

Health Data Research UK

Applicant information

Job description and person specification

Post:	BHF Data Science Centre – Associate Director: Computable Cardiovascular Phenotypes Theme Lead
Location:	Primary base could be anywhere in the UK, but must be willing and able to travel to London and elsewhere (mainly UK) in connection with the role
Salary:	This post would be suitable as a secondment
Duration:	Approx. 1 day/week for 2 years in the first instance (with the possibility to extend longer term). A lesser or greater time commitment may be considered for the right candidate
Reporting to:	Director, BHF Data Science Centre (Professor Cathie Sudlow)

About Health Data Research UK

Health Data Research UK (HDR UK) is the UK's national institute for health data science. Our mission is to unite the UK's health data to enable discoveries that improve people's lives. It is funded by UK Research and Innovation, the Department of Health and Social Care in England and equivalents in Northern Ireland, Wales and Scotland, and leading medical research charities.

HDR UK was set up in 2018 to support research on health data at scale to advance our understanding of disease and enable new discoveries that will ultimately improve health and care. We have established national research programmes that use data at scale, and we are building an infrastructure to enable the responsible access and analysis of this data. Our work is structured around three key themes:

- Uniting health data – including our work with data custodians through the [UK Health Data Research Alliance](#) and on making health data discoverable and accessible through the [Health Data Research Innovation Gateway](#).
- Improving health data – incorporating contributions from HDR UK's [Human Phenome](#) and [Applied Analytics](#) priority areas, the [Health Data Research Hubs](#) and the [BHF Data Science Centre](#), including our work on improving data quality and standards, on data curation, and on developing tools and methods for sharing, linking and analysing data.
- Using health data –including our work on research discoveries and skills development across four national priority areas: [Understanding the Causes of Disease](#), [Clinical Trials](#), [Public Health](#) and [Better Care](#).

We are delivering this strategy through our inclusive, team-oriented One Institute ethos - bringing together NHS, universities, research institutes and charities.

About the BHF Data Science Centre

The [British Heart Foundation \(BHF\) Data Science Centre](#), is building on a £10m initial investment from the BHF to deliver the data and data science needed to address some of the most pressing challenges in heart and circulatory health research.

The centre works in partnership with patients, the public, NHS, researchers and clinicians to promote the safe, ethical and scientifically robust use of data for research into the causes, prevention and treatment of all diseases of the heart and circulation (including, for example, heart attacks, heart failure, heart rhythm disorders, stroke, peripheral vascular disease and vascular dementia).

The BHF Data Science Centre does not hold data itself. Instead, it works with relevant data custodians, including through the UK Health Data Research Alliance and Health Data Research Innovation Gateway, to provide knowledge and expertise to help researchers from the NHS, academia and industry find, access, understand, connect and analyse the UK's unique cardiovascular 'big data' from national registries, NHS electronic medical records, cohorts and other relevant datasets.

The aim of the centre is to enable responsible, ethical research that combines the power of advanced analytic methods with the UK's large-scale and diverse cardiovascular data. High impact outputs will help to shape better cardiovascular health services, provide patients and health professionals with the tools to make better decisions, and bring the latest medical discoveries to patients across the UK faster than ever before.

Extensive and ongoing engagement with key stakeholders has shaped the development of the centre's six thematic areas:

- Better access to and use of structured health data UK population-wide for cardiovascular research
- Better access to and use of unstructured health data (including imaging data) at scale for cardiovascular research
- Enabling large-scale use of personal monitoring data in a wide range of cardiovascular research
- **Developing and refining computable cardiovascular phenotypes for different applications**
- Supporting discoveries of cardiovascular disease causes, prediction, early detection, prognostic tools and treatments using population and disease-based cohorts ("Enhancing Cohorts")
- Developing methods and infrastructure for large, efficient, data-enabled cardiovascular trials

The computable cardiovascular phenotypes thematic area will focus on the development and use of reproducible and innovative phenotyping algorithms using a wide range of health datasets (e.g. hospital admissions, primary care, medicines data, cohorts, biomarkers, imaging, free text), to standardise the way cardiovascular symptoms, risk factors and diseases are described, essential for the delivery of research into the causes, prediction, progression and management of cardiovascular disease (covering both common and rare cardiovascular diseases). A major initial focus will be on providing leadership in the assessment of data sources linked together as part of the [CVD-COVID-UK/COVID-IMPACT](#) programme of work, to understand, compare and validate the range of data sources for defining cardiovascular phenotypes.

