

## **ACF Multimorbidity at Any Age Programme Details in conjunction with the University of Liverpool**

**Recruitment to posts starting in August 2022**

### **Post availability**

There are two posts in Infectious Diseases (ID):

**ST1 ACF in ID and General Internal Medicine (GIM).** This post has a research theme of “Multimorbidity at Any Age” with a focus on Tuberculosis (TB) multimorbidity in high TB burden settings, and will be primarily supervised by Dr Tom Wingfield, Liverpool School of Tropical Medicine.

**ST1 ACF in ID and Medical Microbiology (MM).** This post will be focused on the application of big data to infectious diseases related to cancer and immunosuppression, and will be primarily supervised by Dr Lance Turtle, University of Liverpool.

You can apply at ST1 level in this round of recruitment.

Please note if you are appointed at ST1 level, you will be placed in an appropriate Core Medical Training track until you reach ST3 level.

Potential applicants are strongly encouraged to contact the respective supervisors prior to application, on:

[Tom.Wingfield@lstmed.ac.uk](mailto:Tom.Wingfield@lstmed.ac.uk)

[lance.turtle@liverpool.ac.uk](mailto:lance.turtle@liverpool.ac.uk)

### **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/nih-academic-clinical-fellowships-glance>

### **ST1 ID/GIM ACF post in TB Multimorbidity at Liverpool School of Tropical Medicine**

#### **Aim**

The aim of this ST1 ID/GIM ACF post in TB Multimorbidity is to train and nurture an enthusiastic and committed candidate to work towards a future successful PhD Fellowship application and, ultimately, a happy, productive, and impactful career as an independent clinical academic.

Tuberculosis (TB) is a leading infectious cause of death in LMICs. In sub-Saharan Africa, people with [TB often have multimorbidity](#) including infections (e.g. [HIV](#), [hepatitis B/C](#)) or non-communicable diseases (e.g. [diabetes](#), [chronic lung disease](#)).

Intersecting multimorbidity contributes to increased adverse TB treatment outcomes and compounds long-term clinical (e.g. post-TB lung disease) and socioeconomic (e.g. catastrophic costs, poverty) sequelae. Aligned with Sustainable Development Goals 1-3, evidence-based, equitable, and [integrated strategies](#) to address TB multimorbidity are [urgently needed in LMICs](#).

## Research Environment

LSTM is internationally-renowned for interdisciplinary [research addressing determinants and consequences of poverty-related infections](#) including through the Centre of Excellence in Infectious Diseases Research ([www.liverpool.ac.uk/ceidr](http://www.liverpool.ac.uk/ceidr)). Our 6-year, UKAID-funded [LIGHT consortium](#) aims to reduce gender-based inequality in TB/HIV care and improve health and socioeconomic outcomes in sub-Saharan Africa. We have strong links with international partners including WHO, the Social Protection Action Research and Knowledge Sharing network ([www.sparks.ki.se](http://www.sparks.ki.se)), and the International Union Against TB and Lung Disease ([www.theunion.org](http://www.theunion.org)).

The successful candidate will likely be based within the Wolfson Building at LSTM with opportunities for training, collaboration, and interaction with peers and other researchers across the Department of Clinical Sciences and International Public Health.

## Supervisory team

The ACF will join an interdisciplinary supervisory team linked to LIGHT and other consortia. Primary supervisor [Dr Tom Wingfield](#) and co-supervisors [Dr Eve Worrall](#), [Dr Peter MacPherson](#), and [Dr Kevin Mortimer](#) have strong track records in:

- [ACF/ACL/MSc/PhD supervision](#)
- [high-impact publications](#)
- policy translation including [WHO](#)

And expertise in:

- [cohort and implementation studies](#)
- [randomised-controlled trials](#)

- [health economics](#)
- [systematic reviews](#)
- [TB/HIV epidemiology](#)

The ACF will generate novel evidence on the determinants and consequences of multimorbidity in TB-affected people. The successful candidate will work with the supervisory team to iteratively shape the approach to the ACF and its research according to their own interests. The research is likely to include a systematic review on TB multimorbidity supported by the [Cochrane Infectious Diseases Group](#) (based in the Department of International Public Health at LSTM), and characterization of the determinants and consequences of multimorbidity in LIGHT (Kenya, Malawi, Nigeria, Uganda) and other TB-affected cohorts.

