

Academic Emergency Medicine: A guide
for medical students and trainee doctors

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Introduction

Emergency Medicine is an exciting and fulfilling career choice. From treating a child with asthma to an elderly patient who has fallen down the stairs, each shift in the Emergency Department brings new challenges and tests the knowledge and skills gained during training.

For some, Emergency Medicine also presents an opportunity to sub-specialise in areas such as Paediatric Emergency Medicine or Pre-hospital care. There is also an opportunity to sub-specialise in academic Emergency Medicine. This guide details the academic training pathway and how you can get involved in Emergency Medicine research, whatever stage you are at in your medical training, and how to develop a successful career in academic Emergency Medicine.

Whilst working in the Emergency Department we have all been faced with questions about the way in which we manage clinical conditions: Should I give low dose heparin to the patient with the ankle fracture that is being placed in a cast? Is it ok to give Tranexamic acid to the seriously injured child who is bleeding? Will giving Magnesium to the patient with asthma improve outcome? These questions are just a few examples that have led to Emergency Medicine researchers developing research studies to find the answers.

Academic Emergency medicine is a relatively new specialty, and as such, is a small but very enthusiastic group spread throughout the Country. Whilst there are particular Emergency Medicine research hubs of international renown based in Sheffield, Manchester and Edinburgh, there is certainly an Emergency Medicine clinician close to you who would be keen to talk to you

about a career in academic Emergency Medicine and the opportunities available to you.

Medical Students

Medical School is a great time to 'dip your toes' into research and academic medicine. Many medical degree courses offer the opportunity to undertake 'Special Study Modules' (SSM's) and it may be that some of these are organised by one of the Emergency Department's affiliated to your medical school. These usually involve carrying out a small research project giving you chance to learn new skills such as research methodology, data collection, and perhaps some basic statistical techniques. Once the project is completed, there may be the possibility for you to present your work to local or National conferences or even to have the work published. This would really enhance your application for foundation training posts and would demonstrate your interest in academic medicine from an early stage. If you cannot find any pre-arranged SSM's in Emergency Medicine but would be keen to carry out a project in this area, you could always speak to a local Emergency Medicine consultant or the College's Regional College Academic Lead (RCAL) who will be able to put you in touch with someone who may be able to help. Details of your local RCAL can be found at the end of this guide.

Apart from SSM's, it may be that you undertake an inter-calated degree whilst at medical school. There are many options here from Physiology to Medical Ethics, Bachelors degrees to Masters degrees but most will be mainly taught in nature with a dissertation that will involve some form of original research. These tend to be one year in duration. Again, having an inter-calated degree can be of benefit as it will introduce you to a research environment, help you decide if you would like

to consider a career in academic medicine and help when applying for training schemes, research funding and even consultant posts. For those that are interested in research and very keen to pursue an academic career, some medical schools also offer an MB-PhD programme where you can graduate with a MBBS and a PhD following a 2-3 year period of research.

At this stage, many of these courses or research projects may not be particularly aimed at Emergency Medicine and you may feel that they have no direct relevance. However, whether it is applying for funding, ethics committee approval, or learning how to use statistics software, many of these skills will be transferable to an academic career, whichever branch of medicine that may be in.

Foundation trainees

When in the final year at medical school you will be required to apply for foundation training. This is a National application process and there are around 450 or so 'academic' training places in various specialties, including Emergency Medicine.

The Academic Foundation Programme (AFP) provides an excellent opportunity to test whether an academic career is for you. There is great variety between AFP's, with some focusing on traditional academic pathways such as research and teaching, while others focus on different areas like leadership and management, quality improvement and even health informatics.

The AFP lasts two years and during this training period, dedicated time will be set aside for academic activities. Usually, the academic component takes place in year 2 (F2) and may be arranged in a four month academic placement or day release through they year. This time

will be spent working on a project that will provide the opportunity to learn, develop and demonstrate academic competencies.

Of course, there is a huge variety of potential projects from laboratory based bench studies to hospital based quality improvement projects. All AFP doctors have a dedicated academic supervisor and it is likely that the research project would fit around their research interests. The supervisor will provide support and feedback during your training and will be able to offer general advice about a career in academic medicine. Even if they are not specialists in the clinical field that you are interested in specializing, they will undoubtedly be able to link you with someone who is.

It is important to appreciate that AFP posts are very competitive and successful candidates are likely to have things on their CV that make them stand out such as inter-calated or other degrees, prizes or publications. It should also be stressed that while the AFP programme is an excellent opportunity to experience the world of academic medicine and learn new skills, it is not the only way into a career in academic Emergency Medicine or to secure a research fellowship later on.

Specialty trainees

Once you have completed foundation training, if successful, you will enter specialty training. This period classically lasts between 6-8 years depending on the specialty and there are opportunities to integrate academic training here too. The post-foundation integrated academic training programme in England is co-ordinated by the National Institute for Health Research (NIHR).