Purpose of the post

This is an exciting opportunity to take on a national leadership role to work with the BHF Data Science Centre on a part-time secondment basis. The Computable Cardiovascular Phenotypes Theme Lead will be a key member of the BHF Data Science Centre leadership team, taking on an Associate Director role. They will work closely with the Director, other Associate Directors and centre staff to identify and prioritise key areas of work in the development, refinement and use of phenotyping algorithms for cardiovascular research with impact at national and international level. They will have an excellent understanding of, and expertise in, the development and use of computable phenotypes (from simple code lists through more complex methods that combine structured and unstructured data sources) in health research, and a strong commitment to open science and sharing of tools and approaches to further the understanding of causes, prediction, progression and management of cardiovascular disease.

Supported by the BHF Data Science Centre team, the postholder will work with stakeholders across the UK to:

- identify priority research questions for development and use of computable cardiovascular phenotypes;
- identify where developing and refining algorithms to define and standardise cardiovascular phenotypes and sub-phenotypes are required;
- work closely with Associate Directors from other thematic areas to drive development of computable phenotypes¹ across a wide range of health data (including from electronic health records, hospital record data, imaging and free text), identifying and linking new data sources where appropriate.
- identify and address the infrastructure and data-driven analytics challenges that need to be overcome to ensure that robust and reproducible computable phenotypes from large-scale health data can be developed and validated to inform the causes, prediction, progression, prevention and treatment of cardiovascular diseases.

There will be overlap with the centre's other thematic areas and collaborative working with other leads across these themes is expected. Collaboration with HDR UK's '[Human Phenome](#)' project and the [HDR UK CALIBER Phenotype Library](#) will be essential. Close working with HDR UK's Data Improvement Team is also expected, for example on data utility, data standards and synthetic data.

This part-time role would provide leadership and strategic planning in the development and use of computable phenotypes for cardiovascular research, to meet the wider objectives of the BHF Data Science Centre in improving cardiovascular health through the use of large-scale data and innovative analytical methods.

This post would suit a health data scientist (either clinical or non-clinical) with expertise in developing and validating computable phenotype algorithms, who is an established leader or well advanced on a career pathway towards a leadership position within this field.

Main responsibilities

¹ Computable in this context implies machine readable and/or machine executable

- Provide leadership to bring together research, clinical, epidemiological and data science networks, professional societies, NHS organisations, patients, public, industry and wider stakeholders within the health data science community to shape, influence and build consensus on the development and use of computable cardiovascular phenotypes for cardiovascular research, across a wide range of health data sources. An ability to see the bigger picture is key in order to ensure benefit to the wider community.
- Create and maintain new partnerships and build on existing partnerships with the data science, and cardiovascular communities, NHS organisations, industry, patients and public, regulatory and information governance partners to identify and prioritise the key challenges of developing computable cardiovascular phenotypes across a wide-range of health data. The postholder will also build on existing partnerships and collaboration opportunities with relevant HDR UK initiatives, such as the Human Phenome project and the HDR UK CALIBER Phenotype Library.
- Work with the cardiovascular and health data science communities, patients and public, industry and the BHF Data Science Centre Director to identify suitable exemplar driver projects that will highlight and address key requirements in this thematic area. In collaboration with the wider phenomics and data science communities, provide strategic leadership in the development of novel and/or reproducible methodological and analytical approaches.
- Provide strategic direction and champion a team science approach to deliver projects, providing negotiation and brokering skills where necessary to drive improvement in the refinement and use of computable phenotypes for cardiovascular research.
- Work with the BHF Data Science Centre Director and team to:
 - lead on the development of strategic plans for this thematic area;
 - direct the development of full-scale project plans and subsequent reporting for this thematic area.

Day-to-day project management and administrative support will be provided by the centre team.

- Contribute to and lead on funding applications and, in collaboration with the BHF Data Science Centre and HDR UK, identify opportunities and provide content to communicate milestones, deliverables and impact of the activities of the computable cardiovascular phenotypes theme.

Planning and organising

The postholder will lead on the development of a strategy and delivery plan to meet the objectives of the BHF Data Science Centre in computable phenotypes for cardiovascular research. This will require leading the small BHF Data Science Centre team in planning and organising project plans for this area as well as providing oversight across a number of complex projects to ensure delivery of objectives within deadlines.

Problem solving

This role involves significant application of prior knowledge accumulated from professional and /or academic experience. An enhanced level of initiative and problem-solving ability is needed to develop new ideas and novel approaches in response to issues and research problems, as well as tenacity to resolve infrastructure, organisational or governance bottlenecks. This approach will involve sharing knowledge and

development with leading experts in the field, requiring collaboration, excellent negotiating skills and creative thinking. Considerable strategic awareness will need to be used.

The postholder will operate with significant independence and will make effective judgements on when to escalate issues to the Director or other senior HDR UK colleagues.

Decision making

Responsibility for developing and delivering on the strategy for the computable phenotypes thematic area, in collaboration with the Director.

