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Guidance on Academic Training in Intensive Care Medicine

The Faculty of
Intensive Care Medicine

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Key Messages and Actions

- Research training is an essential component in creating a high quality specialist workforce for intensive care medicine.
- The national curriculum in intensive care medicine provides the framework for several levels of research training, from a common core to advanced academic scholarship.
- The Faculty will support the development of modular clinical academic training in ICM.
- Academic training must be integrated with clinical training to optimise delivery and ensure clinical relevance of both elements.
- Partnership between the Faculty, Deaneries, Universities, and the NIHR is essential to enable access to high-quality careers advice and support for ICM trainees wishing to pursue careers in clinical academic medicine.
- Trainees with academic potential should be identified early and provided with a support network to enable them to follow a clinical academic career pathway.

Narrative Summary

Item	Proposal	Responsible Body
1	Trainees in Intensive Care Medicine (ICM) require a broad range of research training opportunities, ranging from core research training for all individuals, through a Masters level qualification for individuals who aim to have research as a significant part of their NHS job plan, to a formal research degree (typically a PhD) for individuals who aspire to be clinical academics.	N/A (General information)
2	The FICM should develop a core curriculum for research training in ICM. This will enable Deaneries and institutions to provide programmes of training which ensure that all trainees achieve core competencies in this area.	FICM
3	<p>All ICM trainees must have access to advice regarding careers in Clinical Academic Medicine, either within their own Deanery, or through arrangements made between Deaneries. This advice should include information about career pathways and funding sources for research and for research training. In particular, all trainees need to be made aware of the availability of NIHR funding, since this provides a means for all Consultants in ICM to remain research active.</p> <p>Pathways for formal research training should map closely to clinical training, allowing seamless integration of the two streams of training. This arrangement will not only allow easier entry to research training, but also allow trainees to re-enter the conventional clinical training structure once their academic aspirations are satisfied.</p>	Deaneries and FICM
4	The NIHR in England and Wales recognises several stages of academic training: Academic Foundation Year (AFY), Academic Clinical Fellowship (ACF), Clinical Research Training Fellowship (CRTF), Academic Clinical Lectureship (ACL), and Intermediate Fellowships (IF). While this hierarchy of research training provides a useful framework to plan an academic career, it is important to recognise that these arrangements are not in place in the devolved administrations, where other arrangements for research training may exist. In any case it is essential to embrace a plurality of research training arrangements, providing the quality of such training is good.	N/A (General information)
4	In addition to the stages of research training described below, there is a strong argument for developing a modular distance learning Masters course for critical/emergency care research, which could provide one framework for a Special Skills Module in Research. It is highly desirable that the FICM provides coordination and leadership for such a program through collaboration between Universities.	FICM
5	Centres should seek funding, typically from the NIHR in England and Wales, and from a broader range of sources elsewhere, to establish research training rotations in ICM.	Individual institutions
6	<p>AFY rotations include a four month period of academic attachment, and provide trainees with exposure to both ICM and research. Centres should develop such rotations as a means of attracting the best and brightest trainees to our discipline.</p> <p>ACF rotations can be established either at ST1-3 (incorporating ACCS training) or ST 4-6. These rotations provide 25% of research time, and aim to allow trainees to develop a high quality application for a CRTF.</p> <p>A CRTF grant obtained from a national funding body is a common route to achieving a higher degree, but other options, such as research training in the context as part</p>	N/A (General information)

