Medical students' views and understanding of a career in academic medicine

Academic medicine is crucial to the advancement of health care with responsibilities in research, teaching and clinical practice. There have been problems recently recruiting for academic posts. This article illustrates medical students' views and understanding of a career in academic medicine.

There are many different ways of defining a clinical academic, but the majority have responsibilities in research and teaching in addition to clinical practice (Academy of Medical Sciences, 2000). Many academic clinicians have contracts with universities with honorary NHS contracts. Consequently, clinical academics play a crucial role in the prevention, diagnosis and treatment of disease, the teaching of medical students, responsibility for patient care and the training of young doctors which makes them crucial in shaping both the present and future of the NHS (Academy of Medical Sciences, 2000).

In 2009 a survey of staffing levels placed the number of UK clinical academics at 3087, employed by 32 medical schools (Fitzpatrick, 2010). While this has been the third consecutive rise since 2006, it is still 12% lower than in 2000 so the increase masks some underlying trends which are of some concern, especially in specialities such as anaesthetics, pathology and psychiatry (UK Clinical Research Collaboration and Modernising Medical Careers, 2005). Crucially, only 38% of clinical academics are under 46 years of age, giving cause for concern for the future of research and teaching in the UK (Fitzpatrick, 2010).

In 2005, recognizing the need for change, the Report of Academic Careers (known as the Walport Report) was published by a sub-committee consisting of the UK Clinical Research Collaboration and Modernising Medical Careers (2005). It highlighted three areas which it considered to be substantial deterrents to entering academic medicine: lack of transparent career structure, lack of flexibility in training and a shortage of supported posts on completion of training, and set out recommendations in an attempt to tackle these.

The report recommended that there should be a distinct career pathway for those wanting to train in clinical academia with the adaptability to allow individuals to move between clinical and academic paths (UK Clinical Research Collaboration and Modernising Medical Careers, 2005). Included in this was the option for newly graduated doctors to take an integrated academic foundation programme in their first and second years (The Foundation Programme, 2011), something not possible before, with 'academia only' an option for those who had already progressed to advanced clinical grades after considerable time and experience.

To ensure that these academic foundation posts were occupied by the brightest and most enthusiastic graduates, the Walport Report also set out recommendations for medical schools. It urged medical schools to help students understand the attractions of academic medicine and educate them about how to pursue a career in academic medicine and to increase the opportunities for undergraduates to experience academic medicine through their curricula (UK Clinical Research Collaboration and Modernising Medical Careers, 2005).

Despite the Walport Report, there have been problems highlighted in practice. Owing to the introduction of Modernising Medical Careers (Department of Health, 2004) career decisions for doctors are now made at an earlier stage and it has been asked whether clinicians who develop a desire for research in the later stages of their career would be able to compete against those who progressed through the academic pathway from their foundation years (Pandit, 2005). In addition, there is the potential for an increased financial burden on students who decide to prolong their university education (Derham et al, 2009).

A systematic review, published in 2006, stated that prospective studies of medical students were required to explore the influences on career choice throughout undergraduate training to help develop schemes to augment the numbers of clinicians in academic medicine (Straus et al, 2006). It stressed that it was the duty of medical schools to ensure their students were trained for future advances in clinical care, research and education and that they should aim to stimulate interest in academic medicine (Straus et al, 2006). A study focusing on the career plans and attitudes of academic clinical fellowship trainees has highlighted the need for similar studies to be carried out on undergraduates rather than postgraduates alone (Goldacre et al, 2011).

There seems a lack of research into medical students' attitudes and understanding of a career in academic medicine, especially in the UK. There is little evidence about what difference, if any, the Walport Report has made at the most primitive level of every clinician's career. Therefore, this study examined the attitudes of students at one UK medical school as a case study to see what students understand about a career in academic medicine and investigated the extent to which they believe they have been informed about clinical academic careers.

Methods

The sample was composed of University of Liverpool undergraduates from the 3rd, 4th and 5th years (approximately 900 students) towards the end of the 2010–11 academic year. Students of earlier years were excluded as they had not had at least 1 year's experience on clinical placements

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so it was felt that they had not encountered enough of the specialties to make informed decisions about them.

