



Imperial College
Academic Health
Science Centre

Clinical
Academic
Training Office
(CATO)

Annual Research Symposium 2024

Tuesday 25 June
13.30 - 17.00



About the organisers

Clinical Academic Training Office (CATO)

CATO is a centralised pan-professional academic training hub and the main point of contact for clinical academic trainees and researchers (medical and NMAHPPs - Nurses, Midwives, Allied Health Professionals, Healthcare Scientists, Pharmacists and Psychologists) for advice and information on academic careers, training and funding.

We have an oversight of current clinical medical academic training programmes, manages bidding rounds for funding schemes like NIHR, coordinates conferences and educational support activities and supports the development of clinical academic schemes and academic initiatives for NMAHPPs in the Imperial College Academic Health Science Centre (AHSC). These includes:

- Providing peer support and guidance from established researchers
- Sharing advice on how to develop research careers, including how to apply for fellowships.
- Running research events such as symposiums, masterclasses, and conferences to encourage participation in research
- Administering bursaries to support with developing research skills
- Signposting to, and sharing, resources such as research training framework, funding opportunities

For details about resources and support available visit our website:

<https://www.imperial.ac.uk/medicine/study/clinical-academic-training-office/>

Imperial College Academic Health Science Centre (AHSC)

CATO is part of the Imperial College Academic Health Science Centre (AHSC). The Imperial College AHSC is a partnership between Imperial College London, Imperial College Healthcare NHS Trust, The Royal Marsden NHS Foundation Trust, Chelsea and Westminster Hospital NHS Foundation Trust, the Institute of Cancer Research and The Royal Brompton & Harefield Hospitals (affiliates). Established since 2007, the AHSC is focused on aligning its expertise to turn science and engineering advances into new ways of preventing and treating disease.

Find out more about the AHSC by visiting their website: www.ahsc.org.uk

Prizes available as part of this Symposium

Prizes will be awarded based on the submitted abstracts.

In association with our partners:



Please note this booklet is intended for registrants of the CATO Symposium only.

Programme
CATO Research Symposium
Tuesday 25 June 2024 – in person
W12 Conferences Centre, 150 Du Cane Road, London, W12 0HS

13.00	Registration, light lunch and refreshment
13.30 - 13.35	Welcome and introduction to the programme: Professor Jeremy Levy, Director of Clinical Academic Training
Research presentations	
13.40	Specialised Foundation Trainee: Shreya Singhal , <i>The patterns of very preterm infants undergoing multiple postnatal transfers across the UK</i>
13.50	Academic Clinical Fellow: Nur Amalina Che Bakri , <i>Arterial calcification as a prognostic factor on CT in women with endometrial cancer</i>
14.00	NMAHPP: Carys Davies , <i>Nutrition in critically ill trauma patients: a pan-London study</i>
14.10	Clinical Research Training Fellow: Finneas Catling , <i>Towards personalised treatment in septic shock via Bayesian inversion of a one-dimensional cardiovascular model</i>
14.20	Clinical Research Training Fellow: Sophie Jones , <i>How frequently is early-onset type 2 diabetes misclassified in South Asian and White individuals?</i>
14.30	Clinical Lecturer: Mitchell Chen , <i>Radiomics and Artificial Intelligence for Lung Cancer Precision Medicine</i>
14.45	Round up on abstract submissions/ Research partnerships and collaborations <u>plus</u> award presentation / prizes / CATO clinical academic updates Prof Jeremy Levy
15.00 – 15.30: Break	
15.30 - 16.15	Mini Masterclass Workshops <ul style="list-style-type: none"> • Workshop A: Networking for Success: <i>how to make networking work properly for you, enhance your career and improve your science</i> Dr Ines Perpetuo, Consultant for Postdocs and Fellows Development Centre Imperial College London • Workshop B: Collaborative (convergence) Science: <i>how clinicians can work better with engineers, physicists, bioengineers and more: pitfalls and success in convergence science</i> Dr Vicky Salem, Clinical Senior Lecturer in Diabetes and Endocrinology, Department of Bioengineering - Faculty of Engineering Prof Payam Barnaghi, Chair in Machine Intelligence Applied to Medicine Department of Brain Sciences - Faculty of Medicine
16.15 - 16.45	Keynote presentation: Add bricks or mortar by Prof Shiranee Sriskandan , <i>Professor of Infectious Diseases, Imperial College London</i>
16.50	Event close by Prof Jeremy Levy
17.00: End of Symposium – drinks reception / networking to follow	

Mini Masterclass Workshop

At today's event you can join one of the two workshops which will be presented by eminent and highly experienced clinical academics and facilitators. Places in the workshops will be first-come-first-served. Rooms will be allocated on the day so please listen for announcements to see where your chosen workshop will take place.

Workshop A: *Networking for Success: how to make networking work for you, enhance your career and improve your science*

The workshop aims to empower participants with essential skills and knowledge for excelling in professional networking. They will receive invaluable tips to navigate the networking landscape effectively, elevate their professional presence, and cultivate meaningful connections crucial for advancing their clinical academic career.

Workshop B: *Collaborative (convergence) Science: how clinicians can work better with engineers, physicists, bioengineers and more: pitfalls and success in convergence science*

The workshop aims to explore effective strategies for cross-disciplinary research collaborations, particularly between engineers, data scientists, and clinicians. We will discuss common pitfalls and best practices to foster successful collaboration.

Ines Perpetuo, PhD



Inês Perpetuo is a Consultant for Postdocs and Fellows development and experienced Researcher Developer. Inês obtained a PhD in Cellular and Molecular Biology from the Faculdade de Medicina, Universidade de Lisboa (Lisboa) in Portugal where she developed a strong background on immunology and bone cell biology. In 2015, she moved to the UK for postdoctoral studies on mammalian bone cell activity at the Royal Veterinary College, London. In 2018, Inês secured a role as a Researcher Developer at the Postdocs and Fellows Development Centre, Imperial College London, and since 2020 she is a Consultant for Researcher Development. During her career, Inês acquired a broad range of skills in communication and organisation, and now develops and delivers training workshops on career management and progression. Inês' specialism is reflective and interactive learning to equip researchers with the skills for effective self-management and to be proactive in the research environment.

Dr Vicky Salem



Dr Vicky Salem is a diabetes specialist and currently a Diabetes UK Grand Challenge senior fellow in the Department of Bioengineering and an Honorary Consultant in Diabetes/Endocrinology, with research interests in islet biology, advanced optical imaging platforms and more, but importantly for this, currently leading a multidisciplinary team of stem cell biologists and material scientists working towards beta cell replacement therapies for type 1 diabetes.

Prof Payam Barnaghi



Prof Payam Barnaghi is an Engineer expert in AI and big data, Chair in Machine Intelligence Applied to Medicine, and Deputy Head of Division of Neurology in the Department of Brain Sciences at Imperial College. He is a Principal Investigator and Group Lead for Translational Machine Intelligence in the Care Research and Technology Centre at the UK Dementia Research Institute, where he leads research into the 'Healthy Home', using technology to maintain independence for people with dementia, integrating robotics and sophisticated data-analytics, working closely with clinicians including doctors, nurses, therapists, dieticians and more.

Keynote presentation

Keynote Speaker

Professor Shiranee Sriskandan

Professor of Infectious Diseases, Imperial College London



We are delighted to be joined by **Professor Shiranee Sriskandan** who is a distinguished Infectious Disease clinician renowned for groundbreaking research on Gram positive bacteria and especially *Streptococcus pyogenes*, while maintaining her clinical infectious diseases work and actively supporting training. Her work ranges from the molecular mechanisms underlying streptococcal infections, spanning tonsillitis to life-threatening conditions like necrotizing fasciitis, through the public health issues surrounding Strep infections in children. Professor Sriskandan's investigations into novel proteases as vaccine targets and genetic

factors influencing disease frequency have advanced understanding and intervention strategies in public health.

As theme lead for 'Priority Pathogens' in the NIHR Health Protection Research Unit, she addresses antimicrobial resistance and streptococcal infections. Amid the COVID-19 pandemic she adapted her expertise to tackle the emerging challenges. Through her multidisciplinary approach and unwavering commitment to scientific excellence, Professor Sriskandan continues to leave an indelible mark on infectious disease, microbiology and public health, and training of future clinical academic infection clinicians.

Event Chair

Professor Jeremy Levy

Director of Clinical Academic Training Office

Jeremy Levy is a Consultant Nephrologist at Imperial College Healthcare NHS Trust (ICHT) and was previously Head of School of Medicine for London Deanery. Jeremy leads and has oversight of all Clinical Academic Training Office (CATO) activities and represents CATO interests at numerous AHSC, ICHT and Imperial College London committees and boards, and works closely with NIHR around clinical academic training nationally. He has wide knowledge and interest in all aspects of healthcare education.



ABSTRACTS FOR ORAL AND VIRTUAL POSTER PRESENTATIONS

We have received more than 30 submissions for this year's abstract competition, encompassing a diverse array of professions and organisations. The best of those abstract are being presented today through oral presentations and virtual posters online.

Starting from 25 - 30 June 2024, research poster presentations will be displayed online using the provided QR code. We highly recommend taking the opportunity to explore these posters and delve into the fascinating research being undertaken by your peers.



SCAN HERE TO
VIEW POSTER ROOM

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Clinical Research Training Fellow	
**	Sophie Jones, <i>How frequently is early-onset type 2 diabetes misclassified in South Asian and White individuals?</i>
Clinical Lecturer	
**	Mitchell Chen, <i>Radiomics and Artificial Intelligence for Lung Cancer Precision Medicine</i>

* NMAHPPs - Nurses, Midwives, Allied Health Professionals, Healthcare Scientists, Pharmacists and Psychologists

** Abstracts not available

The patterns of very preterm infants undergoing multiple postnatal transfers across the UK

SHREYA SINGHAL¹, Don Sharkey², Lara Shipley², Nandiran Ratnavel³, Behrouz Nezafat Maldonado¹, Annemarie Lodder¹, Cheryl Battersby¹, Chris Gale¹

¹ Neonatal Medicine, Imperial College London, UK

² Centre for Perinatal Research, University of Nottingham, UK

³ London Neonatal Transfer Service, Barts Health, London, UK

Background and purpose:

Neonatal transfers can occur for several reasons such as escalated medical or surgical care, repatriation or for capacity issues. Such transfers are disruptive and cause stress for the family. We aimed to describe patterns of multiple postnatal transfers in both very and extreme preterm babies and potentially avoidable transfers.