	<p>of a high quality Randomised Controlled Trial, are equally valid.</p> <p>Individuals who complete a higher research degree may re-enter conventional clinical training, but those with core academic aspirations should have access to Clinical Lecturer appointments, which will allow them to mature as researchers.</p>	
7	<p>Regardless of whether or not individuals are appointed to Clinical Lecturer posts, those who demonstrate the ability and aspiration to continue research training should be given every possible opportunity to continue their clinical training within the institution that supports their research, so as to facilitate completion of ongoing research and acquisition of pilot data for subsequent grant applications.</p>	<p>Deaneries and FICM</p>
8	<p>Subsequent routes to an established post as a clinical academic at Consultant level classically involve obtaining an Intermediate Fellowship/Clinician Scientist grant. However, additional routes for research funding are now available, and it is important that aspiring clinical academics are made aware of these.</p>	<p>N/A (General information)</p>
9	<p>Over the entire training period, one year of research should count in full towards accreditation in ICM. Subsequent periods of research time cannot be counted towards accreditation. However, Deaneries should be flexible about counting clinical time for individuals who spend time in posts that have a mix of research and clinical training. In such instances, requirements for clinical training should take account of the performance of trainees and achievement of key competencies and experience, rather than be solely based on time spent in clinical training.</p> <p>However, where academic trainees need additional clinical training time, this must be provided by Deaneries to ensure that these individuals are fully trained both as academics and specialists in ICM. The purpose of ACL posts is to provide 50% time for research training. Achievement of key competencies and experience may permit completion of research training within the remaining 50% of the post, but where this is not possible, Deaneries have a responsibility to ensure that individuals are fully trained clinically.</p>	<p>Deaneries and FICM</p>
10	<p>Trainees who achieve Dual Accreditation in ICM and a second clinical specialty should recognise that maintenance of clinical skills in two parent clinical specialties, while continuing a credible research career, represents a substantial burden. While this is not impossible, careful thought should be given by trainers and trainees as to whether they feel that a continued career as a clinical academic is compatible with satisfying the needs of re-validation in two clinical specialties.</p>	<p>N/A (General information)</p>
11	<p>The FICM needs to obtain data on academic trainees and consultants in ICM. This could be undertaken as part of the FICM Work Force Survey, using questions developed by the RCP for use in other specialties. The distributed nature of the ICM research activity requires that this survey is sent to a wide constituency. Such a survey could provide a useful basis for discussions with the NIHR Integrated Academic Training program, with the aim of increasing academic training resources for ICM.</p> <p>The FICM needs to publicise and promote meetings at which ICM research trainees can present their research, and interact with other academic clinicians, both within and outside ICM.</p> <p>The FICM needs to undertake discussions with key research stakeholders in ICM to provide the broadest range of research opportunities for our trainees. Such discussions within the ICM research community should be supplemented by interactions with key national funding bodies and research institutions to establish a strategic research plan for ICM research and research training.</p>	<p>FICM</p>

Overview

Research training is an essential component in creating a high quality specialist workforce for intensive care medicine. The Health and Social Care Act (2012) identifies research as a core responsibility of the NHS (<http://www.dh.gov.uk/health/files/2012/06/C8.-Research-270412.pdf>). Academic activity within ICM can contribute to high quality recruitment to the specialty, enrich the professional lives of trained clinicians, and ensure continuous improvement of the care that we deliver.

Academic training in ICM falls into three broad categories. The first of these is core academic training, which needs to be provided for all trainees, regardless of whether or not they elect to undertake a period of research. The second is access to a formal period of training, probably leading to a Masters level qualification, which provides the interface between core academic training and formal research training. Finally, trainees who aspire to a formal clinical academic career will undertake a longer period of research, typically leading to a PhD. Ideally, we need to be able to provide a range of options that cater to trainees with these varying academic aspirations.

Core academic training

Core academic training should provide competencies that equip a prospective ICM consultant with the research skills required to undertake a typical NHS job. At a recent meeting organised by the FICM in London (December 2011), a consensus emerged that such training would include elements of critical appraisal, basic research skills (electronic literature search, basic presentational skills, the basics of biomedical statistics, and an introduction to writing and publishing research articles). Individuals would also need to acquire basic knowledge of research regulation and ethics, and it was agreed that a brief (online or taught) Good Clinical Practice (GCP) course and knowledge of research funding opportunities, particularly from the National Institute for Health Research, was highly desirable. These competencies could be easily delivered in a one to three day course, which was already available from a range of academic providers (e.g. the Cambridge SMART Course: <http://www.medschl.cam.ac.uk/anaesthetics/smart-course/>). The FICM would set the standards for such courses, with individual providers then applying to the Faculty for approval of courses. It is possible that the Intensive Care Society might provide one national source of such courses, and this option is being explored in discussions.

In addition to achieving these core research competencies, it was felt that trainees should have some knowledge of the pathways for formal research training, and the FICM recommends that there should be a pool of academic advisors developed across the country. In many Postgraduate Deaneries, local academic departments could provide such advice and mentorship, but it was not intended that these advisors be region-specific; the aim would be to ensure a good spread in both geography and specialism.