A questionnaire was composed containing both items from previously conducted studies at the university, and also items recognized to be significant incentives and disincentives in previous studies on academic medicine (Markert et al, 1998; Goldacre et al, 1999; Straus et al, 2006; Watmough et al, 2007; O'Sullivan et al, 2009; Borges et al, 2010). In addition, standard questions including age, gender and study year were asked at the beginning, and original questions tailored towards medical students were also incorporated. The responses were given by way of yes/no answers, Likert scales and free-text answers. The responses to the quantitative Likert scale questions are shown in *Figures 1–4*. The free text questions were:

1. Does the medical school present you with enough opportunities to learn about academic medicine first hand?
2. Have you had the opportunity to practice skills required to work as an academic doctor?
3. Have you been made aware of the of the importance of factors relating to an academic career?
4. Would you like an academic component to be a part of your career?

A pilot was carried out and the study was approved by the University of Liverpool School of Medicine ethics committee. The online survey was constructed on SurveyMonkey and a link sent in an email detailing the nature of the questions, the reason for conducting the study and a reassurance that there would be no identifying markers, in a bid to guarantee anonymity. Voluntary consent (and thus recruitment) was obtained by students clicking on the link and completing the questionnaire. Two reminder emails were sent out to maximize the response rate. The quantitative results were analysed using SurveyMonkey to work out the percentages for each of the Likert scale responses. The qualitative and free response data were analysed thematically (Boyatzis, 1998) and the comments were then grouped into categories according to the questionnaire item to which they referred and the subject of the comment. The numbers of comments which fell into the different categories were then counted.

Results

Of the 900 medical student sample 263 replied (29.2%): 38% were male and 62% were female, and ages ranged from 20 to 33 years old with an average of 22.53 years. Of respondents 35% were in the 3rd year, 26% in the 4th year and 35% were 5th years. The respondents included 19 graduate entry students and 19 students who had previously intercalated or currently were undertaking an intercalated degree.

Knowledge and understanding of a career in academic medicine

The majority of students do not feel they have an understanding of the terms 'academic foundation programme' or clinical lectureship (*Figure 1*).

When asked whether they felt the medical school presented them with enough opportunities to learn about academic medicine first-hand 75% replied 'no'. When asked whether they felt they had the opportunity to practice skills required to work as an aca-

Figure 1. The extent to which medical students understood a variety of terms associated with academic medicine (1 being 'do not understand at all' and 5 being 'understand completely').

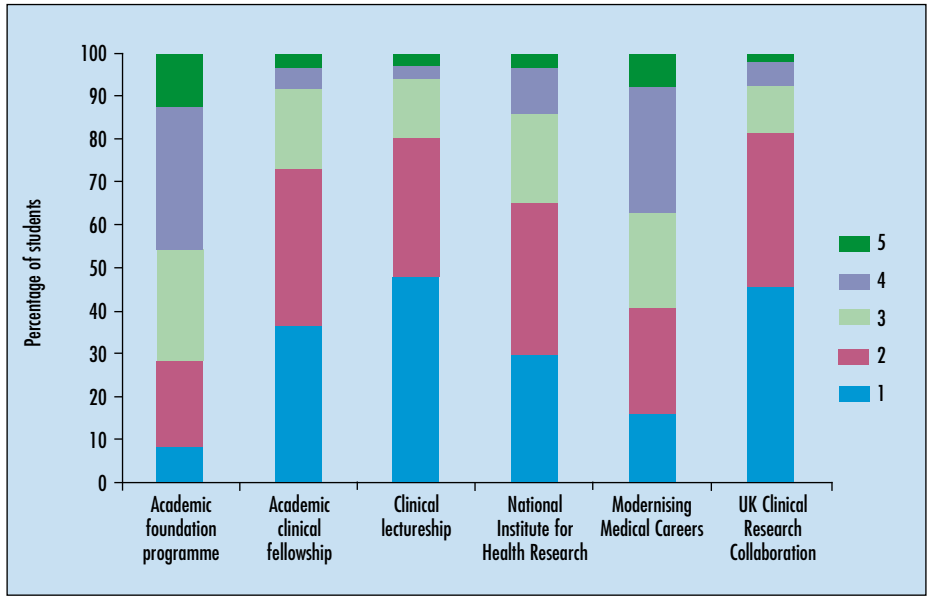
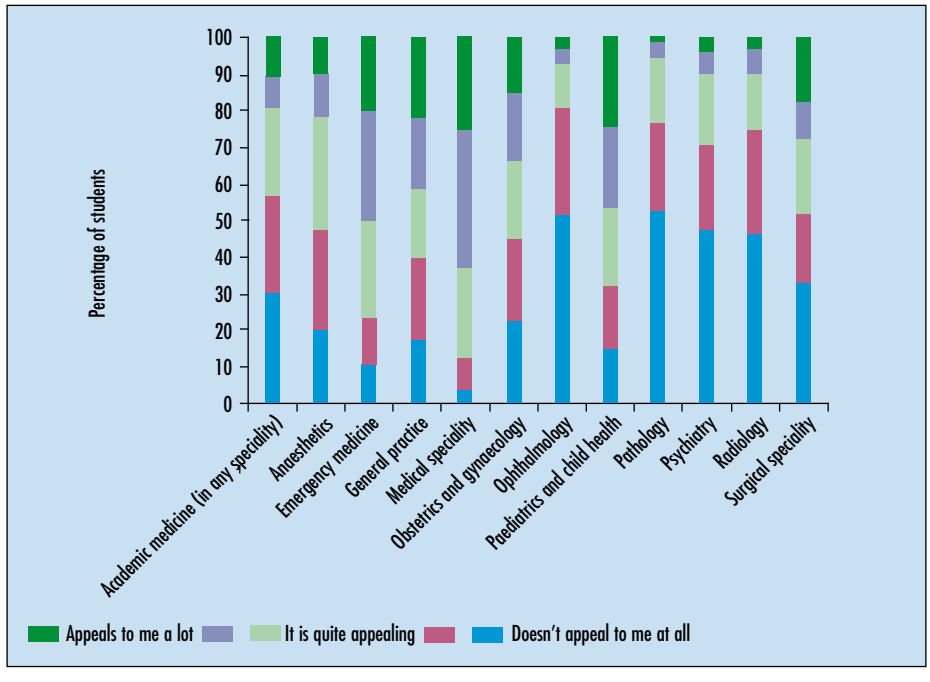