Methods:

Retrospective cohort study of babies born less than 32 weeks gestation 2013-2020, using routinely-collected anonymised data from the National Neonatal Research Database (NNRD) in England and Wales. Outcomes: Episodic transfers between neonatal units, reason for transfer, transfers out-of-network, horizontal/down transfers (between same/stepping down levels of care, respectively), feeding on breast milk at final discharge.

Results:

42.4% (25,815/60,933) babies <32 weeks gestation had ≥1 transfers between neonatal units. Most (23,772) underwent 1-3 transfers; some (2,043) underwent 4-12 transfers before neonatal discharge. Many transfers were potentially avoidable: 1% (118/1,132) babies <28 weeks gestation who were transferred had a capacity transfer <72 hours of birth; 22% (5,765/25,786) babies had ≥1 out-of-network transfer; 3.2% (477/14,777) babies <28 weeks gestation had a horizontal/down transfer <48 hours of birth; 6% (160/2,655) families had twins/multiples separated during their neonatal journey.

Conclusions:

Very preterm babies undergo high numbers of transfers in England and Wales, many of these are potentially avoidable; reducing these may improve outcomes for babies, families and neonatal networks.

Arterial calcification as a prognostic factor on CT in women with endometrial cancer

NUR AMALINA CHE BAKRI^{1,2}, Ilayda Okten¹, XingFeng Li¹, Nishat Bharwani^{1,2}, Sadaf Ghaem-Maghani^{1,2}, Andrea Rockall^{1,2}

¹ Imperial College London

² Imperial College Healthcare NHS Trust

Background and purpose:

Arterial calcification is linked to adverse cardiovascular events and poor survival outcomes in cancer patients which may be due to background inflammatory status. The purpose of this study was to evaluate the association of arterial calcification on overall survival (OS) in women with endometrial cancer (EC).

Methods:

Retrospective analysis of 419 patients with EC was performed. Clinical data were collected. Eligible portal venous computed tomography (CT) scans were scored for arterial calcification. The areas for calcification assessment included: coronary arteries, descending thoracic aorta, abdominal aorta, and both iliac arteries. All areas were scored on a 0-3 scale; 0 (no calcification), 1 (mild calcification), 2 (moderate calcification), 3 (severe calcification). Inter-rater reliability assessment was conducted. Kaplan-Meier (KM) curve analyses were performed to determine the relationship between survival and arterial calcification. Statistical analysis was performed using R software.

Results:

KM analysis demonstrated significant association between extent of arterial calcification in the abdominal aorta (n=409) and right pelvis (n=403) and OS [p<0.05]. Patients with severe abdominal aorta calcification (n=61) (>50% circumference) did worse overall [p=0.0035]. Patients with moderate right pelvis calcification (n=41) (>25-<50% circumference) did worse overall (p=0.015). Interclass correlation coefficients were 0.92 [p<0.001, 95% CI 0.88-0.94] and 0.85 [p<0.001, 95% CI 0.78-0.90], respectively. No association was found between other sites of calcification and OS.

Conclusion:

Arterial calcification in the abdomen and pelvis was associated with worse OS in patients with EC. Detection of calcification on staging scans could allow for intervention of modifiable risk factors following treatment for EC.

Nutrition in critically ill trauma patients: a pan-London study

Lead author:

CARYS DAVIES, Imperial Health Charity/NIHR Imperial BRC Pre-Doctoral Research Fellow, Critical Care Dietitian, Imperial College Healthcare NHS Trust, carys.davies@nhs.net

Co-authors:

Dr Lina Johansson, PhD, Honorary Lecturer, **Imperial College London**, Clinical Academic Renal Dietitian, Imperial College Healthcare NHS Trust

Professor Stephen Brett, MD, FRCA, FFICM, Professor of Critical Care, Imperial College London. Consultant in Intensive Care Medicine, Imperial College Healthcare NHS Trust

Professor Elaine Cole, PhD, FHEA, Professor in Trauma Sciences, Co- Programme Lead MSc Trauma Sciences, Queen Mary University, London Director of Research and Innovation, London Major Trauma System

Background and purpose:

Hypermetabolism and challenges in nutrition delivery results in trauma patients becoming malnourished(1). This study aimed to explore enteral nutrition (EN) delivery and its relationship with outcomes for major trauma patients admitted to the intensive care unit (ICU).

Methods:

This was a post-hoc analysis of the Multiple Organ Dysfunction in Elderly Trauma study(2). Adult patients admitted to ICU across four Major Trauma Centres in London were enrolled and reviewed daily until discharge or death. Demographics, clinical measures, nutrition provision, mortality and length of stay (LOS) were collected and analysed using descriptive statistics and Friedman's test for differences.

Findings / Results:

Of 1302 participants, 95%(n=732) required EN. The mean energy target was 23.8kcal/kg/day(SD6.37) v 15.81kcal/kg/day(SD 3.43) energy delivered. The mean protein target was 1.27g protein/kg/day(SD0.34) v 0.89g/kg/day(SD0.48) protein delivered. Inadequate nutrition delivery occurred throughout the ICU admission. Those with lowest nutritional delivery had increased days on the ventilator, ICU and hospital LOS(Table 1).

Table 1: Protein delivery and impact on ICU outcomes

Outcome (days) (mean(SD))	0–0.5g/kg (N=45)	0.5–1.0g (N=580)	1.0–1.5g (N=107)	P value
Mechanical ventilation	17(14)	9(12)	7(9)	<0.001
ICU LOS	25(11)	16(15)	12(10)	<0.001
Hospital LOS	47(26)	36(28)	32(35)	<0.001

Discussion / Conclusion

Trauma patients experienced inadequate EN delivery during their ICU admission. Nutritional deficits were associated with worse intensive care outcomes. Further investigation is required to determine the cause of inadequate delivery and validity of the association with outcomes.

Towards personalised treatment in septic shock via Bayesian inversion of a one-dimensional cardiovascular model

FINNEAS CATLING, Kim Parker, Alun D Hughes, Steve Harris, Anthony C Gordon

Background and purpose:

Patients with septic shock are heterogeneous, with varying degrees of hypovolaemia, myocardial depression, vasoplegia and endothelial dysfunction. These pathologies affect cardiac output and arterial wave behaviours, changing the arterial pressure waveform. We aim to enable personalised treatment in septic shock through a physiologically-grounded system for arterial pressure waveform analysis.

Methods:

We specified a cardiovascular simulator, coupling a parsimonious heart model to a one-dimensional arterial tree model which accounts for wave behaviours. Hierarchical, patient-specific prior distributions were defined based on population studies. Offline, we trained an uncertainty-aware neural network to emulate the simulator, making Bayesian inference tractable. Measurement noise was modelled, including resonance and damping from the fluid-filled arterial catheter. We generated 192 different radial arterial pressure waveforms using known parameters, then ran inference on these waveforms to assess which cardiovascular parameters they could identify.

Findings/Results:

Pressure waveforms were informative about cardiac output, and somewhat informative about aortic stiffness and splanchnic blood flow (see Figure 1), as well as vascular resistances in the extremities. Vascular bed compliances, small-artery stiffness and dimensions of the arterial tree were not identifiable.

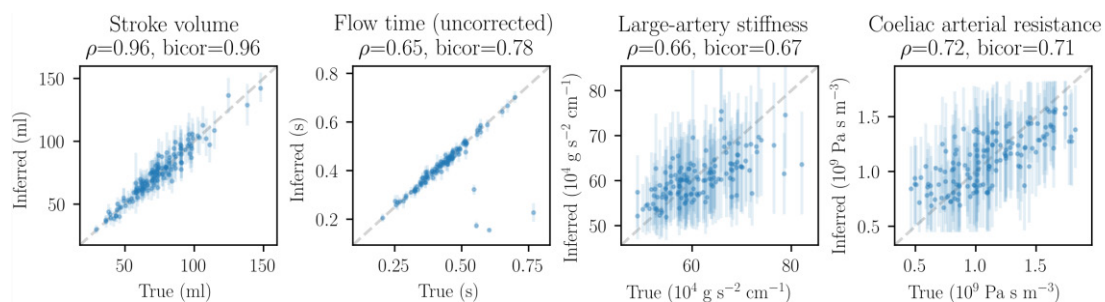


Figure 1 ‘True’ parameters used to simulate radial pressure waveforms, compared with posteriors inferred from those waveforms. Points=means, lines=94% credible intervals, ρ =Pearson correlation, bicor=biweight midcorrelation.

Discussion/Conclusion:

Our model identifies cardiovascular parameters relevant to septic shock using the radial pressure waveform, and thus has the potential to personalise treatment. By quantifying posterior uncertainty, we guard against poorly-identified parameters being used in clinical decisions.

CATO RESEARCH SYMPOSIUM ABSTRACTS 2024

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Enhancing Patient Care Through Exploring Catering Assistants' Knowledge, Roles, and Training Preferences at Royal Brompton Hospital

GHAIDA ALZANBAQI, Department of Nutrition & Dietetics, King's College London

Dr Alastair Duncan, Department of Nutrition & Dietetics, King's College London
Rasleen Kahai, Royal Brompton Hospital

Background: Catering assistants are essential for patient care and nutrition, yet research on their knowledge, roles, and training preferences is scarce. This investigation explored their proficiency in hospital menus, roles, and training preferences to address gaps in the literature, subsequently improving healthcare practices.

Objective: To investigate the knowledge and training preferences of catering assistants at Royal Brompton Hospital (RBH), focusing on their understanding of hospital menus and exploring how experience duration influenced their knowledge and their diverse learning method preferences, aiming to enhance patients' nutritional support and inform future training programmes.

