

INform

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Groundbreaking lung cancer breath test in **clinical trial**



A clinical trial led by University of Leicester respiratory experts into a potentially ground-breaking 'breath test' to detect lung cancer is set to get underway at the Glenfield Hospital in Leicester.

It is hoped that the LuCID (Lung Cancer Indicator Detection) programme will lead to a non-invasive method of diagnosing lung cancer in the early stages. The company behind the device, Cambridge-based Owlstone Nanotech Ltd, carried out a health economic analysis and determined that detection of early-stage lung cancer could be increased from the current 14.5% to 25% by 2020, it is estimated this could save 10,000 lives and £250m of NHS money.

The device works by measuring volatile organic compounds (VOCs) at low concentrations in a patient's breath and offers a cheaper and smaller alternative to existing detection technologies.

Supported by the University of Leicester's enterprise and business development team and Leicester's Hospitals, Owlstone was awarded £1m by the NHS Small Business Research Initiative (SBRI) towards the second phase of the LuCID project – the clinical trials. The aim is to further evaluate Owlstone's GC-FAIMS (Gas Chromatography – Field Asymmetric Ion Mobility Spectrometry) sensor in a rapid access lung cancer clinic at Glenfield Hospital, Leicester starting later this year. If successful, the project will pave the way to evaluate the technology in GPs' surgeries and other hospitals.

Billy Boyle, co-founder of Owlstone, said: "If you could change only one thing in the fight against cancer, it would be to detect the disease earlier where existing treatments are already proven to save lives. FAIMS technology has the potential to bring a quick and easy-to-use breath test to a GP's office. Our team will not rest until we help stop the daily devastation that cancer brings to patients and their families."

The clinical study is being led by Dr Salman Siddiqui, a clinical senior lecturer and adult chest physician at the University of Leicester and Glenfield Hospital with results of the trial expected in early 2016.

The study will be delivered by a number of key members of the lung cancer clinical team including senior lung cancer clinician, Dr Jonathan Bennett.

Dr Siddiqui added: "Lung cancer has one of the lowest 5-year survival rates of all cancers, however early diagnosis can greatly improve a patient's prognosis. Current diagnostic procedures such as a chest X-ray, CT scan and bronchoscopy are costly and not without risks so the benefits of a non-invasive, cheaper alternative are clear.

"This project will seek to identify and evaluate biomarkers in order to improve the accuracy and reliability of breath diagnostic methods. We will also be aiming to establish FAIMS as a faster, less expensive and more portable alternative to gas chromatography-mass spectrometry (GC-MS) for breath diagnosis applications."

BRU researchers partner with Youth Sport Trust to get #GirlsActive



Young people in the UK are not as physically active as they need to be to maintain their health and wellbeing.

All young people become less physically active as they get older and girls tend to do less physical activity than boys, especially once they move from primary to secondary school. There are a number of reasons for this decline. Teenage girls say they do not participate in physical activity as they feel self-conscious or embarrassed. They also report that they feel they don't have enough skill to take part, or not enough support is given to them and that traditional sport is too competitive. There is a need to offer teenage girls opportunities to be physically active and give them the tools and skills to make choices on becoming active. A number of school based programmes have tried to do this around the world but there are not many programmes that have been developed and tested in the UK.

The National Institute of Health Research has identified inactivity in young people as a problem and, in Autumn 2013, called for researchers to apply for funding to investigate ways to prevent the decline in young people's physical activity. The Leicester Loughborough Diet, Lifestyle and Physical Activity BRU staff, with experience of young people's work, rallied together to apply for this prestigious funding. The team included Charlotte Edwardson, Ph.D., who spent six years working on evaluations of

young people's physical activity and sport programmes including Great Fun2Run and initiatives by the Women's Sport and Fitness Foundation, Deirdre Harrington, Ph.D., who had worked in the co-ordinating centre of a global 12 country childhood obesity study based in Baton Rouge, Louisiana and Lauren Sherar, PhD who is a member of the steering committee of the largest children's accelerometer database in the world. This team's experience of young people's work combined with the experience of Leicester Diabetes staff on large clinical trials and the supporting infrastructure of the BRU and the Leicester CTU meant the team were successful in securing funding.

