Speaker Biographies

Welcome Address

Chair: Professor Cathie Sudlow, Director, BHF Data Science Centre

Professor Cathie Sudlow is the inaugural Director of the British Heart Foundation Data Science Centre, which aims to improve the public's cardiovascular health through the power of large-scale data and advanced analytics across the UK and beyond. She is also Chair of Neurology and Clinical Epidemiology at the University of Edinburgh. Cathie was previously Director of the Centre for Medical Informatics at the Usher Institute, University of Edinburgh and was the first Research Director for HDR UK in Scotland. From 2011-2019, she was Chief Scientist of UK Biobank, a large-scale research resource, with in-depth genetic and health information from half a million UK adults, accessible to approved researchers worldwide, studying a wide range of common, rare, and life-threatening health conditions.

Cathie is a clinical neurologist and epidemiologist. Her clinical work involves assessing and treating patients with suspected acute stroke in the hospital emergency department.

Her research interests are firmly embedded in the world of big data, in particular large-scale, collaborative, open-science initiatives to understand the causes (genetic, environment and lifestyle), consequences of, and best treatments for common diseases of middle and older age. These have included initiatives to establish the role of antithrombotic drugs in preventing heart disease and stroke, to investigate differences between stroke subtypes, and to discover genes that influence stroke. From 2011, she led efforts follow the health of UK Biobank participants through linkage to national health datasets, and during 2020-2021 worked with NHS Digital to develop the first trusted research environment to hold and enable access for research to linked health data for the whole population of England.

She was elected as a fellow of the Royal Society of Edinburgh in 2018 and awarded an OBE for services to medical research in the Queen's Birthday Honours in 2020.

Professor Sir Nilesh Samani, Medical Director, British Heart Foundation

Nilesh Samani is Medical Director of the British Heart Foundation. He is also Professor of Cardiology at the University of Leicester, UK and Consultant Cardiologist at the Cardiac Centre, Glenfield Hospital, Leicester. Professor Samani was previously Head of the Department of Cardiovascular Sciences at the University of Leicester and Director of the NIHR Leicester Biomedical Research Unit. He is a Fellow of the Academy of Medical Sciences and an Emeritus NIHR Senior Investigator.

Professor Andrew Morris, Director, Health Data Research UK

Professor Andrew Morris became the inaugural Director of Health Data Research UK in August 2017, the UK's national Institute for health data science. Its mission is to unite the UK's health data to improve people's lives and is supported by 12 funders. He also convenes the International COVID 19 Data Alliance (ICODA) supported by the Bill and Melinda Gates Foundation and Minderoo Foundation. He is seconded from his position as Professor of Medicine, and Vice Principal of Data Science at the University of Edinburgh, having taken up position in August 2014. Prior to this Andrew was Dean of Medicine at the University of Dundee.

Andrew was Chief Scientist at the Scottish Government Health Directorate (2012-2017) and has served and chaired numerous national and international grant committees and Governmental bodies.

His research interests span informatics and chronic diseases. He has published over 350 original papers,

Andrew was previously Governor of the Health Foundation (2009-2017), a leading UK charity that supports quality improvement in health care, and chaired the Informatics Board at UCL Partners, London (2014-2017). In 2007 he co-founded Aridhia Informatics, which uses high performance computing and analytics in health care.

Andrew is a Fellow of the Royal Society of Edinburgh and the Academy of Medical Sciences.

Dr Lynn Morrice, Operations Director, BHF Data Science Centre

Lynn is the Operations Director for the BHF Data Science Centre and leads the implementation of the centre's strategy to improve the public's cardiovascular health through the power of large-scale data and advanced analytics across the UK.

Prior to joining HDR UK, Lynn was Chief Operating Officer for the Innovative Healthcare Delivery Programme (IHDP) Scotland, whose mission is to improve health outcomes through the use of data and analytics. She was also Research Manager at The University of Edinburgh, where she provided operational leadership for the Asthma UK Centre for Applied Research, a UK-wide centre that facilitates and advances world-leading applied asthma research. Lynn's previous experience includes academic research governance and clinical trials management.

