



2019/20 Innovate at Imperial projects

Grantee	Project title	Description
Paul Bentley	ABC-NEWS: Automated Behavioural Classification to assist the National Early Warning Score	Deterioration occur in around 20% of all hospital inpatients, resulting in death, disability, prolonged hospital stay and expense. Since prompt identification of deterioration is critical for reversal, it is mandatory for nurses to perform regular observations allowing for risk estimation (NEWS2: National Early Warning Score). However human checks are inefficient, inaccurate, and discontinuous; with 26% of preventable hospital deaths arising from failures in monitoring. For these reasons, methods for measuring physiological parameters comprising NEWS2 (pulse, blood pressure etc.) are gradually being automated, enabling earlier, more reliable alerting. This project will incorporate the algorithm for tracking activities and predicting deterioration, into a practical bedside tool. This will then be piloted in Imperial College Healthcare NHS Trust, representing the first time in the world that inpatients' behaviour is automatically monitored and fed back in real-time to hospital staff and patients.
Boyne Bellew	CIA: Consent in Anaesthesia	To develop a patient video to aid in the patient consent process for anaesthesia. This video will demonstrate the patient pathway for both GA (general anaesthesia) and RA (regional anaesthesia) and the pros and cons of each. The project will undertake a study to compare the two delivery methods of anaesthetic consent (Video-assisted vs Standard Verbal) through a randomized-control trial looking at patient satisfaction with both these methods.
Liza Baculio	Promoting sleep in ICU	Intensive Care is a 24 hour operation, and it is common to default to a working environment that meets the needs of the staff, for example by talking at the bedside, using high lighting levels, or performing medical activities at a time that is convenient to us. Patients often have difficulty communicating, so we may only hear their experience when they leave the unit. The team want to create a healing environment that is centred around patient's need for sleep and adjust current practices to prioritise a time of undisturbed rest during night-time hours.



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Rachna Bedi	TYMO - Thank you for My Organ: Medication Education videos in your language	TYMO is a repository of medication educational videos available in a variety of languages. The videos will have interoperability to Trust's existing software, so it can be promoted in the chosen medium for patients or staff apps, software or portals such as Care Information Exchange / Patient Knows Best. The video style will be in the form of avatars in virtual reality (VR) environments that can be viewed on standard tablets, smart phones and desktops. If required, it can be used with virtual reality headsets as an educational tool for staff but is assumed most will view videos in a non-VR. the funding available to develop the videos for immunosuppression medication in initially 2 languages (English and Hindi) in collaboration with an external supplier. This would include significant patient and clinical input into its design, user testing, evaluation and then roll out over a period of 6 months.
Francesca Spranzi	Smart swabs - Modified surgical swabs to reduce the risk of retained swabs (NEVER EVENT)	To develop and test an innovative approach to reduce the incidence of retained swabs following vaginal delivery, perineal repair or caesarean section. Furthermore, it has the potential to be introduced in clinical settings other than maternity, such as general surgery and other specialities where swabs are used in open cavities. It aims to achieve its goal by producing, testing and disseminating a modified design of surgical swabs which introduces a physical barrier to leaving a swab behind.
Michelle Willicombe	Enabling personalised outpatient transplant care via patient empowerment and stratified medicine	To develop a transformed process for personalised care within the transplant clinic, significantly enhancing patient experience. This will be achieved by: 1. Improving patient involvement and self-management with the incorporation of 'Patient Knows Best (PKB)' into routine care for every patient (or assigned carer); 2. The introduction of follow up care plans based on individual requirements (stratified medicine) rather than generic long term plans; 3. Ensuring an infrastructure is in place which enables the above, embeds this for the long term, with the scope for developing further improvements.



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Barbara
Cleaver

Evaluation of a new touch screen app for nurses which enhances initial assessment with early investigation orders and treatment recommendations.