Academic Clinical Fellowship (ACF)

These are specialty-training posts where your time is split between specialty clinical work (usually 75%) and research or educational training (usually 25%) over a three-year period. Each programme is different but the academic placement may be divided into three-month blocks each year for three years, an entire nine-month block or even one day a week over the period. Whatever the structure of the programme, by the end of this period you should be well placed to make a successful application to a Research Training Fellowship or an educational programme for funding to undertake a MD or PhD.

There are a wide variety of ACFs on offer in research and medical education. The entry points vary; some are aimed at CT1 trainees, others begin at ST3 or above. It is worthwhile looking at each deanery and at the specific posts that interest you to check the eligibility criteria.

At the start of the ACF period you will work with your supervisor to identify and plan a research project that you can carry out over the course of the Fellowship. You will be given the opportunity to attend training in important areas such as critical appraisal, research methodologies and statistical methods. Some schemes also enable the Fellow to undertake a Masters degree course, for example, in Public Health, Education or Epidemiology.

As it currently stands, Emergency Medicine trainees join the Acute Care Common Stem (ACCS) programme before embarking on Higher Specialty Training. Academic trainees will follow the same clinical programme as ACCS trainees and will need to demonstrate the same competences, whilst at the same time gaining their research competences. If either the academic or clinical competences cannot be

demonstrated at annual appraisal, additional training time will need to be identified. The three years of clinical training within the ACCS programme also has to be completed. The clinical component is demanding and experience has shown that trainees need all this time to gain the knowledge, skills and attitudes required and to be successful in the annual assessments.

Higher degree (MD/PhD)

Many doctors who have completed academic foundation training and/or ACF posts have gone on to study for a higher research degree such as a MD or PhD. Of course, it is not essential to have progressed through this route but it is likely that, by doing so and being exposed to the research environment from an early stage, doctors have gained the additional skills, qualifications and enthusiasm for research that will put them at a distinct advantage when applying for external funding to undertake a higher research degree.

The National Institute of Health Research (NIHR) Doctoral Research Fellowship offers 3 years full-time funding (or 4 or 5 years part-time) to undertake a PhD and is aimed at individuals of outstanding potential early in their research careers. Applicants are expected to propose a research project and, importantly, a customised research training programme. The NIHR anticipate that successful applicants will become independent research leaders within 6 to 10 years of completing the fellowship.

Other opportunities to fund research leading to the award of a MD/PhD can be sought from other National research organisations such as the Wellcome Trust, the Medical Research Council, and a number of other charities. The RCEM also funds a number of PhD students following a competitive application process. These will be advertised on the College website.

Clinical Lectureship (CL)

These are academic posts for doctors in advanced specialty training (ST3 or above), who have already completed a PhD or MD. These posts last up to four years with time divided between clinical and academic work to allow trainees to complete clinical training and to pursue postdoctoral research. Like the ACF phase, there is a competitive application process for CL's. If you are unsuccessful in securing a CL or choose not to continue in academia, you can revert to a specialty training programme, as long as you are meeting the required competences of the clinical programme.

Clinical Lectureship programmes in Emergency Medicine are currently running in Sheffield, Leicester and Manchester and hopefully will be developed in other centres in the future. The Deanery and either NIHR or the local University jointly funds these programmes. CL's have 50% of their time protected for academic training. During this time it is expected that they will develop into independent researchers by succeeding with small grant applications (such as RCEM), developing their publication track record, supervising junior colleagues in research and building collaborations, alongside obtaining a CCT (certificate of Completion of Training) in Emergency Medicine. At the end of their training it is envisaged that these trainees will obtain Clinician Scientist Fellowships or NIHR Senior Lectureships and form the next generation of Academic Emergency Physicians. If the trainee enters a CL programme in ST4 this invariably means an extension of CCT to accommodate all of the training requirements. However, some trainees have entered at ST5 level that has meant a shorter extension of HST but importantly the ability to continue to develop academically after obtaining a higher degree.

Academic EM trainee day

A meeting, organised by the RCEM, is held at least once a year and gives academic trainees an opportunity to meet up and present their research to each other, to discuss any issues with College representatives and to hear about some of the ground-breaking research currently taking place in the Emergency Medicine community.

Conferences

Each year the College holds an annual scientific conference over three days. This is a great opportunity to present your work, to network with colleagues and to hear about new developments in Emergency Medicine research from around the world. The event is usually held each September and details can be found on the College website. Other conferences of note include the European Society of Emergency Medicine (EuSEM) that is also held annually in a European city and the bi-annual International Conference of Emergency Medicine (ICEM).

Journals

The journal of the Royal College of Emergency Medicine is the Emergency Medical Journal (EMJ). Other international EM journals include the Annals of Emergency Medicine. Journals that are not specifically EM but regularly print research of interest include Trauma, Heart, the New England Journal of Medicine and the British Medical Journal.