Initiate, develop and build on opportunities for collaborative working with the broader members of the cardiovascular and health data science communities, NHS organisations, patients and public, industry, wider HDR UK community, relevant national and international partners and organisations.

Continuous improvement

HDR UK is dedicated to continuous improvement through our quality management system and has achieved ISO 9001 accreditation. The post-holder will review, analyse, identify and implement opportunities for quality improvement within their role and as part of the wider team through our strategy development and internal audit processes.

Key contacts/relationships

The post holder will work closely with the BHF Data Science Centre Director, Associate Directors, and the centre team. They will build and maintain effective working relationships with colleagues within and across HDR UK, partners in the British Heart Foundation, NHS organisations, the wider cardiovascular and health data science communities, partners in substantive HDR UK Hubs and sites, and other key stakeholders.

Eligibility

Candidates must:

- hold a substantive post at a UK organisation
- have a contract of employment at their organisation that extends up to 2024 or beyond,
- have the written support of their organisation before applying (an institutional supporting letter will be required for the application)

Knowledge, skills and experience

Experience

- Extensive experience of the development, validation and use of computable phenotyping algorithms in health research using innovative analytical approaches, particularly in furthering understanding, of causes, prediction, progression and management of disease.
- Knowledge of advanced analytic approaches (e.g., AI and/or machine learning) and their application to analysis across routinely collected and other health data sources in health research.

- Expertise in working with large-scale health-related data, deriving variables from electronic health records and/or other health data sources, and advanced understanding of the complexities, challenges and limitations in research studies.
- Proven leadership skills to provide direction and deliver change across the UK.
- Ability to lead and inspire trust in a wide range of stakeholders and to build consensus across multiple stakeholders.
- Well connected with research networks, NHS organisations, professional societies, industry and wider stakeholders in one or more of the following: phenomics, wider health data science and cardiovascular communities.
- Experience of working with patients and the public in planning and delivering research.
- Commitment and ability to bring together people, infrastructure and innovative methodologies to drive forward improvements/changes through exemplar projects.

Skills

- Excellent influencing and negotiating skills
- Creative and innovative thinker
- Personal drive and ambition to provide leadership in the area of computable phenotypes in cardiovascular research
- A commitment and enthusiasm to engaging with patients, the public, and patient and public involvement networks/organisations in computable phenotypes for cardiovascular research is essential.
- Excellent communication skills with the ability to listen to and bring on board a wide range of stakeholders with competing priorities and views
- Excellent networking skills with a desire to work collaboratively to achieve goals
- Excellent organisational and time management skills, with the ability to manage competing priorities and issues under time pressures.
- Ability to work flexibly with a small core support team.

Dimensions

- This role is a secondment for approx. one day/week to provide leadership and strategic planning in computable phenotypes for cardiovascular research. This is one of the BHF Data Science centre's six thematic areas enabling cardiovascular health data science.
- The expectation is that the post holder will work with the BHF Data Science Centre Director, Associate Directors of other thematic area and the centre team to meet the objective of improving the UK's cardiovascular health using large-scale data and advanced analytics.
- We are committed to open source, transparent and reproducible research and will release tools, algorithms and approaches under an open-source licence.
- The BHF Data Science Centre will provide project management and administrative support to the post-holder in their role.
- The post-holder will be expected to work flexibly to fit the requirements of the role.

- HDR UK is a national institute, and our activities take place across the UK. Therefore, the post-holder should be willing to undertake travel within the UK and occasionally internationally when required.

Application Process

Interested applicants are encouraged to contact the BHF Data Science Centre Director to discuss further: Cathie.Sudlow@hdruk.ac.uk

Prior to application, candidates are encouraged to discuss with their line manager / other relevant senior colleagues how this part-time secondment position would fit with their existing post.

Please apply with a CV (*include up to **20** of your most relevant publications and up to **10** of your most relevant grants, if relevant*) and covering letter of no more than 500 words explaining what you can bring to this role to: hdruk@gravitatehr.co.uk

The closing date for this vacancy is 5pm on Monday 27 September 2021

Interviews will take place on 5 October 2021, interviews will take place via Zoom.

Equal Opportunities Policy Statement

Health Data Research UK is an equal opportunities employer, and as such aims to treat all employees, consultants and applicants fairly. It is our policy to provide employment equality to all, irrespective of:

- Gender, including gender reassignment
- Marital or civil partnership status
- Having or not having dependants
- Religion or belief
- Race (including colour, nationality, ethnic or national origins)
- Disability
- Sexual orientation
- Age

We are opposed to all forms of unlawful and unfair discrimination. All job applicants and employees who work for us will be treated fairly and will not be unfairly discriminated against on any of the above grounds. Decisions about recruitment and selection, promotion, training or any other benefit will be made objectively and without unlawful discrimination.