Formal research training

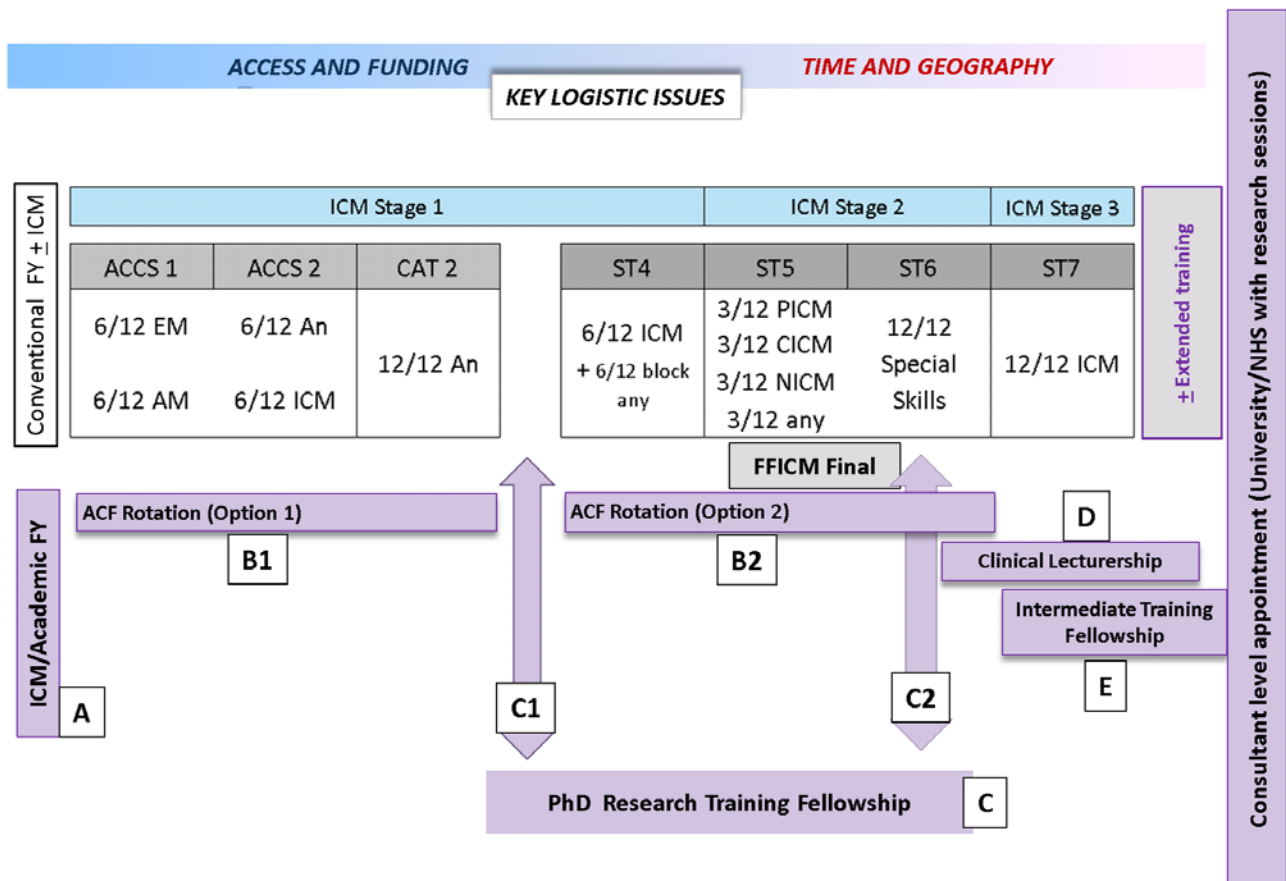
ICM training should map onto conventional clinical training, with several points of exit and entry, for several reasons:

- This will allow entry of late entrants to the Academic ICM (AcICM) stream, some of whom will initially have been in training schemes in other disciplines. Classically, this will be traditional feeder specialties for Dual Accreditation training (e.g. anaesthesia, respiratory medicine).
- However, we also see great opportunities for the specialty in attracting the highest quality clinical academic trainees with an initial career pathway in other specialties, such as immunology and infectious diseases, who decide that the clinical context for their research is best placed in ICM.
- Finally, concordant training routes will also allow individuals who enter the academic training scheme in the first instance, to seamlessly move back to conventional clinical training route if they revise their career intentions, or fail to secure the personal research funding needed to develop as clinical academics.

The academic training in the attached diagram is therefore modular, and covers all stages of training from Foundation Year trainees to Clinician Scientists, whose final training years may pass seamlessly into a consultant level post. While not specified in the diagram, it needs to be recognised that the intent to become a clinical academic, an intensivist, or both, may be initially awakened during medical student training.

The modules of post qualification training for AcICM are labelled [A] to [E] in the accompanying diagram, and are described in more detail below. The depiction of training opportunities and requirements are described in the context of an illustrative diagram that reflects standalone ICM from an ACCS background. This does not cover all possible options in ACCS training, and needs modification to make it generalisable to training needs of individuals who seek Dual Accreditation. However, it provides a useful illustration of the principles involved.

Fig 1: Academic ICM Training Pathways



A large proportion of this document addresses the training narrative of individuals who aspire to obtain a PhD or MD degree. However we believe that there is substantial merit in organising broad-based Masters level programs in research, leading to an MSc, MPhil or MPH, that will either provide training in research methods or exposure to a period of research. This type of training is particularly relevant to individuals aspiring to lead or participate in NHS-based health services research or clinical trials.

