IMPERIAL MedTechONE

IMPERIAL
Centre for Paediatrics and Child Health

wellcome

CLINICIAN-ENGINEER-SCIENTIST WORKSHOP

CLINICAL CHALLENGES IN PAEDIATRICS

IMPERIAL MedTechONE

IMPERIAL
Centre for Paediatrics and Child Health

wellcome

CLINICIAN-SCIENTIST-ENGINEER WORKSHOP

EVENT DETAILS

Thursday 30th April 2026
16:00 - 18:00

Queens Tower Rooms B, C
South Kensington

OVERVIEW

This session allows clinicians to present their current clinical challenges to a room of Imperial scientists and engineers, and discuss how innovations happening here can provide solutions. This event aims to foster networking and collaboration between these different sectors and includes plenty of time for discussion.

THE IMPERIAL CENTRE FOR PAEDIATRICS & CHILD HEALTH

The Imperial College Centre for Paediatrics and Child Health (PaeCH) mission is to power research, amplify impact, and enable talent to improve the health and wellbeing of children and young people locally and around the world.

Their vision is to become a nexus for exceptional inter-disciplinary child health research, with a particular focus on common and high-burden diseases.

Core to this ambition is the integration of cutting-edge science, technology, and innovation at Imperial, with the clinical expertise in West London Children's Healthcare. The unique fusion of this expertise enables PaeCH to pioneer new approaches to improving the health and wellbeing of children and young people across the life-course.

IMPERIAL MedTechONE

IMPERIAL Centre for Paediatrics and Child Health

wellcome

CLINICIAN-SCIENTIST-ENGINEER WORKSHOP

AGENDA

15:45 Registration opens

16:00 Welcome address

Co-chaired by Professor Anthony Bull and Professor Ramnarayan Padmanabhan

16:10 Clinical Challenges

16:10 Dr Cheryl Battersby
16:24 Dr Claire Dunican
16:38 Dr Praneeth Vedagiri
16:52 Dr Mari Viviers
17:06 Sophie Stockinger
17:20 Dr Toranj Wadia

17:35 Networking

THE CHALLENGES

DR CHERYL BATTERSBY

Investigating non-invasive, non-touch monitoring methods for heart rate, ECG, and CO2 for ventilated infant patients. Additionally, how can we improve the affordability of incubators and thermo-environments for pre-term infants?

DR TORANJ WADIA

Ultrasound is a growing technology we are using in ICU, but hands on acquisition by trained people is still a limiting factor as training takes a long time and some new operators don't feel confident in acquiring images.

It would be valuable to have ultrasound pads with technology to locate the heart, lungs, intracranial vessels would enable staff to acquire images which could be reviewed remotely by experienced clinicians.

Other potential uses would be to enable non-cardiology trained staff to check for pleural/pericardial effusion or look at brain perfusion, in the midst of a cardiopulmonary resuscitation instead of a pulse check, and allow offsite clinicians like cardiologists to advise on management after reviewing images of a child admitted to a non cardiac centre.

THE CHALLENGES

DR CLAIRE DUNICAN

We have recently invented a new method to predict the trajectory of acute illness from a single blood sample. It uses a method called RNA velocity, which requires measurement of spliced and unspliced RNA transcripts. Our challenge for the engineers is to develop a rapid point-of-care testing platform to quantify the spliced and unspliced transcripts for a small number of genes in a blood sample, which can be used to predict which unwell children with infections will rapidly deteriorate and which children are not at risk of severe illness.

DR MARI VIVIERS

At present image analysis is manual and time intensive. We are interested in using AI tools for vocal fold angle measurements, tracking tongue movements, tracking bolus movement, tracking hyo-laryngeal elevation etc.

We would welcome working with or at least having an exploratory discussion with a bioengineer if this type of project would be of interest.

THE CHALLENGES

DR PRANEETH VEDAGIRI

Cancelled investigation slots (e.g. MRIs) or additional requirement of sedation to do a procedure, place a large clinical and cost burden. Additionally, there is a lot of demand for tools which can improve a child's familiarity with the hospital environment, their condition, or their compliance with medication and procedures.

SOPHIE STOCKINGER

Our current pressure area assessment workflow in paediatric intensive care is time-consuming and prone to delays. Skin photographs of pressure damage are currently taken using a digital camera and later uploaded to ICCA via cable, which creates workflow friction and can delay documentation at the bedside. These delays can also slow referral to tissue viability, and progression of skin damage may be missed if images are not captured promptly. This is also particularly important for admission body mapping, which we are currently documenting by hand on paper. This process is often inaccurate and does not provide a reliable visual record. There are digital wound imaging and scanning systems already on the market that not only photograph skin damage but can also detect early pressure injury and prompt earlier intervention.

The unmet need is for a MedTech solution that streamlines bedside skin assessment, direct EPR/ICCA documentation, and clear prompts around repositioning requirements. Potential areas for innovation could include secure mobile imaging, automated upload, decision-support prompts, early pressure-damage detection, or dashboard visibility for the nurse in charge. I feel this would be a valuable opportunity to explore how engineering and digital design could improve pressure injury prevention, team communication, and patient safety in paediatric care.

THE ENGINEERS

ENGINEER	SOLUTION / INNOVATION
Lucia van den Boogart Castro	I am working on developing a neonatal intubation simulator to better understand intubation techniques and identify the best training protocol when teaching intubation skills to trainees. My work aims to quantify intubation techniques with varying sensors and to understand how trainees generalize intubation skills across different jaw stiffnesses.
Adaorah Enyi	I would like to showcase a digital approach to improving symptom monitoring and care coordination, based on the PROSEcare model, which enables real-time patient-reported outcomes and supports more responsive clinical care. I will also explore how this model could be adapted for paediatric care, particularly through caregiver-reported data.

THE ENGINEERS

ENGINEER	SOLUTION / INNOVATION
Arbind Hehar	I would like to showcase a digital health innovation focused on childhood obesity prevention through behaviour change. The project is developing a family-centred app called HabitQuest, which combines a parent-facing planning interface with a child-facing gamified experience to support sustainable healthy habits. The platform uses behavioural science principles, gamification, and AI-driven personalisation to help families translate clinical advice into achievable daily routines. The innovation specifically addresses the gap between knowledge and action in paediatric lifestyle interventions, with a focus on engagement, accessibility, and scalability within NHS and community settings. I would particularly value input from engineers and designers on user experience, gamification, and scalable technical architecture.

CONTACT INFO

MedTechONE

https://www.imperial.ac.uk/medtechone/

https://www.imperial.ac.uk/medtech/events/

mt1-info@imperial.ac.uk

IMPERIAL
Centre for Paediatrics and Child Health

https://imperial.ac.uk/centre-for-paediatrics-child-health/