

Clinical academic medicine: the way forward

Charles Pusey and Rajesh Thakker

Introduction

The UK has an excellent record of producing physician scientists who have become international leaders and achieved major breakthroughs in both the clinical and scientific arenas. Indeed, it is the very combination of training in both the clinical and scientific disciplines that has been the core strength of academic medicine in the UK, and which has enabled UK universities to maintain their leading positions internationally. This is well exemplified in many areas, for example in molecular medicine, cancer biology, infectious diseases, vaccine development, inflammatory diseases, clinical trials and epidemiology. The quality of research by UK academic medicine comes second only to that of the USA, despite the great difference in resources, and it has attained this position by addressing challenges with enthusiasm and by being innovative in providing solutions. Such challenges emanate in part from the research field where, for example, the translation of advances from the genome projects to the clinical setting could provide immense benefit to patients. However, they also stem from the limited funding for research, teaching and healthcare and, for clinical academics, from the time pressures of competing demands from research, teaching and clinical practice. The way in which these issues are addressed is clearly important for present and future clinical academics in all specialties.

Box 1. Medical Royal Colleges represented on the Forum on Academic Medicine.

Royal College of Physicians of London
 Royal College of Physicians of Edinburgh
 Royal College of Physicians and Surgeons of Glasgow
 Royal College of Surgeons of England
 Royal College of Surgeons of Edinburgh
 Royal College of Obstetricians and Gynaecologists
 Royal College of General Practitioners
 Royal College of Paediatrics and Child Health
 Royal College of Pathologists
 Royal College of Radiologists
 Royal College of Anaesthetists
 Royal College of Psychiatrists
 Royal College of Ophthalmologists
 Royal College of Physicians of Ireland

The challenges facing academic medicine are now widely recognised and feature prominently in the Chief Medical Officer's Annual Report 2003.¹ However, there has not previously been a coordinated view on clinical academic careers from all of the Medical Royal Colleges. For this reason, at the suggestion of the Academic Medicine Committee of the Royal College of Physicians of London, a Forum on Academic Medicine was established in 2003 under the auspices of the Academy of Medical Royal Colleges. The aim of the Forum was to allow cross-discipline discussion of the issues facing academic medicine in the UK and to propose solutions – both general and specific to each of the clinical specialties. A particular task of the Forum was to define academic career pathways for members of each of the Colleges wishing to pursue a career in research and teaching. The work of the Forum has recently been published as a report, *Clinical academic medicine: the way forward*,² which makes key recommendations on the general issues facing UK academic medicine and provides specific advice about training pathways for academic trainees from all 14 Medical Royal Colleges (see Box 1).

Extent of the problem

The Forum established that there is grave concern about the state of academic medicine in the UK from all the Royal Colleges. There are widespread difficulties in recruitment and retention of clinical academics. The last but one report of the Council of Heads of Medical Schools (CHMS)³ showed that over 10% of clinical academic posts remained unfilled. The most recent survey⁴ shows that there has been a 23% reduction in junior academic staff (lecturers plus clinical researchers) over the last three years, at a time when medical student numbers are projected to rise

Charles Pusey

FRCR, Chair, Forum on Academic Medicine; Academic Registrar, Royal College of Physicians

Rajesh Thakker

FRCR, Secretary, Forum on Academic Medicine; May Professor of Medicine, University of Oxford

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by 40% up to 2005. Many senior academic posts remain vacant. Funding for academic posts (excluding clinical researchers) from all sources was reduced in 2003 compared with 2000, eg 13% reduction from the Higher Education Funding Council for England (HEFCE), 6% reduction from the NHS, and 33% reduction from 'other sources'.⁴ The large decrease in funding from other sources is concentrated in certain specialties, which have lost more than 50% of their full-time equivalent posts.

The lack of clinical academics is a threat to patient care. This arises from the shortfall not only in teaching the doctors of the future, but also in experimental medicine and translational research. Furthermore, clinical academics are often leaders of the profession and failure to recruit individuals of the highest calibre will lead to lower quality medicine and poor leadership in the NHS. The cause of the problem is complex⁵⁻⁷ and clearly involves the longer training required, the lower income expected, and the difficulty in meeting the demands of both the universities and the NHS. It is recognised that the extent of the problem varies between different specialties and is felt more strongly in craft specialties such as surgery, and some specialties in medicine, eg cardiology and gastroenterology.