Such a program may be modular, and could involve a substantial proportion of distance learning. We see this as a desirable achievement in its own right, perhaps forming the basis of a Special Skills Module in Research. However, this could also serve to prepare trainees for a period of research training leading to a PhD. This qualification could be undertaken either within the framework of an ACF post, or alongside clinical training (ideally between ST1 and ST 5 years).

Demands on Deaneries and training schemes at different stages of development as a clinical academic

As a broad generalisation, the logistic issues for trainers and Deaneries during the early and late part of AcICM training are different.

- **Early stages**

It is very important that trainees are exposed to the widest range of academic training opportunities as early as possible, and where they make initial progress in this pathway, have the ability to find funding for a PhD as part of a research training fellowship. These requirements demand that local ICM training schemes promote and publicise research training opportunities that are available in their region. This will certainly involve identifying research active clinicians in ICM who would be appropriate supervisors and mentors for young academic trainees. However, it may be just as important to identify research opportunities in non-ICM research groups, which may provide individuals and the specialty with new research skills. In addition, aspiring clinical academics should be able to seek information about opportunities for initial research training and pilot data collection (e.g. at Academic Clinical Fellow [ACF] level), and advice regarding funding opportunities to obtain a Clinical Research Training Fellowship (CRTF). It is **highly** desirable that there is an individual within each regional ICM training scheme who takes responsibility for these issues. In most cases, this will be a clinical academic in a relevant university department (ICM, anaesthesia, respiratory medicine, etc.). However, where a region does not have a University academic department with a significant ICM-related research theme, it is important that Regional Training Advisors in ICM make appropriate arrangements for this resource to be available locally. Some options include research active NHS ICM clinicians in the region, an allied academic department that can provide logistic advice, and/or academic ICM resources in a neighbouring Deanery.

- **Later stages**

At later stages of academic training, slightly different problems need to be addressed by Deaneries and regional training schemes in ICM. Funding and access to collaborators continue to be issues, but post-doctoral clinical trainees will now be at a more mature state of their academic development, and this will primarily be a problem for the individual researcher, and their supervisors/mentors. At this stage, the main focus of Deaneries and training schemes should be to ensure that the remainder of the individual's clinical training is delivered in a way that facilitates their ongoing professional development as researchers, while ensuring that they complete high quality clinical ICM training without needlessly prolonging their training time. It is **highly** desirable that postdoctoral clinicians who wish to continue to train as clinical academics are allowed the benefit of favourable geography, and allowed to stay in their teaching hospital environment, where they can develop both research and funding plans in combination with local collaborators.

- **Time allocated to academic training and contribution to CCT**

Regardless of the stage of training, it is *essential* that these individuals, who often high performing clinical trainees, are not burdened by a strictly time-based assessment of their training at this stage- where clinical training competencies are met, their training time should not be discounted because of an ongoing commitment to research, an arrangement originally fully accepted by PMETB and now endorsed by the General Medical Council (www.gmc-uk.org/Doctors_in_Academic_Training_posts.pdf_30562046.pdf) with placement on their website . One additional issue for individuals at these later stages of academic progression is whether career clinical academics should continue to choose to pursue clinical accreditation in dual specialties (e.g. anaesthesia + ICM, Respiratory Medicine + ICM), or sometimes triple specialties (e.g. respiratory medicine + general medicine + ICM). Clearly, in any of these instances, the individual will need to also maintain research credibility as a clinical academic. Given this context, individuals (and their trainers and research supervisors/mentors) need to think carefully about the burden of achieving *and maintaining* professional excellence in multiple fields.

[A] Foundation Year (FY) Rotations

Several regions have FY programs which include a module of ICM, research or both. While these are not essential pre-requisites to an AcICM career, individuals need to be aware of these posts, so that the brightest academic minds can be exposed to the opportunity of training in ICM. The key academic competencies that need to be fulfilled during this part of the training include basic research skills and knowledge, as prescribed in the recommendations for ICM training in general. In addition, it is **highly** desirable that individuals have some direct experience of research, with the opportunity to produce a research presentation at a national or international meeting, and publication of a peer reviewed manuscript. We recognise that this may not be possible in all instances, and that the models of academic mentorship and training will vary from region to region. However, wider exposure to the research field should be one of the aims of this program.