Figure 2. The extent to which various specialities appealed to medical students (on a 5-point Likert scale ranging from 'appeals to me a lot' to 'doesn't appeal to me at all').



demic doctor during the undergraduate course 53% replied 'yes' and 47% replied no.

In free-text answers student-selected components (where students undertake a variety of projects which involve writing a fully researched, formatted and referenced 3000-word piece of work) were highlighted as one of the major points in the course that presented students with these opportunities (45%). However, many students said that these components were variable in quality and it would be 'lucky' if they had completed an student-selected component that would help their foundation application. Final year students said that they felt they only realized too late that student-selected components could be important for helping with their foundation application.

Liverpool students also undertake a critical thinking module where they write and peer review a clinical research proposal and 29% said they felt this had provided these opportunities with 21% highlighting that an intercalated degree had provided these. Only a few students felt surgical placements presented them with opportunities to practice the skills required (6%).

In a thematic analysis of an open-ended question asking where students had been made aware of the importance of factors relating to an academic career – lectures in one form or another were cited 69 times, word of mouth or peers were cited 27 times, and other doctors cited 13 times. The foundation programme website was only cited five times.

Figure 3. The importance of various factors in dissuading medical students from a career in academic medicine (on a 5-point Likert scale from 'not all important' to 'important').

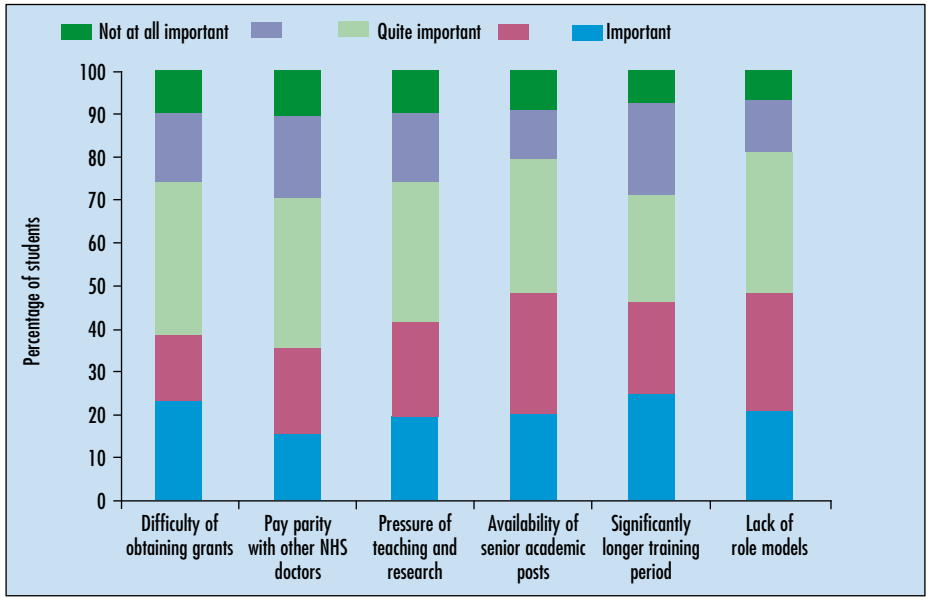
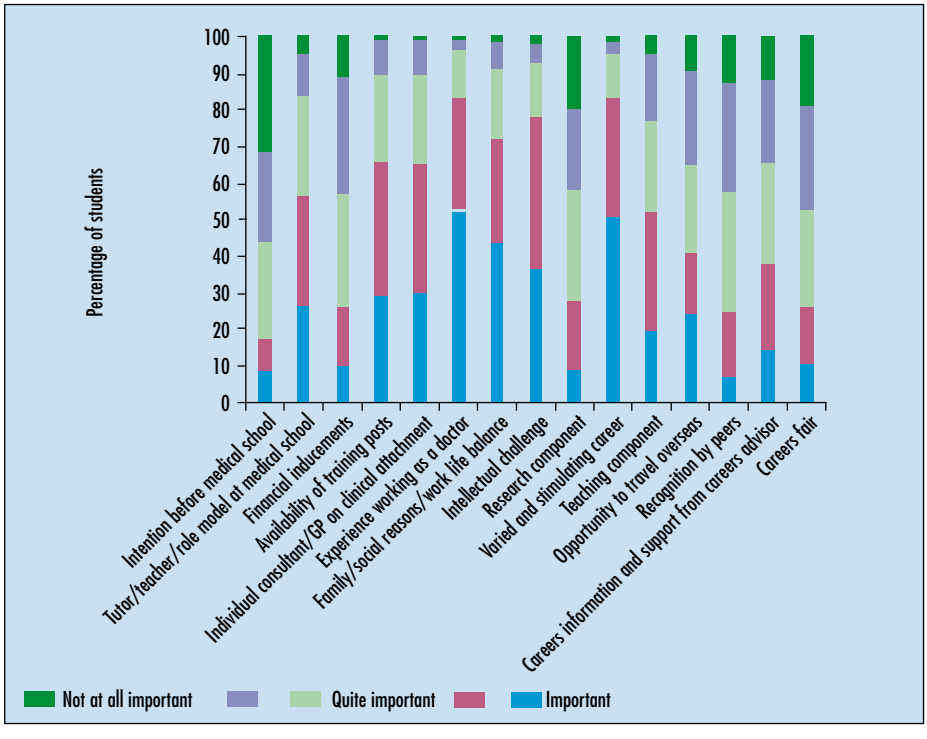


Figure 4. The importance of various factors that medical students believe will affect their eventual career choice (on a 5-point Likert scale from 'not all important' to 'important').



Career choice

Figure 2 shows which specialties appealed to students – 57% of students felt that academic medicine was less than 'quite appealing'. Also noticeably less than 'quite appealing' were ophthalmology (80%), pathology (76%), psychiatry (71%) and radiology (75%). Medical specialities were the most appealing (63% found it more than 'quite appealing').