Journal Clubs

Journal clubs are a great way to get involved in Emergency Medicine research as they allow you to network with those who may be interested in Emergency Medicine research, they will help you develop critical appraisal skills and may even give you ideas about

developing your own research project. Generally, anyone is welcome, so please speak to your ED consultants to find out where and when your local journal club takes place. If there is not a journal club at your hospital, why not suggest starting one?

College regulations pertinent to academic trainees

For those academic trainees who are considering applying for a MD/PhD programme and who will subsequently spend time 'Out Of Programme' (OOP) there are a number of important points that you should be aware of:

- **Counting time spent on clinical duties toward CCT:** If you intend to continue with clinical duties whilst undertaking research (eg. a part-time clinical contract to part fund a fellowship), for the College and GMC to count this time toward a CCT in Emergency Medicine it must be PROSPECTIVELY agreed. Please speak to your Training Programme Director and the Dean of the College to ensure that everything is in order prior to commencing your studies.
- **FRCEM exemption (Critical appraisal paper):** Trainees who have been awarded a postgraduate academic degree (MD or PhD) may apply for exemption from the Critical Appraisal paper. The trainee must submit the certificate of completion of the academic degree at application. Postgraduate degrees other than MD or PhD will NOT be considered. The exemption request form is available on the College website.
- **FRCEM exemption (CTR):** Candidates who have successfully completed a postgraduate higher research degree by examination (e.g. PhD, MD) on

a topic relevant to Emergency Medicine are considered to have already demonstrated the skills required for this part of the examination. The PhD or MD must have required a thesis of at least 5,000 words and a viva voce examination for its award. An MSc or equivalent degree will not be accepted.

Candidates who believe they may be eligible for exemption as a result of gaining these qualifications BEFORE the FRCEM, should complete the CTR request form (available on the College website) at least six months in advance of the closing date of their intended sitting. They should submit relevant information regarding the course work, the thesis word count and regulations, and the details of any viva undertaken. Candidates also need to send a copy of the thesis abstract and a certified copy of the University documentation showing successful completion of the degree with the thesis title.

This will be considered by the Dean for eligibility and the candidate informed 3 months before the closing date of their exemption. Failure to submit evidence 6 months prior to the closing date will result in the candidate having to complete a CTR regardless of the previous qualification. The acceptance of a previous work as exemption is at the discretion of the Dean and his/her decision is final. Candidates who have been given exemption by these qualifications should complete the relevant part of the application form.

Please note that the CTR is currently being phased out of the FRCEM examinations and is being replaced by a Quality Improvement Project. A higher degree does not give FRCEM candidates exemption from this element of the examination. Please check with the College and your Training Programme Director for up to date advice.

The College is extremely supportive of its academic community and recognises the importance of encouraging its trainee doctors to learn and develop the skills required for them to become the researchers of the future.

If you would like further information on a career in academic Emergency Medicine please feel free to contact your Regional College Academic Lead or contact at the College.

Useful links

Academy of Medical Educators

<http://www.medicaleducators.org/>

Academy of Medical Sciences

<http://www.acmedsci.ac.uk>

Association for the Study of Medical Education

<http://www.asme.org.uk/>

British Medical Association

<http://bma.org.uk/developing-your-career>

BMJ Careers article

<http://careers.bmj.com/careers/advice/view-article.html?id=20009022>

Career Planning

<http://www.medicalcareers.nhs.uk>

College of Emergency Medicine

<http://www.collemergencymed.ac.uk>

Faculty of Medical Leadership and Management

<http://www.fmlm.ac.uk>

Institute of Healthcare Management

<https://www.ihm.org.uk/>

Medical Education England

<http://www.mee.nhs.uk/>

Medical Research Council

<http://www.mrc.ac.uk>

Medical Schools Council: Clinical Academic Jobs

[http://www.medschools.ac.uk/AboutUs/Projects/clinicalacademia/Pages/Clinical- Academic-Jobs.aspx](http://www.medschools.ac.uk/AboutUs/Projects/clinicalacademia/Pages/Clinical-Academic-Jobs.aspx)

National Institute for Health Research

<http://www.nihrtcc.nhs.uk/>

Northern Ireland Medical and Dental Training Agency

<http://www.nimdtg.gov.uk>

Scotland Careers and Recruitment

<http://www.nes.scot.nhs.uk>

Trainee Association for the Study of Medical Education

<http://www.asme.org.uk/tasme/>

UK Clinical Research Collaboration

www.ukcrc.org

UK Foundation Programme Office

www.foundationprogramme.nhs.uk

Wales Deanery

<http://www.walesdeanery.org>

Welsh Clinical Academic Training Fellowship

<http://www.walesdeanery.org/index.php/en/wcat.html>

Welcome Trust

www.wellcome.ac.uk