Findings will directly inform design of a locally-appropriate, complex intervention to improve health and socioeconomic outcomes in TB-affected people for future evaluation during a PhD fellowship. Research training will be bespoke, including systematic review methods, clinical TB, epidemiology, poverty evaluation, and mixed-methods techniques. Project training, methods, and outputs will have application beyond TB.

## **Contacts**

Please contact [tom.wingfield@lstm.ac.uk](mailto:tom.wingfield@lstm.ac.uk) if you wish to discuss this opportunity further. Thank you.

## **ST1 ID/MM post in infections related to cancer and immune suppression at University of Liverpool**

This post is a unique and exciting opportunity to work both across clinical specialties and academic disciplines to tackle an important set of problems in a vulnerable group of patients. The WHO recognises sepsis and cancer as globally leading cause of death, with 11 and 9.6 million deaths respectively annually. Disease and treatment related immunosuppression in cancer patients leads to increased susceptibility to sepsis with increased risks of complications and death. There is a significant gap in our understanding of how many common infections affect cancer patients. Understanding the host and pathogenic factors associated with sepsis in cancer patients and the treatment factors are key unmet clinical needs.

We are seeking to recruit an individual to develop skills in immunocompromised infection medicine, studying infections in patients having treatment for cancer, with the potential to extend this work to other immunosuppressed adult groups as well. You will work with Dr Lance Turtle (infectious diseases) and Prof Carlo Palmieri (medical oncology), who are co-leading the national clinical characterisation protocol (CCP) cancer project, which is examining risks for death in cancer patients

with COVID. This trainee will have the opportunity and ability to access this rich dataset as part of their work although the work will not be constrained to COVID-19 alone. The aspiration is to develop the appointee into an academic who can lead and develop ID research as related to cancer and immunosuppressed patients, the COVID-19 pandemic having demonstrated the importance of such expertise.

The co-location of The Clatterbridge Cancer Centre NHS Foundation, The Royal Liverpool Hospital and the facilities of the University of Liverpool in central Liverpool offer a unique opportunity to integrate translational research in Infectious disease in the area of oncology and immunosuppression, as well as excellent clinical training in infection medicine. This will also enable the trainee to gain the requisite exposure, understanding and knowledge of modern cancer medicine to enable them to develop and apply their research.

### **Academic Training**

This post aims to create a future clinician scientist who is skilled at caring for patients with immunocompromised infections, and who has the necessary clinical epidemiological research skills to address important questions in the management of this patient group, who are often excluded from published guidelines.

Research training will be bespoke and appropriate to the project and may include use of big data, data science, and analytic skills, epidemiology and statistics, machine learning, artificial intelligence, and bioinformatics. The aim of this project is to develop and validate models that can be used to inform and improve the clinical care of cancer patients with serious infections, such as sepsis or COVID-19.

A laboratory component using high throughput sequencing to measure the breadth of the lymphocyte receptor repertoire may also be possible, but would be contingent upon securing further funding. In addition, the applicant would be supported in developing skills in scientific writing, grant writing, project management and managing a research group.

The trainee will receive bespoke and relevant training related to modern cancer medicine.

### **Research Areas / Research Environment**

The University has an internationally respected academic ID and oncology groups with world class infrastructure: Centre of Excellence in Infectious Diseases Research ([www.liverpool.ac.uk/ceidr](http://www.liverpool.ac.uk/ceidr)) and an Experimental Cancer Medicine Centre (<https://www.ecmcnetwork.org.uk/liverpool>) with access to unique resources. A unique ID-Oncology collaborative group has been formed which is

focussed on the study of infection as it relates to patients with cancer. For example, we are at the forefront of global efforts to understand COVID-19 in cancer patients, leading the largest such global initiative.

**The research associated with this fellowship must be focused on infectious disease as applied to cancer and immunosuppression.**

Potential projects in this area include:

(1) Understanding what drives emergency admission to hospital in cancer patients who have received treatment, how much of this is due to infection and how it can be prevented

(2) Analysing the CCP-CANCER UK dataset (>20,000 patients) to understand the interaction between SARS-CoV-2, cancer type and treatment. The non-cancer patients acting as the control cohort (>155,00 patients).

(3) Using 'big data' (local and national) including from the National Cancer Registration and Analysis Service and Intensive Care National Audit & Research Centre to characterise the host, pathogen and treatment factors associated with poor outcomes from infection and assessing their accuracy against previously characterised tools.

(4) Understanding the cause of antimicrobial resistance in patients with solid and haematological malignancies.