Lynn has a background in developmental genetics and molecular biology, with a PhD from The University of Edinburgh.

Kelvin Pitman, Public contributor, BHF Data Science Centre Oversight Committee

Kelvin Pitman has a BSc in Chemical and Polymer Technology and has worked most of his life in large international packaging companies, retiring in 2011.

Kelvin's career started within R&D working with customers, often using statistics on test data to ensure the company's products met customers' specifications. He subsequently moved into marketing which required understanding consumers' softer needs via consumer research. He worked 15 years in Switzerland becoming Technical Director of a company, then an R&D Director managing four development groups across the USA, UK and Switzerland.

Another significant part of his career was associated with intellectual property, such as patents, license agreements, and technical transfer. Latterly, he was heavily involved in Open Innovation whereby companies in different fields cooperate to use similar technology for different purposes.

Following a heart attack 13 years ago, Kelvin had a stent fitted, then developed atrial fibrillation and was fitted with a pacemaker/defibrillator.

Kelvin currently serves on a BHF/CRUK patient data advisory panel, the BHF/Clinical Research Collaborative Oversight Board, and on the MRC/UCL COVID PPI Panel. Kelvin recently completed a 3-year term on the BHF Clinical Studies Committee, which assess applications for clinical trials of treatments, diagnostics and other interventions and observational studies of specific patient groups.

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Session Two

Keynote One: Creating the future of healthcare

Dr. Doug Gurr, Chair of the British Heart Foundation

Doug was appointed Director of The Natural History Museum in December 2020.

Previously, Doug was Country Manager of Amazon UK and President of Amazon China. Earlier roles included the civil service, partner at McKinsey and Company, Director at Asda-Walmart and founder CEO of internet start-up Blueheath.

Doug is also Chairman of the British Heart Foundation, a non-executive Director at the Department of Health and Social Care, and former Chairman of the Science Museum.

He has degrees in Mathematics from the University of Cambridge and a PhD in Computing from the University of Edinburgh, and previously taught mathematics and computing at the University of Aarhus in Denmark.

He is a former Scottish international triathlete, 12 times Ironman, keen ski mountaineer with over 20 first ascents, and an enthusiastic mountain runner. He is married with two children.

Session Three: How large-scale health data is used in cardiovascular research

Chair: Professor Angela Wood, Professor in Health Science Data, University of Cambridge

Angela Wood is Professor of Health Data Science at the Department of Public Health and Primary Care, University of Cambridge. She has key leadership roles for major data-driven initiatives: she is director of biostatistics of the BHF Cardiovascular Epidemiology Unit, Cambridge; is appointed co-Leader of the Population and Quantitative Science theme for the NIHR Cambridge Biomedical Research Centre; and serves as the co-Leader of Data-Analysis Work-packages in BigData@Heart and the BHF Data Science Centre CVD-COVID-UK/COVID-IMPACT Consortium.

Angela is the principal statistical advisor for a number of international consortia based on individual participant data including the Emerging Risk Factors Collaboration relating to cardiovascular disease and the EPIC-CVD European case-cohort study. She has led major new national training efforts in health data science and serves on the national training teams for Health Data Research UK and the Alan Turing Institute, as well as contributing to teaching and supervision of students across the Cambridge biomedical campus. Angela has co-authored 100+publications, predominantly in methods and applications related to epidemiological studies. She is an expert in the statistical aspects of missing data, risk prediction, longitudinal data and joint modelling, measurement error and meta-analysis.

Dr Tom Bolton, Senior Health Data Scientists, BHF Data Science Centre

Tom Bolton is a Senior Health Data Scientist at the BHF Data Science Centre. Tom works to ensure the availability and utility of data within national Trusted Research Environments, through overseeing the provision of essential data management and curation.

Prior to joining Health Data Research UK, Tom was a Health Data Scientist at the University of Cambridge, where he managed and curated large-scale data sources and performed statistical analysis for eight years. Tom has a background in mathematics and biostatistics, with a PhD from the University of Cambridge.

