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Research Matters

Barts Health Research Highlights 2023-24



“It is great having a team of excellent people who know him and care about him, who I can turn to for support or advice”.

Parent of a young research participant



“Research is key and important for improvements in healthcare in the future”

Reproductive health and childbirth research participant

“The research staff were incredibly friendly and supportive. They were always available to answer all my questions promptly and went above and beyond to support me with my condition”.

Diabetes research participant

“The team are warm, empathetic and endearing. They ensure that I'm hydrated and comfortable. They ensured that I was not out of pocket and paid for my travel expenses.”

Gastroenterology research participant

“This trial has changed the lives of people with mesothelioma, allowing us to live longer. I have five grandchildren and two great-grandchildren now – I wouldn't want to miss all that.”

Lung cancer research participant

Feedback from Barts Health research participants 23/24



Introduction

Here at Barts Health NHS Trust, we are passionately committed to delivering the highest quality healthcare research, as part of our wider vision to be renowned for excellence and innovation, providing safe, inclusive and compassionate care to all our patients.

As the busiest NHS Trust in England, with one of the most diverse populations - around 2.5 million people, speaking more than 60 languages, with a huge range of health needs, including glaring inequalities among some communities - we are ideally placed to run “global” clinical trials locally, bringing new treatments to patients faster. With a growing evidence base that shows that not only do patients benefit directly from taking part in healthcare research but, in general, patients tend to have better outcomes in research active hospitals, increasing our research activity will bring more of those benefits to those who have the greatest need.

Barts Health has an outstanding track record of delivering clinical health research. We have come out of the pandemic stronger than ever, having led various trials investigating covid-related drugs and procedures through that difficult period of uncertainty.

We are consistently one of the top ten NHS Trusts in the UK for recruiting patients to research studies and the highest recruiter to commercial trials, with an estimated annual total of 30,000 patients actively involved in a range of studies.

We have led numerous landmark studies and publications, such as a study to support the use of whole genome sequencing in standard cancer care and studies to address inequalities in care with a new collaboration to improve the diversity of patients in clinical trials.

We are proud to work closely with Queen Mary University of London, who have one of the UK's foremost medical schools, and that collaboration enables both organisations to deliver excellent research that brings relevant change and improved clinical outputs for the people of north east London and beyond.

Over the next few pages, you will read about some of the changes we are making to improve our research infrastructure and increase our offer to our patients and local communities and recent research highlights. You will also find information about some of the many ways you can get directly involved, by helping to influence and shape the research we undertake.

Together, with you, our patients, our staff and students, we are uniquely placed to create one of the best research institutions in the world, where research is recognised as integral to the development of new or more effective and efficient healthcare, benefitting not only our patients but patients within the wider NHS and across the globe.



Dr. Jenny Rivers
Director of Research and Development
Barts Health NHS Trust

Creating a world-class inclusive research culture

Barts Health NHS Trust and Queen Mary University of London have together established a diverse set of research facilities based across our various sites.

Barts Health is in the process of upgrading clinical research facilities at all its hospitals. In 2023 we secured over £15m in funding from Barts Charity and the National Institute for Health Research (NIHR) to establish a new [Clinical Research Facility \(CRF\) at the Royal London Hospital](#). This new CRF will support a full range of clinical trials, including early-phase first-in-human studies and advanced therapy trials, providing more capacity and increasing both the quantity and quality of our clinical research. The unit aims to widen participation in research among both Trust staff and patients through an ambitious programme of community engagement, demonstrating the benefits of research to the local community and beyond. The new CRF is due to open in Summer 2025.

Also in 2023, Barts Health received £21 million in funding from the NIHR to create a new [Biomedical Research Centre \(BRC\)](#). The BRC is a partnership between Barts Health, Queen Mary and St George's

University of London. It is led by Professor Sir Mark Caulfield, Vice Principal for Health at Queen Mary and the Barts BRC Director. Its purpose is to undertake research and develop new ways to diagnose and treat a variety of illnesses including cancer, musculoskeletal conditions and heart disease, based on an individual patient's genetic make-up and health history, known as precision or personalised medicine. The award is a major boost to our ambition to address health inequalities and deliver pioneering, innovative healthcare to the people of north east London and further afield.