The ACF will join an established interdisciplinary programme of research involving infectious disease physicians, oncologists and data scientists. Their project will involve using 'big data' (local and national) including from the National Cancer Registration and Analysis Service and Intensive Care National Audit & Research Centre to characterise the host, pathogen and treatment factors associated with poor outcomes from infection and assessing their accuracy against previously characterised tools. Liverpool has substantial expertise in antimicrobial resistance (AMR), which is a significant problem in this group of patients. In addition, to the CCP-CANCER UK data set which currently included >20,000 cancer patients hospitalised with COVID-19 in the UK.

Dr Turtle will be the primary academic supervisor. If needed, a postdoctoral scientist will be assigned to the post holder for day-to-day laboratory support.

The ACF will develop pilot data to enable an application for a competitive clinical training fellowship. The successful applicants will have the opportunity to gain more detailed information about each of the research areas outlined above, by having discussions with Dr Lance Turtle and Prof Carlo Palmieri. Informal enquires prior to application are also encouraged. Contact [lance.turtle@liverpool.ac.uk](mailto:lance.turtle@liverpool.ac.uk).

## **Research Facilities**

In addition to the facilities outlined above, the University of Liverpool has state of art facilities for sequencing, cell imaging facilities, expertise in artificial intelligence, a good clinical practice laboratory for handling trial samples, and many others.

The projects will have access to and can utilise as required for their project a wide variety of platform science approaches as well as bioinformatics. Trainees will have access to The Centre for Genomic Research (MRC Genomics Hub since 2009) (Univ of Liverpool), which will enable access to single cell analysis, next generation sequencing platforms, expression profiling and 10x Genomics. The Computational Biology Facility (Univ of Liverpool) can provide up to date and innovative bioinformatics support, while The Centre for Proteome Research can support Protein Mass Spectrometry and discovery proteomics (UoL). They will also have access to The Liverpool Clinical Trials Centre (LCTC) which has all the necessary infrastructure to enable the development and delivery of clinical trials and translational studies, as well as providing training related to undertaking translational research studies.

## **Clinical Training across the two infectious diseases ACF Posts**

The Tropical Infectious Diseases Unit and clinical pharmacology units are recognised internationally for the research undertaken in the UK and overseas by NHS staff and academic clinicians, predominantly based in the Pharmacology and therapeutics department of the institute of systems, molecular and integrative biology, the Institute of Infection Veterinary and Ecological Science of the University of Liverpool; and in the Departments of Clinical Sciences and International Public Health of the Liverpool School of Tropical Medicine.

The successful candidate will commence at ST1 level and therefore will undertake placements as per the local Internal Medicine Training programme. The duration of the IMT programme will depend on whether the trainee is an ID/MM or ID/GIM training programme. During this training programme 9 months will be spent on clinical training and you will join peers in joining the education programmes for IMT training. 3 months in each 12 months will be dedicated to your fellowship. During your IMT training you will be expected to obtain MRCP qualification and courses are arranged locally to assist with exam preparation.

It is envisaged that the successful candidates will: undertake attachments in infectious diseases and tropical medicine during this post (ID/GIM post); and undertake attachments in both infectious diseases and oncology/haemato-oncology during this post (ID/MM). Attendance at a local specialised MDT for infections in haemato-oncology patients will be encouraged where possible, and

there will be additional training opportunities in the diagnosis and management of infections in immunocompromised patients later on in 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://specialtytraining.hee.nhs.uk/Recruitment/Person-specifications>.

### **Useful Links**

<https://www.oriel.nhs.uk/Web/Vacancies>

<https://www.nwpgmd.nhs.uk/nih-academic-clinical-fellowships-glance>

<https://specialtytraining.hee.nhs.uk/Recruitment/Person-specifications>

<https://www.nwpgmd.nhs.uk/specialty-schools>

[www.liverpool.ac.uk/ceidr](http://www.liverpool.ac.uk/ceidr)

<https://www.ecmcnetwork.org.uk/liverpool>

<https://isaric4c.net/>

[www.lstmed.ac.uk/liv-tb](http://www.lstmed.ac.uk/liv-tb)

[www.lstmed.ac.uk/about/people/dr-tom-wingfield](http://www.lstmed.ac.uk/about/people/dr-tom-wingfield)

[https://www.lstmed.ac.uk/sites/default/files/content/publications/attachments/LSTM-Prospectus\\_21-22.pdf](https://www.lstmed.ac.uk/sites/default/files/content/publications/attachments/LSTM-Prospectus_21-22.pdf)

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