The team are partnering with The Youth Sport Trust (YST) for this work. The YST is the largest charity for physical activity and youth sport in the UK. The YST have been undertaking programmes specifically for girls for the last ten years and all the learning and experience has culminated into a programme called Girls Active. This programme has been developed for schools to increase physical activity, sport and PE participation in girls aged 11-14 years by providing training to teachers to self-review their current physical activity provision in their school and supporting girls within the school to develop and lead on new physical activity opportunities to market to their peers. Girls Active provides training, resources and support for teachers to think about

the way they deliver physical activity, sport and PE in their schools. Schools can decide how they should plan to encourage more girls aged 11-14 to be more active inside and outside of school. It also allows girls themselves to become trained as leaders so that they can deliver physical activities to other girls and act as physical activity role models.

Our research team is testing how effective the Girls Active programme is at increasing the amount of physical activity girls do and whether this programme is value for money. They are running a study in the East Midlands with many of the schools coming from the multi-ethnic area Leicester, Leicestershire and Rutland. To date, the team have recruited 20 schools to target, have done measurements on over 1,600 girls (~90 per school) and randomly assigned 10 schools to receive Girls Active and 10 schools will carry on with their usual practice to act as the comparison group. They are measuring the physical activity levels of girls using a physical activity monitor worn on the wrist (it looks just like a watch and can tell us how long someone has been moving for each day). Participating girls are also completing questionnaires about their feelings towards physical activity, sport and PE and how much support they receive from teachers, parents and friends for taking part in physical activity. Teachers themselves complete a questionnaire about their school facilities, PE classes and activity sessions. The team will collect all of these measurements again 7 and 14 months after the first measurements to investigate what has changed. If we show that Girls Active increases how much physical activity these girls do, the project could be offered to all secondary schools in the UK. As physical inactivity is a leading risk factor for chronic disease in adulthood, getting young people active is a priority for our research group in the prevention of conditions including type 2 diabetes. The Girls Active work could lead to teenage girls becoming more active and healthier and then staying active when they are adults.

BRU investigator involved in study showing potential cause of aortic dissection

Professor Toru Suzuki has been involved in a new study to understand the underlying cause of the most common emergency condition of the aorta – the main artery in the human body.

The study, 'Granulocyte macrophage colony-stimulating factor is required for aortic dissection/intramural hematoma' published in the journal *Nature Communications* examined acute aortic dissection (a tear in the inner wall of the aorta) and found that a previously unknown cause of the condition could be a specific molecule in the body.

Professor Suzuki explained: "The cause of aortic dissection and its variant intramural haematoma have remained unknown, but our studies show that a molecule — the inflammatory cytokine, granulocyte macrophage colony-stimulating factor (GM-CSF) — plays a central role in causing this condition, both in experimental models and in humans."

Acute aortic dissection is a condition where a tear in the membrane of the artery causes blood to flow into the medial layer. Aortic dissection is a potentially catastrophic condition with mortality reaching 1%/hour in the first 24 hours alone.

Although recent advancements have been made in diagnostic imaging techniques and methods of treatment, little is known about the mechanisms of the disease.

The new study shows that in patients with aortic dissection, GM-CSF is expressed in the tissue at the site of dissection, and that circulating levels of this cytokine are raised during these occurrences. This suggests that GM-CSF may be a cause of the condition and highlights the important role of GM-CSF as a mechanism underlying the onset of aortic dissection.