Dr John Nolan, Senior Health Data Scientists, BHF Data Science Centre

John has experience of working with health data for research, as a data analyst first with the e-Data Research and Innovation Service (eDRIS) in NHS Scotland, and then with the UK Biobank. These roles involved linking health data from multiple sources to create research ready datasets. John has a background in mathematics and statistics, and a Masters in Data Analytics from University College Dublin.

John's role will be to ensure the availability and utility of data within national Trusted Research Environments (TREs), through overseeing the provision of essential data management and curation.

Dr Chris Tomlinson, Anaesthetics & ICU registrar, PhD student at UCL CDT in AI-enabled Healthcare Systems

Chris is an Anaesthetics & Intensive Care registrar undertaking a PhD at the UKRI UCL Centre for Doctoral Training in AI-enabled Healthcare Systems. Combining technical expertise in epidemiology, data science and machine/deep learning with a background in clinical medicine and physiological research he uses real world evidence to uncover new insights of critical relevance to patients, clinicians and policymakers. Most recently this has involved creating novel COVID-19 phenotypes from linked-EHR data of 56.6 million individuals in England with the BHF Data Science Centre's CVD-COVID-UK/COVID-IMPACT consortium.

Dr Venexia Walker, Research Fellow in Medical Statistics and Health Data Science, University of Bristol

Dr. Venexia Walker is a Research Fellow in Medical Statistics and Applied Health Data Science at the Bristol Medical School, University of Bristol, UK. She is also affiliated with Perelman School of Medicine, University of Pennsylvania, USA. Venexia has experience working with electronic health records from her research in the Clinical Practice Research Datalink, the NHS Digital Trusted Research Environment, and Open SAFELY. During the pandemic, her research has focused on using electronic health record data to quantify the associations of COVID-19 disease and vaccination with arterial and venous diseases.

Dr Caroline Dale, Senior Research Fellow, UCL

I am an epidemiologist interested in applying actionable analytics to epidemiological data to help better understand people's health and ultimately improve it. Working with the UK BHF Data Science Centre CVD-COVID-UK consortium in the Sofat group, I am involved in a number of projects to understand the direct and indirect impacts of COVID-19 on clinical pathways using medicines as a proxy, but also developing novel methods that may aid prioritising medicines to be repurposed.

My previous work also links directly to health impacts. I have worked in causal inference using Mendelian randomization to understand the potential causal impact of life-style factors (alcohol, BMI) on cardiovascular disease. This has involved working and understanding many data types including cohort, metabolomics, proteomics, and electronic health records and understanding the challenges of data integration and how they may translate into health benefits.

Session Four

Keynote Two: South Asian White European differences in life course cardio metabolic risk: an example from Bradford of linking cohorts and routine health and social data

Professor Deborah Lawlor, BHF Professor of Cardiovascular Science and Professor of Epidemiology, University of Bristol

Deborah Lawlor is BHF Professor of Cardiovascular Science and Clinical Epidemiology and an MRC Investigator. Her research explores determinants and predictors of adverse cardiovascular disease across the life course. In this talk she will illustrate the value of the Born in Bradford cohort nested within linked whole city health and social data (connected Bradford) as a potential model for integrating cohort data into the BHF Data Science Centre.

Session Five: Understanding cardiovascular disease with imaging

Chair: Professor Cathie Sudlow, Director BHF Data Science Centre

See above.

Professor Declan O'Regan, Professor of Imaging, London Institute of Medical Sciences

Declan O'Regan is an MRC Investigator and Professor of Imaging leading the Computational Cardiac Imaging Group at the London Institute of Medical Sciences. He is also Director for Imaging Research at Imperial College Healthcare NHS Trust. His work is focussed on using machine learning to analyse cardiac imaging to understand the genetic and environmental causes of heart disease. His work is funded by the MRC, BHF, NIHR and Bayer. He is committed to science engagement and is a past Roentgen (UK) and Rowan-Williams (Australasia) travelling professor lecturing internationally on the role of artificial intelligence (AI) in healthcare.

