

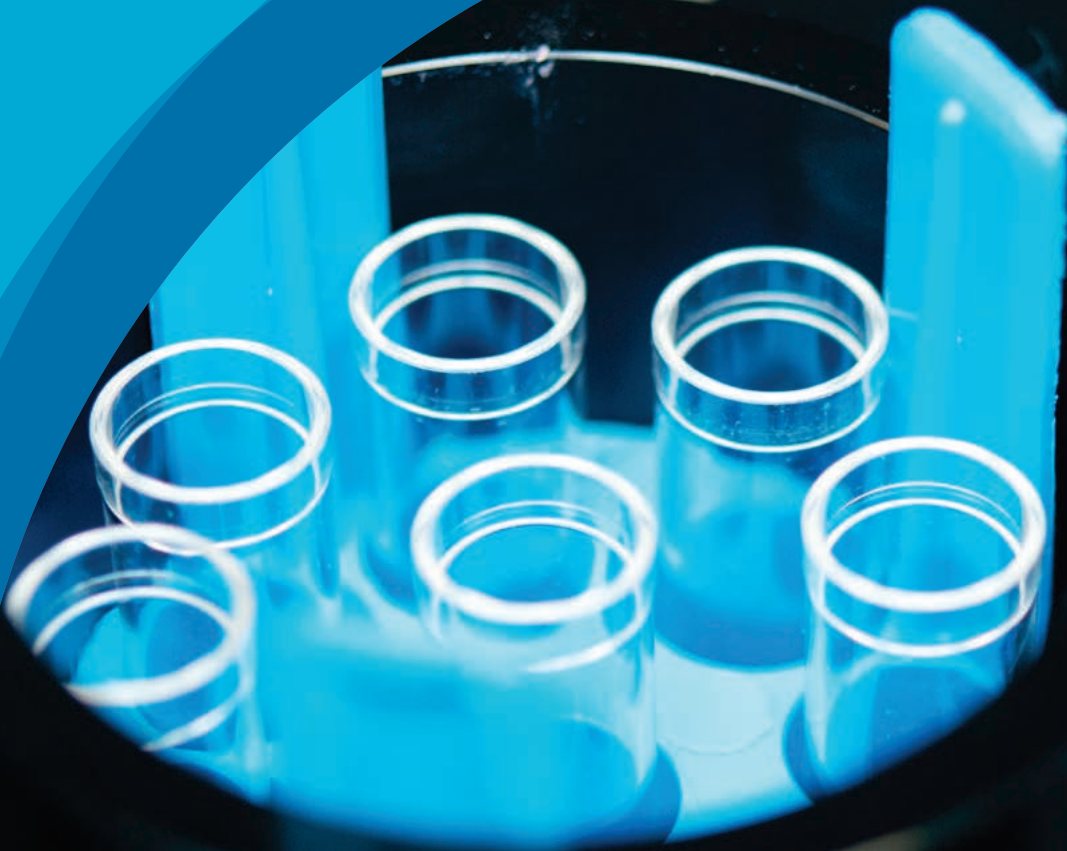
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Addenbrooke's
Charitable Trust

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Innovation that realises
healthcare benefits for patients
and the NHS

Innovation for Patient Benefit Awards 2014-2016



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Introduction

Innovation that realises healthcare benefits for patients and the NHS

The unprecedented demands on today's NHS are driven by an expanding and ageing population, more chronic illness and escalating costs (Quilter-Pinner & Muir, 2015; UK Commission of Employment and Skills, 2015). Research and innovation are crucial in meeting these challenges and delivering in more centric patient care, since in today's society, information and interactions increasingly emanate from the patient.

The 'Innovation for Patient Benefit' (IfPB) programme is one way that Addenbrooke's Charitable Trust (ACT) supports Cambridge University Hospitals (CUH), by addressing the gaps in innovation funding and helping overcome the recognised barriers to the uptake of innovation into clinical practice in the NHS (Quilter-Pinner & Muir 2015; Department of Health 2011; Walshe & Davies 2013).