Factors students believe will affect career choice

As *Figure 4* shows, students believe work–life balance, experience as a doctor and undergraduate clinical attachments will be the biggest factors affecting career choice.

Students were also asked whether they would like an academic component to be a part of their career (46% said they would, 21% would not and 33% were unsure), and if so, whether this would consist of research, teaching or management: 45% would like a teaching component, 37% would like a research component and 14% would like a management component.

Discussion

Despite the recommendations of the Walport Report stating that 'medical students must understand the attractions of a career in academic medicine and how to pursue this aim', these students believe that not enough is being done to ensure this is the case. This seems to be a more general, UK-wide problem and has been highlighted elsewhere (UK Clinical Research Collaboration and Modernising Medical Careers, 2005).

More lectures and timetabled sessions could increase students' knowledge about academic medicine. However, in the University of Liverpool students have many opportunities through student-selected components and a critical thinking module to gain an understanding of academic medicine and 53% felt that they had been given opportunities to practice skills required to be an academic doctor, with 45% of respondents singling out student-selected components as giving this opportunity. This is certainly promising, but through the thematic analysis it became apparent that the quality of each student-selected component varied between convenors, with students commenting on 'luck' with regards to producing a meaningful student-selected component that would help later on in foundation programme applications.

Similarly, students felt they found out too late about the importance of publications and presentations to really organize a substantial research opportunity and that more emphasis should be placed on this during the earlier years of medical school. It may be that students just need to be told explicitly how these could help them understand academic medicine. The students felt that lectures were the most popular means by which students had come to understand academic medicine already, so perhaps more lectures or talks about academic medicine are required. It could be that these lectures need to be compulsory.