Methods: Semi-structured face-to-face interviews where purposive sampling was used. A survey collected demographic data. Audio recording ensured accuracy, transcribed via Revoldiv. Data analysis employed the Braun and Clarke method followed by using NVivo to aid thematic analysis. The researcher, a student dietitian, considered professional positionality to ensure impartial data interpretation.

Results: Interviews were conducted with 12 catering assistants. Three main themes were identified: "dietary knowledge engagement", "role-centric approach" and "diversity in training experiences". Sub-themes highlighted varied understanding across menus, delegation of responsibilities, hierarchical information flow, preferences in learning formats, contentment with current competence, and differential motivation in learning. Moreover, an additional theme regarding the International Dysphagia Diet Standardisation Initiative levels emerged.

Conclusion: The study highlighted variances in catering assistants' knowledge of menus and diverse training preferences. The study also showed catering assistants' interest in learning about the dietary aspect of their role varied based on tenure. Further investigation regarding training programmes is required.

An Audit to Review Compliance to Cisplatin Hydration Guidelines Within The Royal Marsden NHS Hospital

SOFIA DUTTO, The Royal Marsden NHS Foundation Trust

Background and purpose:

This audit is necessary following the update of the new cisplatin hydration guidance and the implementation of the new electronic prescribing system, where nurses no longer get prompted to weigh patients in the same way they did before.

Methods:

Compiled records of 262 patients who were prescribed cisplatin-containing regimens from 17th March 2023 until 31st November 2023 were used to identify patients for inclusion in the audit. Data collection was performed retrospectively using a data collection form and a pilot study was carried out on 20 patients. A sample size of 144 patients was obtained using the Raosoft sample size calculator to achieve a 95% confidence interval with a 5% margin of error accepted.

Results:

The majority of cisplatin administration episodes (72%) did have the patient's weight recorded before and after treatment. Of the remaining 28% where the weight was missing or incomplete, 4 episodes resulted in a documented AKI and 3 of these episodes were severe enough to warrant hospital admission.

Discussion:

The results demonstrate a lack of documentation of patient's weights across RMH. Only 72% of patients who were administered IV cisplatin at RMH between 17th March 2023 and 31st November 2023 were recorded. This falls below the local guidance, which recommends all patients (100%) should be weighed pre- and post- cisplatin administration. Documentation is critical to ensure a clear audit trail and to enable identification of patients who may be at higher risk of developing fluid retention. This therefore needs improvement.

Evaluation of Wellbeing and Support Provided to Non-Medical Prescribers in Cancer Services – Focus Group Results

IMUN GILL, Dharmisha Chauhan, Emma Foreman

Royal Marsden NHS Foundation Trust

Background and Purpose:

Non-Medical Prescribers (NMPs) are increasingly involved in the assessment of patients receiving Systemic Anticancer Therapies (SACT), often prescribing without direct clinical supervision. The Royal Pharmaceutical Society's Competency Framework for Prescribers highlights the significance of support networks however it is unknown whether this support is translated into everyday practice for NMPs and if it impacts on wellbeing. Using a questionnaire, we aimed to assess the wellbeing and support offered to Royal Marsden Hospital (RMH) NMPs to develop tailored support strategies.

Methods:

To inform the questionnaire, a preliminary virtual focus group was organised to identify key themes surrounding NMP support and wellbeing. An expression of interest email to participate was circulated amongst all RMH NMPs. Focus group findings were analysed through thematic analysis.

Findings/Results:

Five NMPs from pharmacy and nursing backgrounds with prescribing experience ranging from 6 months to 20 years participated in the one-hour focus group. Four key themes were identified: 1) Increasing pressure on NMPs due to increasing expectations and workload; 2) Difficulty managing the demands of NMP role with their core role; 3) Lack of recognition and understanding of the skills of an NMP amongst the wider multidisciplinary team; 4) NMP services becoming a commodity rather than a valued service. All participants felt supported by their clinical teams however support from management was dependent on familiarity with the NMP role.

Conclusion:

The themes identified from the focus group will inform the questionnaire which will be circulated amongst RMH NMPs. Findings will inform local support strategies.

The nutritional status of patients with chronic aspergillus infection: a retrospective cohort analysis

ZILAN HONG King's College London

ALASTAIR DUNCAN King's College London

RASLEEN KAHAI Royal Brompton Hospital

Background:

Chronic pulmonary aspergillosis (CPA) is a rare lung disease. Clinical data on the nutritional status and lung function of the chronic pulmonary aspergillosis patient population at the Royal Brompton Hospital was collected to determine what nutritional problems were present in the chronic pulmonary aspergillosis patient population.

Aim:

To explore the relationship between nutritional status, such as weight and BMI, and disease severity in patients with chronic pulmonary aspergillosis.

To explore the effect of vitamin D intake on chronic pulmonary aspergillosis in patients.

To explore the distribution of patients with chronic pulmonary aspergillosis in different geographical areas, and to explore the relationship between nutritional status and demographic and socioeconomic factors.

Methods:

A retrospective analysis was conducted at the Royal Brompton Hospital. Data from patients living with CPA were viewed separately in the hospital's Graphnet (EPR) electronic clinical system, where patient demographic information, BMI, lung function, vitamin D, and medication use. The relationship between patients' nutritional status and lung function was studied using IBM SPSS Statistics 28.0.0.0. statistical tests. Lung function data were collected: FEV1, FVC, and FEV1/FVC was calculated. They were measured by spirometry, a common breathing test to check lung function (Sahebji and Gartside, 1996).

Results:

A total of 165 participants with chronic pulmonary aspergillosis were included in the study. BMI and FVC were significantly correlated ($p < 0.05$) and for normal weight patients and overweight patients BMI was highly significantly correlated with FEV1/FVC ($p < 0.01$). Heavier weight correlated with poorer lung function

Conclusions:

I found a significant association between BMI and lung function in patients with chronic pulmonary aspergillosis. Lower BMI associated with impaired lung function.

Signs of Learning: our journey to inclusive communication

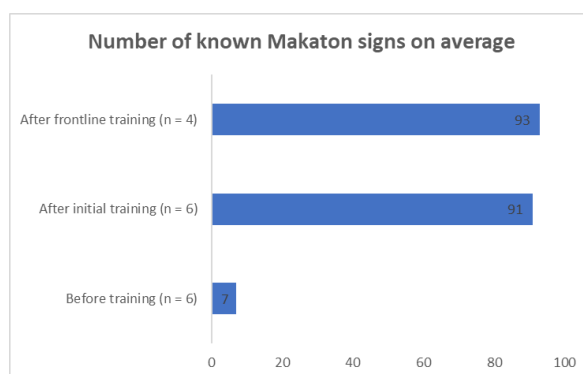
RAS KAHAI, Stuart Craig, Florence Parafina, Armanda Oliveria, Mina Patel & Piers McCleery

Background: People with a learning disability make up 2.16% of the population and, on average, their lives are shorter by 19-23 years compared to those without a learning disability. Good communication can help to tackle health inequalities they face. Used by over 100,000 children and adults, particularly by those with learning disabilities, Makaton is a unique language programme that uses symbols, signs, and speech to communicate.

Aim: To understand whether frontline NHS staff are able to learn and retain Makaton and improve their confidence using it with patients and teaching staff.

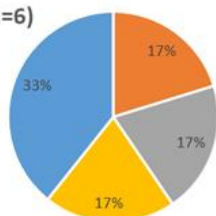
Method: Six staff were initially trained in Makaton levels 1-4. Four staff continued beyond these levels to go on to the Makaton Charity's "Frontline Train the Trainer Course for Nursing" where staff learn a limited but meaningful healthcare vocabulary. Staff who have completed this more advanced level can also train other colleagues.

Results: Makaton has been used 15 times over the past year with patients (n = 4).



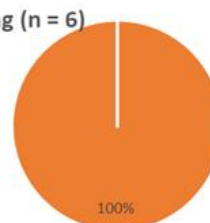
Confidence using Makaton with patients

Before training (n=6)



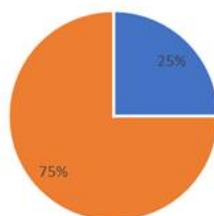
■ Extremely confident ■ Somewhat confident ■ Neutral
■ Somewhat not confident ■ Extremely not confident

After initial training (n = 6)



■ Extremely confident ■ Somewhat confident ■ Neutral
■ Somewhat not confident ■ Extremely not confident

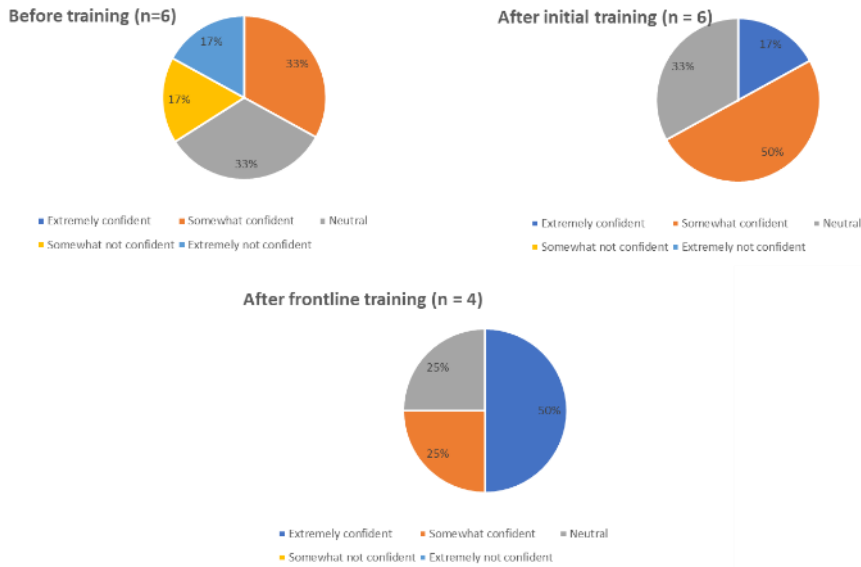
After frontline training (n = 4)



■ Extremely confident ■ Somewhat confident ■ Neutral
■ Somewhat not confident ■ Extremely not confident

Feedback included: "I have been able to become communicate with people with learning disabilities both in the trust and during virtual appointments that I would have been previously unable to communicate with. This has increased the patient and carer satisfaction with consultations and allowed people to feel more at ease while in our care."