[Barts Life Sciences \(BLS\)](#) is another partnership between Barts Health and Queen Mary which aims to bring together researchers, scientists, clinicians, industry and patients and the public to collaborate and accelerate the latest healthcare innovations from bench to bedside. The focus of the work of BLS is to transform health life expectancy



and opportunity for our community in a new life sciences campus at Whitechapel by creating healthcare solutions that can be translated directly into patient benefit at Barts Health hospitals and generate investment in the local economy.

The BLS has been developing a range of programmes to support the development of a vibrant life sciences cluster in east London. One of the most significant of these is the [Precision Medicine Platform \(PMP\)](#) which will support the secure analysis of research-ready NHS patient data from a diverse community of over 2.5 million people across north east London. Its output will include statistical analysis, machine learning and bioinformatics resources to develop tools and products that will be used to improve health outcomes for the whole community. Funded by Barts Charity, the PMP will be operational by the end of 2024.

Another exciting new research venture is the [Academic Centre for Healthy Ageing \(ACHA\)](#), based at Whipps Cross Hospital. Its focused on research, education and training to improve care and support for older people in north east London. ACHA is a collaborative project between Barts Health, Queen Mary and Barts Charity. It will build on strong local community links and is closely connected to the Integrated Delivery Framework (IDF), a system-wide approach to transforming health and care services across the whole Whipps Cross catchment area. The aim is to ensure that all its research happens where patient care happens.

Taken together with research that continues to happen throughout the Trust and University, unaligned with specific facilities, Barts Health and Queen Mary offer a unique portfolio of research types and delivery models. All which is being undertaken by a growing and enthusiastic world-class staff of research-aware clinicians and academics.



£33.1M

↗ (up 11%)

Total research income (est)



411

↗ (up 40%)

NIHR portfolio studies recruiting participants in 2023/24 financial year



23,222

↗ (up 68%)

Participants recruited to NIHR portfolio studies in 2023/24 financial year



330

↗ (up 10%)

Commercial research projects generating income in 2023/24 financial year



170

↗ (up 9%)

Principal Investigators generating income in the 2023/24 financial year

First new treatment for deadly cancer in 15 years

April 2024

Researchers from Barts Health and Queen Mary have developed the first new treatment for mesothelioma, a type of lung cancer, in 15 years.

Results from the clinical trial showed that combining a new drug with traditional chemotherapy helped patients with malignant pleural mesothelioma (MPM) live longer. MPM is a rare and often rapidly fatal form of cancer associated with asbestos exposure which has limited therapeutic options.

Of the nearly 250 patients on the trial, many of whom were patients at St Bartholomew's Hospital, around half were given the new drug plus traditional chemotherapy and the other half the traditional chemotherapy alone. Those given the combination of chemotherapy and new drug lived on average nearly two months longer. They were also nearly four times more likely to be alive three years after their diagnosis.

Prof Peter Szlosarek who works at the Barts Cancer Centre at St Bartholomew's Hospital and led the trial said: "It's truly wonderful to see the research into the arginine starvation of cancer cells come to fruition. This discovery is something

I have been working on from its earliest stages in the lab, right the way through to a treatment which is now improving the lives of people with mesothelioma. I would like to thank all the patients and families, researchers and their teams, particularly those at St Bartholomew's Hospital, as well as Polaris Pharmaceuticals for their commitment to developing a new cancer treatment for our patients."

You can watch Prof Szlosarek discuss the 'ATOMIC-meso trial' online [here](#). More research, including more trials, is planned to figure out if the new drug can also be used as a treatment for patients who have sarcoma or glioblastoma multiforme (a type of brain tumour) and in the future, potentially other types of cancer.

