An opportunity for Cardiovascular and Diabetes Data Science Projects: Call for Funding (CFF)

31st March 2023

Overview

Funder:	HDR UK (via BHF Data Science Centre)
Amount:	In total up to £500,000 (Up to £150,000 ring-fenced for diabetes research) available. Expectation to fund 8-12 projects
Duration:	10 Months
Start date:	June 2023

1. Funding Call Summary

This BHF DSC rapid grant funding call offers researchers the opportunity to apply for funding to support cardiovascular and/or diabetes data science projects. Projects must be delivered within the Trusted Research Environments (TREs) enabled by the BHF Data Science Centre via the CVD-COVID-UK/COVID-IMPACT consortium approval. Projects may be chosen to use data across one or more of the three nations.

CVD-COVID-UK/COVID-IMPACT

The CVD-COVID-UK program allows linkage across patient datasets within three national TREs to understand the relationship between COVID-19 and cardiovascular disease. Approved researchers can remotely access and link de-identified datasets including national hospital, primary care, mortality, and Covid-19 test data with cardiovascular datasets, all within a secure TRE. Cardiovascular disease includes diseases of the heart and circulatory system (stroke, peripheral vascular disease can be included), as well as associated risk factors and morbidities such as the link between diabetes and cardiovascular disease. *OUT OT SCOPE*: The COVID-IMPACT program is an expansion of the CVD-COVID-UK to address research questions looking at the impact of COVID-19 on other health conditions and their related risk factors, COVID-IMPACT projects **cannot** be considered for this funding call.

Cardiovascular and diabetes research projects

This proposal seeks to support new or existing research projects to deliver results while working collaboratively within the CVD-COVID-UK Consortium.

Applicants can choose to:

➢ Build on and accelerate existing projects, with new or existing collaborations
➢ Apply for funding for approved projects that are currently unfunded
➢ Submit new projects
➢ Submit new projects with full Health Data Science support (2 projects maximum, see below)

The BHF DSC Health Data Science team will provide data management and curation support to all projects (section 6). There is also a limited opportunity for applicants to request seek support from the BHF DSC Health Data Science team for the full data curation and analysis pipelines and generation of all of the required outputs for the project. This 'end-to-end service' will be limited to 2 projects and is dependent on a well specified analysis plan that the Health Data Science team can deliver.

General Requirements

Projects should align with the aims of the CVD-COVID-UK program and the impact of COVID-19 on heart and circulatory diseases: https://www.hdruk.ac.uk/projects/cvd-covid-uk-project/. Projects should have a direct, tangible benefit to consortium members.

Projects should incorporate one or more key areas of focus for the Data Science Centre (see https://www.hdruk.ac.uk/helping-with-health-data/bhf-data-science-centre) including Computable Phenotypes, Population-wide linked Structured Data and Diabetes

Projects must be delivered rapidly (within 6-9 months)

Projects should be clearly designed to have a positive impact on healthcare and/or reduce inequalities
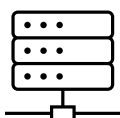
Projects must be deliverable using currently available data. The current datasets available within the TRE's under CVD-COVID-UK/COVID-IMPACT can be found here: https://www.hdruk.ac.uk/wp-content/uploads/2023/03/230309-CVD-COVID-UK-COVID-IMPACT-TRE-Dataset-Provisioning-Dashboard.pdf. Projects may be run using data across one or more of the three nations.

Teams should demonstrate that Patient and Public Involvement and Engagement (PPIE) is an integral part of the proposed work. This should include the following considerations:

- The research should have the potential to make a positive impact on the lives or experience of patients and may have the potential to be used in healthcare in the UK.

- The team should provide evidence that they have consulted with patients, carers, and the public in the design of their research.
- The team should demonstrate how they will continue to engage with patients and the public throughout the study and how they will respond to feedback.