Confidence teaching Makaton to other colleagues



Conclusion: Training staff on Makaton has improved both communication with patients and the professional development of nursing staff. More work needs to be done to explore and trial the spreading and scaling of Makaton across our hospitals.

Revamping our comfort food menu – a co-creational approach

RAS KAHAI, Sehar Gheewala, Rachel Burton, Yolande Smuts-Gardner, Nuno Matias, Gioele Castelli

Introduction: Research suggests up to 60% of patients in respiratory wards are malnourished (Laaban et al., 1993). Nutritionally vulnerable patients should receive 800kcal and 27g of protein (BDA, 2023). Royal Brompton Hospital offers a “call order menu” to provide higher energy and protein options.

Aim: The aim of this project is to improve and update the call order menu via a co-creational approach with respiratory patients.

Method: We used the PDSA cycle.

1. Patients were asked their views on the menu and improvements (n=17).
2. Chefs were asked meals they were cooking off the menu.
3. We looked at the electronic ordering system to see what meals were being ordered.

We looked at the difference in energy (kcal) and protein (g) between the old and new menus.

Results: Patients rated the old menu at 3.85/5. This menu met 51% of energy and 77% of protein guidelines. Qualitative themes from patients included their & dislikes likes of the current menu, and preferences of food when unwell. The diet chef reported they cook 8/18 of the menu options. The electronic system showed 7/18 options were ordered in July 2023. Based on feedback, a new menu was created, differences are presented in table 1.

Table 1 – Nutrient difference between the menus.

	Old menu	New menu	P-value
Energy (kcal) ± SD	408±228	1008±261	<0.001
Protein (g) ± SD	20.7±10.9	38.6±9.36	<0.001

The new menu meets 126% of energy and 142% of protein guidelines.

Conclusion: The old menu did not meet guidelines compared with the new call order menu. Through co-creation, we improved menu choice based on culture, habits, and individual preferences.

Association between second-hand smoke exposure during pregnancy and risk of Autism Spectrum Disorder in offspring, A Systematic Review and Meta-analysis

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Background and Purpose: Autistic Spectrum Disorder (ASD) is a developmental disability affecting approximately 1 in 160 children globally. While the mechanisms underlying ASD are unclear, early environmental factors may contribute. Second-hand smoke (SHS) is linked to various adverse health outcomes, particularly in pregnant women, but its association with ASD is poorly understood. This study aims to systematically review the literature on the association between maternal SHS exposure during pregnancy and ASD risk in offspring and perform a meta-analysis.

Methods: A systematic review was conducted on MEDLINE and Embase without language restrictions. Case-control, cohort, or cross-sectional studies were included. Study quality was assessed using the Newcastle-Ottawa Scale and the Joanna Briggs Institute Checklist. A meta-analysis was performed using random-effects models to calculate pooled odds ratios (OR) with 95% confidence intervals (CI).

Results: The search identified 1,182 articles, with 11 studies meeting inclusion criteria. The pooled OR from eight case-control studies indicated a significant increase in ASD risk among children of mothers exposed to SHS during pregnancy (Pooled OR: 2.09, 95% CI: 1.29-3.39, $p = 0.003$). Meta-analysis of three cross-sectional studies showed an insignificant pooled OR of 1.17 (95% CI: 0.53-2.60, $p = 0.70$).

Conclusion: This review and meta-analysis suggest that maternal SHS exposure during pregnancy may increase ASD risk in children. Interventions for smoking cessation and public awareness are crucial. Future research should explore SHS exposure levels, pre-conceptional exposure, and the validity of self-reported SHS compared to biomarker levels, adjusting for critical confounders like parental psychiatric history and socioeconomic status.

Fig1: Forest plots of case-control associations between maternal SHS exposure during pregnancy and ASD in offspring

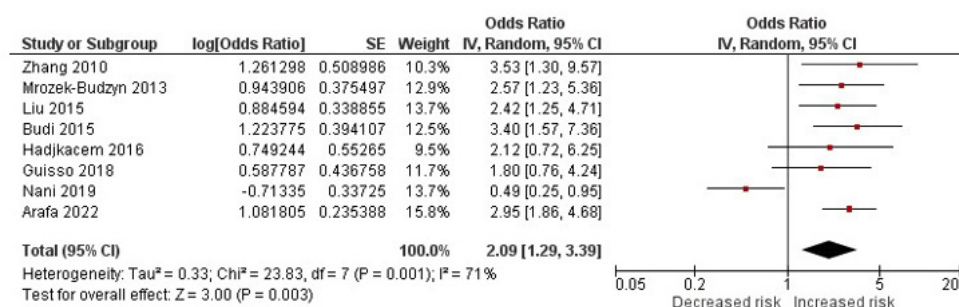
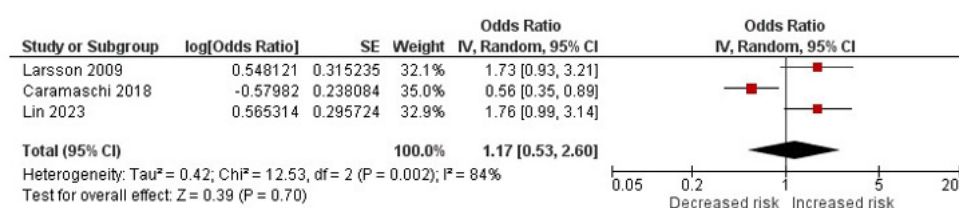


Fig2: Forest plots of cross-sectional associations between maternal SHS exposure during pregnancy and ASD in offspring



A Review of Body Composition in Older Adults Undergoing Systemic Anticancer Treatment Within the Senior Adult Oncology Programme at The Royal Marsden

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Background and purpose:

Ageing is linked with body composition changes; commonly, increased fat mass (FM), reduced lean muscle mass (LMM) and bone density, that are associated with adverse events during systemic anticancer therapy (SACT) and poorer outcomes. Early and routine body composition measurements may help prevent LMM losses and improve nutritional status, physical function, quality of life and SACT outcomes.

We aim to collect and explore body composition data in older adults with cancer receiving SACT, under the care of Senior Adult Oncology Programme (SAOP).

Methods:

This is a single-centre, observational, cohort study. We will prospectively collect body composition data on patients ≥ 70 years receiving SACT and managed by the Royal Marsden SAOP at first consultation to establish baseline and repeat monthly or until SACT discontinues. We will capture sociodemographic data, treatment regimens and SAOP multidisciplinary involvement. Descriptive statistics used and subgroups analysed as appropriate.

Results:

We hypothesise that LMM decreases in patients undergoing SACT, proportional to the intensity of their treatment regimen and advancing age; patients with cancers that tend to drive up nutritional needs, may lose more LMM, faster; patients who receive dietetic +/- physiotherapy input may lose LMM at a reduced rate and quantity.

Conclusions:

There are still many gaps in our knowledge on body composition in older adults with cancer and impacts on treatment outcomes. This study will investigate the scope of incorporating body composition measures into assessments to drive even further individualised multidisciplinary cancer care.

RExA- CF - A pilot study assessing the acceptability and comparability of the results of remote video exercise tests to face-to-face exercise tests for adults with cystic fibrosis

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Background:

Annual exercise testing in cystic fibrosis (CF) is recommended. Since COVID-19 remote assessments have been utilised. Safety and feasibility data exist but comparability is unknown. We evaluated comparability and acceptability of remote and face-to-face (F2F) one-minute sit-to-stand (STS) and Chester Step test (CST) assessments, for adults with CF.

Methods:

Single-centre pilot randomised participants to F2F or remote STS and CST, with the other set of tests completed within two weeks. Primary endpoint was comparison of number of STS sit-to-stands and aerobic capacity from the CST from remote Vs F2F testing. Secondary outcomes were an acceptability questionnaire and exploratory analysis of other physiological outcomes. Results presented as median (IQR).

Results:

12 adults (7M; median 30.5yrs (IQR 25-75)) with stable CF (median FEV1 70.5%predicted (61.5-101)) completed the study. No difference between primary endpoint results from F2F Vs remote STS ($p=0.84$) or CST ($p=0.31$) (table). A higher post-test heart rate (HR) & %HR maximum was reached with F2F CST Vs remote ($p=0.03$), no other significant differences in secondary physiological endpoints. 58% of participants preferred F2F testing.

Conclusions:

This pilot data indicates no significant differences between remote and F2F primary endpoints of the STS test & CST, indicating comparability of results. These data could allow for the application of routine remote exercise testing in future for some people with CF.

Table:

Endpoints	F2F Assessment (median (IQR))	Remote Assessment (median (IQR))	Intraclass Correlation Coefficient	P-Value
STS repetitions	25.5 (24.5-29)	27.0 (23.5-29)	0.91	0.84
Aerobic capacity (mlsO2/kg/min) from CST	43.4 (33.5-51.5)	44.9 (38.3-71.7)	0.76	0.31

Cognitive Impairment in Patients with Immune Thrombocytopenia (ITP)

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Introduction:

Immune thrombocytopenia (ITP) is an autoimmune condition characterized by a low platelet count ($<100 \times 10^9/L$) and an increased risk of bleeding. ITP gained public attention in 2021 as a side effect of COVID-19 vaccines. Initially considered an isolated blood disease, recent studies reveal it also impairs quality of life, causing fatigue, memory, and concentration issues suggestive of cognitive impairment. A 2020 study by Cooper et al. found that 43% of adult ITP patients had cerebral microbleeds (CMBs) on susceptibility-weighted MRI (SW-MRI). While the clinical significance of CMBs is unclear, some studies link them to cognitive impairment.