OK to Ask

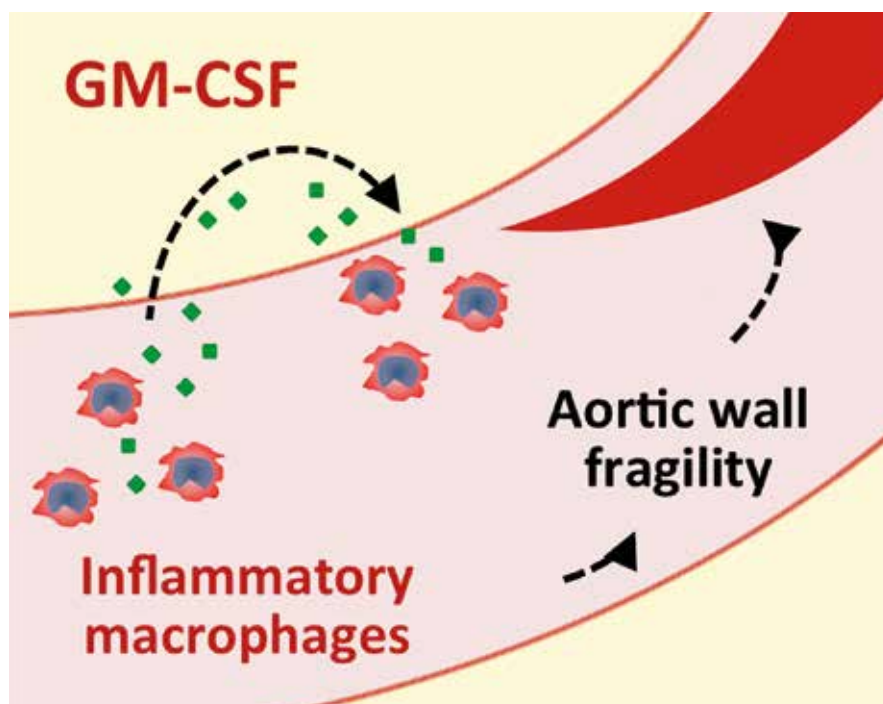
The research community is reaching out to patients and the public across England and encouraging them to ask about research opportunities that could be available to them as part of the celebration of International Clinical Trials Day on 20 May 2015.

More than 100 events and activities are taking place across the country to celebrate the day and encourage more people to 'ask' about clinical research through the NIHR 'OK to ask' campaign.

The National Institute of Health Research annually promotes the OK to Ask campaign, encouraging patients seeing their doctor or healthcare professional to ask about what research is going on and how they can take part.

The Biomedical Research Units took the opportunity, in partnership with colleagues from the University Hospitals of Leicester NHS Trust Research Office, to get out in the community and talk about the research we do.

The public of Beaumont Leys were enthusiastic and welcoming, and we were ably supported by PPI Volunteers who even supplied samosas to keep us going throughout the day.



HRH The Duke of Gloucester Visits Cardiovascular Research Centre

HRH The Duke of Gloucester visited the British Heart Foundation Cardiovascular Research Centre on Thursday 26 March, 2015 after attending the service at Leicester Cathedral for the reinterment of King Richard III.

The Duke was accompanied by the President and Vice-Chancellor of the University Professor Paul Boyle, the Chief Executive of the University Hospitals NHS Trust, Mr John Adler, and Professor Alison Goodall, Professor of Thrombosis & Haemostasis in the Department of Cardiovascular Sciences and College Lead for Clinical Research, University of Leicester.

Professor Sir Nilesh Samani, BHF Professor of Cardiology and Director of the BRU, said: "We are delighted that HRH The Duke of Gloucester has made time to visit the Cardiovascular Research Centre during his trip to Leicester. In addition to showing him the research we undertake which impacts on prevention and treatment of heart diseases through improved understanding of their causes, we hope to demonstrate how we created the Centre through engagement with our local community and their tremendous philanthropic support".



University Hospitals of Leicester
NHS Trust



Public Lecture Series

Join us at Loughborough University for one (or all) of our public lectures.

Exercise for Patients with Kidney Disease

May 12th 2015

How safe is blood transfusion?

June 16th 2015

Exercise: Living Longer and Dying Quicker

September 8th 2015

Lifestyle and Liver Disease

October 20th 2015

Obesity: Do Your Genes Fit?


November 10th 2015


The lectures will be delivered in: Lecture Theatre, HE0.10, Clyde Williams Building, Loughborough University, LE11 3TU


Full directions are available on:
www.lboro.ac.uk/about/findus.html

Refreshments are available from 6:30pm. Each lecture will start at 6:45pm and anticipated finish time will be between 8:30-9:00pm.

To book your place please email:
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