Since 2014, ACT has granted 17 IfPB awards (totalling £453,480), six of which have been completed or are nearing completion. Here we provide a preliminary evaluation of the impact of the programme using measures that target individual project outcomes, sustainability, transferable learning, intellectual property, other awards and recognition. The evaluation will be used to publicise the scheme including fund raising so that ACT may continue its support for innovation and research and development within CUH.

In the NHS, innovation is defined as 'an idea, service or product, new to the NHS or applied in a way that is new to the NHS, which significantly improves the quality of health and care wherever it is applied' (Department of Health 2011).



TASTE led by Dr Camilla Salvestrini - helping children with eating difficulties

Patient and public benefit – measuring success

The areas of healthcare supported by the IfPB programme are broad ranging:

Respiratory Eye Generic
Oral and
 gastrointestinal
 Metabolic and endocrine
 Stroke Mental Health

The innovation landscape

National initiatives are underway to address the recognised barriers that hinder how ideas are developed into new therapeutic interventions and how new products and approaches are implemented and adopted into clinical practice (Quilter-Pinner & Muir 2015; Department of Health 2011; Walshe & Davies 2013). The National Institute of Health Research (NIHR) provides funding to support innovation in the NHS, but to compete effectively and access this funding, proposals need to be developed to at least the proof of concept stage.

Regionally, Health Enterprise East provides technology advisory services for managing CUH led innovations and funding for early stage development via the 'Medtech Accelerator' (including devices, diagnostics, software and eHealth). Cambridge Enterprise commercialises University of Cambridge based research and intellectual property (e.g. pharmaceuticals, biologicals) and can provide some seed funding.

ACT's IfPB programme is complementary to this national and regional backdrop and is strategically positioned against the financial constraints within CUH supporting innovation projects that fall outside the usual budgetary silos (NHS Chief Executive's Review 2011).

Scope of IfPB awards

Principal applicants should hold a contract or honorary contract with CUH. Proposals are peer reviewed by an expert panel convened by ACT and co-Chaired by Mr Stephen Davies (CEO, ACT) and Mr Colin Weston (Assistant Director of Commercial Development, CUH).

Product innovation - includes medical devices and technologies (including software and apps) aimed at developing beta prototypes, demonstrating proof of concept, developing devices to the point of a manufacturable product or commercialisation or to the point of entry for clinical use.

Process (health service) innovation – including enhanced staff skills and professional development and demonstration of proof of concept towards commissioning a new service or improving existing services.



The Media Studio at Cambridge University Hospitals

The evaluation recognises that successful outcomes may be different for different types of projects. For health service innovation, success can be commissioning of a new service or improvements to existing services (e.g. patient experience, quality of care and clinical outcomes). For 'technology' projects, success can be demonstration of proof of concept and securing follow-on funding from external bodies.

Evidence from the early awards implies the programme successfully supported relatively low-cost, high value projects that generated outcomes attractive to commissioners and external funding agencies. The projects led to either commissioning of the service (TASTE, Surgical Ambulatory Care), clinical use of the device (TrackMyPSA) or follow-on funding (CAMPROBE). Given the short timeframe, it is not unexpected that to date none have progressed to widespread use, although some projects have clear potential to do so.

ACT has made IfPB awards available (e.g. Paediatric Anal Dilators) in areas perceived as unattractive to external funders or in which generation of new intellectual property or commercialisation is not realistically foreseen. This is important in helping deliver valuable healthcare benefits for patients that might otherwise not have been realised.

Positioning

Anecdotal feedback was that the IfPB programme helped support and foster a culture of innovation at CUH, building teams and spreading knowledge and expertise.

Grant holders were clear in their next actions to build on the innovative step beyond the end of the ACT funding period and passionate in championing further development and in meeting challenges.

Whilst the IfPB programme adopts some research principles such as supporting the expansion of knowledge, creativity and systematic investigation, it is distinguishable from ACT's funding for general medical research in its intention to support knowledge mobilisation. IfPB awards are £40,000 (maximum) over two years whereas research awards are typically less than £20,000 for less than one year.