[B] Academic Clinical Fellowships (ACF)

ACFs are classically funded by the NIHR in departments where there is a substantial research environment. NIHR Academic Clinical Fellowships are specialty training posts that incorporate academic training. NIHR Academic Clinical Fellows (ACFs) spend 75% of their time undertaking specialist clinical training and 25% undertaking research or educationalist training. ACFs are aimed at those who, at the early stages of their specialty training, show outstanding potential for a career in academic medicine or dentistry. The duration of an ACF is for a maximum of 3 years. During this time, alongside clinical training, ACFs will be able to develop their academic skills and be supported in preparing an application for a Research Training Fellowship (to undertake a higher research degree) or an application for a place on an educational programme (leading to a higher degree). Success in these applications is defined as the end point of an ACF. In addition, many schemes encourage (or ensure that individuals in ACF posts achieve a Masters level qualification during the course of their 3 year appointment. This varies in content. In some centres this is essentially a taught MSc in research methodology, which may not contribute to time spent in obtaining a PhD, but provides an excellent foundation for a future academic career. In other centres, this is integrated to produce an MPhil thesis, which serves as a research qualification in its own right, while also being seen as the first year of a three year PhD program. Other schemes provide a combination of these two variations. Any of these is a desirable option, since it produces a structure onto which the ACF years can map.

ACF posts vary in the stage of training at which they recruit candidates. In the context of ICM, two recruitment points seem appropriate. The first of these is at ST1 (Module B1 in the flow chart), where the 3 years of ACF can map onto an ACCS or CCT program. The second is at ST4/5 (Module B2 in the flow chart). In each instance, we would **strongly** recommend that the appropriate professional qualifications (e.g. MRCP, FRCA and/or FFICM) are achieved within these posts before moving onto a PhD training fellowship. This will ensure that trainees would have the best chance of making smooth progress through professional as well as academic training.

In addition to formal NIHR funded posts, several regions or research active clinicians provide a period of academic time in the course of clinical training aimed at obtaining research training and pilot data for a Clinical RTF application. Often these consist of a single year of full time (or nearly full time) research. It is entirely legitimate to recruit trainees to such posts, providing they have a good track record of delivering success in CRTF applications. However, by their very nature, these posts are less well characterised, and Deaneries and Training Committees should ensure that they provide good value in terms of academic training.

Research undertaken in ACF and similar non-NIHR posts is generally supported by project and program grants in the host department, although some centres have specific funding streams to support such research and the collection of pilot data. However, there are also opportunities to apply for small pump priming grants (such as those provided by the Intensive Care Society and the Royal College of Anaesthetists). Submission of such grant applications, with the ACF named as applicant/co-applicant, and involved in the preparation of the application,

should be encouraged, as it provides important experience and can serve as a dress rehearsal for the eventual CRTF application process.

The devolved nations have slightly different models. For example, in Scotland there are no centrally funded NIHR ACF positions in any specialties. Some regions or centres have excellent run through training schemes that include a pre-doctoral training period, a funded period of PhD studies, and a post-doctoral lectureship (for example ECAT: <http://www.ecat.ed.ac.uk/>). The way in which these local schemes mesh with appointment to national single or dual training schemes in ICM is as yet unclear, especially since the timetables for application for the two are very similar. As these schemes are highly competitive, and often open to trainees from any specialty, careful career planning with regional advisors and the FICM, and potentially some flexibility, are needed to ensure prospective ICM trainees are not disadvantaged. The lack of central funding for ACF positions out with England means individual deaneries and Universities rely on intermittent or short-term funding, or local funding models, to provide pre-doctoral research training.

[C] Clinical Research Training Fellowships

The next step is the completion of a higher degree. In the context of training as a clinical academic, this should ideally be a PhD. This requires three years of research training, though an initial year may be completed in some centres as part of an MPhil which is undertaken as part of ACF training. Conversely, there is an increasing trend in some centres to move to four year PhD programs, with an initial year of basic research training. Regardless of the length of the PhD, the key limitation in getting through this stage of research training depends on securing adequate salary funding. While some centres can provide salary funding for the entire period of research, it is **highly** desirable that academic trainees compete for (and obtain) a CRTF, since this encourages a discipline of thought, and experience of the funding process allows trainees to act more confidently and competently as supervisors when they become principal investigators in their own right. Many CRTFs are funded as part of larger project, trial or programme grants, and may be tied to a specific subject area or clinical trial. The disadvantage of restricting the research area is offset by the advantages of joining a well-managed and supported project, usually in an established centre. It is essential that all regional training schemes and Deaneries have academic trainers who can advise trainees about the sources of such funding. One challenge for academic trainees may be the need to move to another centre to obtain funding for a CRTF, especially when competing for advertised positions. Whilst this encourages appointment of the most competitive trainees, who are likely to be most successful during their CRTF, it may mean subsequent planning of the best geographical location for continuing training becomes an issue.