This trial was run by Queen Mary University of London, in collaboration with Barts Health NHS Trust and funded by Polaris Pharmaceutical.

'Tech vest' can detect early signs of heart disease

April 2024

Researchers at Barts Heart Centre have found that a reusable 'vest' can detect a potentially fatal heart condition much sooner than currently possible.

They found that by looking at the electrical changes in a person's heart, doctors can tell if a person has the heart condition hypertrophic cardiomyopathy (HCM) earlier than today's tests. This could help patients get the care they need sooner.

HCM affects around 1 in 500 people in the UK. Caused by a mistake in a person's DNA (known as a mutation), it makes the muscles of the heart wall thick and stiff, limiting how well it works. HCM can lead to heart failure in some people and is the most common cause of sudden unexpected death in young people.

Researchers at Barts Heart Centre and University College London were able to find these electrical changes using an electrocardiographic imaging (ECGI) 'vest' which has 256 sensors on it. These sensors can give a detailed map of the 'electrics' of a person's heart in just five minutes, something which until now would involve an invasive, expensive and time-consuming procedure. From this electric map, doctors can tell if the person's heart is healthy or is showing signs of disease. This is important as doctors can potentially act earlier, providing new treatment to slow the disease as well as fast-tracking individuals to clinical trials



that have the potential to stop the disease entirely. The study involved 200 patients and nearly 40 healthy volunteers from across London, including from Barts Heart Centre. Patients included people diagnosed with HCM and people with the mutation but no signs of the disease.

The team found that the vest could identify HCM in 1 in 4 people who, when tested using the standard ways of diagnosing the disease (an MRI or a 12-lead ECG), showed no signs of the disease. This follows previous work by the same researchers which showed that an 'advanced cardiac MRI' could be used to detect early structural changes in HCM that are not present on conventional tests. You can read the full research paper in the Journal of the American College of Cardiology, [here](#).



Blood test may show which women would benefit most from drug for breast cancer

February 2024

Research led by Queen Mary University of London's Wolfson Institute of Population Health has found that hormone levels, measured through blood tests, are an important indicator of whether postmenopausal women who are most at risk of developing breast cancer will benefit from aromatase inhibitors such as anastrozole.

This type of drug is recommended by the National Institute of Clinical Care and Excellence (NICE) as an option for preventive therapy in post-menopausal women at high risk of breast cancer. The study, published in *Lancet Oncology*, could lead to better ways to identify those post-menopausal women who would most benefit from these drugs.

1 in 7 women in the UK will develop breast cancer, with almost 56,000 cases diagnosed every year. Post-menopausal women who have higher concentrations of the hormone oestrogen in their bloodstream are at higher risk of developing breast cancer. Aromatase inhibitors stop the production of oestrogen and reduce the amount made in the body. They are currently the most effective preventive agent for oestrogen-receptor-positive breast cancer.

Led by Prof Jack Cuzick at Queen Mary, an international team of authors tested whether measuring oestrogen in the blood could identify which women at increased risk of breast cancer will benefit most from the preventive effects of an aromatase inhibitor. The study was funded by Cancer Research UK, the National Health and Medical Research Council, Australia, and the Royal Marsden Cancer Charity.

Prof Jack Cuzick said: "These results are very exciting and can refine how we choose preventive medication for post-menopausal women at high risk of breast cancer. In our study, the 25% of these women with the lowest oestradiol measurements benefitted little from taking anastrozole, while still suffering from the side effects of the drug. A simple blood hormone test could improve the benefit of anastrozole if we use it to select the patients best suited to take it. We now need to routinely assess hormone levels in post-menopausal women at high breast cancer risk before prescribing anastrozole, to identify those who are at greatest risk and will respond well."

Dr David Crosby said, "It's an area with a lot of potential, and larger trials building on the results in this study will be key to further understanding who is most likely to benefit."