Aims:

To determine the prevalence of cognitive impairment in ITP patients and explore connections between CMBs, ITP parameters, and cognitive impairment.

Methods:

ITP patients from Hammersmith Hospital underwent cognitive testing using the CANTAB neuropsychological test battery and cerebral SW-MRI to identify CMBs. Five cognitive domains (episodic memory, executive function, processing speed, working memory, and attention) were assessed.

Results:

Sixty-eight patients completed the study. Of these, 48.5% (95% CI [37, 62]) had at least one impaired cognitive domain: 23% in episodic memory, 18% in executive function, 16% in processing speed, 12% in working memory, and 3% in attention. Additionally, 32% had at least one CMB on the SW-MRI. No statistically significant associations were found between CMB presence, ITP parameters, and impaired cognition.

Conclusion:

This study is the first to objectively measure cognitive impairment in ITP patients, suggesting ITP involves more than just low platelet counts. Further research with a larger cohort is needed to explore the association between CMBs, ITP parameters, and cognitive impairment.

Can proactive nutritional management of malignant bowel obstruction reduce admissions and length of stay in recurrent ovarian cancer?

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Background:

MBO is common, symptoms are well recognised, and are increasingly present over many months. Women report lack of attention to nutritional concerns. Parenteral nutrition (PN) should be considered where performance status and prognosis are reasonable. However, there is no guidance on when PN should be initiated, and problems are often identified too late for intervention to be beneficial.

We proposed that with a nutritional care pathway, it may be possible predict and pre-emptively plan for future MBO.

Aims:

To pilot a novel, proactive nutritional management pathway for patients with advanced ovarian cancer, and measure nutrition or malignant bowel obstruction (MBO) related hospital admissions and length of stay (LoS).

Methods:

Patients referred to the pathway received dietetic assessment and intervention. With concerns regarding nutrition or MBO, a proactive management plan was agreed amongst the gynae-oncology and nutrition MDTs. Eligible patients were referred for home PN (HPN). Outcome measures included admissions and LoS.

Results:

There were 19 nutrition or MBO-related admissions (total LoS 185d, mean 6.5d, range 1-28d). Patients had 1-4 admissions. Three patients were offered HPN. One declined and two were discharged with HPN. Mean LoS for establishing HPN was 25.5d (19-36d).

A previous service evaluation within this cohort demonstrated mean LoS for HPN was 57.6d (22-105d).

Conclusions:

MBO is associated with significant LoS. We demonstrated shorter LoS for HPN. Despite a small sample, results indicate significant potential benefit and warrant further investigation.

Interventions that prevent or minimise time in hospital are likely to improve QoL and health service utilisation.

Does High Fidelity Simulation Improve Foundation Year Doctors' Confidence in Managing Medical Emergencies?

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Background:

Our London NHS Foundation trust provides foundation doctors high-fidelity simulation experiences with the aim to improve confidence when managing clinical emergencies.

Aims:

1. To ascertain whether foundation doctors' confidence in managing clinical emergencies changes after a one-day simulation course
2. Determine foundation doctors' post course satisfaction and likeliness to recommend such a course to colleagues.

Methods:

We surveyed 42 foundation doctors before and after simulation. More recently we introduced questions focused on junior doctor confidence in recognising a deteriorating patient, using ISBAR, undertaking leadership roles, escalating to seniors, and teamwork.

Results:

32 doctors attending simulation training between 04/12/2023 and 19/02/2024 completed both a pre- and post-course survey. Several were excluded from analysis as only completed one of the two surveys.

63 doctors attending a simulation training day between 04/12/2023 and 19/02/2024 answered the post-course survey questions about course satisfaction and likeliness to recommend to colleagues.

The average score of 63 responses was 4.67/5 for post course satisfaction and

9.19/10 for likeliness to recommend course to colleagues.

The vast majority now perceive simulation more favourably. Of 32 candidates for whom pre- and post-course survey data was available, confidence increased in all seven domains, from a min of 8.96% to a maximum of 35.80%. A paired two-tailed t-test showed increases in all domains were statistically significant with p values below <0.01.

Conclusion:

Simulation is an effective and enjoyable way of delivering training to foundation doctors and increases confidence in assessing unwell patients, managing high stakes clinical emergencies, teamwork, leadership, communicating with colleagues and escalating to seniors.

Supporting diverse and inclusive leadership

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Background:

Locally Employed (LE), Speciality, or Specialist (SAS) doctors constitute a growing section of the NHS medical workforce. Many have significant clinical experience which does not guarantee transition from LE to SAS contracts. SAS doctors also struggle to attain leadership roles, adversely affecting wellbeing and retention.

Aims:

Two Postgraduate Medical Education fellows working at a central London NHS hospital sought to learn about these doctors' working lives, views and aspirations, and how best to support them.

Methods:

All SAS (roughly 50) and LE (roughly 350) doctors believed employed at the trust were sent an online 32-question survey. The survey ran 9th October - 27th November 2023. Additionally, several LE/SAS doctors met us to provide broader feedback about their experiences.

Result:

- 184 partly completed the survey; 61% (112/184) answered all questions
- 12% (8/67), 56% (10/18) and 90% (9/10) working 1-4 years, 5-9 years and 10-14 years respectively were on SAS contracts
- None working 5-9 (n=18), 10-14 (n=10) or 15-20 (n=5) years were taking steps to leave the trust in the next year; 32.7% (16/49) working <1 and 19.4% (13/67) working 1-4 years had plans
- 72 respondents averaged 33/100 when asked how supported they felt collating CESR evidence
- 42.9% (12/28) SAS doctors felt contracts accurately reflects roles
- 72.5% (87/120) reported sufficient opportunities for enhancing career development

Conclusion

Morale and employment duration appear linked. SAS doctors would benefit from support collating CESR evidence. A quarter of respondents do not feel they have sufficient career development opportunities whilst half reported lacking contracts that accurately reflect clinical experience and responsibility.

Alveolar Th2 Cytokine Upregulation in Patients with Acute Respiratory Distress Syndrome (ARDS) and Non-Dependent Consolidation

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Background and purpose: The acute respiratory distress syndrome (ARDS) is characterised by diffuse alveolar damage (DAD), though other histological phenotypes such as organising pneumonia (OP) have also been described. The radiological correlate of OP is non-dependent consolidation. We tested the hypothesis that patients who develop non-dependent consolidation have distinct markers of alveolar inflammation, as compared to cohorts without this pattern.

Methods: OP was diagnosed by the presence of non-dependent consolidation at any point during intensive care unit (ICU) admission. Multiplex immunoassays were used to evaluate expression of 15 analytes in admission bronchoalveolar fluid (BALF). Outlier analysis was performed (Grubb's test, $\alpha = 0.05$) prior to statistical analysis using the T-test or Mann-Whitney test, as appropriate. Statistical significance was determined after Benjamini Hochberg correction with 10% false discovery rate.

Results: No significant demographic differences were seen between groups in age, gender, body mass index, COVID-19 status, steroid administration pre-ICU admission, use of ECMO, SOFA score or 90 day mortality. BALF IL4 ($p=0.004$) and IL13 ($p= 0.005$) were the only mediators that were significantly upregulated in the OP group (See Table 1).

Table 1. Biomarkers on admission in OP and non-OP subgroups. Table values are expressed in median pg/ml (95% confidence interval) unless otherwise stated. Marked p-values (*) denote discoveries using the original Benjamini and Hochberg method and 10% false discovery rate.

	OP	Non-OP	P-value
TNFR (pg/ml)	347.3 (196.0-1100.0)	462.7 (134.6-2120.0)	0.678
CCK18 (U/L)	1731.0 (700.4-2569.0)	1412 (558.4-2883.0)	0.708
IFN- γ	45.8 (14.3-97.2)	18.4 (1.0-106.6)	0.221
IL10	1.2 (0.6-4.9)	1.3 (0.2-9.5)	0.646
IL18	92.8 (47.6-203.2)	85.4 (37.2-573.7)	0.673
IL-1 α	4.6 (2.0-18.0)	9.9 (2.5-21.3)	0.448
IL-1 β	17.6 (5.9-46.2)	41.9 (7.4-77.6)	0.395
IL-6	71.8 (33.7-237.6)	431.5 (28.9-1324.0)	0.387
IL-8	2474.0 (893.0-4524.0)	4037.0 (1305.0-16042.0)	0.358
MCP-1	1486.0 (435.3-5290.0)	2741.0 (658.4-7016.0)	0.753
TNF α	2.2 (1.4-3.8)	3.65 (1.7-17.0)	0.254
TRAIL	230.5 (126.1-482.4)	137.1 (19.9-599.5)	0.188
Ang2	116.7 (52.5-321.0)	85.5 (2.7-468.3)	0.537
FasL	3.5 (0.8-4.2)	1.6 (0.8-6.1)	0.343
sRAGE	7314.0 (2140.0-13104.0)	5515.0 (482.4-15260.0)	0.713
VEGFD	62.2 (37.8-110.2)	24.1 (5.5-156.9)	0.122
IL-13	1.3 (0.8-1.6)	0.6 (0.1-0.9)	0.005*
IL-17A	4.5 (3.2-8.3)	2.7 (0.9-10.6)	0.138
IL-4	0.1 (0.1-0.1)	0.0 (0.0-0.1)	0.004*
IL-5	1.9 (1.1-4.9)	2.2 (0.2-4.9)	0.409
Pro-collagen	43029.0 (14007.0-88901.0)	17778.0 (2195.0-90829.0)	0.236
bFGF	2.7 (1.6-4.6)	2.2 (1.1-5.7)	0.753
TGF b2	197.6 (107.5-217.7)	206.2 (141.9-286.8)	0.281
TGF b3	2.9 (0.4-4.5)	1.3 (0.4-3.1)	0.708
TGF b1	142.9 (64.2-165.8)	152.4 (63.1-584.1)	0.484
MMP7	16923.0 (13116.0-28222.0)	19596.0 (6744.0-75867.0)	0.708
MMP9	72461.0 (48149.0-305337.0)	160392.0 (28043.0-896729.0)	0.414

Conclusions: IL4 and IL13, both Th2 cytokines, are upregulated in the airways of ARDS patients who develop radiological features of non-dependent consolidation. Validation of these findings in a larger cohort of patients with non-COVID ARDS is required prior to further evaluation of BALF Th2 cytokines as biomarkers of OP in ARDS. Once validated, the potential impact includes the therapeutic application of Glucocorticoids and Dupilumab.