Diabetes Data Science Catalyst - additional requirements

Proposals relevant to the Diabetes Data Science Catalyst must also:

Be relevant to the intersection of cardiovascular disease and diabetes

Build resources for the diabetes community

Help to promote the Diabetes Data Science Catalyst

Ensure that project teams are willing to contribute to a fortnightly working group with other analysts and members of the BHF DSC health data science team to share experience and to contribute to the diabetes data quality and code within the TRE

Project teams should demonstrate the general PPIE criteria above and consider the recently published priorities for diabetes research and how their work aligns with them. The priorities can be found here.: https://www.diabetes.org.uk/resources-s3/public/2020-09/Diabetes%20UK%20Research%20Strategy%202020-2025_0.pdf

2. Eligibility criteria

The lead applicant should be based at an eligible research organisation. These include:

- Higher education institutions
- Approved independent research organisations or NHS bodies
- Government-funded organisations
- Institutes and units funded by research councils

Number of applications

Applicants may only submit one application to this initiative as a principal investigator but may be involved in more applications if listed as a co-investigator.

3. Selection criteria

Teams must be able to produce evidence that:

- Their project includes cardiovascular and/or diabetes data science research and links to Covid-19

- Applicants are existing members of or willing to join the CVD-COVID-UK/COVID-IMPACT consortium https://www.hdruk.ac.uk/projects/cvd-covid-uk-project/ (and agree to the consortium principles of participation). If the project is of relevance to the Diabetes Data Science Catalyst, applicants must also be willing to join the diabetes working group.

- Their projects incorporate one or more key areas of focus for the BHF Data Science Centre

- They can commence work by June 2023, with all resources and capability required to deliver the project in place

- They have the requisite scientific expertise, capability and track record to deliver the project

- The project is feasible, the quality of scientific content is high, and the project design reflects the call requirements

- For projects of relevance to the Diabetes Data Science Catalyst that the project will meet one or more of the 'Additional requirements' outlined in section 1 and agree to the Additional Diabetes UK Requirements as set out in Appendix A of this Call for Funding)

- PPIE is an integral part of the proposed work, ensuring that the PPIE criteria in section 1 have been considered and demonstrated in the application

- They are committed to collaborative open and team science approaches, including engaging throughout with the wider research and policy community

- They agree to complying with the Terms and Conditions of Funding as set out in Appendix A of this Call for Funding and the HDR UK Additional Requirements as set out in Appendix B.

- Full service projects will be selected based on

  - Fit to the call requirements

  - Scientific excellence within the proposal

  - Scientific expertise and capability of the investigator

  - Broader impact to population health

A Final Report outlining the project's key findings will be due by 30th April 2024. It is expected that peer reviewed publications will be completed and published beyond April 2024.

4. Proposed Schedule

- End of March 2023 – Funding call launched across BHF Data Science Centre community and promoted via partners including Diabetes UK and BHF
- 21st April deadline for any questions or clarification
- **1st May 2023 – Call closes, submission of forms and costs templates by 5pm BST**
- 19th May 2023 - panel review completed, final decisions made and applicants informed
- 19th May – 9th June 2023 – Contracting
- w/c 19th June 2023 – projects commence
- 30th April 2024 – projects complete
- 30th June 2024 - Final reports submitted

5. Funding available

In total up to £500,000 (of which up to £150,000 is ring-fenced for diabetes-related projects) is available for this funding call. We expect to fund 8 – 12 projects. For this award HDR UK will fund 100% of direct costs to the grant, and not on a proportion of full economic costing (fEC) basis. Organisational overheads and any activities not directly contributing to the research are not eligible for funding.

Data access costs for the relevant TRE do not need to be included in the grant proposal as they will be covered separately by the BHF Data Science Centre.

- Eligible costs
    - o Salary costs for staff working directly on the research project (e.g., research analysts, project management staff)
    - o Other direct costs to the study (these should be detailed in the budget template)
- Ineligible costs
    - o Travel and subsistence
    - o Indirect and estate costs
    - o PhD studentship costs

6. Support Available

All funded projects will benefit from data management and curation support from the BHF Data Science Centre Health Data Science team. The Health Data Science team is available to provide support with:

- Understanding and interpreting datasets
- Using datasets and signposting to existing resources (e.g., data curation code)
- Full development of data curation pipeline code

There is also an opportunity for applicants to request an end-to-end service from the Health Data Science team, which includes the delivery of the full data curation and analysis pipelines and generation of all the required outputs for the project, for example:

- Model summaries and outputs
- Publication tables
- Data visualisations

This end-to-end service will be limited to 2 projects and is dependent on a well specified analysis plan that the Health Data Science team can deliver.

Applicants will also join the CVD-COVID-UK/COVID-IMPACT Consortium. This supportive group meets monthly to discuss ongoing projects, methods, updates, and developments.

