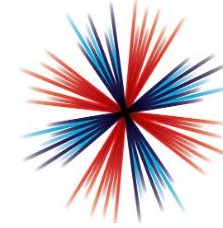




UK Research
and Innovation



INDUSTRIAL
STRATEGY

ISCF D2EDPM Challenge

Accessing Biomedical Data for Data Analysis

6th July 2022

Dr Janet Valentine

ISCF Challenge Director - Data to Early Diagnosis and Precision Medicine



UK Research
and Innovation

Data to Early Diagnosis and
Precision Medicine

Content



Overview of D2EDPM Challenge



Examples of achievements to date



Challenges to overcome

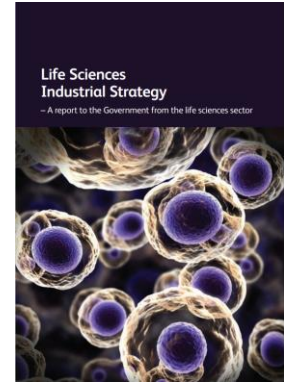
Investments in ISCF Data to Early Diagnosis and Precision Medicine Challenge



- **£100M Supporting genomics by:**
 - Whole genome sequencing of UK Biobank participants
 - Whole genome sequencing of cancer trial patients, in collaboration with Genomics England
 - CR&D projects whole genome sequencing for more targeted cancer therapies
- **£37.5M: Building an integrated health data landscape** in partnership with Health Data Research UK
 - Funding six digital innovation hubs
 - UK Health data alliance and Health Data Gateway
- **£76M: Supporting earlier and more accurate diagnosis** by
 - Creating five Centers of Excellence in digital pathology, imaging and AI
 - CR&D projects in partnership with Cancer Research UK, to integrate multiple diagnostic modalities to provide earlier and more accurate diagnosis
 - Supplemented by £50M capital investment funding from the Department of Health



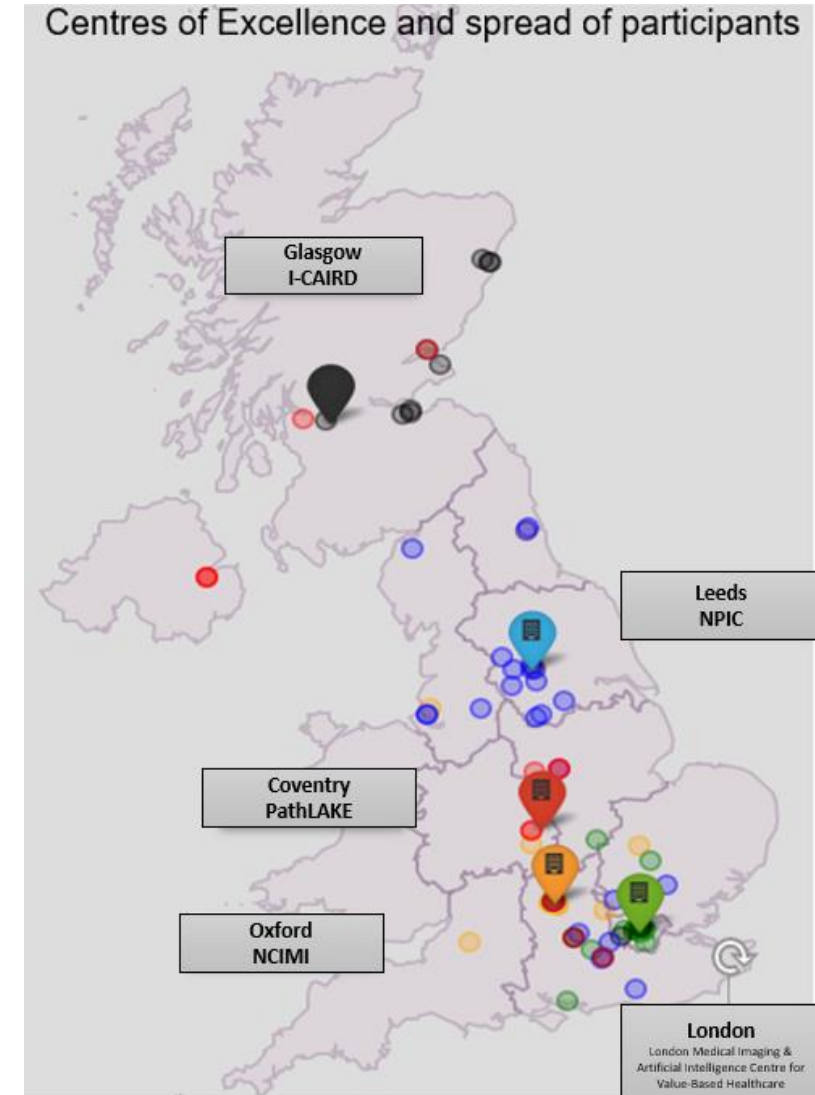
Total £210M UKRI funding has leveraged £253M co-funding from 85 Companies and charities