Key recommendations of the report

In Part 1 of the report from the Forum, the Medical Royal Colleges jointly propose a number of general recommendations as to the way forward in academic medicine. These recommendations apply across all specialties, and their implementation clearly needs to be accompanied by an appropriate level of funding. In this respect, we were pleased to note the increased funding via the NHS R&D budget and the research councils detailed in the CMO's Annual Report 2003.¹ The Forum recognises the excellent work already done in this area by the Academy of Medical Sciences, and particularly welcomes the development of the Academic Careers Subcommittee of Modernising Medical Careers (MMC) and the UK Clinical Research Collaboration (UKCRC). Key areas addressed by Part 1 of the report are summarised below.

- 1 The key aim is to recruit and retain more clinical academic staff, by making the academic career path a more attractive and achievable option.
- 2 Flexibility is essential in academic training pathways, and competency-based methods of assessment are strongly supported to facilitate shorter training pathways while ensuring that the clinical competence of academic trainees is equivalent to that of their non-academic counterparts.
- 3 The difficulty in maintaining skills during research training in what are known as the 'craft specialties' needs to be taken into account in planning academic training pathways.
- 4 Joint annual appraisal and performance review by universities and NHS Trusts, for all clinical academics, is supported and should be fully implemented.
- 5 Mentoring academic trainees, as already established for Clinician Scientists by the Academy of Medical Sciences, should be widely implemented by universities.
- 6 An increase in the number of academic trainees in the Clinician Scientist Scheme and an expansion in the National Training Number (Academic) (NTN(A)) scheme are strongly supported.
- 7 Despite its benefits, the Research Assessment Exercise (RAE) is perceived as having had an adverse effect on the number of clinical lecturers and also on the extent of clinical research; every attempt should be made to address this before the next RAE.
- 8 The importance of teaching activities must be given a higher profile than is currently the case in medical schools and in NHS hospitals in the UK.
- 9 Clinical lectureships should be increased as they provide an important means of training clinical academics (see Appendix).
- 10 The establishment of the Academic Careers Subcommittee of MMC and UKCRC, which will ensure the implementation of a coherent strategy for the development of academic medicine in the UK, is welcomed.

Training to be an academic physician

In Part 2 of the report, clinical academic career pathways are described by each of the Medical Royal Colleges. Although all of the Colleges agreed on the principles involved, the training requirements clearly differ in detail, so it was felt that separate contributions were appropriate. Here we summarise the recommendations from the Royal Colleges of Physicians.

Background and aims

There is a continued need for academic physicians to maintain the leading position of the UK in biomedical research for the benefit of patients and to enhance translational research in the post-genome era. Furthermore, academic physicians will be required to train the increased numbers of medical students planned for the future, and the junior doctors thus produced. The aim of this section of the report is to address these demands by providing advice and making recommendations with respect to clinical career pathways for academic physicians. Specific aims are to:

- provide training schemes for academic physicians who plan to pursue careers in research and teaching
- produce academic physicians who will improve patient care through clinical research (including evidence-based studies)
- facilitate translation of the advances in basic research to improve patient care and public health.

The effect of the Department of Health report, *Modernising medical careers* (MMC),⁸ will be to introduce two Foundation years common to all specialties, followed by Basic Specialist Training and then Higher Specialist Training. The second Foundation year may include three to four months in research, although a longer period would be preferable to enable trainees to gain experience in a research-orientated discipline before entering a period of study towards an MD or a PhD. Before or

during Higher Specialist Training, academic trainees will need to take time out for research, which should involve up to three years for an MD or a PhD, preferably followed by a second period of post-doctoral research or further training in education.^{9,10} There must be flexibility, within defined guidelines, in academic training. Postgraduate deans should permit up to three years out of the clinical training programme for the first period of research, and a proportion of this time should count towards clinical training. For those individuals committed to an academic career, there should be the opportunity for a second (post-doctoral) period of research, or higher training in education, often undertaken concurrently with completion of clinical training.

