

[Download SSNAP Methodology](#)

Current stroke datasets

The latest versions of the core and comprehensive stroke datasets

[SSNAP Core Dataset 4.0.0 \(Word\)](#)

[SSNAP Core Dataset 4.0.0 \(PDF\)](#)

[SSNAP Comprehensive Dataset](#)

How to register for the webtool



A step by step guide on how to register for the SSNAP webtool

[How to register for the SSNAP webtool](#)

Stroke dataset helpnotes



Helpnotes for users entering SSNAP data

[Helpnotes for core dataset 4.0.0](#)



View to the future



Thank you

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