Dr Jorge Cardoso, Reader in Artificial Medical Intelligence, and CTO of the London AI Centre

M Jorge Cardoso is Reader in Artificial Medical Intelligence at King's College London, where he leads a research portfolio on big data analytics, quantitative radiology and value-based healthcare. Jorge is also the CTO of the new London Medical Imaging and AI Centre for Value-based Healthcare. He has more than 12 years expertise in advanced image analysis, big data, and artificial intelligence, and co-leads the development of project MONAI, a deep-learning platform for artificial intelligence in medical imaging. He is also a founder of BrainMiner and Elaitra, two medtech startups aiming improve neurological care and breast cancer diagnosis, respectively.

Professor Marc Dweck, Chair of Clinical Cardiology at the University of Edinburgh

Professor Marc Dweck is the Chair of Clinical Cardiology at the University of Edinburgh, British Heart Foundation Intermediate Clinical Research Fellow, and a consultant cardiologist at the University of Edinburgh. He is a board member of the European Association of Cardiovascular Imaging. Professor Dweck's research program is centred around the use of multi-modality imaging (echocardiography, CT, CMR, PET) to improve our understanding of cardiovascular pathophysiology and ultimately to improve patient assessment, care, and outcomes. In particular it has focused on three major areas i) coronary atherosclerosis and the factors associated with plaque rupture; ii) the pathogenesis of aortic stenosis (in both the valve and myocordium) and the development of novel therapeutic strategies; and iii) cardiomyopathy.

Session Six: Data-enabled trials- learning from trials outside cardiovascular disease

Chair: Professor Matthew Sydes, Associate Director of Data-enabled Clinical Trials, BHF Data Science Centre; and Professor of Clinical Trials and Methodology at UCL

Matt is responsible for co-leading MRC Clinical Trials Unit at UCL's Trial Conduct Methodology programme. This work is to develop evidence-based ways to improve how clinical trials are run.

He is connected into HDR UK's national Clinical Trials Theme and is also 20% seconded to lead the Data-Enabled Trials theme for the BHF Data Science Centre.

Particular areas of methodological interest include: the use of routinely collected electronic health records (EHR) to support and run trials; running academic-led trials with a view to regulatory use and submission; proportionate and efficient monitoring of clinical trial; implementation of novel designs into practice, particularly platform / master protocols; better clinical trial data sharing; and communication of trial findings.

Matt teaches on the UCL Institute of Clinical Trials and Methodology's MSc in Clinical Trials and supervises a number of PhD and MSc students. Matt leads UCL's short course on Data Monitoring Committees and has served on many Independent DMCs and Trial Steering Committees (TSCs) for national and international trials.

Matt chairs the Scientific Committee for ICTMC 2022, the next International Clinical Trials and Methodology Conference, and is on the executive committee for the NIHR-MRC Trials Methodology Research Partnership (TMRP). He sits on several funding panels, including MRC's Better Methods Better Research.

Dr Aleksandra Gentry-Maharaj, Principal Fellow UKCTOCS Project Lead, Add-Aspirin and ICON8B Project Co-Lead

Alex is a Principal Research Fellow based at UCL, both at the Institute of Clinical Trials and Methodology and the Institute for Women's Health. Alex has 19 years of experience in early detection of cancer. Alex is the Project Lead for the United Kingdom Collaborative Trial of Ovarian Cancer Screening (UKCTOCS), a randomised controlled trial involving 202,638 women from the UK, which recently reported its final results on the mortality impact of screening *(Lancet 2021)*. Since 2006, Alex has contributed to the International Ovarian Cancer Association Consortium (OCAC) effort focusing on genetic predisposition to ovarian cancer, including the first GWAS.

In view of the extensive data linkage of UKCTOCS, Alex has first-hand experience of working with electronic health records including Cancer and Death Registers, Hospital Episodes Statistics and National Cancer Registration and Analysis Service data and has led or contributed to various comparisons of linked, self-report and trial data.

Alex has contributed to biomarker discovery/risk stratification in cancer (ovarian, breast, colorectal, pancreatic cancer) and coronary heart disease though the UCLEB Consortium. She has contributed to over 190 publications to date. Alex has since 2021 taken on a Project Co-Lead for Add-Aspirin and ICON8B trials.