Objectives

The objectives are to:

- establish flexible career pathways for those pursuing a career in academic medicine, whether in research or teaching
- ensure that flexibility in training is achieved by formulating *ad personam* programmes
- ensure that whatever route is chosen by academic trainees, their clinical training is equivalent to that of their non-academic colleagues within their specialty
- develop new competency-based assessment processes that will benefit 'high-flyers' and enable them to progress at an appropriate pace through their clinical training programme

- ensure that the current practice of allowing time for research training, or training in education, during the clinical training programme is continued.

Recommended entry requirements

Individuals who wish to enter a clinical career pathway for academic medicine:

- should have demonstrated academic potential, for example by having a good BSc degree, or equivalent, and/or by the publication of papers and reviews
- will ideally have completed their two-year Foundation training (see Fig 1)
- will have obtained or be intent on obtaining Membership of the Royal College of Physicians (MRCP(UK))
- will generally be expected to obtain a two- to three-year fellowship leading either to an MD or a PhD as their first period of research (see below).

Proposals for academic career pathways

The Savill Report¹⁰ indicated that two periods of research training are required for clinician scientists. The first period is to obtain a higher degree, eg PhD or MD, and the second period is to enable the trainee to establish an independent research programme, before or shortly after obtaining a Certificate of

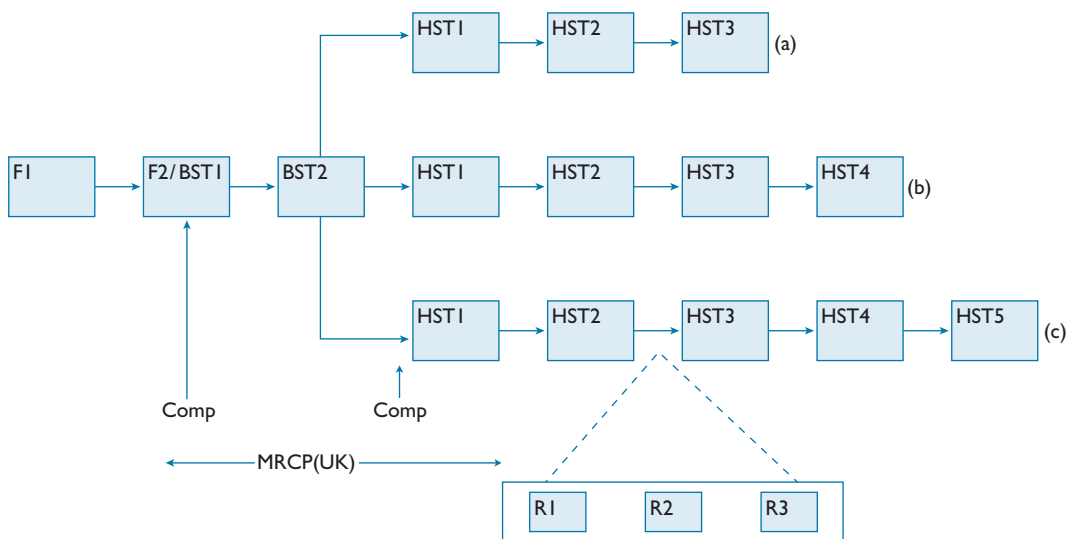


Fig 1. Three training schemes for academic physicians. These represent likely minimum training periods dependent on competency-based assessment. Periods of research leading to a PhD/MD could occur out of these programmes at any time but cannot count towards a Certificate of Completion of Training (CCT) in general (internal) medicine (G(I)M) alone.

(a) CCT in G(I)M alone. (b) CCT in specialty alone. (c) CCT in G(I)M and specialty.

The first period of research (R1, R2, R3) may be undertaken at any stage in these schemes, and usually after obtaining the MRCP(UK). The second period of research, for example with a Clinician Scientist Fellowship, would generally be undertaken towards the end of the Higher Specialist Training (HST) years. F = Foundation year(s): one pre-registration year, and one pluripotential year. A Foundation programme will be common to all specialties. BST = Basic Specialist Training years: two to three years of 'SHO' training, previously general professional training (GPT). HST = Higher Specialist Training years: as for the current SpR higher medical training (HMT) for the requisite number of years. Comp = Competitive entry points. CCT replaces CCST when PMETB legislation is introduced. R = research years for PhD/MD and/or teaching qualifications.

