

The future of clinical research – an outside-in view

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After 25 years as a clinician in the NHS and in obstetric academia, I have been, for the last two years, full-time Vice-Chancellor of Bristol University. In those short two years my perspective of the future of academic medicine has radically changed – I no longer see the medical school as different from the university, but as only a part of the greater whole. I am now able to analyse the NHS as an outsider, without having to pay obeisance to the almost religious belief people of my generation hold in its continued existence. This detachment and my experience have led me to recognise three aspects of medicine that I would never have been able to see so clearly before.

Firstly, the NHS and, by implication, medicine, is politically exquisitely sensitive and driven, as well as closely managed by the Department of Health at Richmond House or its agents. A university, on the other hand, is an autonomous institution where we simply go ahead and make the decisions that we feel are best for us; of course policy frameworks are set by politicians but, to put it bluntly, the Secretary of State cannot sack a vice-chancellor. This gives us much more self-determination and control, which I consider very healthy.

My second point is about the involvement of medicine in civic society. It is said that each city is run by approximately 10 people. I do not claim to be one of them in Bristol but I certainly go to all the events where they all turn up. At these ‘civic’ events, which may be social or professional, I meet the same expected crowd – representatives from the Council, the Chamber of Commerce and the businesses in the city, from one or two large guilds and from education. I virtually never meet anyone from medicine; I never meet senior consultants or GPs and I never meet the chief executives or chairs of big trusts – organisations that are collectively the biggest employers in the city after the Council. The institution of medicine, which is vital to the lives of the citizens of Bristol, is completely unengaged in local civic society. Nationally, medicine appears to lie on a peninsula away from society in general and the isthmus that joins them is very narrow indeed. Such lack of engagement in local society does not serve medicine well.

Finally, as an outsider with inside experience I see the poor state of infrastructure. Although the coro-

nary care unit is modern and well-equipped with the latest gadgets, the corridors and the ordinary wards look tatty and down at heel. This is where you have to prosecute clinical academia; this is the environment where you have to teach and research. Such an environment is depressing for patients and lowers the morale of your staff. None of that detracts from the clear vocation and professionalism of the overwhelming majority of health service staff, which continues to shine through whenever one experiences healthcare.

Clinical academia – the complaint

General discussion with colleagues always ends with a grumble that clinical academia in the UK is undervalued – there is difficulty getting staff, hidden and overt tension between service and teaching, research is unmanageable and clinical research is not as good or as ‘scientific’ as more laboratory-based research.

Clinical academia – its current state

I shall approach my assessment of the current state of clinical academia from five angles:

- The state of undergraduate medical education
- Is there a problem with clinical research?
- How functional is the relationship with your key partner – the NHS?
- How integrated is clinical academia with the rest of higher education?
- Is there a problem with clinical academia as a career?

Undergraduate medical education

The UK has had a long tradition of excellence in medical undergraduate education and there is objective evidence that it is continuing. In the last round of subject reviews for medicine I have calculated that the median score was 22 (out of 24), which is the accepted point for excellence. Six schools received scores of either 23 or 24. These rather blunt data hide much evidence of excellence and I will quote from the overview report for medicine:

Curricula are generally well designed to develop subject-specific and transferable skills. Clinical placements across



This article is based on the Lloyd Roberts Lecture given at the Royal College of Physicians on 23 October 2003 by **Eric Thomas** MB BS MD FRCOG FMedSci, Vice-Chancellor, Bristol University

Clin Med 2004;4:169–72

a wide variety of settings provide trainee doctors with a range of experiences that enhance these skills and align subject knowledge and skills more closely with the requirements of the NHS and other employees.

*'Medical staff provide very good support to students both in relation to their academic programmes and to the extensive involvement with a variety of agencies within the context of the health service providers.'*¹

These data and quotes suggest a buoyant and excellent national undergraduate picture. Curricular change abounds predicated on the needs not only of the students but also of the people they ultimately serve – you and me. Just a few innovations are: integrated courses, problem-based learning, inter-professional learning, undergraduate research training, fast-track graduate entry programmes, year 0 entry, and foundation degree entry. There are five new medical schools with an interesting mix of students from different backgrounds, and with different expectations they are now buzzing with new and different ideas about education. This is a very exciting time to be in medical education.

There are some clouds around, particularly in relation to staffing and the burden of teaching carried by NHS staff, but medical undergraduate education is a real jewel in the crown of higher education in the UK.

Clinical research

I define clinical research as research carried out by registered medical practitioners involving patients, either at the bedside, in the outpatients' clinic, in GP surgeries or in the operating theatre. It uses tissue or information generated by patients.

The quality of clinical research in this country is assessed as performing above the international average. In a study commissioned at the University of Leeds by the Higher Education Funding Council for England (HEFC(E)), medicine scored an impact of 1.1, the US 1.35, France 0.87 and Germany scored 0.81.²

Research Assessment Exercise 2001 (RAE) awarded high scores for research in clinical laboratory sciences and hospital-based clinical subjects. These scores are substantially higher than those in the biological sciences or chemistry, for example. One can only conclude that there is strong evidence of excellence in clinical research.