Investigating the mechanisms of immune response in preterm premature rupture of Membranes

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Background:

Preterm premature rupture of membranes (PPROM) is when the fetal membranes rupture at <37weeks before the onset of labour. Intrauterine infection and inflammation are implicated and associated with worse neonatal/maternal outcomes. The vaginal microbial composition can influence the risk of PPRM. Further understanding in immune mechanisms driving PPRM is needed to develop novel strategies for prevention and to determine how to better time delivery and improve neonatal outcomes.

Methods:

Pregnant women were recruited from the preterm birth prevention clinic and cervico-vaginal swabs analysed with Luminex immunoassays. Patients are recruited on presentation with PPRM, and matched cervico-vaginal swabs and peripheral plasma samples are taken longitudinally until delivery, where membranes are also taken, for analysis of cytokines and complement proteins.

Results:

There was an increased median concentration of IL-1 β , IL-6 and IL-8 in cervicovaginal fluid of patients who subsequently experienced PPRM as early as 12weeks ($p < 0.05$), compared to term uncomplicated pregnancies. Complement proteins (C1q, C3a and C3b) were also elevated. To date, we have recruited 66% of 2-year target for the PPRM cohort (n=53).

Discussion:

Microbial composition and inflammation play a key role in PPRM with changes seen as early as 12weeks, translating to potential development of bedside tests in early pregnancy to individualise care and risk assessment of PPRM. This study will provide novel data associating vaginal microbiome and immune-profiling following PPRM and the first to assess longitudinal changes. Understanding the link between inflammation and latency to delivery and maternal/neonatal outcomes will help stratify patients for individualised treatment following PPRM.

Understanding (Un)Sustainable Behaviours in Operating Theatres: An Ethnographic Study

AWS ALMUKHTAR, Carys Batcup, Daniel Leff, Talya Porat, Pelin Demirel, Gaby Judah

Introduction:

Healthcare is a major contributor to the climate crisis, and Operating Theatres (OTs) are one of the highest sources of emissions. To inform emissions reduction, we aimed to (i) compare the outcomes of sustainability interventions in OTs using the Triple Bottom Line framework, (ii) categorise the sustainable behaviours' intervention strategies using the 5Rs (reduce, recycle, reuse, refuse, and renew) of circular economy, and (iii) examine the Intervention Functions (IFs) using the Behaviour Change Wheel (BCW).

Methods:

Medline, Embase, and PsychInfo databases were searched until June 2023, in line with the Cochrane and the Joanna Briggs Institutions' recommendations. The review was registered on PROSPERO (CRD42024501755) and reported in line with PRISMA guidelines.

Results:

16 reviews encompassing 43 life-cycle analyses, 30 interventions, 5 IFs, and 9 BCW policy categories were included. 28/30 (93%) interventions were successful; however, the environmental outcomes were not suitable for meaningful comparisons due to their using different metrics and relying on local factors. The 'reduce' strategy was the most prolific and achieved through 'education' and/or 'environmental restructuring'; However, single-session educational interventions were ineffective. Improving recycling relied on 'environmental restructuring'. Arduous strategies such as 'reuse' can be achieved by integrating multiple functions either through a sustainability committee or through an intervention package.

Conclusion:

Policymakers must examine interventions within the local context. Comparing the outcomes of different interventions could be misleading, highlighting the need for a tool integrating diverse outcomes and contextual factors. 'Reduce' strategy guarantees environmental and financial savings and can be achieved through 'Education' and/or 'environmental restructuring'.

Understanding (Un)Sustainable Behaviours in Operating Theatres: An Ethnographic Study (Review)

AWS ALMUKHTAR, Carys Batcup, Daniel Leff, Talya Porat, Pelin Demirel, Gaby Judah

Background:

Healthcare is a major source of carbon emissions and Operating Theatres (OTs) are one of the top contributors as they are highly resource intensive. We conducted the first known ethnographic field study to investigate (un)sustainable behaviours in OTs and identify influences on these behaviours.

Methods:

Non-participant ethnographic observations with opportunistic discussions were conducted until saturation from June to November 2023 at two university hospitals in Central London. Inductive thematic analysis of transcripts was conducted, with influences then deductively mapped to the Theoretical Domains Framework (TDF).

Results:

Nineteen elective general surgical procedures were observed (31 hours). The observed unsustainable behaviours were: (i) unnecessary glove use, (ii) incorrect waste disposal, (iii) unnecessary opening of packages, and (iv) energy waste. Thematic analysis generated 7 themes and 16 influences (mapped to 9 TDF domains). A key theme was that sustainable practices are “Fragile and inconsistent” due to limited awareness (Knowledge) and low environmental concerns (Decision Processes) – consequently, other themes strongly influence behaviour. Themes found to drive unsustainable practices were: “Precaution” (Emotions; Beliefs About Consequences); “Efficiency” (Goals); “Habit” (Attention); “Past experiences” (Emotions; Social Influences); and the “Physical environment” (Environmental Context and Resources). The theme of “Leadership” (Social Influences) led to either more or less sustainable practices.

Conclusion:

This study provides nuanced understanding of (un)sustainable practices in OTs, e.g. the strong impact of habit, past experiences, leadership, and the desire for efficiency. The rich knowledge of influences on behaviour and the OT context identified in this study can inform the design of more successful interventions.

HTLV-1/2 in milk: towards a better understanding of vertical transmission

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Background and purpose:

Vertical transmission of the Human T-lymphotropic Virus types 1&2 (HTLV-1/2) is primarily via prolonged breast/chestfeeding (lactational transmission). The mechanisms behind this transmission remain poorly characterised, limiting development of novel prevention strategies. We aimed to assess milk samples for factors potentially affecting HTLV-1/2 lactational transmission.

Methods:

Milk and blood from 17 donors to the Communicable Diseases Research Tissue Bank (9 HTLV-1, 1 HTLV-2, 7 HTLV-1/2 negative) were tested by qPCR and nested PCR to detect HTLV-1 proviral load, cell-free viral RNA and by ELISAs for anti-HTLV-1/2 IgG, IgA, sIgA, neopterin and beta-2 microglobulin (B2M). All patients with HTLV-1 were asymptomatic.

Findings/Results:

There was no evidence of cell-free viral RNA or anti-HTLV-1/2 IgA or sIgA in any milk samples tested, despite detectable provirus in associated milk and blood samples.

Anti-HTLV-1/2 IgG detected in milk and plasma from all with HTLV-1/2 (and none without). Anti-HTLV-1/2 IgG proportions were similar in milk and plasma ($p=0.979$), but concentrations were 1000-fold higher in plasma than milk ($p<0.0001$).

Milk neopterin and B2M concentrations were higher than plasma ($p<0.0001$), unaffected by HTLV-1/2 status. Unlike B2M, milk and plasma neopterin levels correlated ($r_p=0.698, p=0.025$).

Discussion/Conclusion:

The lack of cell-free viral RNA supports cell-associated HTLV-1/2 lactational transmission. Milk anti-HTLV-1/2 IgG results support the existing literature, though their role in transmission remains unknown. Our results demonstrate a pro-inflammatory environment in milk compared to plasma. Further work is needed to further characterise the inflammatory composition of milk and its effects on HTLV-1/2 transmission.

Surgical trainee experiences from 2013 to 2023 within the United Kingdom as reported by the General Medical Council National Training Survey

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Background and Purpose:

The General Medical Council (GMC) issues annual surveys to all doctors within the United Kingdom (UK) in a formal postgraduate training scheme. This facilitates the monitoring of experiences for quality assurance purposes. Low job satisfaction is associated with heightened burnout and staff turnover, as well as deteriorating clinical care and productivity levels.

Methods:

We gathered and extracted data from the publicly available online GMC reporting tool. Data ranged from 2013 to 2023 and spanned 12 postgraduate surgical training programmes across all 18 indicators available. In total, 198 individual metrics were recorded, in addition to burnout. We conducted trend analysis and yearly average mean scores for individual metrics, burnout, and geographical differences for 141 individual training programmes within the 16 training regions.

Findings/Results:

Of the 198 metrics analysed, 83 (42 %) were found to have statistically significant negative trends ($P < 0.05$), in comparison to 24 (12 %) with positive trends. 5 specialities had over 50 % of metrics showing a significant negative trend. Overall satisfaction was negative in all 12 programmes, with eight reaching significance ($P < 0.05$). Of 141 individual training programmes, 29 % showed a significantly negative trend in overall satisfaction, with 1 % demonstrating a significant positive trend ($P < 0.05$).

Discussion/Conclusion:

Our study is the first to explore long-term trends in trainee-reported surgical training experiences within the UK. Our data have revealed widespread worsening trainee-reported experiences and dissatisfaction across multiple specialities and geographical regions, especially in key areas of overall satisfaction, self-development, and clinical supervision.

It is time we started treating arthroplasty as a life-saving intervention: what have wearables, machine learning, and epidemiology taught us? (The UK Biobank)

TIM LINDSAY, ACF, Imperial MSK Lab

Background and purpose:

Epidemiological studies suggest that people with arthritis die younger than non-arthritic aged-matched comparators. However, the causal mechanism underpinning this association has not been conclusively demonstrated. One possible explanation is a lack of physical activity (PA) in those with end-stage lower limb arthritis. Given emerging evidence from large cohort studies using wearables and machine learning to estimate PA, is it time we considered arthroplasty a life-saving intervention?

