ACF (General Surgery / Emergency Medicine) Programme Details in conjunction with University of Liverpool

Post availability

There is one post available in
General Surgery / Emergency Medicine

Overview

You can find generic information about Academic Clinical Fellowships in the North West plus links to the National Institute for Health Research's guidance via https://www.nwpgmd.nhs.uk/nihr-academic-clinical-fellowships-glance

The Mersey region boasts exemplary training through multiple trusts and the tertiary centre that is Liverpool University Hospitals NHS Foundation Trust (LUHFT). LUHFT has developed a unique, forward-looking and progressive Emergency General Surgery team based at the Aintree site, managing day to day emergency general surgical patients with dedicated acute care surgeons managing general surgical trauma in close multi-disciplinary collaboration with other speciality teams at the region's Major Trauma Centre (MTC). The MTC is on a steep trajectory to expand its cutting-edge clinical and translational research with MTC surgeons having recently secured two multi-million MRC Clinician Scientist awards (R. Mukherjee, S. Graham) and three Hunterian Professorships of the Royal College of Surgeons of England (R. Mukherjee, S. Graham & L. Mason). LUHFT also has high volume pancreas, liver, oesophagogastric centralized services, alongside colorectal surgery with a well-recognized robotic team. The region also has several excellent breast surgery units and a transplant training program combined with the Manchester deanery. Emergency medical services are are similarly well-organised and diverse across the region with largest acute department based at the Aintree site, embedded within the MTC, where emergency medicine medics and acute surgeons take a multi-disciplinary approach to ensure the best outcomes for the patients we serve. The Northwest deanery has an excellent rapport with Mersey, allowing inter deanery training tailored to individual trainee needs. As a trainee in the region, due consideration will be made to personal training needs and specialty exposure.

The ACF will be jointly supervised by Mr. Rajarshi Mukherjee (RM; MRC/GSK Clinician Scientist, Honorary Emergency General & Major Trauma Surgeon and Hunterian Professor, RCSEng) and Mr. Dale Vimalachandran (DV; Consultant

Colorectal Surgeon, Countess of Chester Hospital NHS Foundation Trust, and Reader in Molecular and Clinical Cancer Medicine, University of Liverpool). Trainees will be exposed to all aspects of upper and lower gastrointestinal, colorectal and emergency general surgery, both elective and emergency, with active participation in the acute general surgical on call at the Aintree site, gaining crucial experience and training in emergency general surgery, major trauma and the management of abdominal catastrophe within the regional MTC, complemented by exposure to the wider Cheshire & Mersey Major Trauma Network through the supervisors' combined clinical bases.

Academic Training

The ACF's research will be conducted jointly within the Liverpool Pancreatitis Research Group (LPRG) and Mr. Vimalachandran's Colorectal Research Group, both based within the Department of Molecular and Clinical Cancer Medicine, Institute of Systems, Molecular and Integrative Biology (ISMIB), University of Liverpool (UoL). Together, these groups have an exemplary track record in leading clinical and translational surgical research over a sustained period, producing novel discoveries, high-impact publications, international patents, critical national and international research collaborations, industrial partnerships and multi-million pound research grants. The programme is underpinned by established links with the Cheshire & Mersey Major Trauma Network and national audit infrastructure, including the National Emergency Laparotomy Audit (NELA) and Trauma Audit and Research Network (TARN), as well as industry, providing an exceptional platform for AI-supported clinical data science. Crucially, both groups are actively engaged in patient and public involvement and engagement in research, participating in national priority setting initiatives and regional outreach, for which the LPRG recently received the UoL outstanding contribution to public engagement award.

RM and DV bring complementary and highly relevant expertise to jointly direct and mentor the successful ACF. RM was the first ST3 ACF in General Surgery in Mersey (2007), is a past recipient of national fellowships (NIHR, MRC, and Academy of Medical Sciences) and is the first General Surgery MRC/GSK Clinician Scientist Awardee in the region, alongside being an Honorary Consultant Emergency and Major Trauma Surgeon based at the Aintree site. He leads a team focussed on understanding mitochondrial pathobiology, developing therapeutics and predictive tools using artificial intelligence/machine learning and multi-omic approaches, with key industry collaboration (GSK), and has extensive experience mentoring early-stage clinical academic trainees and doctoral research fellows, several of whom have gained prestigious external fellowships (GUTS UK/Royal College of Surgeons of England/MRC). DV is a Consultant Colorectal Surgeon (Countess of Chester Hospital NHS Foundation Trust since 2010) and Reader/Associate Professor at the University of Liverpool with fellowship training

at the Cleveland Clinic (USA) and in trauma surgery in South Africa. He is the national research specialty lead for colorectal surgery at the Royal College of Surgeons of England, a former NIHR national specialty lead for cancer surgery, deputy chair of the scientific committee for Bowel Research UK, and has supervised over a dozen PhD students while publishing more than 125 peer-reviewed papers and book chapters.