Completion of Training (CCT). A few trainees will already have completed their PhD as part of an MB/PhD programme before Foundation Year 1, and should require only the second period of research training during their clinical training. Individuals pursuing a career in teaching are likely to obtain a higher degree during the first period of academic training, and then gain educational qualifications during the second period. It is recognised that details of the proposed pathways may change following implementation of Modernising Medical Careers. It has also been suggested by the Academic Careers Subcommittee of MMC and UKCRC that specific academic training pathways should be introduced.

First period of training. Clinical academics will need to obtain a CCT in a specialty and/or general (internal) medicine (G(I)M), as well as an MD or PhD. Thus, academic trainees need to combine their research training with their clinical training, which will be similar to that of non-academic physicians. Individuals interested in pursuing a teaching career could combine their research training with an educational course that would lead to a qualification in education. There are four training schedules for non-academic physicians:

- G(I)M only
- G(I)M, plus acute medicine
- G(I)M, plus any specialty
- G(I)M, plus acute medicine, plus any specialty.

These may be modified into three possible training schemes for academic trainees (see Fig 1):

- basic programme – CCT in G(I)M only, taking time out to obtain an MD or PhD (scheme a)
- opting out of G(I)M after MRCP(UK), taking Higher Specialist Training in specialty only, and taking time out to obtain an MD or PhD (scheme b)
- full training, taking time out to obtain an MD or PhD (scheme c).

Flexibility within these schemes will be required, and *ad personam* schemes will need to be devised within these guidelines. It is important to note that obtaining the competencies for CCT in conjunction with an MD or PhD programme might take nine years for single accreditation, or up to 11 years for dual accreditation. Further time will then be needed to pursue post-doctoral research or educational qualifications. It is possible that this time will be shortened once competency-based assessment is introduced. In addition, as before, a non-CCT route to the Specialist Register will be available on an *ad personam* basis.

Second period of training. The main purpose of this period is to enable the academic trainee to establish an independent research programme or develop their teaching skills. This will usually take place once the trainee has obtained an MD or PhD. This period of training may be accomplished either by obtaining an appropriate four- to five-year fellowship, or by securing an appointment as a lecturer/senior lecturer. Possible roles for clinical lectureships in departments of medicine are described in

the Appendix (a statement prepared earlier this year by the Academic Medicine of the Royal College of Physicians of London). A fellowship may be advantageous in allowing greater flexibility for periods of study abroad, and by allowing periods that are free from any teaching or administrative commitments. Individuals who obtain a Clinician Scientist Fellowship will be eligible for a NTN(A), and this scheme may be enlarged to include post-doctoral clinical lecturers in the future. Individuals pursuing a teaching career would, at this stage, consider undertaking further training in educational methods and development of curricula, and gaining higher qualifications in education.

Role of the Royal Colleges of Physicians

The role of the Royal Colleges of Physicians is to:

- provide guidance and advice in formulating *ad personam* training programmes
- ensure that training pathways are defined to enable 'high flyers' to progress at an appropriate pace in their training
- work towards extending the NTN(A) scheme to all appropriate academic trainees
- ensure that teaching and training activity at undergraduate and postgraduate level are recognised as important for academic physicians
- ensure that appropriate mentorship schemes are in place for all academic trainees
- work with research funding bodies to enhance financial support for research training and career pathways for academic clinicians
- provide scholarships and bursaries for trainees to undertake research.

Conclusions

The Forum on Academic Medicine brought together all of the Medical Royal Colleges to discuss, for the first time, their joint approach to the challenges facing clinical academic medicine. The report from the Forum contains much of interest to all those engaged in medical education and research, including academic trainees and their mentors. It should also prove useful for universities, NHS trusts, postgraduate deaneries, research councils and other funding agencies, the Postgraduate Medical Education Training Board, the Department of Health and the Department for Education and Skills. The proposals in the report provide the basis for a successful future for academic medicine in the UK, where its potential for providing international leadership in clinical research and patient care should be fully realised. The Academy of Medical Royal Colleges looks forward to working with other interested parties, including the Academy of Medical Sciences and the Academic Careers Subcommittee of MMC and UKCRC, to address the way forward.

References

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Appendix. The role of clinical lectureships in departments of medicine.

The Academic Medicine Committee of the Royal College of Physicians is concerned about the future of clinical lecturer posts in departments of medicine, since the number of these is falling, and we believe that they are crucial to ensuring an adequate number of clinical academics in the future. A working group of the Committee therefore produced the following statement.