This study builds on the results of previous trials, led by researchers at Queen Mary, involving 3800 postmenopausal women that showed women receiving anastrozole were almost 50% less likely to be diagnosed with breast cancer. These studies led to the approval of anastrozole as an aromatase inhibitor for breast cancer prevention.



New injection-based treatment reduces high blood pressure

November 2023

A new study led by researchers at Barts Health and Queen Mary shows that a novel drug called Zilebesiran, given as an injection under the skin once every three or six months, successfully reduces high blood pressure (hypertension).

The trial, conducted over two years, gave 394 patients one of five treatment options. These were 150mg Zilebesiran (the injection-based medication) every 6 months, 300mg Zilebesiran every 6 months, 300mg Zilebesiran every 3 months, 600mg Zilebesiran every 6 months, or a placebo. All the patients either had untreated hypertension or had been purged of their current blood pressure medication.

The results showed that by the third month, Zilebesiran was successfully reducing hypertension. Mean 24-hour systolic blood pressure was reduced by 14.1 mmHg with the 150 mg dose, 16.7 mmHg with the 300 mg dose, and 15.7 mmHg with the 600 mg dose. There were significant reductions in mean blood pressure not just during the daytime but also during the night.

Those diagnosed with high blood pressure typically take tablets once or twice a day to control the condition, with ACE inhibitors being the most

common medication prescribed. However, Zilebesiran could ultimately change how high blood pressure is treated for adults, reduce the burden on the NHS, and offer a more convenient solution for patients.

Dr Manish Saxena, Hypertension Specialist at Barts Health said: "Sustained blood pressure reduction of this magnitude could translate into a significant reduction in the amount of heart attacks, strokes and heart failure – which are all linked cardiovascular events. This exciting new treatment has the potential to improve blood pressure control and with 6-monthly dosing, could also help reduce the burden on the NHS. Hypertension is the most important modifiable risk factor for cardiovascular diseases with almost 33% of adults in the UK having hypertension, so treating it is incredibly important."

Key risk factors for hypertension include being overweight, a poor diet with excess salt and not enough fruit and vegetables, along with smoking and a lack of exercise.

The study is funded by Alnylam Pharmaceuticals, with Queen Mary and Barts Health serving as its lead sites. Further information about this research can be found on the Queen Mary website, [here](#).

New drug combination doubles survival for people with bladder cancer

November 2023

Results from a clinical trial carried out by researchers at Barts Health and Queen Mary show that a new combination of drugs doubles overall survival for patients with bladder cancer that has spread (metastatic bladder cancer).

The findings show that giving people with metastatic bladder cancer enfortumab vedotin (an antibody-drug conjugate) and pembrolizumab (an immunotherapy drug) can stop their disease from getting worse and help them live twice as long compared to those given just chemotherapy.

Life expectancy for people with metastatic bladder cancer is just one year, and the treatment they are given, chemotherapy, hasn't changed in 40 years. This new trial, called EV302, involved nearly 900 people and aimed to change this and to develop the first new treatment for bladder cancer that has spread in nearly four decades.

The team found that the 442 people given this new combination of drugs (enfortumab vedotin and pembrolizumab) lived nearly twice as long compared

to the 444 people given chemotherapy (31.5 vs 16 months). In addition, the researchers showed that the risk of death was 53% lower in those given the combination, which was also associated with better disease control rates. Also encouraging, side effects from the drug combination were very similar to those experienced by people given chemotherapy.

Professor Tom Powles, Director of Barts Cancer Centre, led the trial. Speaking on the results, he said: "We've long known that we need to improve people's chances of surviving bladder. This study has achieved that in a dramatic manner. We've shown that combining these two drugs helped people live twice as long compared to those given standard chemotherapy, with unprecedented responses. There is new hope in bladder cancer, and I can't thank those who took part in the trial enough for doing so."

These findings were presented at a plenary session at the European Society of Medical Oncology (ESMO) conference. Further information found [here](#).

