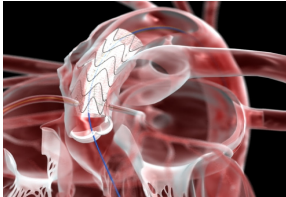


NHS
National Institute for Health Research

Barts and The London Cardiovascular NIHR Biomedical Research Unit Award



Mark Caulfield

Barts and The London NHS Trust
Barts and The London
School of Medicine and Dentistry

Barts and The London
School of Medicine and Dentistry

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Barts and The London CV NIHR Team

Academic Health Sciences Implementation Group – joint oversight.
Julian Nettel, Peter Morris, Sir Nick Wright, Charles Gutteridge

Ensuring delivery and governance
Neil Barnes, (Chair Scientific Board)
Graham Hitman –Circulatory & Metabolic CAU
Gerry Leonard, Nick Good -Finance & Research Governance

Applicants - Delivery of NIHR translational vision

Mark Caulfield	Director- Implementation
Adam Timmis	Co- Director- Implementation
Amrita Ahluwalia	PhD student training director
Norbert Avril	Imaging expertise
Anthony Mathur,	CV imaging and Clinical Training Fellows
Sussan Nourshargh	Education Programme director
Mauro Perretti	Basic science co-ordinator

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NIHR Biomedical Research Units

- 6 Biomedical Research Centres in England
£65M over 5 years
- We partner Guys & St Thomas's BRU
- Call for specialist BRU's
- Funds recovered from NHS R&D levy
- BLT & SMD partnership
- Goal: Translational step change
- Up to £3.75M in revenue costs
- Up to £2.0M in capital costs
- Award over 3.75 years

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Barts and The London CV BRU strategy

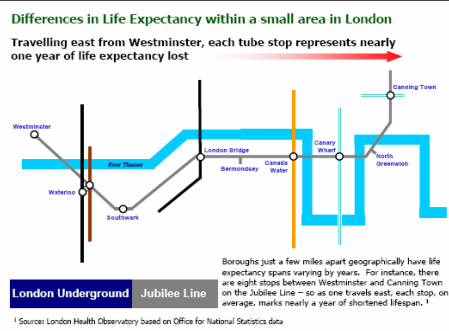
- Create a translational flow of concepts
- Innovative therapeutic concepts and basic science strengths in WHRI
- Translated into humans in the new Heart Centre and through clinical cardiac service
- Underpinned by state of the art advanced CV imaging & informatics infrastructure
- Serious lack of capacity (human and facilities)
- Bottleneck in the UK in translation

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East London - Unmet Cardiovascular need

Differences in Life Expectancy within a small area in London
Travelling east from Westminster, each tube stop represents nearly one year of life expectancy lost



Boroughs just a few miles apart geographically have life expectancy spans varying by years. For instance, there are eight stops between Westminster and Canning Town on the Jubilee Line – so as one travels east, each stop, on average, marks nearly a year of shortened lifespan.¹

¹ Source: London Health Observatory based on Office for National Statistics data

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Basic science pipeline Pharmacological strength

- Genes for CVD – Caulfield, Munroe, Shoulders, Ye
- 4 papers in Nature Genetics
- 8 genes for blood pressure in 34833 people
- Genes for obesity
- Genes for uric acid – PLOS Medicine
- Am J Hum Genet x 1
- Inflammation- Warner, Perretti, Nourshargh
- Blood 2008-2009, Am J Pathology 2008
- FASEB x 4
- 2 NEW Wellcome Programme Grants
- 1 Existing Wellcome Programme

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Basic science pipeline

- Ischaemia reperfusion – Thiemermann, Yaqoob, Pearse, Brohi and Hinds
- EPO analogues
- PNAS 2008, Shock x 5
- Vascular Pharmacology- Ahluwalia, Webb
- Natriuretic peptide mimetics
- Nitrite in CVD

Barts and The London added value



- **New Heart Centre**
- **3172 metres squared**
- **£24.7M investment**
- Charterhouse Square
- £8M raised for fit out
- **£6M Translational Chairs**
- Stem cells
- Basic Electrophysiology
- Biomarkers and Pharmacogenetics
- Hypertension translational Medicine
- Systems Biology

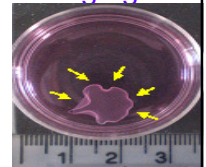
Barts and The London Building the translational environment



- The new Barts will be a Heart and Cancer Centre of Excellence
- Largest cardiac centre in UK
- 2700 percutaneous interventions
1500 surgical procedures
- Heart Attack Centre
755 interventions on heart attack patients
- Extending to all acute coronary syndromes

BRU Programme Advanced imaging

- Stem cell clinical trials
- Bioengineered cell sheets
- MR – structure and function
- PET/CT to image fate of cells

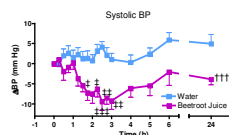


- **Clinical Translation-** Mathur, Rothman
- REGENERATE-IHD-
- Autologous adult stem cells in heart failure
- 300 patients - £4M DoH & Heart Cells Foundation
- REGENERATE-AMI RCT
- 100 patients - March 2008
- £1.2M from UK stem cell foundation with UCL and MRC CTU

Advanced imaging of nitrite in CVD

Nitrate in hypertension

- Lowers BP
- BHF Special project
- MR and PET/CT

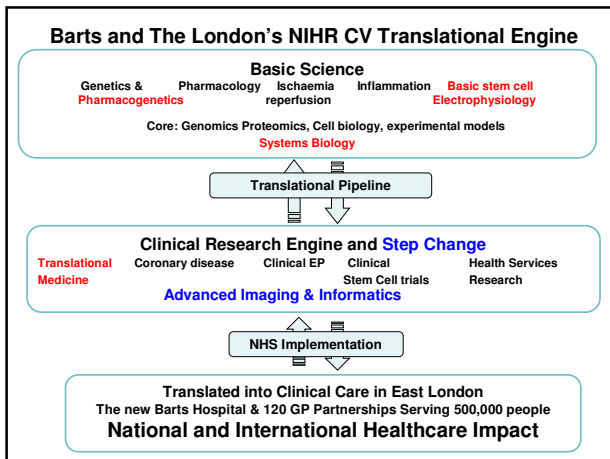


Nitrite in acute coronary syndromes

- MR and CT perfusion

NIHR Award to Barts and The London

- **Salaries for 3.75 years for:**
- 1 Chair in Advanced imaging
- 1 Clinical Senior Lecturer
- 2 Annual academic clinical fellows (6 fellowships over 3 years)
- Research Physicist, Research Radiographer,
- Secretary/ Receptionist
- **Non-staff costs (27% of the total funds).**
- Modular informatics infrastructure
- clinical database on all heart attack centre patients and imaging
- travel budget
- Imaging and some lab cost recovery
- **Capital funding**
- Heart Centre 25% of fit out for Clinical Research Facility = £970K
- Dual source CT Scanner for Advanced Imaging = £1M



Delivery on BRU mission

- Chair interviewed and offered
- Advanced procurement for CT scanner
- Award of 2 NIHR CV Fellowships
- Strategic bid for more ACFs
- Structured training path for research training
- Establishing informatics
- Raising £6M for Chairs

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Delivery on BRU mission

- New funding relating to BRU programmes – over £4.0M
- Wellcome Programme x 2 over 2.0M Perretti and Warner
- Heart Cells Foundation 1.2M Mathur
- NIHR NEAT award – Suzuki –300K
- BHF Special Project – Ahluwalia 490K
- MRC Biomarkers Grant – Corder 500K
- MRC *in vivo* PhD Programme 4 studentships