The most important function of clinical lectureships is to attract and train future academics in medicine. In addition, clinical lecturers are likely to undertake significant amounts of teaching, particularly in the smaller specialties. This is an important part of their training in academic medicine and should be recognised as such. However, teaching and research should not be considered as mutually exclusive activities but as complementary ones. In addition, individuals who are talented teachers and communicators should be encouraged to consider these posts.

A survey of universities undertaken by Professor George Griffin revealed that these institutions generally wished to retain clinical lectureships. However, there was no consistent rationale as to how these posts should be used. It is important to note that the NHS funds around 50% of clinical lectureships with the remainder funded by the Higher Education Funding Council of England (HEFCE).

A number of constraints have been placed on clinical lectureships recently. Clinical lectureships funded by HEFCE are considered in the Research Assessment Exercise (RAE). However, some change to their assessment is clearly required, since clinical lecturers should not be expected to have the publication record of more senior academics. Alternatively, clinical lectureships could be excluded from the RAE, and be viewed as junior clinical academic posts, particularly as they are usually taken up before obtaining a Certificate of Completion of Training (CCT). This would help university departments to avoid the trend of converting these posts into non-clinical lectureships, and enable them to place an emphasis on clinical teaching and research activities. It should be borne in mind that the primary purpose of a clinical lectureship is to give an individual the opportunity to acquire and develop the skills required for a career in academic medicine.

Departments of medicine have different models of clinical lectureships. At one end of the spectrum, individuals may be appointed shortly after they have obtained their MRCP(UK) and have expressed an interest in research and academic medicine. At this stage, they are taken on board as the equivalent of an SpR but with an emphasis on providing teaching and undertaking research, which would enable them to apply for a Research Training Fellowship and then pursue an academic career. Whilst this is an acceptable role, it is unacceptable for a clinical lectureship to be used as a supernumerary SpR, without adequate time for teaching and/or research activities.

At the other end of the spectrum, individuals are appointed to a clinical lectureship after they have successfully completed a Research Training Fellowship programme and obtained an MD or a PhD, but need to complete their CCT. During this period, in addition to completing their CCT, they will undertake research and teaching and could prepare applications for Clinician Scientist or Senior Fellowship programmes. We recommend this model, in which the clinical lectureship is seen as a stepping-stone towards obtaining a more senior fellowship and/or

continued

pursuing an academic career appointment. Clinical lectureships could also provide an alternative to Clinician Scientist Fellowships, and as such they could be considered for NTN(A) awards, provided that the national criteria are met.

Flexibility is of major importance and some clinical lecturer posts should be allocated to those who intend to pursue a career that specialises in teaching. This emphasis on teaching would not only help these individuals in planning a career pathway, but would also highlight the key role of teaching activities in departments of medicine and its appropriate reward and remuneration. It may be appropriate for post holders to pursue clinical or translational research, develop innovations in education, or research into educational methods, together with training and qualifications in medical education.

There needs to be agreement about the role of clinical lectureships between universities, NHS trusts, postgraduate deans, and the Joint Committee for Higher Medical Training (or the Postgraduate Medical Education and Training Board). It may be appropriate for clinical lecturers to have an *ad personam* route to CCT, and the balance of their clinical training should be proportionate to that of an SpR (who may spend two sessions per week on research without lengthening their training). These posts need protection from excessive service commitments, and should have adequate educational supervision and personal mentoring.

The Committee recommends that four models for clinical lectureships should be followed, whilst allowing flexibility for the individual trainee:

- A stepping stone for trainees who have completed their Research Training Fellowship and who have gained an MD or a PhD and are seeking a CCT, prior to applying for a Clinician Scientist or Senior Fellowship programme
- An alternative to the Clinician Scientist Fellowship scheme for those who have completed an MD or PhD and who need to complete their CCT while developing their research skills
- An opportunity for more junior doctors, who have completed basic medical training and obtained MRCP(UK), to gain experience in research or teaching, combined with service commitments – sampling a career in academic medicine – with a view to applying for a Research Training Fellowship programme
- An option for trainees who want to develop a career in teaching and curriculum development. These individuals are also likely to pursue a higher degree, for example a diploma or MSc, in medical education or teaching.