A Life Sciences centre in Whitechapel
Take a doctor, a chemist, an engineer and a computer scientist. Put them together on a project to better understand the detection, prevention and management of disease, and you have the potential of Life Sciences, one of the fastest-growing areas of applied knowledge in the world today.
Whitechapel in east London will become home to a cutting edge research facility with experts working together to bring new treatments to patients faster.

New plans propose the creation of a thriving Life Sciences centre at the heart of a vibrant cluster which would sit next door to The Royal London, one of London’s top teaching hospitals. The cluster will be home to hundreds of researchers and serve 1,000 students working to solve some of the riddles that puzzle healthcare professionals around the world. It will create thousands of jobs and add billions of pounds of value to the local and national economy.

The plans, drawn up by Barts Health NHS Trust and Queen Mary University of London (QMUL), will redevelop under-used land left over after the completion of the new state-of-the-art Royal London Hospital in 2012. The aim is to deliver a step change in treatment for patients and a significant boost to the UK’s drive to be a leader in research and innovation in the life sciences field.

This cutting edge medical facility will enable us to translate findings directly from research straight to patients. It will see truly unique developments, from new medical devices to medication; and gene therapies to innovative preventative health programmes.

Potential benefits to Whitechapel

Home to hundreds of researchers and serving 1000 students at any one time.

Around £12bn of economic benefits including over 12,800 full-time jobs created over 30 years.

The creation of a skills academy for local people to develop new skills and work in the new cluster.

The future of healthcare science

Life Sciences captures the next generation of medicines that uses the information contained in all our genetic profiles. Armed with this knowledge, scientists and clinicians are better able to design approaches to care and personalised medicines that are tailored to each individual. Effectively they can use the information in our own bodies to create diagnoses that are more accurate, and therapies that are more effective with fewer side effects.

This exciting applied science is therefore more than simply the study of living things. It is the space where research, education, health and industry come together to spark new ideas and innovations in a powerful creative cycle - from laboratory bench, to hospital bedside, to industry. It is about answering important clinical questions and translating exciting discoveries from academic research into ground-breaking clinical practice which improves patient care and people’s lives.

This can happen not only through developing new diagnostic tools, new drugs or new medical technologies, but also increasingly by using data analysis to make scientific and clinical advances and exploiting the potential of those medical techniques and treatments. This will create local jobs and generate wealth that is invested back into further scientific research that both helps clinicians and directly benefits patients. In conjunction with artificial intelligence, it has the potential to change how we look after each other.

Rakesh Uppal, Cardiac Surgeon, Director of Life Sciences, Barts Health, said:

I am hugely excited about these plans. Our ambition is for a world-leading research and innovation facility to benefit our patients, local community and the NHS while advancing medical science internationally.
A golden opportunity for east London

East London now has a golden opportunity to make a unique mark on the Life Sciences sector in the UK through a new NHS-university collaboration between clinicians at Barts Health NHS Trust and scientists at Queen Mary University of London (QMUL).

As the biggest NHS Trust in England, Barts Health employs 2,350 doctors who deliver quality healthcare across the full spectrum of medical specialities to more than 6,000 patients a day. It has some of the most modern equipment and facilities, and one of the lowest mortality rates in the country.

It directly serves 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. This large and diverse population means it can effectively run “global” clinical trials locally, bringing new treatments to patients faster.

Better understanding of the genetic make-up and disease profiles of the local patient population will also be one of the keys to improving public health and optimising the delivery of healthcare in future. Barts therefore has the clinical expertise in-house and the patient base to make a major impact in Life Sciences.

QMUL is one of the UK’s top universities for research, with wide-ranging and innovative programmes in education. It has a large, growing and diverse student and staff population, and as a major local employer is embedded in the east London community.

Barts and the London School of Medicine and Dentistry, one of the UK’s foremost medical schools, is a faculty of the university and many Barts Health consultants hold both research and teaching posts at QMUL.

The university has long nurtured ambitions to develop a global centre for Life Sciences in Whitechapel and use this expertise to address the health needs of a deprived and disadvantaged population. It hosts Genomics England, the national project to sequence the genomes of 100,000 NHS patients and learn how diseases work and who is susceptible to them, with the ambition of making pioneering discoveries and enabling new treatments.
The Trust and university are also working together on the innovative East London Genes and Health programme, aiming to understand the relationship between genetic characteristics and disease among thousands of volunteers of South Asian origin who are five times more susceptible to diabetes and other indicators or poor health.

The clinicians and scientists are undertaking research that will not only bring immediate health benefits, but also has potential commercial applications. The strengths of our clinical services will be integrated with QMUL’s Life Sciences research. This exercise will produce a matrix of projects involving a mixture of scientific research and clinical activity focused on four themes:

• Genetic health: studying why different people get sick in different ways so we can produce more personalised medicine tailored to individuals

• Computational biology: using technology to help people monitor different conditions remotely, keeping them healthy, better able to track when they need support and less reliant on hospitals

• Bioengineering: developing new materials to use in operations that will aid recovery and comfort

• Mind in society: studying the social issues that may impact on how different conditions develop for different people, and masterminding better ways to prevent and treat them.

Establishing a thriving cluster in Whitechapel is the next step and will harness the strengths of each organisation in a clinical-academic partnership to further improve the health of local people.