New product combining blood and plasma in one bag saves lives

May 2023

A new blood product combining red blood cells and plasma in one bag is associated with better survival from a penetrating major trauma injury, a new study involving Queen Mary University of London has found. NHS Blood and Transplant (NHSBT), Queen Mary University London, and Barts Health NHS Trust collaborated on the new study published in the journal Critical Care.

Plasma is the liquid part of the blood. It contains clotting factors which reduce bleeding. NHSBT developed a new transfusion product which contained red blood cells and plasma together.

The study recruited 909 major traumatic haemorrhages patients who met the trial criteria. They were treated by Air Ambulances in England during 2018-2020. The patients received either the new product, which contained red blood cells and plasma together in one bag, a separate transfusions of red blood cells and plasma, or red blood cells only. Overall, the odds of surviving 24 hours were 1.5 times higher in patients who received combined red cells and plasma than those who received red cells alone. The authors say larger trials are needed to confirm these findings. The primary aim of the trial was to see how the new product compared to the other two, established treatments. There may be practical benefits to carrying out one transfusion with

continues...

one bag, instead of separate bags of plasma and red blood cells, which could benefit patients.

Further trials would be needed to establish that. Queen Mary led the research. The product was developed by NHS Blood and Transplant. Barts Health NHS Trust provided clinical data and support.

The trial was funded by London Air Ambulance, Barts Charity, and NHS Blood and Transplant.

Chief Investigator Dr Laura Green, Reader in Transfusion Medicine at Queen Mary and a Consultant Haematologist for NHS Blood and Transplant and Barts Health NHS Trust, said: "The majority of trauma deaths are within three hours. We know patients benefit from getting not just red blood cells but also plasma but it's difficult to quickly carry out multiple transfusions in an urgent pre-hospital setting – such as by the roadside at night following a major crash, where a patient might have minutes to live.

The study provides evidence that this new product, which contains both plasma and red blood cells unmixed in one bag, also saves more lives than just giving red blood cells alone. Now it can be explored further as a potentially lifesaving new treatment which can be used outside of hospitals."

The full story can be found on the QMUL website [here](#).



Introduction to Public Involvement in Research

There are many ways members of the public (including patients, potential patients, families and health advocates) can get involved in health and social care research. Public Involvement is an active partnership between patients, carers and members of the public with researchers that influences and shapes research.

Some of the things that patients and members of the public might be asked to do are:

- help **select** and **prioritise** research topics that are important and relevant
- help develop understandable **information sheets** for people taking part in research
- join a research **management or advisory** group
- train to **carry out** some of the research (for example interviews)
- help **interpret** the results of the research
- help make sure the research is reported in **understandable** ways
- help make sure good research is **heard about**.

Patients and members of the public make a difference to health and social care research by:

- making sure that researchers ask the **right questions** and in a way that the public understand
- keeping the research **on track** so that it stays relevant
- making sure the **people being researched** are approached in the right way
- improving the **quality** of the research by adding another point of view to the design and conduct.



Below are some resources that you may find useful if you would like to find out more about public involvement in healthcare research.

1. [The Starting Out Guide](#) has been written to help and advise people who are interested in getting involved or have recently become involved in research. The guide outlines key information and principles about getting involved in research, whatever your experience or prior knowledge.
2. The [Public Information Pack \(PIP\)](#) was developed for patients, carers and members of the public who are interested in getting involved in health or social care research. It aims to answer the questions that people frequently ask when they first get involved in research.
3. [The NIHR UK Standards for Public Involvement](#) are a set of standards designed to improve the quality and consistency of public involvement and health and care research. They provide guidance and reassurance for users working towards achieving their own best practice.
4. [The NIHR Learning for Involvement](#) website offers both researchers and members of the public who are interested in getting involved in research a range of resources, including an interactive course for new and experienced reviewers of health and social care research.
5. [People in Research](#) is a website that helps to match people with public involvement opportunities. This may include working with research funders to prioritise research, offering advice as members of a project steering group, commenting on and developing research materials and undertaking interviews with research participants.