It is important to make sure that trainees have the widest choice of PhD research projects available. Indeed, a PhD project may provide access to research in labs that are not conventionally part of the ICM academic community in a given region, and expand the research capacity in the specialty through such collaboration. Regardless of the project, it is critical that trainees clearly understand the importance of completing their research and writing up their PhD thesis (and at least some of the related publications) during the course of their CRTF. Attempts to acquire additional data after return to clinical training are rarely successful, and even completion of a thesis after individuals have returned to their clinical training schemes places substantial burdens on trainees, and compromises both academic progress and clinical training.

Depending on where the ACF years map onto the training scheme, clinical academic trainees will return to clinical research at the start of their intermediate or advanced training (options C1 and C2 in the flow chart, respectively). There are advantages and disadvantages to both entry/exit points. The earlier option (C1) strengthens academic trainees' *curriculum vitae* and allows them the option of accessing the best training schemes. This earlier option is also likely to occur about the same time as applications for single or dual CCT. A potential disadvantage for trainees could be the need for an application for single and/or dual CCT, *plus* application for a CRTF position or fellowship within a short time frame. If the centre in which the CRTF is planned is different from the placement for clinical training, this might also be unworkable both at personal and professional level for the trainee. Coordination of these applications in terms of timing and geographical

location will be needed to avoid perceived barriers making academic training unattractive. The ideal solution for trainees seeking to undertake academic training and a CRTF early during specialist training is likely to be co-location of the CRTF and subsequent clinical training (whether for single or dual CCT).

The latter option (C2) allows the acquisition of more stable clinical skills, which may better withstand a period of time away from clinical training, and will clearly facilitate a clinically based PhD project by increasing clinical expertise and confidence. Further, a return to clinical training with ~2 years of training time remaining better lends itself to the completion of clinical training over the course of a Clinical Lectureship, while maintaining contact with research activity, and allows progression to CCST within the timeframe of an Intermediate Fellowship/Clinician Scientist grant. The specification of entry to a PhD program after the FFICM exam is not an absolute procedural requirement, but a **very** strong recommendation, since it allows trainees to cross a significant hurdle in their clinical training pathway before starting on their research training.

With either option, the transition back to clinical training from research needs careful planning. Many CRTF schemes allow a nominal clinical commitment during the course of the PhD to maintain clinical skills. This is often undertaken as a regular weekly commitment (e.g. on the on call rota). However, an alternative may be to integrate such clinical time within a CRTF and provide an eight to twelve week of clinical refresher at the end of the CRTF, during which the individual assumes increasing clinical responsibilities. Such return to clinical work schemes are particularly important for individuals whose PhD studies are exclusively lab based, and do not involve interactions with patients.

Many prestigious CRTF schemes are tied to specific centres, where generic funding has been obtained to offer PhD training fellowships from funders such as MRC or Wellcome. ICM trainees successful in applying for these schemes will need to move to the geographical location of the fellowship in most cases. This may be challenging when clinical training has already been allocated to a different region. Flexibility to offer a move in training location, especially post-fellowship, will be important to ensure continued academic momentum and support. We would **strongly** urge that in such instances, Postgraduate Deaneries provide support in allowing transfer of training numbers between centres, so that (where this is thought to be desirable) research and clinical training can be co-located within a single centre.

The desired outputs of a CRTF are for the academic trainee to learn appropriate research skills, complete their PhD, achieve publication of high quality papers, understand the broader context of their research area (both nationally and internationally), and to develop ideas and plans for post-doctoral research. The ideal next step after successful completion of a CRTF post is to obtain a Clinical Lecturer post.

[D] Academic Clinical Lectureships/Clinical Lectureships (ACL/CL)

The most desirable option is for post-doctoral trainees to enter a Clinical Lecturer (CL) post (usually based in a University Department), which typically provides 50% of protected research time. In some universities, these posts have been referred to in the past as Lecturer posts, and the NIHR has now begun to fund these posts in ICM (e.g. Cambridge). The protected research time allows continued contact with research and key collaborators, maturation and exploration of research ideas identified as part of the PhD, collection of pilot data for subsequent grant applications, and preparation and submission of an Intermediate Fellowship or Clinician Scientist grant, which represent the next staging posts in academic training.

CLs are aimed at those who are advanced in their specialty training, have completed a research doctorate, or equivalent, and show outstanding potential for continuing a career in academic medicine or dentistry. The duration of a CL is for a maximum of 4 years and it is expected that CLs will complete their specialty training during this period. Alongside clinical training, CLs will be able to further develop their academic skills and will be encouraged to apply for funding to support further postdoctoral or educationalist training. As with ACFs, CLs should be strongly encouraged to apply for smaller grants in addition to (or as a prelude to) an

Intermediate Fellowship or Clinician Scientist grant. Indeed, some funding bodies (e.g. the Wellcome Trust and Academy of Medical Sciences) have specific “starter” grants schemes that only CLs can apply for.