Research Areas / Research Environment

The successful ACF will conduct an exciting research project with the aim of laying the key foundation stone to their academic career, applying artificial intelligence to one of the most pressing problems in emergency and trauma surgery. Life-threatening abdominal catastrophes (major trauma, ischaemia, perforation) are a leading cause of death and disability worldwide, yet current prediction tools remain static and are poorly suited to predicting complex biological deterioration in an increasingly ageing surgical cohort. The ACF will utilise extensive healthcare record data from the National Emergency Laparotomy Audit (NELA) and Trauma Audit and Research Network (TARN) databases to develop and validate a clinically deployable AI-supported predictive model for abdominal catastrophe outcomes, whilst establishing a translational platform for future biological endotyping studies. Key objectives will include: (1) developing multimodal AI models integrating admission physiological observations, blood gas parameters, routine laboratory and imaging datasets (including FAST imaging, CT and chest radiography) to predict subsequent organ dysfunction/failure; (2) developing AI-supported prediction tools for failed non-operative management in abdominal catastrophes, with direct relevance to emergency and trauma surgical decision-making; and (3) establishing a prospective Liverpool abdominal emergency and major trauma biobank to enable future translational studies integrating clinical AI prediction with mechanistic inflammatory biology. This will involve the acquisition of significant clinical data science and analytical skills, which the ACF will be taught through support from other technical and research staff within the LPRG and DV's Colorectal Research Group, with overall supervision provided jointly by RM and DV. The project is further strengthened by the supervisors' established clinical (Cheshire & Mersey Major Trauma Network) and industry AI/ML collaborations, including with GSK's Global AI/ML team. Initial work will focus on model development and proof-of-principle to allow the ACF to generate pilot data for subsequent doctoral fellowship award application (MRC/Wellcome/NIHR), that will be expected.

Further details of the project can be discussed with RM (rishim@liverpool.ac.uk) or DV (Dale.Vimalachandran@liverpool.ac.uk), and direct approach is actively encouraged.

Research Facilities

The UoL has a key focus on delivering data-driven, clinically deployable innovation to improve outcomes for patients undergoing emergency and trauma surgery – vital for multiple specialities, and essential for successful acute care. The LPRG and DV's Colorectal Research Group hold specific expertise related to the ACF and have established key collaborations to facilitate maximal benefit, including secure access to national audit datasets (NELA, TARN) and GSK's Global AI/ML platform. The UoL's computational and clinical data science infrastructure, together with established biobanking links across the Cheshire & Mersey Major Trauma Network, will support model development, validation and future translational biobank studies. State-of-the-art access to equipment, computing resources and facilities required for the project will be through the LPRG or DV's Colorectal Research Group, or the highly collaborative UoL shared research facility platform.

Successful candidates will be embedded into the Department of Molecular and Clinical Cancer Medicine and have their own desk and computer, and will be encouraged to attend weekly group meetings in addition to their specific project supervisor meetings with RM and DV.

Clinical Training

You can find out more about the clinical training programmes in the North West via the following link - https://www.nwpgmd.nhs.uk/specialty_schools

Clinical person specifications can be found via the following link - https://medical.hee.nhs.uk/medical-training-recruitment/medical-specialty-training/person-specifications/person-specifications-2026

Useful Links

https://www.oriel.nhs.uk/Web/Vacancies
https://www.nwpgmd.nhs.uk/nihr-academic-clinical-fellowships-glance
https://medical.hee.nhs.uk/medical-training-recruitment/medical-specialty-training/person-specifications/person-specifications-2026
https://www.nwpgmd.nhs.uk/specialty_schools
https://www.liverpool.ac.uk/people/rajarshi-mukherjee-2
https://www.liverpool.ac.uk/people/dale-vimalachandran

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