Public Involvement opportunities at Barts Health



The Academic Centre for Healthy Ageing (ACHA) is a new research, education and training centre from Barts Health NHS Trust and Queen Mary University of London.

We work closely with local people and health and care staff in north east London to improve care and support for people as they grow older.

ACHA is uniquely co-located within Whipps Cross Hospital (Barts Health NHS Trust) and Queen Mary University of London. This means all our research happens where patient care happens, in real world 'frontline' care settings, involving patients and caregivers. Because of this we can produce high quality evidence of what works. Connecting with national experts and networks, we can use this knowledge to change services to better support healthy ageing.

The views and needs of our diverse local communities will inform everything we do: our research, our education programmes, and, mostly importantly, how we should design and deliver health and care services to improve the ways in which people can grow older.

Putting research into action: We are already using community and patient input to inform research through ACHA's first PhD programme: "New approaches to FrAilty: Inclusivity and REsilience in ageing Research, a Doctoral Training Programme" (FAIRER-DTP). We asked local people and hospital patients about their healthy ageing priorities via a series of events and the use of surveys. The community responses we received are directly informing the research topics for the three PhD studentships in this programme, ensuring all our research is listening, involving, and responding to the needs of our local population. The FAIRER PhD programme is due to begin in January 2025.

If you would like to be involved, join our Community Advisory Group (CAG). The CAG meets bi-monthly to offer feedback and insight to support all activities undertaken by ACHA.

Get in touch:
bartshealth.acha@nhs.net or acha.qmul.ac.uk

Patient Research Champions (PRC)

The Patient Research Champion (PRC) programme at Barts Health offers a unique opportunity for members of our community to play a part in our healthcare research. As a volunteer, you will directly support research staff to help give our patients the best possible experience of taking part in research and make a positive difference in your local hospitals. In this varied role, you can expect lots of interaction with patients, to be part of a close-knit team, and to help us learn more about various topics in healthcare research.

Placements are available in a variety of departments and hospitals, including the emergency department, Adult Critical Care Unit (ACCU), maxillofacial trauma review clinic, Clinical Research Facility at Royal London Hospital and Whipps Cross Hospital and the stroke unit at Newham Hospital.

We are always looking for enthusiastic individuals to join the PRC programme. If you are interested in joining our amazing network of volunteers, please contact the Research Engagement team at patientsinresearch.bartshealth@nhs.net



Public Advisors for Injury Research (PAIR), Centre for Trauma Sciences

Patient experience and perspectives are crucial for helping guide research, and patients play an important part in the translation and dissemination of findings. We want your help!

PAIR members:

- feedback on the consent process for patient recruitment
- contribute to and review grant applications
- assist in writing Patient Information Leaflets
- have opportunities to join Trial Steering Committees
- provide input into the costing of patient involvement in projects
- aid dissemination

Join the PAIR research involvement group

For more information [click here](#), and to join the group contact **James Piercy** at j.piercy@qmul.ac.uk

Research Engagement at Barts Health

Barts Health is one of the few NHS Trusts to have a dedicated core team to support researchers to engage patients and the public throughout the research project timeline – from early engagement through delivery to completion and beyond.

The Research Engagement team works with sponsors, researchers, healthcare professionals, industry partners, patients and the public to build stronger partnerships in the development, delivery and dissemination of our research and encourage greater levels of *engagement, involvement* and *participation* amongst our diverse patient population and local communities.

As well as providing a wide range of support to our researchers, the team are a central point of contact for people interested in participating or getting involved in research taking place in our hospitals, ensure stories and other news about research are shared with patients and local communities and host events and activities including the annual Research Matters programme, marking International Clinical Trials Day.



Neeta Patel
Associate Director,
Research Engagement



James Marshall
Research Engagement
Coordinator

**For more information,
please visit [our webpage](#)
or contact us at
patientsinresearch.bartshealth@nhs.net**



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