Academic trainees completing a PhD and re-entering clinical training may wish to apply for or undertake a clinical lectureship in the centre in which their PhD was based, to ensure ongoing mentorship and support. Where a trainee has moved geographically for their CRTF, there may need to be flexibility in moving their ICM and/or other dual training number to support their career. This may present challenges at regional level for training schemes, and is likely to require careful planning between regional trainers and the FICM. In practice, it is likely that the decision to move NTN to the centre in which the CRTF is based will need to occur prior to the completion of PhD, and planning for this started approximately 2 years into a PhD.

As with ACF posts, there are no formally funded ACL posts in Scotland. However, many Scottish Universities have the ability to award Clinical Lectureships, but (at least in some Universities) these may be linked to individuals, rather than represent established senior academic training posts. Clinical training schemes will need to have sufficient flexibility to ensure that academic trainees are not disadvantaged or discouraged from taking up CL posts, and that Universities have the capacity to support the brightest academic trainees

It is **highly** desirable that postdoctoral clinicians who wish to continue to train as clinical academics are allowed the benefit of favourable geography, and allowed to stay in their teaching hospital environment, where they can develop both research and funding plans in combination with local collaborators.

Trainees who complete their PhD, but do not obtain a CL post, can return to their training schemes for completion of their clinical training. However, this means that they have a substantial period of time when they have very limited interaction with their research and collaborators. Further, the constraints of conventional training schemes provide no protected time to collect pilot data for and prepare an Intermediate Fellowship/Clinician Scientist application. However, in some instances, this may be the only option available. In such cases, local Deaneries and training schemes should facilitate, as best as possible (through study and professional leave allocation), continued contact with research and try to provide time for grant preparation, so as to make it easier to pick up the threads of research activity at an appropriate time.

[E] Intermediate Fellowship/Clinician Scientist Grants

These posts are funded by the MRC and NIHR as Clinician Scientist fellowships and by other bodies (such as the Wellcome Trust and British Heart Foundation) as Intermediate Fellowships. Regardless of the difference in terminology, these provide up to 5 years of salary support and research costs, and are aimed at individuals who are aiming to achieve CCT during the course of the grant (or with some schemes, have just achieved CCT). Typically, these grants require that $\geq 50\%$ of the individual’s time be spent in research activity. Some funding bodies also stipulate that of the 50% remaining time allocated to clinical commitment, at least half (i.e. 25% of the entire job plan) should be in an area that is directly related to the individual’s research interest. Additionally, some of the schemes may require that one or more years of salary support are provided by the Deanery, and/or that the host organisation (University or Trust) makes a commitment to provide a tenured consultant-level position for the Fellow (as a University Lecturer or an NHS appointee with substantial research commitment) at the completion of the grant.

These grants represent the next step for successful academic trainees, and provide the vehicle by which post doctoral researchers can develop and mature into independent Principal Investigators. Classically, the aim has been to prepare these individuals to be strong candidates for consultant level Lecturer/Senior Lecturer posts (the terminology varies between universities). However, with the expansion of NIHR funding, several NHS posts with significant research commitment have been developed, and it would be appropriate to see this as an alternative goal for this stage of academic training.

Research training, Clinical training and Certificate of Completion of Training (CCT)

We propose that one year of research time should be fully counted towards CCT, since research training is an essential part of a balanced training program in ICM, and this year should have the same status as a Special Skills Module (SSM) for trainees who seek accreditation in ICM alone. Trainees seeking Dual Certification may find it difficult to fit clinical training in two specialties as well as a year of research time into a standard training scheme. However, this is an individual decision, and local trainers should decide on this, based both on the performance of the trainee and the overall package of their training, whether such time should count towards time for CCT.

The purpose ACF or ACL posts is to ensure that individuals have protected research time, and trainees who are appointed to these posts **must** have their research time protected so that an ACF gets 25% of time for research and an ACL 50% time for research, averaged over the duration of the post. Indeed, where these posts are funded by the NIHR, this is the absolute minimum that will be accepted. It is important to recognise that this may result in some increase in overall training time to ensure that clinical training competencies are achieved.