7. Grant application

Please provide by 16.00 on 1st May 2023 to bhfdsc@hdruk.ac.uk

- Completed proposal form
- Costing template (excel template provided)
- Accompanying materials collated into one pdf document, including:
  - Project plan Gantt chart indicating clear milestones for deliverables or project phases
  - Risk register - include risks to delivery within timeframes and mitigating action
  - CVs for all named applicants (max half page per applicant).

Please submit all enquiries, clarifications, and completed applications to bhfdsc@hdruk.ac.uk. The final date for queries will be 21st April 2023.

8. Terms and Conditions

Awards issued under this Call for Funding shall be subject to the Terms and Conditions of Funding as set out in Appendix A and the HDR UK Additional Requirements as set out in Appendix B.

9. About the BHF Data Science Centre

The **British Heart Foundation (BHF) Data Science Centre**, which launched in January 2020 and is embedded within HDR UK, 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 centre also hosts the diabetes data science catalyst, which enables access to and use of data from people with diabetes. Research enabled by the catalyst will enhance our knowledge of the links between diabetes

and cardiovascular disease; facilitate a deeper understanding of the causes and progression of diabetes as a major cardiovascular risk factor; and drive improvements in treatment and prevention of diabetes, with associated reductions in cardiovascular disease.

Extensive and ongoing engagement with key stakeholders has shaped the development of the Centre's six thematic areas across which cardiovascular and diabetes research will be supported:
- 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 **disease-based cohorts**
- Developing methods and infrastructure for large, efficient, **data-enabled cardiovascular trials**

10. About the BHF DSC Diabetes Data Science Catalyst

Diabetes UK has joined forces with Health Data Research UK and the British Heart Foundation to establish the Diabetes Data Science Catalyst (https://www.hdruk.ac.uk/helping-with-health-data/bhf-data-science-centre/diabetes-data-science-catalyst/) – an initiative to support experts in diabetes and cardiovascular diseases to harness data science to improve care and save lives for people living with diabetes.

For more information about diabetes and Diabetes UK's work, visit www.diabetes.org.uk.   For more information on the BHF, visit https://www.bhf.org.uk/.

11. 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's strategy focuses on three core areas:

1. **Research Data Infrastructure and Services** - providing the UK-wide and global co-ordination and leadership of health data infrastructure and services required to make health-relevant data FAIR (Findable, Accessible, Interoperable and Reusable). This builds on the convening, collaborative and co-ordinating role of the UK Health Data Research Alliance and includes the Health Data Research Innovation Gateway and the Health Data Research Hubs

2. **Research Driver Programmes** - advancing research discoveries through high impact UK-wide programmes that address major health and societal challenges, guide the development of the infrastructure and services for the benefit of other researchers and are outward-looking with global reach.

3. **One Institute Partnerships** - through national leadership with a clear vision and ambition to assemble a health data research ecosystem with enduring benefits for all researchers. As an innovative distributed

UK-wide and increasingly global Institute, we act as a flagship for team science, drawing on skills, resources, and expertise from academic, NHS, industry, and government partners.

HDR UK's values

HDR UK's values guide how we work together within HDR UK and with our partners and other stakeholders:

1. **Transparency**: we will share information, insights, and innovations so that we learn faster together.
2. **Optimism**: we believe that we can make things better, that we can do things differently and that we can overcome challenges to create a new and thriving health data ecosystem that benefits patients and the public, the NHS, scientific discovery, and industry.
3. **Respect**: we deliver better results when we work in a truly interdisciplinary way. We listen, share, and respect a diversity of thought and opinion, perspective, and experience. We are inclusive - leveraging and fairly attributing the expertise and capabilities of others.
4. **Courage**: we are leading the way and will be prepared to try new things, take risks, embrace ambiguity, and challenge the status quo. We will contribute opinions to shape the future of health data research.
5. **Humility**: we have a lot to learn from others; and aim to be free from pride and arrogance.

Appendix A: Terms and Conditions of Funding

Part 1: Terms and Conditions of Funding for All Awards

Awards issued under this Call for Funding shall be subject to the following Terms and Conditions of Funding: **BHF Standard Conditions of Grant:** bhf-standard-conditions-scg03082127622.pdf *****

*Clauses 5.2 to 5.5 of the BHF Standard Conditions of Grant do not apply to awards issued under this Call for Funding. Grant Funded Intellectual Property shall instead be subject to the Additional HDR UK Requirements as set out in Appendix B of this Call for Funding.

