

Medical Workforce Expansion – Commitment and Capacity

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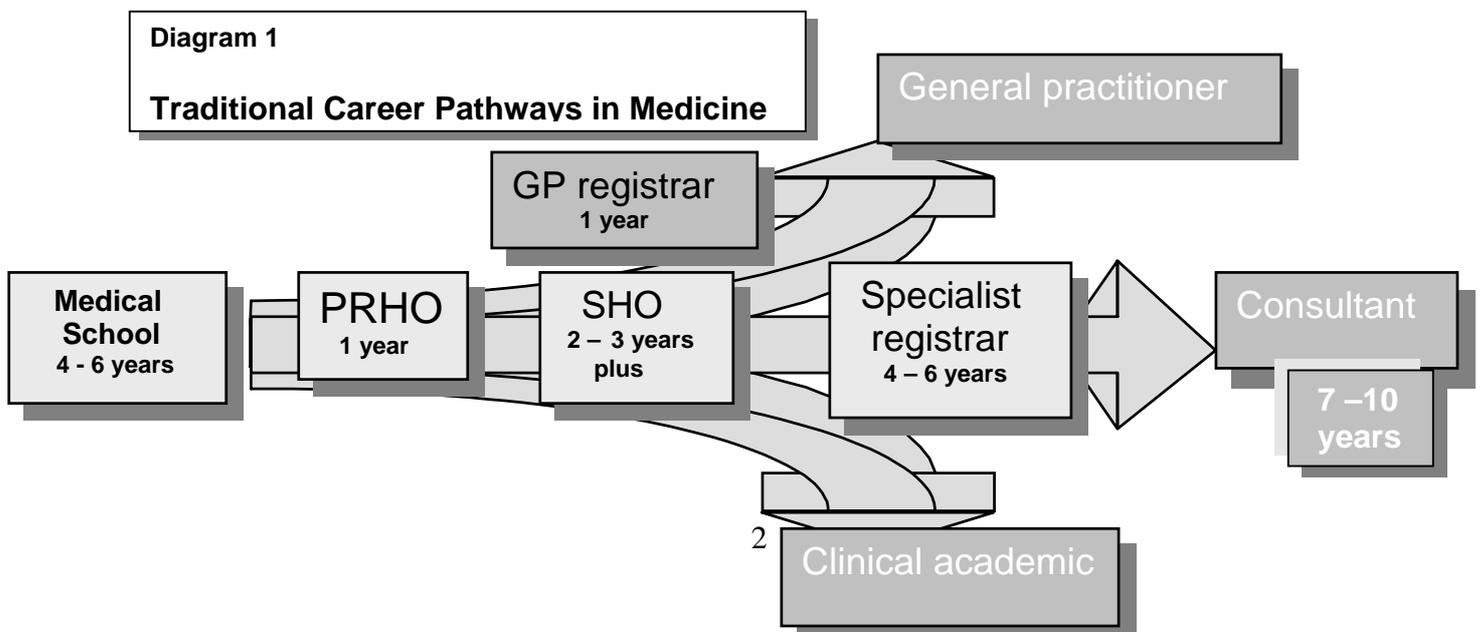
Introduction

The UK has, in recent years, made a clear policy commitment to increasing the number of medical graduates it produces in order to reduce reliance on doctors who are trained overseas.¹ The impact of this decision has been an increase in the number both of medical schools and of intake into existing schools; a change in the demographic pattern of those admitted to medical school; and a re-focusing of the curriculum offered to medical undergraduates. Correspondingly, there have been important changes to postgraduate medical education, reflecting both the need to produce more fully trained doctors who will, potentially, practice differently from the 1990s paradigm of UK specialist medical practitioner (Consultant) and general practitioner. These changes also seek to address the dichotomy between service and training, something that is blurred in the current postgraduate training system. All of this is occurring within a workforce and management landscape which is undergoing seismic shifts in the way in which healthcare is funded and managed in the UK. Put together with European legislative changes such as the European Working Time Directive (EWTD), it presents an extremely complex and dynamic model. This paper explores the trends and issues underlying some of these changes and places them within the context of a major change programme around postgraduate medical education known as Modernising Medical Careers.²

Career structure of medical education

Current training pathway

Diagram 1 shows the current pathway of medical training. The undergraduate programme starts with exit from school, at about the age of 18. There has been a strong, traditional emphasis on success in examinations (State), with graduation at about the age of 23. Increasingly, medical students may take an “intercalated” BSc, usually but not invariably, in a scientific or medically related area, either as an integrated part of their medical degree, or as an additional, optional year. Following on from graduation, the medical graduate is provisionally registered with the General Medical Council (GMC), as a pre-registration house officer (PRHO). On successful completion of this experiential intern year, full registration with the GMC is reached. Postgraduate medical education then formally commences, with several years (2 – 3 but can be longer) in general training linked to a specialty, followed by a variable period (4 – 6 years) of specialist training. In the UK, assuming no time is taken out for personal or other academic reasons, doctors can expect to be fully accredited and to have completed their formal post-graduate training by the time they are 31 – 33 years.