However, where the trainer and trainee agree that clinical competencies are being achieved, and clinical training is not suffering, there should be flexibility about how much training needs to be prolonged, and in many instances, a 50% research post may not result in a doubling of the clinical training time in the post. Thus, for example, in a four year CL post, a trainee will undertake the equivalent of 2 years of research training and 2 years of clinical training. If the time based requirement for clinical training was applied inflexibly, if such an individual came into the post with 2.5 years of clinical training remaining, and if clinical training needs were judged inflexibly just on the basis of time spent, he/she would need to undertake a further 6 month period of clinical training at the end of the 4 years.

However, it is reasonable to view the individual's training as an integrated whole, and where a high quality trainee achieves all the required competencies and experience, it should be possible to award CST at the end of the 4 year period, if the local trainers and the trainee are in agreement. It is **essential** that these individuals, who often tend to be high performing clinical trainees, are not burdened by a strictly time-based assessment of their training at this stage. Where clinical training competencies are met their training time should not be discounted because of an ongoing commitment to research. The recognition that this does not represent "double counting" training time has been accepted by PMETB/GMC.

Clearly there will be some trainees (and not just academic ones) where competencies are not met satisfactorily, and training time may need to be extended further, rather than rigidly calculated *pro rata*, based on time spent in training. Again, this is a decision for local trainers. Where the allocation of time for clinical training in an ACL post does not satisfy the clinical training needs of an individual academic trainee, it is **essential** that Deaneries make provision for additional clinical training, either through extension of ACL appointments or through re-entry to the conventional clinical training scheme for a period.

Manpower considerations and expansion of academic training posts in ICM

We currently have very little knowledge about the numbers of academic trainees in ICM, or indeed of senior clinical academics who have a commitment to ICM at consultant and trainees. The FICM should incorporate questions regarding these issues into the FICM Manpower Work Stream lead by Dr Alasdair Short. This could make use of a survey module/questions developed by the Royal College of Physicians for prior use. Discussions are already underway to put these arrangements in place, and these could be reviewed at the workforce meeting in November 2012. Given the broad multidisciplinary base for ICM, and the even more distributed research activity in the specialty (which may include individuals undertaking research in non-ICM clinical specialties and basic science groups), it will not be easy to capture all of the individuals and activity that are relevant. In the first instance, it would be reasonable to circulate the ICM Academic Work Force questionnaire to the following stakeholders: Postgraduate Deans; RAs in ICM, Anaesthesia, Respiratory Medicine; ICM Tutors;

Heads of Academic Departments of ICM, Anaesthesia, Respiratory Medicine, and Medicine; and the Professors and Readers group.

Currently ICM is not recognised as an academically endangered specialty, or even as a separate speciality by the NIHR. The estimates of academic training numbers that the above initiative provides will represent an excellent basis to lobby the NIHR Integrated Academic Training Programme to designate ICM as a separate (possibly academically vulnerable) specialty, and look favourably at measures that help to increase academic training numbers in ICM. Once the results from the academic manpower survey are available, the FICM board (through Professors Evans, Bion and Menon) should seek a meeting with the NIHR IAT Dean, Professor Jim Neilsen, to make the case for more support for academic training in ICM.

The ICM Academic Community

It is essential that academic trainees in ICM are made aware of and provided with forums to meet, present their research and interact with other clinical researchers both within and outside ICM. In the first instance, the joint Academy of Medical Sciences/Royal College of Physicians sponsored Clinician Scientists in Training meeting, held every February; the ICS Gold Medal Competition; and the National Institute of Academic Anaesthesia should be publicised to ICM trainees.

Research Resource Infrastructure and Strategy for ICM

ICM in the UK has a broad research base, which includes the FICM, ICS, ICNARC, NIHR Critical Care Specialty Group, the Intensive Care Foundation, and the Critical Care Forum. However, these research efforts are poorly integrated, both in general, and more specifically (in the current context) in their ability to provide research training opportunities for ICM trainees. The FICM is already in discussion with key partners to address these issues. Critically, the development of widely advertised and recognised research training opportunities may not only provide an important training resource, but also nurture partnerships that bridge institutions and organisations, and promote integrated research effort across the UK ICM research community.

This exercise could be further enhanced by linkages with organisations outside ICM; for example, with NIHR Biomedical Research Centres (NIHR BRC) and Biomedical Research Units (NIHR BRU), and with national research resources such as the Francis Crick Institute (<http://www.crick.ac.uk>) and the MRC/NIHR Phenome Centre (http://www1.imperial.ac.uk/surgeryandcancer/divisionofsurgery/biomol_med/npc). The medium term strategy for research in ICM could also be addressed through an FICM sponsored Horizon Scanning exercise which included the NIHR, MRC, and Wellcome Trust, which outlined research opportunities, resources and training needs in ICM.

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Dr Simon Baudouin
Prof Tim Walsh
Prof Tim Evans
Prof Julian Bion