Part 2: Additional Diabetes Disease Data Science Project Requirements

Institutions receiving awards issued under this Call for Funding for Diabetes Disease data science projects will be subject to the following Additional Requirements:

1. Prior to the commencement of the Project, the Grantholder and the Institution will obtain any and all licences, consents and approvals (including ethical approval) necessary to the conduct of the Project, will continue to hold such licences, consents and approvals during the Grant Period, and will promptly upon request provide copies of such approvals, licences and consents to HDR UK who will provide a copy to Diabetes UK.

2. HDR UK, on behalf of Diabetes UK, may at any time during or after the Grant Period request financial information in connection with the Grant and the Project. HDR UK, on behalf of Diabetes UK, may, at its own expense, either directly or via an appropriate third party engaged by it, review income and expenditure connected to the Project and/or the system used by the Institution to administer the Grant, and the Institution shall allow HDR UK, on behalf of Diabetes UK, (or such third party) access to its records and premises during business hours for the conduct of such audit subject to HDR UK providing reasonable written notice of such access.

3. the Institution and the Grantholder shall give HDR UK, on behalf of Diabetes UK, reasonable advance notice of any media statement connected to the whole or part of the Results and HDR UK, on behalf of Diabetes UK may approve or not approve such statement as it sees fit at its absolute discretion; and

4. The Institution and the Grantholder shall provide copies of all articles, presentations and lectures based in whole or part on the Results to HDR UK, to provide to Diabetes UK, which shall include likely publication or presentation dates and an assessment of the significance of the article, presentation or lecture.

5. Diabetes UK reserves the right to publish (in part or in full) any information provided in any Report and/or the Results unless such information is specifically designated as confidential by the Grantholder if the Institution or Grantholder indicates to HDR UK that, in the reasonable opinion of the Institution, the Report contains information which is likely to adversely affect the Institution's ability to publish the Results.

8. The Grantholder and Institution agree that the Grantholder and other representatives of the Institution are not authorised to hold themselves out as spokespersons or representatives of Diabetes UK, or to state (whether expressly or impliedly) that Diabetes UK endorses their activities other than as expressly set out in the award letter.

9. To the extent it is free to do so, the Institution grants HDR UK and Diabetes UK a perpetual, irrevocable, worldwide, non-exclusive royalty free licence (with the right to sub-licence at HDR UK's and Diabetes UK's discretion) to use the Results, the Grant Funded Intellectual Property and any

information in the Reports for non-commercial research, teaching and publicity purposes. Such licence is granted on the condition that Diabetes UK: (i) maintains the confidentiality of information in Reports as required by the Conditions, and (ii) does not exploit the Grant Funded Intellectual Property for commercial purposes (iii) does not compromise publication of the Results.

10. the Institution will indemnify HDR UK and Diabetes UK against any and all loss and damage suffered by Diabetes UK arising from or in connection with the conduct of the Project and in respect of any loss or damage suffered by HDR UK or Diabetes UK arising out of any claim by the Grantholder or any other any personnel involved in the Project that such person is employed by, or otherwise engaged to provide services to, HDR UK or Diabetes UK.

11. HDR UK, on behalf of Diabetes UK shall be entitled to suspend payment of further instalments of the Grant at any time, and to require the Institution to suspend the Project, if HDR UK or Diabetes UK reasonably believes that:

   - the Institution and/or the Grantholder and/or the implementation of the Project is in material or repeated breach of any of these terms or the terms of the award letter;
   - a serious incident (in the reasonable opinion of HDR UK or Diabetes UK) has occurred in connection with implementation of the Project, including scientific misconduct on the part of personnel involved in the Project.
   - in circumstances where any allegation of scientific misconduct is made in relation to the Grantholder and/or any personnel involved in the Project.

12. HDR UK shall be entitled to terminate this Agreement effective immediately where Diabetes UK has terminated the funding agreement. In the event of termination, HDR UK shall cease to be liable to pay any further instalments of the Grant and, except where termination as a result of the Institution's or the Grantholder's material or repeated breach of the terms of the Agreement, HDR UK will reimburse the Institution and the Grantholder for any costs and expenses reasonably and properly incurred in connection with the Project that are not covered by instalments of the Grant already paid at the date of termination. The Institution and the Grantholder shall provide reasonable documentary evidence in relation to such costs and expenses.

