Results of Competition: Support for SMEs to Evaluate Innovative Medical Technologies

Competition Code: 1801_CRD_OLS_SMEIMT

Total available funding is £1m

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
	Effectiveness of a novel bacteriaphobic coating for preventing catheter-acquired infections in man	£212,216	£148,551

A quarter of all hospitalised patients receive a urinary catheter to drain their bladder during their stay. While catheters are standard-of-care therapy, these devices are also highly infectious, responsible for 40, resulting from extra medication and days in hospital, hence catheter associated HAI are costing circa £400 million a year (up to £2,000 and 6 days per patient).. Camstent, a UK-based SME, has developed an innovative coating material based on material research by the University of Nottingham (Nature Biotechnology, 2011). Camstent obtained CE mark in 2017 for a bacteriaphobic urinary catheter able to prevent surface colonisation by bacteria that cause HAI. It does this through a patented formulation that renders the surface inhospitable to infectious bacteria, hence stopping the formation of bacterial biofilms underlying the development of infection. A bacteriaphobic coated catheter addresses the NHS Five Year Forward View goal of Improving Patient Safety, and specifically the goals of _Preventing healthcare acquired infections_ and _Achieving global leadership for patient safety_. Camstent is proposing a business-led clinical investigation, to be carried out in NHS Trust hospitals and in consultation with the Oxford Academic Health Sciences network. The potential to reduce HAI has attracted participation by leading medical and surgical urologists across the UK, and our IRAS is feasible and ready for submission at four leading NHS England centres. Under our clinical proposal, coated and uncoated (control) urinary catheters will be used in routine patient care, harvested after use, and sent for surface analysis at the University of Nottingham. Biofilm density on the catheter surfaces will be measured and correlated with the associated incidence of HAI in each group. Health and economic data will be collected to demonstrate impact on patient safety and hospital costs as compared to current practice. Patient enrolment can begin by June 1, 2018, and conclude by the end of March, 2019\. The data set will be sufficiently large and diverse to allow statistically significant conclusions to be drawn using evidence based guidelines. NICE will carry out the economic analysis. A positive result would lead to rapid adoption throughout the NHS as the standard for reducing HAI, a 25,000 bed days.

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	Evidence Generation for the Clinical Efficacy and Cost Effectiveness of MyCOPD in patients with mild and newly diagnosed COPD.	£224,628	£112,314

Millions of patients in the UK live with long term medical conditions such as diabetes, heart disease and lung diseases. These conditions are the major cause of ill health in the UK and cost the NHS billions of pounds each year. One long term condition that carries an enormous impact for patients and the NHS is COPD (Chronic Obstructive Pulmonary Disease). This lung condition affects over one million patients in the UK and is one of the major causes of admission to hospital. Involvement of patients in the management of their own medical conditions (self-care) has been shown to improve how individuals feel, reduce the frequency of medical emergencies and reduce the costs of health care. In order to self-care successfully patients require the correct knowledge, skills and the confidence to make the right decisions; about their treatments, use of healthcare services and lifestyle choices. Recently the use of digital tools such as apps and websites has been shown to help patients with self-care and thus to improve their health. However in the UK there are very few providers of apps that are fully accredited by the NHS and only one that has been fully funded to provide apps nationally. MyMHealth (short for my mobile health) is a UK company founded by NHS doctors which provides high quality digital tools (apps) to enable patients to access information about their condition and treatments and to record symptoms on their phones, tablets, computers or even smart TVs. MyMHealth has produced an app called MyCOPD which has been issued by the NHS to many thousands of patients in the UK. This was because it has been shown to improve the way patients with more severe COPD use their treatment and improved their day to day function through use of an online exercise programme. In this proposed project the MyMHealth team will work with NHS professionals to explore how a modified version of MyCOPD could help patients with mild disease and particularly those newly diagnosed with the condition. We will explore how these patients can use the app and whether it's use can improve the ability to self manage their condition. We will study the potential for the app to establish appropriate and active decision making by patients and the impact of this on the use of NHS resources and the costs of day to day care.