Charing Cross Hospital have decided to reorganise their system: moving away from having GP-streaming in the UCC and triage in ED, to a unified process led by Advanced Care Practitioners (ACP). We believe that a similar process to doctor-led RAT (rapid assessment and treatment) is needed. The SortED tablet app is designed to assist ACPs to shift the timing of two key events (the point at which investigations are ordered and the point at which treatments are identified) so they occur during initial patient assessment.

Charity Khoo

Contraception at delivery in NW London: equal access for all women

During the immediate postnatal period, qualified healthcare professionals could deliver women's choice of contraception. This project will deliver the training and education for this first-in-country service 1) Education for women on full range of contraception; 2) Materials: Leaflets and videos, animated with subtitles in top-10 languages for region; 3) Distribution: Face to face consultations with healthcare professionals as part of antenatal care, in antenatal education classes, TVs in clinics, NW London Mum and Baby app, Trusts' and regional healthcare social media channels and local news.

Vassiliki
Bravis

Dedicated Diabetes Technology Educator to support and empower people with type 1 diabetes to self-manage their condition

Technology in type 1 diabetes mellitus (T1DM) is integral to effective self-management of T1DM. NICE mandate insulin pump therapy for people meeting criteria in a technology appraisal (TA151, 2008) and real time continuous glucose monitoring (RT-CGM) is recommended for adults in NICE Guidance NG17 (2015). At ICHNT, the team looks after 850 people with T1DM, 313 of whom are currently on CSII therapy. The Imperial Type 1 Diabetes Enhanced Services team (TIDES) address the need for more expert healthcare professionals delivering care in T1DM. North West London CCGs intend to use the London clinical networks T1DM commissioning guide as the framework for the commissioning of T1DM services. The project will recruit a band 7 Diabetes Technology Educator to join the TIDES team to see patients in MDT clinics, run their own CSII and CGM clinics, and lead on a robust technology pathway for all devices. This is an innovative and exciting role that is cross-professional, breaks down traditional barriers of healthcare working and includes an exciting leadership role assigned to an AHP within the multi-disciplinary diabetes team.



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Simon Nadel
A prospective randomised extended pilot study of an innovative psycho-educational intervention to reduce psychological problems following Paediatric Intensive Care admission

The Unit has developed an innovative psycho-educational intervention aimed at recognizing and preventing the development of post-traumatic stress disorder and other disabling psychological and psychiatric symptoms in parents and children after PICU discharge. It needs to be piloted more extensively before its use can be recommended as part of the aftercare of children admitted to PICU. This intervention offers information and guidance to parents, by means of a carefully crafted, detailed information booklet (see attached) which informs parents and their children about psychological and other health problems that may develop following PICU discharge, and provide helpful techniques for managing these. The psycho-educational booklet is supported by a targeted telephone session, 4-6 weeks after the child's hospital discharge, in order to ascertain parental and child progress and direct them accordingly.

Sian Brown
Nudging to improve pre-operative fasting for patients

To revisit our patient facing communication related to pre-operative fasting from a behavioural lens to ensure that it is configured in a manner to optimise the fasting of patients prior to an operation. Too often patients will attend having not fasted properly - thus delaying their care - or have fasted inappropriately - thus leading to a poorer experience and longer recovery time post operation. Behavioural insights involve the application of behavioural science to policy and practice to design and test interventions informed by how people actually make decisions to bring about better outcomes for people and society in general.

Dermot Mallon
Evaluation of Synthetic MRI: a novel method to reduce patient waiting times for MRI scans

This is a study, recently received ethical approval, that will compare a novel method of acquiring MRI images to traditional, more time-consuming, techniques in terms of scan duration, image quality and diagnostic accuracy. Synthetic MRI is a novel MRI technique that significantly reduces the time required to perform an MRI scan. While an MRI scan of the brain usually takes 15 minutes, using Synthetic MRI a brain scan can be completed in 6 minutes, representing a time saving of 60%. Shorter scans are more comfortable for patients and allow more patients to be scanned per day, thereby reducing the waiting time for an MRI scan appointment.