Appendix B: Additional HDR UK Requirements

1. Open Access Publication

The Results must be published in accordance with HDRUK's open access policies as follows:

https://www.hdruk.ac.uk/about-us/policies/open-access-statement/
https://www.hdruk.ac.uk/about-us/policies/hdr-uk-attribution-policy/
https://www.hdruk.ac.uk/about-us/policies/development-principles/
https://www.hdruk.ac.uk/about-us/policies/digital-innovation-hub-programme-prospectus-principles-for-participation/

The practical application of all the above policies to project deliverables results in a default position of: open access publication as soon as possible on publication; Where possible and appropriate, release of algorithms and software code on an open source basis under the MIT or similar permissive licence; Details of all datasets created uploaded to the HDR UK Innovation Gateway; Provision of FAIR access to all datasets created in accordance with applicable legal, ethical and regulatory requirements; open corporate documents and policies to be published under a CC-BY (Creative Commons attribution) licence.

2. Reporting on the conduct and results of research

HDR UK uses an online system (Researchfish) to collect information during the lifetime of the grant and for some years afterwards on the outputs and outcomes of research and provide guidance on the timing and scope of reporting that is required. The Lead Organisation must ensure that the system is used in accordance with the guidance provided.

3. Attribution Policy

The Lead Organisation will comply with HDR UK's Attribution policy (Attribution policy - HDR UK) and shall work with the BHF DSC communications manager to ensure correct attribution, branding and communications guidance is applied to all communications and publications in relation to the Project and its outcomes.

In addition, the Lead Organisation shall ensure that all outcomes and achievements are communicated to the BHF Data Science Centre coordinating team (bhfdsc@hdruk.ac.uk) before publication and to ensure HDR UK and BHF Communications Teams are informed.

The Lead Organisation must inform the BHF Data Science Centre/HDR UK as soon as a paper presenting outcomes funded by this Grant is accepted for publication. BHF Data Science Centre/HDR UK must be notified at least five working days at bhfdsc@hdruk.ac.uk and enquiries@hdruk.ac.uk in advance of any publicity arising from work funded by this grant, and any press releases referencing BHF Data Science Centre/HDR UK must be approved by BHF Data Science Centre/HDR UK before it is released to the media.
The Lead Organisation shall comply with any reasonable requests made by HDR UK on behalf of the funders and shall clearly state that any views expressed while discussing the Project publicly do not represent the views of HDR UK or the funders unless otherwise agreed in writing.

4. Development Principles

The Lead Organisation will comply with HDR UK's Development Principles (Development Principles - HDR UK)

5. Principles of Participation

The Lead Organisation shall abide by the following Principles of Participation:

- Work collaboratively with the BHF Data Science Centre and the cardiovascular and diabetes disease-based research cohort teams to co-develop a secure and scalable platform to host or transfer cohort data, enable linkage of data, and enable analysis to accredited researchers for approved research.
- Work collaboratively with data custodians for health and health-related data to coordinate, receive and link multiple health datasets.
- Work collaboratively to co-develop robust governance, security, and operational processes to ensure participant confidentiality, accurate linkage and secure access to health data for research.
- Demonstrate active and ongoing engagement with patients and the public in the design, development and governance of this infrastructure and related processes to provide assurance that these activities are in the public interest.
- Work collaboratively and share information to allow the scientific community to pool expertise, draw fresh insights, and increase our collective understanding.
- Work within the Five Safes Framework
- Comply with data security standards with ISO certification, other relevant certification (e.g. Cyber Essentials Plus, Digital Economy Act) and the new Secure Data Environment accreditation framework
- Be transparent in the use of personal data and respect the privacy and confidentiality of individuals, complying with legal requirements and ethical expectations at all times.
- Support researchers to make outputs, observations, code and tools generated open-source, rapidly and freely accessible as a public good.
- Ensure all data and associated code and tools generated through the studies are Findable, Accessible, Interoperable and Reusable (FAIR), using the Health Data Research Innovation Gateway as a portal to share this information with a streamlined and harmonised data access process.