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	Surepulse - a new way to monitor the heart rate of Newborns	£49,606	£34,724

Around 10, however those for which this is not the case are at risk of harm including damage to their brain or blindness for example. Doctors have several ways they can help the baby but need a way of assessing how well their treatment is working. They do this by measuring the heart rate (HR) which becomes much lower than it should be if the baby is having problems. An increase in heart rate means that the treatment is effective. However, unfortunately there is no good way of measuring the heart rate reliably and conveniently straight after birth. Currently, a stethoscope is the common method, but the baby's heart beat can be weak making the heart's sounds difficult to hear whilst in such a stressful environment it is known that errors in calculating the heart rate commonly occur. SurePulse was set up to solve this dilemma. The heart rate monitor that we have developed uses a small and safe optical sensor mounted in a soft cap placed on the baby's head. This sensor detects small pulsatile changes in blood supply to the forehead to calculate a heart rate. The SurePulse monitor has been successfully tested at the Nottingham University Hospitals on premature babies as a pre-cursor for selling devices around Europe and USA. SurePulse aims to become the company known to provide specialised neonatal intensive care and resuscitation monitoring. This proposed Innovate UK project has a highly experienced team of engineers, clinicians, scientists, human factors experts, the parents themselves and general public to ensure a successful outcome which will benefit newborns in the years to come. The gains in terms of societal benefits, personal fulfilment and financial, that include costs of stay in intensive care, life-long support and litigation, make this an extremely cost-effective solution to a well-known problem. We now aim to engage with a wider NHS audience throughout the United Kingdom, outside of Nottingham University Hospitals, via the funding provided by this Innovate UK award."

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
	Evaluation of Mapmydiabetes, the NICE-endorsed diabetes self-management education platform	£49,819	£24,910

Diabetes is a major public health problem with almost 3.7 million people diagnosed in the UK and an estimated 1 million more who are undiagnosed. Obesity is the most significant risk factor for developing type 2 diabetes, which accounts for 90, heart disease, stroke, kidney disease and amputations). There is also a substantial financial cost to diabetes care, estimated at £14 billion per year in the UK. All people with diabetes should be offered diabetes self-management education and support around the time they are diagnosed, with annual reinforcement and review. Unfortunately, referral and access to this education and support is highly variable across the UK and annual reinforcement rarely happens. There are many reasons for this, including lack of capacity in the system, but also because many people can't, or don't want to attend classroom-based group sessions, which has until recently been the only way to access diabetes self-management education. Mapmydiabetes can make a significant difference to people living with diabetes and to the cost and efficiency of delivering this care by providing diabetes self-management education through digital channels. Mapmydiabetes is a web-based support platform that provides unlimited and ongoing access to education, support and self-management tools for people with diabetes, and also connects them to their healthcare provider to support shared clinical decision-making. The broad adoption of Mapmydiabetes by the NHS is being hindered by lack of a clinical and cost effectiveness evidence base, which prevents the NHS from committing to and commissioning this service. This project aims to develop a data collection and evaluation plan to generate a robust evidence base for Mapmydiabetes that will be acceptable to key stakeholder groups, including NICE, NHS England and Clinical Commissioning Groups. This will enable Mapmydiabetes to be adopted at pace and scale within the NHS to bring real benefits to people living with diabetes as well as reduce the costs of service proviison

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
RESCON LTD	Improving Me Maternity Assessment	£47,648	£23,824

Improving Me Maternity (IMM) is a clinical and health economic assessment project of Rescon's CE marked Lincus software as a service product for its application in the maternity, and postnatal marketplace. Rescon was commissioned by the NHS Women and Children's Improving Me Vanguard to develop Lincus Maternity as a digital maternity person held record (PHR) that expectant mums could enter information into. The Improving Me Vanguard is due to be merged into the Merseyside and Cheshire Sustainable Transformation Partnership and supports over 30,000 births every year. The funding for the development of Lincus Maternity was justified to address mental health issues, overweight and obese mum's, smoking and diabetes during pregnancy. The above pregnancy associated comorbidities cost the region over £80 million in direct costs per year. Until the development of Lincus Maternity there was no tool available that would provide expectant mums with a CE marked and digitally held record that they could track and manage their health and wellbeing for better pregnancy and postnatal outcomes. Lincus Maternity developments and features are outlined below. * Lincus Maternity was codeveloped utilising best practice guidelines, research and stakeholder engagement for tracking prenatal and postnatal signs, symptoms and events. * Lincus Maternity developments for expectant mums have included signposting to educational content, nutrition and activity management, transition of care tools (health passport), and video consultation. * Lincus Maternity allows clinical access to the women's PHR with alert functionality which feedback as especially important for midwives in the cedevelopment sessions. * Lincus Maternity allows administration access so management can review clinical activities and outcomes using IMM's data aggregation and analysis tool that is already native to the Lincus platform. Though Lincus Maternity is now officially live having completed information and clinical governance requirements the formal and structured rollout of IMM is not expected until later summer of 2018\. We have completed early discussions with senior clinical teams and NICE about the best way to assess Lincus Maternity however are lacking the resources to prepare for and complete a full health economic assessment that would provide the evidence to have Lincus Maternity commissioned across the UK and beyond. IMM will provide Rescon with the resources they need to formally engage with NICE, senior clinicians and the Manchester University Centre for Health Economics to formulate a comprehensive evaluation strategy and plan. This will allow the team to gather the evidence that will support future commissioning of Lincus Maternity.