However, all is not as rosy as it seems. The highest grade in the RAE was 5*, defined as:

Quality that equates to attainable levels of international excellence in more than half of the research activity submitted and attainable levels of national excellence in the remainder.

In hospital-based clinical subjects this grade was achieved in all or in part by only five institutions: Oxford, Cambridge, Imperial College, University College London and Edinburgh. If these institutions are excluded from the data the weighted average score of the remainder is only just above four – a mark for quality at essentially national level with some international recognition. Furthermore, 45% of the total of staff submitted were from these five institutions. This provides compelling evidence that our international level clinical researchers in

hospital-based clinical subjects are concentrated in just five institutions and the rest are lagging behind. This is not the case in other two clinical units.

It is also very important to stress what a creative and innovative clinical environment we have in the UK. This activity is included in my wider definition of research. Clinical obstetrics and gynaecology has led the world in ultrasound, pre-natal diagnosis and *in vitro* fertilization. It is easy to forget just how much impact developments that you see in specialties such as orthopaedics make on patients. The development of 'laparoscopic' coronary bypass surgery on a beating heart, for example, is extraordinary and required a spirit of enquiry, lateral thinking and courage; all of which are central to successful research.

Partnership with the NHS

A comprehensive healthcare system ensconced almost exclusively within one system has been very helpful for successful clinical research. In particular, the location of medical records within one system has made epidemiological survey and cohort research easier to pursue in the UK than in virtually any other first world country. The sharing of the teaching and clinical load between academic and NHS staff has been a success until recently. The famous 'knock for knock' whereby there is an unwritten contract of free teaching by the NHS as currency in one direction that is matched by free clinical care as the currency from the academic staff in the other direction, did, in more trusting times work well. Until recently, the importance and moral value of teaching was simply a given – everyone understood that any doctor has a duty to train the next generation. Matters are now, however, rather different.

Relationship with the NHS and higher education

The NHS has evolved into an unmanageable monster – maybe it always was. Service provision now dominates all thinking and teaching and research occupy a distant second place. I am worried by the attitudes of some of the staff to teaching and research, claiming that there is no time to do the teaching and nor are they paid to do it. The latter is manifestly untrue with 'knock for knock' and SIFT forming the relevant income streams to the NHS.

The most difficult aspect of sustaining and developing a relationship with the NHS is the tendency towards frequent and unpredictable changes. This has created an environment where the staff are focused on short-term clinical priorities and teaching and research have assumed much less importance. This makes it particularly difficult to plan and prosecute clinical academia.

The very close partnership of our medical academics with the NHS means that academic medicine is only very tenuously involved in the day-to-day life of the university or in its policy-making. This is not only damaging for the medical academics themselves, who do not understand the currents and winds of higher education (HE) and are therefore politically unastute in that environment but, perhaps more damagingly, it means that

the rest of HE has no knowledge of medicine except that it is always different and must be treated 'exceptionally'.

Clinical academia as a career

There are oft-stated anxieties about the lack of clinical academics, although a recent survey showed this anxiety to be one of perception rather than of fact. There are surprisingly few unfilled posts, but a number of posts are frozen, with the plan to fill them at a later date. As in HE in general, there are parts of clinical academia where staff are hard to find and parts where there is a good supply of high-quality people. General medicine is undoubtedly the intellectual leader and we do not normally have difficulty in filling these posts in academic medical specialties.

However, there are real problems in other specialties, particularly the craft specialties such as surgery or obstetrics and gynaecology. There are genuine problems for surgeons in fulfilling both their clinical and academic duties. Surgeons need to be in the operating theatre at least one day a week to sustain and develop their craft skills. All clinicians have demanding jobs but the combination of remaining surgically competent and succeeding in competitive grant application is virtually impossible.

Other issues about academic careers relate to progression and pay and benefits. Clinical academics seem to me to have excellent career progression. Academics are certainly well represented in the councils of the Royal Colleges. Deans of medicine who are by definition academics, have a greater leadership role in the profession than that described by their academic duties. The uncertainties seem to be in the more junior ranks, yet even a superficial analysis would reassure them that there are excellent career opportunities.

Money is important. Surveys have highlighted the salary differentials but most academics say that they did not go into it for the money. These are, however, a self-selected group – they have already made the decision. But many highly talented junior obstetricians and gynaecologists have opted for an NHS career because of the possibility of private practice. And the differences in remuneration are staggering particularly in the surgical specialties.

In summary, the diagnosis is of a sector in robust health educationally with evidence of excellent, world-beating research but having some difficulties identifying its best location organisationally, and with a key partner that often appears to be in turmoil. The attractions of this sector to future academics are strong in certain areas but weak in others. How, then, should we proceed? I want to suggest five ways to ensure that a successful and respected clinical academic sector continues.