Bill Spence, Director of Life Sciences Initiative, Queen Mary University of London, said:

“We look forward to working with Barts Health to link the exceptional research going on across QMUL with the great clinical expertise in the Trust, in order to accelerate progress on our joint translational aims.”
A unique collaboration

What makes this collaboration unique is the scale and diversity of our local population, and the close relationship between the Trust and the university serving it.

Using the approaches and techniques of Life Sciences disciplines, this gene pool can be mined for insights into why different types of people get sick in different ways - for example, why south Asian men are more prone to diabetes, or Afro-Caribbean women are vulnerable to high blood pressure. The ultimate prize, of course, is to determine how patients could be better treated, where possible out of hospital.

The aim of this exciting collaboration is to create a dedicated Life Sciences cluster in the Whitechapel area. The location means that as well as harnessing the power of an excellent University and top teaching hospital, the cluster will be able to make use of other attributes of the local area such as the concentration of business and IT between the City and Canary Wharf, and excellent transport links including the new Crossrail development.

Steve Thornton, Vice Principal (Health) & Executive Dean, Queen Mary University of London said:

“This is an incredibly exciting development which brings together the NHS and QMUL to improve the health and healthcare of the local population. It builds on our world leading strengths in medical research and education. We already work very closely with the NHS to produce research which makes a difference to people’s lives, provide some of the very best doctors, dentists and scientists who deliver high quality care and I look forward to continued collaborative working with the Trust for the benefit of the population in the East End.”
The strategic aims of Barts Health are to improve the health of the local population, enhance community facilities in the area, and help secure the clinical and financial sustainability of the Trust’s group of hospitals. It is committed to working with local partners to realise this ambition, as part of the wider redevelopment of a prime location which could also include releasing land for housing, retail space, offices, and civic amenities.

The Trust plans to develop several plots of under-used land left over following the development of the new Royal London Hospital into one of the most modern research facilities in Europe. This land covers a ground area equivalent to two-and-a-half football pitches.

Barts Health has obtained approval from NHS Improvement to explore options for realising the untapped benefits of this valuable resource. This is the first stage of a thorough process to determine the best way forward which will ultimately obtain Government approval of a business case. The next step is applying for planning permission from the local authority.

Barts Health and QMUL have already been awarded a £6.5m grant that will enable world-leading researchers to turn theories within laboratories into reality, improving the care of local people battling the global number one killer - heart disease. The two organisations will build on this award from the National Institute for Health Research Biomedical Research Centre in the Whitechapel collaboration.

Barts Charity, which already has a proven track record of funding research projects which have a measurable impact on patients’ lives, is keen to maximise the opportunities that this new collaboration will bring and with its support the possibilities are endless.

The end result will be an exciting, dynamic environment buzzing with students, scientists, clinicians and entrepreneurs focused on delivering better care and improving the health, wealth and minds of our community and beyond. All this, situated half a mile from one of the financial capitals of the world and a mile from the UK’s own Silicon Valley in Shoreditch, as well as Google, Deep Mind and Medcity at Kings Cross.

An initial independent assessment of the economic impact of a Life Sciences cluster estimates it would bring £11.2bn worth of benefits to the Whitechapel area.

This takes into account the direct employment of staff, plus their expenditure through suppliers and supported employers spending wages in the wider economy over 30 years. It would also create 11,562 full-time jobs.

The wider economic impact of spin-offs and foreign investment would generate at least £0.5bn extra in benefits and a further 1,264 full-time jobs over the same period.

Source: PwC
The presence of a thriving Life Sciences cluster at the heart of the proposed Whitechapel development would be a powerful incentive for attracting new start-ups and other innovative and dynamic enterprises to the area.

The co-location of biotech laboratories alongside the hospital will further boost the process of translating cutting-edge research into new treatments and ways of delivering care to the local population.

For example, it could release the potential for new cell therapies to be delivered by the Trust. A Life Science cluster will also help Barts Health recruit new talent from further afield and retain our best clinicians and researchers.

Barts Health is already working on plans to use some of the Whitechapel space to house a skills academy to train members of the local community who want to work in the health and care sector.

In addition, any revenue from the enterprise will be reinvested back into the Trust, to improve patient care for the community and secure the clinical and financial sustainability of the whole hospital group for many years to come.

**Barts Health Skills Academy**

East London has high unemployment. Local people need the opportunity to develop their skills to find jobs. Through its Community Works for Health programme, Barts Health already offers training, coaching and placements to local residents. Last year this helped 249 people gaining work in our hospitals and supported 95 apprenticeships. As part of the Whitechapel development, the Trust plans to create bespoke facilities for a learning hub that will provide an employment pathway for 750 residents a year, of whom a third would obtain work in one of our hospitals. Apprenticeships would be available in a variety of fields, such as physician or nurse associates, customer care or facilities management, and mechanical and electrical engineering.

**Understanding the causes of cervical cancer so we can develop personalised therapies**

By linking data from long term analysis of patients’ health records we will be able to find out how genetic and environmental factors cause cervical cancer in some women and not others, and why some treatments work better in different groups of patients. This will help us predict more accurately who is at higher risk, to provide them with better support and therapy to avoid illness. We will also develop the drugs and other treatments that work best for specific groups of patients. In this way, the Life Sciences cluster will bring together doctors, computer scientists, engineers, and chemists to improve the health of women in east London.