Professor Ly-Mee Yu, Deputy Director Academic and Lead Trial Statistician

Associate Professor Ly-Mee Yu is the Deputy Director Academic and Lead Trial Statistician of the Primary Care Clinical Trials Unit at Nuffield Department of Primary Care Health Sciences, Oxford. She has around 30 years of experience as a medical statistician and specifically in clinical trials for the past 20 years.

Ly-Mee has worked in a wide range of clinical areas. She served as a panel member on several national and international funding boards. She was a member of the Oxford Tropical Research Ethics Committee, as well as a member of Data and Safety Monitoring Committee, and Trial Steering Committee of several national and international trials.

Ly-Mee is currently involved in three platform design trials (PRINCIPLE, PANORAMIC, and Ecraid-PRIME) for COVID-19.

![British Heart Foundation Data Science Centre - Led by Health Data Research UK](logo)

Session Seven: Personal monitoring data, computable phenotypes and cohorts

Chair: Professor Cathie Sudlow, Director BHF Data Science Centre

See above.

Professor Spiros Denaxas, Associate Director for Computable Cardiovascular Phenotypes, BHF Data Science Centre; and Professor of Biomedical Informatics, University College London

Spiros Denaxas is Professor of Biomedical Informatics based at the Institute of Health Informatics and Associate Director at the British Heart Foundation Data Science Centre leading the Computational Phenotyping theme.

His research (http://denaxaslab.org) focuses on creating and evaluating algorithms for phenotyping, risk prediction, data modelling, and disease subtype discovery in structured electronic health records, clinical and omics data.

Spiros leads Health Data UK's (HDR UK) National Phenotype Library project (http://phenotypes.healthdatagateway.org/) which provides an open access library of electronic health record phenotyping algorithms and enables reproducible research at scale.

Professor Tim Chico, Associate Director for Personal Monitoring Data, BHF Data Science Centre; and Professor of Cardiovascular Medicine, University of Sheffield

Tim is Professor of Cardiovascular Medicine at the University of Sheffield and honorary Consultant Cardiologist at Sheffield Teaching Hospitals NHS Trust. He is Research Director for Healthcare Data / AI in the Institute of In Silico Medicine (INSIGNEO).

Tim brings a breadth of expertise in cardiovascular research and medicine to the BHF Data Science Centre and is passionate about improving healthcare and health outcomes by application of patient-centred and equitable personal monitoring data.

Professor Reecha Sofat, Associate Director of Enhancing Cohorts, BHF Data Science Centre; and Breckenridge Chair in Clinical Pharmacology at the University of Liverpool

Reecha is the Breckenridge Chair of Clinical Pharmacology and Therapeutics and Head of the Department of Pharmacology and Therapeutics at the University of Liverpool. Her research interests focus on embedding research into routine clinical care, fully utilising the rich health data that is already collected within the NHS to better understand the causes and consequences of disease and so improve health outcomes. Reecha is also an Associate Director for the British Heart Foundation Data Science Centre and the Enhancing Cohorts Thematic lead.

Session Eight

Keynote Three: Implementation research in acute cardiac care: harnessing routine data

Professor Nicholas Mills, The British Heart Foundation Professor of Cardiology at the University of Edinburgh and a Consultant Interventional Cardiologist at the Royal Infirmary of Edinburgh

Professor Mills is the British Heart Foundation Professor of Cardiology at the University of Edinburgh and a Consultant Interventional Cardiologist at the Royal Infirmary of Edinburgh. His research group aims to use linked healthcare data to develop new approaches for the diagnosis and risk stratification of heart conditions, and to evaluate their impact on clinical outcomes in practice.

He is the chief investigator of a series of multi-centred cluster randomised trials that use routine electronic health record data to evaluate the impact of high-sensitivity cardiac troponin testing on outcomes in patients with suspected acute coronary syndrome.

Professor Mills is an Associate Editor at Circulation and Chair of the European Society of Cardiology Working Group on Cardiac Biomarkers. He is the Academic Lead and Senior Responsible Officer for the University of Edinburgh's Health and Social Care Data Driven Innovation Hub. He teaches on the MBChB course and is responsible for the supervision of clinical and basic science PhD students.

Session Nine: Reflections

Chair: Professor Cathie Sudlow, Director BHF Data Science Centre
See above.