Methods:

We conducted a harmonisation review, drawing upon recently published literature on PA and all-cause mortality (Strain et al., 2020), as well as PA and arthritis (Small et al., 2024), in the UK Biobank. The UK Biobank is a large population cohort study with 96,476 participants with wrist-worn accelerometry data, 3506 of whom have been studied independently as arthritis patients. We harmonised the literature to explore the potential mortality risk reduction conferred by arthroplasty in end-stage arthritis patients.

Results:

Small et al. demonstrate patients with an ipsilateral hip replacement have equivalent PA levels to their non-arthritic peers at more than 1-year post-surgery. Further, end-stage arthritis patients have significantly lower moderate-vigorous activity than non-arthritic peers. Strain et al. show that low PA and lower-intensity PA are strongly associated with all-cause mortality, suggesting that arthroplasty confers a significant all-cause mortality risk reduction.

Conclusion:

Extrapolation of recently published epidemiological studies using wearables and machine learning suggests that arthroplasty, through the restoration of PA, reduces all-cause mortality. Further studies are needed to evaluate the risk/benefit of early intervention vs. traditional orthopaedic considerations such as revision risk.

Associations between pre-hip or pre-knee arthroplasty weight loss and peri- and post-operative outcomes

Authors: Miss Moneet Gill, Dr Kevin Llanera, **MR TIM LINDSAY**, Professor Tricia Tan, Professor Justin Cobb, Mr Alex Liddle, Dr Chioma Izzi-Engbeaya, Imperial College London

Background and purpose

Obesity is associated with increased complications after arthroplasty. However, it is not known if these risks can be mitigated by weight loss pre-operatively. Our systematic review and meta-analysis explore the associations between weight loss prior to hip or knee arthroplasty and post-operative outcomes.

Methods

Key words were searched in relevant databases and throughout grey literature. Peer-reviewed articles were screened by two independent reviewers. Studies into medical or surgical weight loss prior to primary hip or knee arthroplasty were included. Outcome measures included incidence of superficial wound infection, deep wound infection, pulmonary embolus, deep vein thrombosis (DVT) and revision surgery up to 90-days post-arthroplasty. The intervention group was those patients who underwent medical or surgical weight loss pre-arthroplasty, the control group were patients of any BMI without pre-operative intervention.

Results

In total 21 articles were included in the meta-analysis with data available for 50,672 patients in the intervention group and 1,446,755 patients in the control group. Pre-arthroplasty weight loss was associated with an increased risk of revision surgery (Odds Ratio (OR) 1.32, $p > 0.01$) and DVT (OR 1.37, $p < 0.01$). However, there was no significant association between pre-arthroplasty weight loss and superficial wound infection, deep wound infection, or pulmonary embolism.

Discussion/Conclusion

These data suggest that rapid weight loss prior to arthroplasty does not appear to reduce the risk of perioperative complications and may increase the risk of DVT and revision surgery. However, well-designed, and adequately powered prospective studies are required to establish the risks and benefits of pre-arthroplasty weight loss in people living with obesity.

Implementation of a multidisciplinary approach to care for people living with HIV aged over 80 years

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- 4) 56 Dean Street, Chelsea and Westminster Hospital, London, UK
- 5) Ifakara Health Institute, Chronic Disease Clinic of Ifakara, Morogoro, Tanzania
- 6) Mark Wainbweh Fellowship program, International AIDS Society
- 7) Università Vita-Salute San Raffaele

Background:

People with HIV (PWH) are at risk of developing premature multimorbidity and ageing associated complications. We established multidisciplinary-team consultations to assess and manage frailty, using the principles of Comprehensive Geriatric Assessment (CGA) to advise on modifiable risk factors.

Materials and methods:

All PWH ≥ 80 years old were reviewed in a dedicated HIV/geriatric clinic at Chelsea and Westminster Hospital, London (UK) between December 2022-July 2023. Data including medical, physical, social, psychological and functional wellbeing were collected. Descriptive statistics were calculated.

Results:

We reviewed 63 PLWH, 49 (78%) by telephone, 9 (14%) in-person and 5 (8%) virtually. The median age was 82 (IQR 80-86), 57 (88%) were men.

The median number of co-morbidities was 5 (IQR 4-7), the most common were hypertension and cardiovascular disease. Polypharmacy was seen in 44 (70%) individuals, with a median of 6 (IQR 5-8) co-medications reported. The median CFS was 2 (IQR 2-5).

Medicine-reconciliation led to ART modernization in 18 (29%) individuals whilst co-medication changes were recommended in 39 (62%). Investigations including nutritional blood tests and further imaging were requested for 31 people (49%). 48 patients (76%) agreed to involve their GP to continue advance care planning discussions in the community.

Conclusion:

This is the first cross-sectional analysis describing a geriatric HIV population ≥ 80 years of age, showing that the majority of PWH studied remained independent with a low CFS, despite multiple co-morbidities and polypharmacy. It is imperative to integrate geriatric care using a CGA approach with PWH to improve functional, social and medical care.

A scoping review identifying interventions that have been tested to optimise the experience of people from ethnic minority groups receiving systemic anti-cancer therapy (SACT)

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Luke Steventon (LS), Research Assistant, University College London Hospitals NHS Foundation Trust;

Professor Susanne Cruickshank (SC) PhD, FHEA, MSc (Cancer), BSc, RGN ,Strategic Lead for Applied Health Research, Health Services Research, Honorary Professor, University of Stirling

The Royal Marsden NHS Foundation Trust; Shereen Nabhani-Gebara (SNG), PharmD, BCOP, mBOPA, SFHEA ,Associate professor of Oncology, Interprofessional Education Lead for Pharmacy, Pharmacy Department, Faculty of Health, Science, Social Care and Education, Kingston University London

Background:

Disparity in care of the cancer pathway has been understood for decades. Although progress in reducing these disparities has been made for some health conditions within certain racial groups, the magnitude of the gap has remained fairly constant overall and is increasing in some critical areas. The purpose of this scoping review was to identify interventions that focused on improving the experiences and clinical outcomes in people of different ethnicity treated with SACT.

Methods:

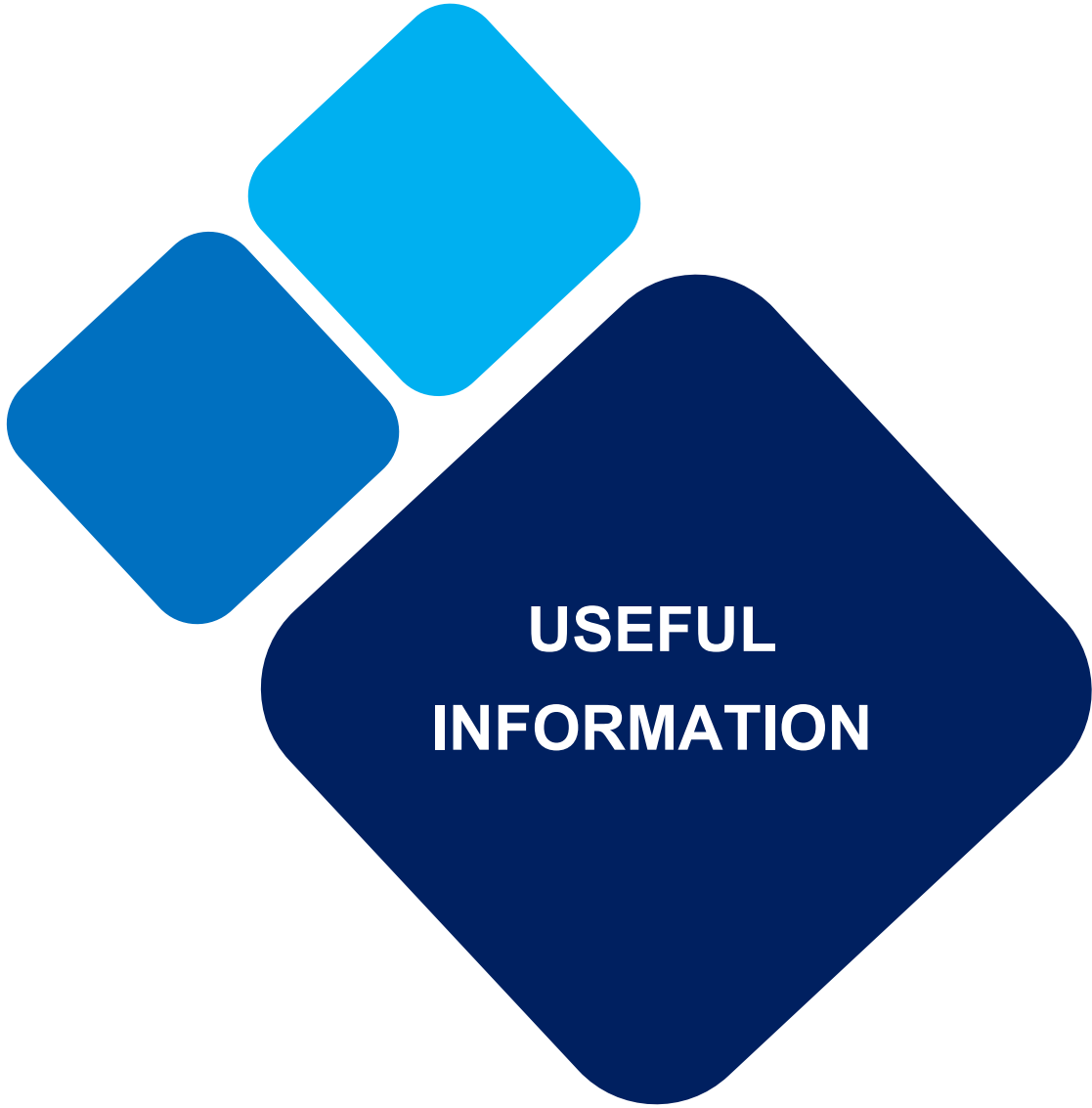
A scoping review was conducted according to the Arksey and O'Malley's methodological framework and was further refined with the Joanna Briggs institute methodology. A comprehensive search was performed using three electronic databases to map the available literature. Studies were included that assessed outcomes of interventions aiming at improving cancer patients experience with their treatment. The results were analysed using thematic analysis and mixed methods appraisal tool.