While it was encouraging that 46% of students felt they had more than 'some understanding' of the term academic foundation programme, fewer understood the terms academic clinical fellowship or clinical lectureship. This demonstrated a lack of understanding of the academic career pathway. As this lack of understanding was one of the major deterrents of students choosing an academic career highlighted in the Walport Report, it is unsettling that the medical students still had no real idea of the pathway involved in becoming a clinical academic doctor. Moreover, the large numbers of students who felt they had less than 'some understanding' of Modernising Medical Careers was disappointing, as this is relevant to all students, no matter what career they are considering.

Factors which would discourage students from thinking about a career in academic medicine have been reflected in other studies (Reck et al, 2006; Straus et al, 2006; Watmough et al, 2007; O'Sullivan et al, 2009; Borges et al, 2010). As the curriculum is already overcrowded, students perhaps should be made aware there are opportunities to explore academic medicine in student-selected components and on clinical placements. The University of Liverpool does have a careers advisor for medical students and this appointment has been well received by students (Watmough et al, 2009, 2010; Watmough and Waddelove, 2012) and there are talks on academic careers as in other specialties, but students do not always attend sessions run by the careers advisor. It might be necessary to make students attend all careers talks or events in the future which could dispel some of the students' lack of knowledge, not just about an academic career, but other specialties as well.

The strongest disincentives identified were lack of role models and mentorship, availability of senior academic posts and the likelihood of a significantly longer training period compared to other NHS colleagues (*Figure 3*). The importance of role models was verified in a previous systematic review (Sambunjak et al, 2006) and the Walport recommendations suggested that one way of helping students to 'understand the attractions of a career in academic medicine [was to] make sure that medical students are taught by leading clinical academics, among others'. Factors that students felt would influence the career they eventually wanted to pursue including experience working as a doctor and work–life balance reflects other work (Markert et al, 1998; Goldacre et al, 1999; Straus et al, 2006; O'Sullivan et al, 2009; Borges et al, 2010). During lectures and sessions by the careers advisor the flexibility of the new path should be emphasized to students, ensuring they understand that they can enter and leave the path at a variety stages.

There are some limitations to this study such as the response rate of around 30%. However, other studies (Watmough et al, 2007) investigating similar topics have had fewer respondents and it is very difficult to get medical students and junior doctors to complete questionnaires and get even up to 50% response rate (Grava-Gubins and Scott, 2008).

There were similar proportions of students from each year and the sample was generally representative of the students studying medicine at the University of Liverpool. The students were at different stages of their undergraduate training and the study may have attracted students who had the strongest views about their career choice, the course or academic medicine. However, all students were at least halfway through their course when completing the questionnaires so had plenty of clinical experience and had undertaken most of their student-selected components. There is no reason to suppose from the results that the survey attracted students who were more or less likely to be for or against a career in academic medicine. Although this is a small sample from one university there are plenty of opportunities for Liverpool students to explore options in academic medicine and these results do reflect national concerns about academic medicine. Future work could see how applicable these results are to other medical schools.

Conclusions

There has been a significant decrease in staffing levels in academic medicine over the past decade and this study shows that, despite the recommendations of the Walport Report, students of this university do not feel they have enough knowledge about an academic career. Some may feel that this is not a primary concern in undergraduate education and that the majority of students, despite any amount of preparation, would still go on to have careers in general practice or mainstream medical and surgical specialties. However, it could also be argued that, whether or not a clinician goes on to have a contract with the university as a researcher or lecturer, academic skills are vital for publications, audits, hospital-based teaching and critical appraisal. Therefore one does not only require academic skills to be an academic doctor but rather to be a doctor, whatever the speciality. For this reason students should be at least have the opportunity to experience academic medicine first-hand and have role models available to them so that, should they decide to pursue a career in this field they have mentors that can guide them. **BJHM**

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KEY POINTS

- Academic medicine is facing problems with vacancies at many universities remaining unfilled.
- A questionnaire survey was distributed to students at the University of Liverpool to see what they understood about a career in academic medicine.
- There was a lack of understanding about the academic career pathway and academic medicine did not appeal to the majority of students.
- Lack of role models, availability of senior academic posts and the likelihood of significantly longer training periods were perceived to be significant disincentives.
- More needs to be done to ensure that students gain sufficient guidance and information about academic medicine during their undergraduate course.