AI in Healthcare: Research, Progress, and the Path Ahead

Tuesday 20 May 2025, from 5.30pm

Perrin Lecture Theatre, Blizard Institute, Whitechapel, E1 2AT

Event Programme

5:30	Welcome and introduction	Neeta Patel
	Keynote presentation: AI and the Health of People	Dr Charles Gutteridge
	'SIRIUS-ly': Exploring how AI can help identify Rare Diseases.	Hiba Junaid, Dr Suthesh Sivapalaratnam
	Investigating the use of AI to enhance diagnostic precision in the Arabic language	Dr Lujain Alsadder
	Q&A	
	A New Beat: How AI is Revolutionising Heart Disease Detection	Dr Nay Aung
	PHAROS-AI	Prof Claude Chelala, Prof Louise Jones
	Q&A	
7:10	Plenary and closing remarks	Dr Charles Gutteridge
8:00	Reception concludes	

Welcome and Introduction

Neeta Patel, Associate Director, Research Engagement, Barts Health NHS Trust

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Keynote presentation: AI and the Health of People

Dr Charles Gutteridge, Chief Clinical Information Officer, Barts Health NHS Trust

Summary: We live in a time where everybody is living with digital assistants. These are sometimes very simple to use, for example, the automatic entry gates at Whitechapel tube station. Sometimes the assistant is an internet connected machine that is continuously learning from all the data that we contribute as citizens, children, working people, patients and health professionals. The machines are often called AI, and they are increasingly being used to help us all to use health services to improve the way we lead our lives. In this introduction, Charles will describe the opportunities, benefits and some of the challenges of using AI for health and clinical research.

Speaker: Charles is the Chief Clinical Information Officer at Barts Health NHS Trust where he works with a multi-professional team on delivering health informatics to improve patient care and great computing services for all who work at the Trust. Charles has a special interest in the use of terminologies, ontologies and natural language processing to create interoperable data and meaningful information for patients and users of health services. He has previously had leadership roles as medical director of Barts and the London NHS Trust and National Clinical Director at Connecting for Health between 2010 and 2013. He is a clinical haematologist.

‘SIRIUS-ly’: Exploring how AI can help identify Rare Diseases.

Hiba Junaid, Data Science Research Co Ordinator and Data analyst at Barts Life Sciences (BLS) and Data Scientist with the Barts Bone and Joint Health team

Dr. Suthesh Sivapalaratnam, MD PhD FRCP (London) FRCPath, Clinical Senior Lecturer in Haematology QMUL, Blizard and PHURI, DERI Fellow, Honorary Consultant in Haematology

Summary: Barts Life Sciences (BLS), in collaboration with Sanofi, are developing a query to search routinely collected datasets to identify patients with symptoms of Gaucher Disease, in a project called Project Sirius. Gaucher Disease (GD) is a rare blood disorder that is often misdiagnosed. Using AI, the project aims to search over patient hospital and GP records within the Barts Health system to identify patients at high risk for GD, helping improve diagnosis and treatment. The search query has been designed to with the clinical team to integrate into current processes and provide a clear referral pathway to specialists. This initiative addresses the challenges of diagnosing rare diseases, supporting earlier detection, and ensuring patients receive the appropriate care.

Speakers: Hiba Junaid's work focuses on the use of Observational Medical Outcomes Partnership (OMOP) CDM data as part of the global Observational Health Data Sciences and Informatics (OHDSI) collective. She is enrolled in an advanced Digital & Data Fellowship and a member of the British Society for Genetic Medicine.

Dr Suthesh Sivapalaratnam obtained his PhD on the Molecular Basis of Cardiovascular Disease again at the University of Amsterdam. He leads the paediatric haemostasis and thrombosis service, is the genomics lead and MDT chair for North London and academic lead for clinical haematology. He is an academic group lead on precision medicine, with a focus on genomics and data sciences, and principal investigator on innovative clinical trials.