ICUVoice led by Dr Tim Baker – helping communication for patients who are unable to speak

Case Reports

3D printing service:

Dr Karen Eley



Anatomical models can be useful in planning of complex surgery with potential to improve patient outcomes and reduce operating time as well as being training and educational aids.

Objective: to establish a cost effective centralised 3D printing service to enhance patient care, teaching and training.

A 3D printing service was established within CUH's Media Studio. In 2018, ACT, working with the Alborada Trust, is supporting a Call for Proposals for projects to help address the health economics aspects.

TASTE:

Dr Camilla Salvestrini



Young children with food aversion and dependent on tube-feeding or prescribed nutritional supplements find progression to normal eating difficult. TASTE (previously known as TREAT) devised by Dr Salvestrini is an

innovative intensive programme delivered by a team of specialist therapists that weans children from tube/supplement dependency.

Objective: To demonstrate proof of concept of the effectiveness of TASTE.

Not all children were fully weaned from tube feeding / supplementation, but all required fewer hospital visits and were discharged at 3-month follow-up. Parent satisfaction was high, with less family anxiety around feeding.

TASTE will be established at CUH and potentially at other hospitals.

CAMPROBE:

Mr Vincent Gnanapragasm



The current biopsy method for prostate cancer diagnosis carries significant risk and can miss more than 30% of cancers. Mr Gnanapragasm's team have developed CAMPROBE (Cambridge Prostate Biopsy Device) a device

expected to improve safety and accuracy and allowing biopsies to be performed under local anaesthesia.

Objective: demonstrate proof of concept using CAMPROBE in an outpatient setting.

The endpoints (patient tolerability and acceptance and reduced infective risk) were reached early and surpassed expectations. Mr Gnanapragasm received an NIHR i4i product development award (£800k) for the follow-on project.

CAMPROBE has potential to be commercialised and widely used and the NIHR i4i grant is key to achieving these goals.

TrackMyPSA:

Mr Vincent Gnanapragasm

For men diagnosed with prostate cancer monitoring of PSA blood levels is performed within the primary care setting, results reviewed in an outpatient clinic and involves a diverse range of healthcare professionals. Mr Gnanapragasm's team developed TrackMyPSA to empower patients to track their own PSA, record interventions reducing in clinic visits and patients taking charge of their own follow-up.

Objective: to launch the prototype website and evaluate in clinical practice.

TrackMyPSA was launched in June 2015 with patient feedback being used for optimisation.

Subject to completion of legal formalities, TrackMyPSA is ready for clinical implementation, with potential for local and wider use.



TRACKMyPSA led by Mr Vincent Gnanapragasm - empowering patients with prostate cancer to track their PSA levels

Paediatric anal dilators: Ms Sonya Sireau



Babies suffering from anal stenosis are treated with dilators of increasing diameter inserted into the anus twice a day, over a period of 6 months.

The procedure is carried out by the parents and can be distressing. The CUH team manufacture anal dilators

which parents regard as of less threatening appearance than the commonly used stainless steel rods, however, the high cost is prohibitive.

Objective: tooling up to manufacture dilators in volume and low cost.

Low cost dilators were manufactured via outsourcing and also in house using 3D printing with the capability of personalisation to patients' requirements.

Originally perceived as not suitable for commercialisation, lower manufacturing costs opens the possibility for use (sales) beyond CUH and in other patient groups e.g. sex reassignment surgery.

Surgical Ambulatory Care: Mrs Gill Love

A significant proportion of emergency surgical inpatients can be managed safely and appropriately on the same day without inpatient admission leading to improved and cost-effective care.

Objective: to develop a surgical ambulatory care area providing urgent, high quality assessment and therapy and accepting patients directly via GP liaison or the Emergency Department.

A surgical ambulatory care unit was established with clear demonstration of proof of concept (i.e. reductions in the length of patient stay and numbers of patients admitted for 48 hour assessment).

Proposals for extending the unit and creating a paediatric ambulatory care unit within CUH are being considered.

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