5 Centres in digital pathology, imaging and AI



- ~100 partners inc 30 SMEs, NHS and research organisations
- ISCF funding £49.7m, leveraged funding £41.3m
 - Digital pathology focus: *NPIC and PathLAKE*
 - Radiology/in-vivo imaging focus: *LMIAIC and NCIMI*
 - Digital pathology and in-vivo imaging focus: *ICAIRD*



Integrated diagnostic solutions for early detection



INCISE

Lead: University of Glasgow

- CANON Medical Research Europe, Limited
- BIOCLAVIS Limited
- NHS Greater Glasgow and Clyde
- ORACLEBIO Limited

ID-LIVER

Lead: The University of Manchester

- University of Nottingham
- TRUSTECH Smart Healthcare Ventures Limited
- The Sollis Partnership Limited
- SECTRA Limited
- Roche Diagnostics Limited
- Manchester University NHS Foundation Trust
- PERSPECTUM Diagnostics LTD
- GE Medical Systems Limited
- Northwest eHealth Limited
- JIVA.AI Limited
- Health Innovation Manchester
- Octopus Investments Limited
- Nottingham University Hospitals NHS Trust

ACTIONED

Lead: Queen's University, Belfast

- Roche Diagnostics Limited
- Sonrai Analytics Ltd

iDx-LUNG

Lead: University of Southampton

- University of Leeds
- Roche Diagnostics Limited
- BC Platforms
- Leeds Teaching Hospital NHS Trust
- Janssen

DART

Lead: University of Oxford

- Royal Brompton & Harefield NHS Fdn Trust
- GE Healthcare Limited
- Roche Diagnostics Limited
- OPTELLUM Ltd
- Nottingham University Hospitals NHS Trust
- Royal Marsden NHS Foundation Trust
- Roy Castle Lung Cancer Foundation

DELTA

Lead: University of Cambridge

- Newcastle University
- University of Oxford
- King's College London
- Health Data Insight C.I.C.
- Cambridge University Health Partners
- Foundation for Genomics & Population Health
- CYTED Ltd
- West Yorkshire and Harrogate Cancer Alliance
- Heartburn Cancer UK
- Action Against Heartburn