Investigating the use of AI to enhance diagnostic precision in the Arabic language

Dr Lujain Alsadder, MD PhD FHEA is Senior Lecturer in Physiology at the Institute of Health Sciences Education, Queen Mary University of London

Summary: The recent use of Artificial Intelligence (AI) is revolutionising healthcare systems by enabling precise communication, improving diagnosis, and enhancing patient care. However, Arabic-speaking regions face significant linguistic and systemic

challenges due to the lack of standardised clinical terms that are essential for clinical reasoning and effective communication. This student-led project addresses these communication challenges by developing a structured Arabic medical communication system using AI tools and algorithms. The project aims to enhance diagnostic precision, streamline doctor-patient communication, and support medical education by bridging the gap between theoretical knowledge and real-world application for Arabic-speaking patients. Additionally, the project aims to empower healthcare professionals, improve patient outcomes, and establish a foundation for the broader adoption of AI in Arabic healthcare settings.

Speaker: Lujain is a member of the physiology team and teaches the Cardiorespiratory modules in the MBBS and the Physician Associate Studies MSc program. She is a fellow of Advance Higher Education and has a special interest in physiology education, digital accessibility, sustainability, AI in healthcare, and learner engagement. She is the university representative of The Physiological Society, and a member of the British Society of Cardiovascular Research, the Association for the Study of Medical Education (ASME) and The Jordanian Medical Association.

A New Beat: How AI is Revolutionising Heart Disease Detection

Dr Nay Aung, Consultant Cardiologist, Clinical Senior Lecturer, and MRC Clinician Scientist at Barts Heart Centre and Queen Mary University of London

Summary: This presentation outlines how artificial intelligence (AI) is transforming cardiovascular care in the UK, where over 7.6 million people live with heart and circulatory diseases. It explains how AI addresses critical challenges such as the shortage of imaging specialists and long diagnostic delays by enabling faster, more accurate analysis of heart scans. AI tools can now identify heart failure within minutes, even in primary care settings, potentially reducing hospital admissions and saving the NHS substantial costs. The presentation also introduces the concept of a “digital twin”– a virtual model of a patient’s heart – to personalise treatment and improve outcomes. While the benefits are significant, the talk also acknowledges challenges around data quality, system integration, and ensuring fairness in AI deployment.

Speakers: Dr Nay Aung leads a cardiogenomics research group focused on AI-enhanced deep image phenotyping, multi-omics techniques, bioinformatics, and statistical modelling to advance diagnostics, prognostics, and novel therapies for heart failure. Dr. Aung has authored over 120 publications, including multiple papers in top-tier journals such as Circulation, JACC, Nature Medicine, and Nature Genetics.

PHAROS-AI

Professor Louise Jones, Professor of Breast Pathology, Group Leader, Barts Cancer Institute

Professor Claude Chelala, Professor of Bioinformatics, Deputy Centre Lead, Group Leader, Barts Cancer Institute

Summary: PHAROS-AI is developing a cutting-edge platform to accelerate the creation of AI models that enable faster, more accurate cancer diagnoses and the development of personalized treatments. The platform will leverage molecular profiling from patient tissue samples to overcome challenges in cancer research and drive breakthroughs in precision medicine. While results are still forthcoming, the talk will explore the potential of AI to reshape cancer care, improve patient outcomes, and pave the way for the next generation of treatments.

Speakers: Professor Louise Jones joined Barts Cancer Institute in April 2004. She trained in Medicine at Leicester University and specialised in Breast Pathology, undertaking a PhD at the Breast Cancer Research Unit in Leicester analysing the tumour-suppressor role of breast myoepithelial cells. Professor Jones is Co-PI of the national Breast Cancer Now Biobank which includes the Primary Breast Cell Bank, isolating cell populations from tissues for the research community.

Professor Claude Chelala earned a PhD in Computational Biology/Radiation Biology from Paris-Sud University/Curie Institute, alongside a degree in Structural Bioinformatics from Paris Descartes University. Her postdoctoral research at the National Centre for Scientific Research (CNRS) focused on developing novel tools for automated genome map analysis and the study of disease-related gene distribution. In 2006, Professor Chelala joined Barts Cancer Institute (BCI), driven by a strong commitment to translating computational research into clinical impact.