- Value and respect clinical academia as an activity and career.
- Get the right people into medical schools.
- Strengthen the relationship with HE and the NHS.
- Get first-class facilities.
- Become much more entrepreneurial with your clinical academics.

There is still a culture in some places to diminish the clinical skills of academics so that potential academics fear being con-

sidered as clinically inferior to their NHS counterparts. Even apparently innocuous marks send out strong signals. It is vital we all articulate support and respect for clinical academia as an activity and a career.

Undergraduates

We must ensure that some students who come into medicine have an ambition to do research. We are constantly re-examining the criteria we use for admission to medical school but rarely include the desire to pursue a clinical research career. We asked all 250 first-year medical students in Bristol if the ability to become a clinical researcher had played an important part in their decision to go into medicine. We received 92 replies. Not one identified clinical research possibilities as important; 90 considered it irrelevant and only two said it had had some impact. It becomes much easier to understand why there may be a recruitment problem in clinical academia if we are not even starting with a cohort that contains some members who are thinking of a potential research career.

Some schools have explicitly addressed this by MB PhD programmes, which give a research training as part of the undergraduate experience. However we are not going to populate clinical academia with the tiny output from these programmes. It is vital that all schools make the possibility of a research career clear in their recruitment material and also actively recruit some students who explicitly want to follow such a career.

Clinical education and its stakeholders

It is vital for clinical academia to be right at the heart of a university's policy-making procedures. The deans and senior academics must make themselves aware of the agenda in the rest of higher education – because medicine will be affected by the general changes in higher education in exactly the same way as other disciplines. Vice-chancellors, particularly those who believe they understand medicine in spite of not being in the discipline, will need advice from clinical academics to ensure that the right decisions are made.

Relationship with NHS

It is essential to get this right locally. The national environment is so unpredictable the main focus must be on moderating the local environment. This is not easy and often the complexity of the local environment militates against success.

One of the main problems is the number of academics with very heavy clinical workloads. One cannot expect academics to be successful in research and teaching if they are also doing 80% of an NHS workload. A clinical academic should do no more than three fixed clinical sessions a week. It is also clear that clinical lectureships have to be productive academic appointments and not simply training posts for NHS consultancies.

Conversations with the relevant chief executives and senior medical staff help to clarify that the priorities for a successful

medical school are in the research and teaching and that service provision and development are NHS-led activities. Senior academics should not become clinical service directors as well. If such posts are combined, something has to give and it is usually the academic activity. Academics must have the environment and the time to prosecute their academic work successfully.

We now need a proper contract which explicitly states what duties are owed to each other so that neither side can hide behind the obscurity of 'knock for knock'.

Clinical research facility (CRF)

It is essential that each medical school should have access to a dedicated CRF. The need for this will increase as the output of the genetic and proteomic revolution creates new compounds that will have to be tested in the relevant intact experimental animal – the human.

The five new Wellcome Trust CRFs have been very successful in providing a clear focus for clinical research. There are extremely positive comments from patients who volunteer for studies about the quality of the research environments and the professionalism of the staff. The CRFs have successfully been protected from service pressures. The dedicated NHS-funded (through R and D) nursing staff have been a key component of the success of these units. This significant input from the NHS in the CRFs has focused the hospital and its leadership on research very significantly. Research by NHS colleagues has also increased. In Southampton, the School of Medicine obtained £20.9 million of new grants in 2002, up by £1.5 million on the previous year, which was in part due to the Wellcome Trust CRF. The CRF has been a big bonus to clinical research. The Dean in Southampton is clear that the CRF has increased research activity and income and has professionalized the activity significantly. It has achieved a high profile within the NHS. I can only conclude that provision of these sort of quality facilities in all medical schools will be an essential part of ensuring that good quality clinical research continues.

Clinical academics as entrepreneurs

Clinical academics in the USA manage to be very productive in research and yet can perform private practice and make themselves a decent wage. It was only as I was writing this that I remembered the sense of challenge, independence and excitement that I experienced in 1984 as a research fellow with Ian Cooke on his IVF programme in Sheffield, which was placed outside the NHS. Its autonomy ensured that we felt we were in charge of an intellectually rigorous environment with a real clinical challenge and a knowledge that we were assisting disadvantaged patients – the infertile. I never worried about career prospects – there was far too much of interest going on and I was rapidly sold on becoming an academic.

All medical schools should allow their academics to prosecute private practice so that they can combine higher income with greater freedom. I genuinely believe it is the way healthcare will have to go anyway, so I would advise taking advantage of it. The

best clinical research environment should be places of opportunity and discovery in which the academics are in charge of their own destiny – there should be that feeling of 'buzz'.

Summary

Clinical academia is not in crisis – it has a rosy future if you really celebrate and respect it as an activity, if you ensure a supply of graduates committed to research, if you get the relationship right with your key partners, if you get the best facilities for prosecuting research, and finally if you use all the possibilities to ensure that academics are properly rewarded both in morale and money.

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