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HOLDINGS LIMITED	Introduction of GaitSmart in the care pathway for the elderly to reduce falls and improve the quality of life of individuals	£152,948	£76,474

Mobility and independent living are key to an older person's health and wellbeing. One in 3 people over 65 fall each year and for some this results in a loss of independence and significant reduction in everyday activities. The corresponding health and social care costs are considerable with over £2.3B spent of hip fractures caused by falls alone. It is known that key risk factors relating to falls include gait and balance issues and yet in the current care pathway technology is not used to provide objective measurements to identify and quantify gait and balance issues. This makes prevention strategies very difficult to implement and intervention programmes are generally triggered by a fall. These programmes should be personalised and this is currently done after a subjective assessment. GaitSmart data identifies exactly where the problem lies and the severity presented using simple traffic light coding. It is a quick and simple test that can be performed in a GP surgery in 10 minutes. This data can initiate a personalised exercise plan and can therefore be used to help prevent falls. Subsequent tests quantify the effectiveness of the intervention and provides motivation to the individual to continue with the programme. For those who have suffered an injurious fall and become frail, the same procedure is applied to help the individual regain their mobility and independence. Our pilots have involved people in both situations. They have included people up to the age of 91, some of whom have suffered an injurious fall, and many requiring a walking aid. For fallers the GaitSmart guided intervention programme resulted in improvements in mobility, frailty and fear of falling. For those with a poor gait putting them at risk of falling it improved their mobility and significantly reduced their fear of falling. For the individuals this improves their quality of life, whilst for the NHS it reduces future healthcare costs. This project will build upon the data from previous small NELFT and Care City pilots. GPs, geriatricians, Falls Clinics managers and lead physiotherapists in the community hospital have already committed to supporting the project by providing access to patients under their care. The GaitSmart intervention protocol will be similar across the groups. The results will be publically available and compared to published data and reference material from the trial sites.

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Funders Panel Date: 25/04/2018

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WOUNDCHEK LABORATORIES UK	Clinical and economic evaluation of diagnostic tests in wound care	£134,981	£52,765

Project description - provided by applicants

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^{*} This study aims to determine whether the use of Woundchek's Bacterial Status and Elevated Protease Status tests to guide treatment of wounds diagnosed as chronic is beneficial to the patient and to the NHS. * Testing for elevated protease and bacterial protease and then managing appropriately could improve the health and quality of life of patients, as well as the use of resources as avoidance of unnecessary treatments such as less nursing time, fewer clinic visits for the patient and shorter overall treatment duration. There are no other tests for these conditions on the market and no other comparative studies have been conducted. * The cost of wound care to the NHS is around £5billion per annum (and growing), comparable to the cost of obesity.

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	Evaluating OWise: the digital patient experience platform aimed at improving cancer outcomes	£93,714	£46,857

Today there are 2.5 million people living with cancer in the UK and this is forecast to exceed 4 million in 2030\. Annual NHS costs for cancer services are £5 billion, but the cost to society is £18.3 billion. As so many people live with cancer, quality of life is ever more important as is the need to accurately understand how cancer patients experience treatments to improve outcomes. Px HealthCare (called Px, which stands for Patient Experience) has developed OWise ([www.owise.uk][0]), a mobile platform supporting cancer patients. OWise is a real game-changer as * its award-winning app has shown to empower patients during treatment and improve the patient-doctor interaction (Young-Afat et al. 2016), * while the fully anonymised real time Patient Reported Outcome (PRO) data are investigated using advanced data-analytics to improve oncology outcomes. OWise breast cancer, which is supported by the NHS Innovation Accelerator, was launched in the UK in 2016\. A Dutch evaluation study demonstrated that 90, the NHS has set out its ambition to help people to manage their own health, with self care playing an important role. A helpful measure to assess how well people to manage their own health and wellbeing is called patient activation. To quantify the impact of OWise on breast cancer patients' clinical outcomes and on a possible reduction in the use of NHS resources, more research is needed, particularly on patient activation, quality of life and unplanned hospital admissions in the UK. The present proposal brings together the developers of OWise with an extraordinary group of clinicians and researchers from the Royal Marsden Hospital, the Institute of Cancer Research and Imperial College Health Partners, aiming to generate the evidence around the impact of OWise on patient activation using a comparative study design. [0]: http://www.owise.uk

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