Results:

9 studies were included after exclusion criteria were applied. Studies described 6 digital and 3 educational interventions employing different methodologies ranging from one off teaching sessions to randomised controlled trials. Interventions primarily targeted early breast cancer patients from African American backgrounds. Several common themes were identified in this review. The most common obstacles in conducting interventions were linguistic barriers, health literacy and digital education levels.

Conclusion:

For patients, the implications of these heterogenous interventions translate into undefined processes and are not imbedded into daily routine practice at most cancer centres. Healthcare professionals should adopt an individualised approach when engaging with patients and employ cultural competency in their training.



CATO ACTIVITIES AND RESOURCES

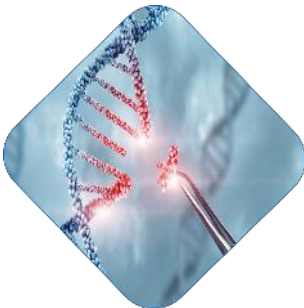
Upcoming events from CATO and Academic Health Science Centre (AHSC)



NEW CATO in-person event: Transitioning from Clinical Work to a PhD and Back Again, Wednesday 10 July, 13.00 - 14.15hrs, Hammersmith Campus, The Wolfson Education Centre

Open to **clinicians who are currently undertaking PhDs** (of all flavours, including doctors, physiotherapists, nurses, dieticians, pharmacists, etc) within the AHSC and partner memberships. This event is an opportunity to receive expert advice on pursuing research post-PhD, connect with fellow clinical PhD fellows, gain insights on navigating the transition between clinical work and PhD studies, and learn strategies for success and avoiding common pitfalls.

[To express an interest for a place on the session complete the EoI form.](#)



Imperial College AHSC Seminar Series: Gene therapy and its potential for treating health conditions, Tuesday 16 July, 12.00 – 13.00hrs (Online)

In this online seminar, two experts will talk about their research into gene therapy. Speakers at the event include **Prof Uta Griesenbach** who will talk about her research on developing gene therapy approaches and **Prof Josu De La Fuente** will discuss about his research into gene editing treatment for inherited blood disorders.

[Find out more and sign up.](#)



CATO Virtual drop-in / advice clinic, open session for question Monday 12 August, between 12.30 - 13.30hrs (Online)

This session is available to ACFs, CLs and CRTFs who wants advice, a brief update or just a friendly confab about anything clinical academic training related! There is no obligation to attend the whole thing, feel free to just log in, ask your question and leave if you like, or stay online and hear about what's going on for other fellows and trainees.

[Find out more and sign up.](#)

MS Teams call details will be sent to registered delegates 24hrs before the session.



NMAHPPs: 2024 North West London Research Symposium for NMAHPPs Wednesday 16 October, 12.00 – 17.00hrs, Royal Geographic Society, Exhibition Road, South Kensington, London

This symposium is aimed at NMAHPPs and academics in North West London (NWL) thinking of taking a research postgraduate course, those wondering about pursuing a research career and those involved in healthcare research already. The event will run in-person and offers a great opportunity to meet, network and learn from the collective research experience of colleagues working across North West London.

[Find out more and sign up.](#)

Sessions designed for NMAHPPs (Nurses, Midwives, Allied Health Professions, Healthcare Scientists, Pharmacy Staff and Psychologists) across the Imperial College AHSC organisations and affiliates*.

Check out the **[CATO Events Page](#)** or contact **cato@imperial.ac.uk** to find out more



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- Use the competencies and training suggested in the framework to enhance your CV and highlight the role you play in advancing patient care through clinical research.
- Improve your ability to support the world leading research being done here and develop your own clinical research career.

User feedback

"I found the framework helpful and structured and used it to identify some learning needs when planning my research fellowship."

Physiotherapist, ICHT

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NIHR Research Support Service (RSS)

Research Support Service Hub delivered by Imperial College London and Partners



The [Research Support Service \(RSS\)](#) provides free and confidential advice to develop funding applications within the remit of the NIHR, including clinical, applied health and social care research, and post-award advice to award holders. Access to support, advice and expertise is available for all researchers across England applying to NIHR [research programmes](#) or [research training awards](#).

The RSS Hub supports researchers and staff with all types of award, from fellowships to large programmes of work. Experts based within the hub have extensive mentorship experience, and hold NIHR, Research Council and charity grants.

[Visit the RSS Hub for more information.](#)

NIHR Equality, Diversity and Inclusion Toolkit

The NIHR Research Design Service (RDS) now replaced by the RSS developed an [Equality Diversity and Inclusion \(EDI\) Toolkit](#).

This resource has been developed to support researchers to better understand how to embed EDI in research design and to meet the [NIHR's EDI requirements](#). The toolkit advocates for best practice which goes beyond the NIHR's current requirements.

NIHR Imperial Biomedical Research Centre (BRC)



The NIHR BRC is a research partnership between Imperial College London and Imperial College Healthcare NHS Trust. Harnessing the scientific power of the College's Faculties of Medicine, Engineering and Natural Sciences, the BRC supports the infrastructure to promote and facilitate the flow of research from the laboratory bench to patient bedside as effectively and efficiently as possible. Through our five hospitals, which serve an ethnically diverse population of 2.3 million people in North-West London, the BRC's activities have successfully developed new devices, diagnostics and therapies.

Investing in the clinical academics of the future is one of the BRC's most important aims. Led by Professor Waljit Dhillon, Dean of the NIHR Academy, the NIHR Imperial BRC training programme offers a range of opportunities for clinical researchers. The BRC collaborates with the Imperial Clinical Academic Training Office (CATO) to provide a single point-of contact for support and training opportunities for all our clinicians, nurses and healthcare professionals interested in academic research. In partnership with Imperial College Healthcare Charity, the BRC also co-funds the Pre-doctoral Research Fellowship scheme for Imperial's healthcare professionals. These fellowships provide an opportunity to undertake research for one year, in order to apply for an externally funded PhD.

Another key aim of the BRC is Public and Patient Involvement (PPI) in research. Our patients and volunteers are closely involved in the design and delivery of research, and the BRC invests heavily in PPI training and development for the clinical academics. The delivery of PPI in the NIHR Imperial BRC is managed by the [Patient Experience Research Centre](#) (PERC).

Overall, our BRC provides an environment in which scientific endeavour can thrive, attracting talented investigators from across the globe, and producing world-class outputs, contributing to the UK's international competitiveness as a major component of our knowledge economy. To find out more about the NIHR Imperial BRC, visit their website: <http://imperialbrc.nihr.ac.uk/>

Patient Experience Research Centre

The Patient Experience Research Centre (PERC) is a core facility of the NIHR Imperial BRC that aims to improve the quality of healthcare services and impact of translational research through public involvement and engagement.



Public Involvement Training
Take the free online Public Involvement in Research course suitable for researchers and public contributors



Health Research Matters
A monthly seminar series showcasing research relevant to patient experience and health. The seminars are open to all: researchers, healthcare practitioners and members of the public.



PERC Blog
Researchers write blogs and case studies, which share the latest public involvement examples, news and best practice.



Online Resource Hub
Guidance and support on public involvement compiled specifically for use by Imperial researchers.

PERC activities



People's Research Cafés
Members of the public contribute to research projects in an informal pop-up 'café' space usually located in the community.



Young Persons' Network
A network of 17 to 25 year-olds interested in designing and shaping different kinds of research taking place across Imperial.



Research Expertise
PERC's work is primarily focused around developing new methods for gathering and analysing patient experience, which is recognised as a key element of the quality of healthcare, along with patient safety and clinical improvements.



VOICE at Imperial
A digital platform that connects researchers with members of the public willing to share their ideas and lived experience to improve research and innovation.
www.voice-global.org

Find out more at www.imperial.ac.uk/patient-experience-research-centre

Get in touch

For public involvement enquiries:
For research enquiries:
For VOICE at Imperial enquiries

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Library Services

The [Imperial Library services](#) are available to support NHS staff within the following trusts:

- Central and North West London NHS Foundation Trust
- Central London Community Healthcare NHS Trust
- Chelsea and Westminster Hospital NHS Foundation Trust
- Imperial College Healthcare NHS Trust
- West London NHS Trust

Please see the [guide for Library and Evidence Services for NHS Staff](#) for more information on the services you can access. The libraries are also running online lunchtime skills workshops in a range of topics, more information can be [found online](#).

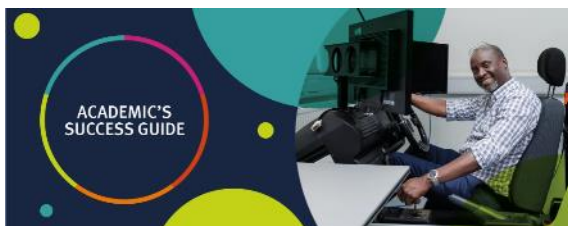
** The Charing Cross Library is now open 24 hours a day, with a short closure Friday 21.00-10.00 Saturday **

Additional support for Imperial Researchers

Support available through the University:

- [Equality, Diversity & Inclusion](#)
- [Dyslexia and Neurodiversity](#)
- [Academic English](#)
- [Early career researcher wellbeing](#)

Postdoc and Fellows Development Centre



The Postdoc and Fellows Development Centre (PFDC) is a dedicated team that supports research staff at Imperial College London. Since 2009, they have been enabling postdocs and fellows to take a proactive approach to developing their skills, potential, and exploring career prospects.

The PFDC provides opportunities for research staff to reflect on and work towards professional and personal growth through courses, workshops, events, individual support, and online resources. They also work closely with departments and faculties to ensure that postdocs and fellows have access to relevant and tailored support throughout their journey at Imperial.

The PFDC is dedicated to creating a positive research culture and advocates for sector-leading support and professional development for all researchers.

[Find out how the PFDC can help you.](#)

Thank you for attending.

Remember to submit your completed online evaluation forms before leaving.



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E: cato@imperial.ac.uk

W: <https://www.imperial.ac.uk/medicine/study/clinical-academic-training-office/>