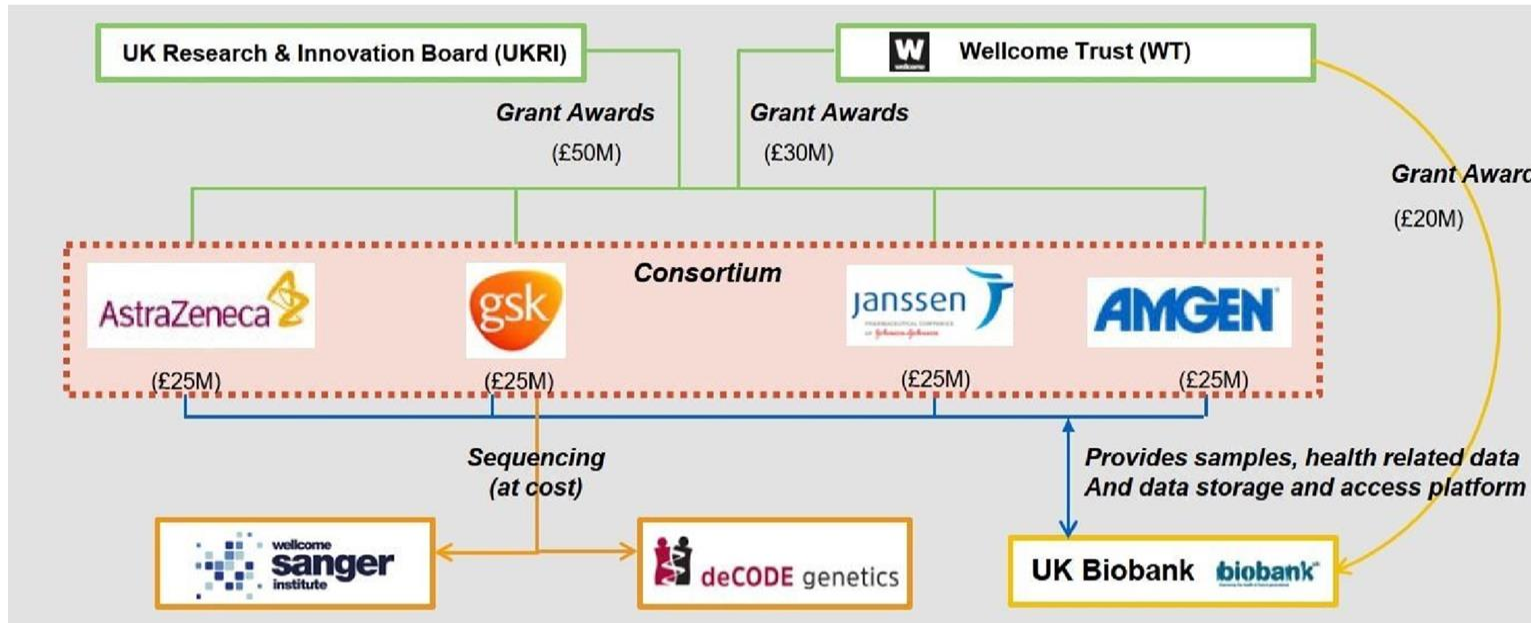
CROHN'S

Lead: Motilent Ltd

- Nottingham University Hospitals NHS Trust
- University College London
- Great Ormond Street



UK Biobank Whole Genome Sequencing



£200M project (+ Vanguard phase)

- £50M ISCF
- £50M Wellcome
- £100M Industry

Data platform funded by Wellcome (£20M)



- Sequencing completed in December 2021
- First 200,000 sequences available in September 2022
- Remaining 300,000 sequences available in mid 2023

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datasets

774

tools

182

data uses

840

courses

199

papers

2,119

dataset requests

538

registered users

2,200

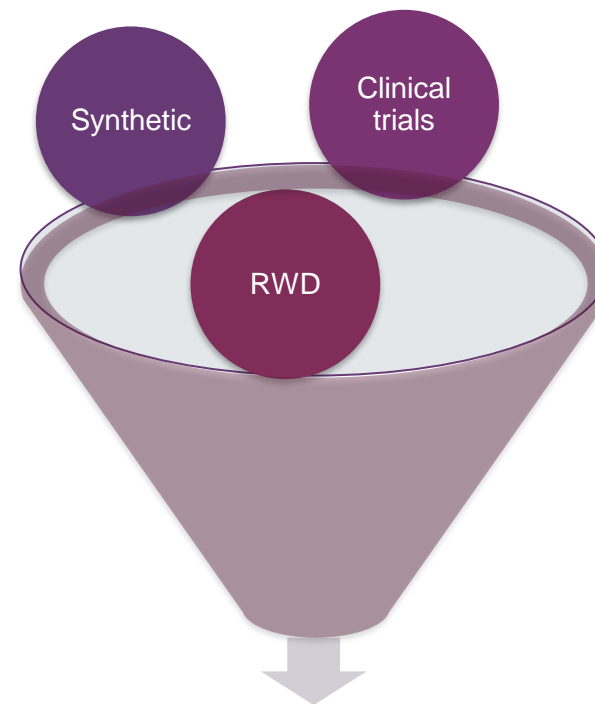
searches last month

8,389

- 700+ datasets
- Cohort Discovery
- Search via data utility
- Metadata federation

Challenge – creating AI algorithms with minimum bias?

STAGES



Robust validated algorithms



Challenge – meaningful integration of data from different modalities and sources