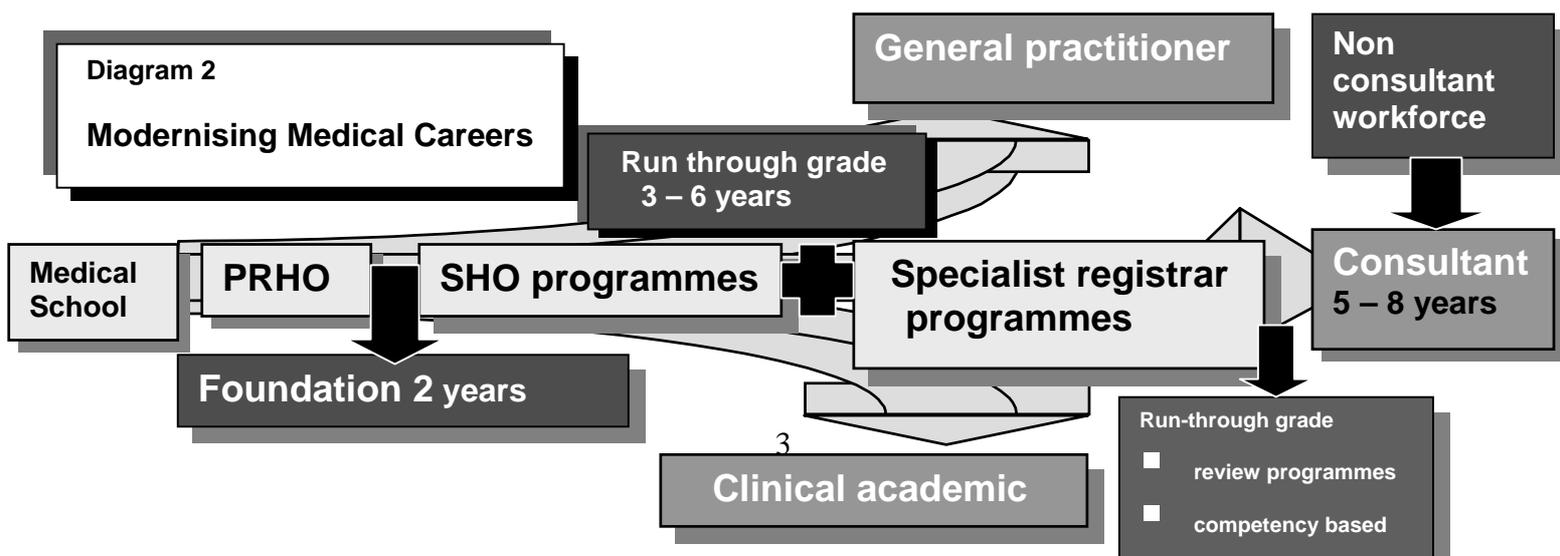
Implications for the medical workforce

A great deal of postgraduate medical training takes place within the acute hospital setting. Consultants supervise trainees, the majority of whom are at a junior level (SHO) but deliver the day-to-day running of hospital services. Only a proportion of those in SHO training are selected into specialist (residency) training. A varying number of non-training posts (Trust doctors) are used to supplement service delivery. Trusts have employed ever increasing numbers of non-training doctors at a junior level in order to cope with the requirement for shorter hours, shift working and new models of delivery of care, e.g. re-modelling of how care is delivered through the 24 hours through Hospital at Night³ schemes. More specialist services are also delivered under the direct supervision of the accredited Consultants through Non Consultant Career Grades (NCCG) doctors, many of whom are not fully accredited specialists. In addition, the current system of training does not respond rapidly or flexibly to changes in demography or technology, resulting in a “bust” and “boom” cycle of doctors in a number of specialties.

New training pathway (Modernising Medical Careers)

Under the changes to postgraduate education being introduced through the Modernising Medical Careers (MMC) programme, the structure of postgraduate medical education will change.⁴ This meeting heard of early proposals around this at the Washington meeting. The first of these changes have now been implemented. They are demonstrated on the diagram below and are marked, in the first instance, by the introduction of a 2-year foundation programme following graduation from medical school. The first year is still a pre-registration year, but the GMC has introduced significant changes to the nature of this year, making it specifically outcome, rather than experientially based. The second year, which follows on from registration, develops further the generic clinical and professional skills required of all medical practitioners. With an emphasis on developing and demonstrating competence in delivering acute clinical care, the centrepiece of this is the **explicit** practice and demonstration of safe clinical practice. If this is the cornerstone of the programme, then assurance of competent clinical skills, good team-working and excellent communication with team members and patients/carers are the supporting beams.

The *Curriculum for the Foundation Years in Postgraduate Education and Training*⁵ covers the 2 years sets out the competences which must be achieved and a specific programme of in-work assessments to ensure that doctors are assessed for these has been introduced. Following the foundation programme, doctors will enter competitively into one of number of specialist training programmes (about 65), reflecting specialties recognised within the European Specialist Order (1997)⁶ and, subject to satisfactory progress, will attain full accreditation in a further 3 – 6 years, without further selection (“run-through training”). Specialist curricula will be developed to specific standards, which include outcomes and validated approaches to assessment.



Implications for a new medical workforce

With the introduction of explicit competency based curricula, it will be possible to link the training workforce and the service workforce in a much closer fashion. In the craft specialities particularly, skills and procedures can be described in a way that allows individual posts and workforce shape to be more accurately designed and predicted. It will allow flexibility in training to take career breaks for personal reasons without having to start at the bottom. Also, should treatment alter so that, for example, surgery is no longer required, training and trainees can be redirected into other, possibly related specialties. Ultimately, "organ" or "systems" training, rather than the current "specialities" are likely to evolve. For those in the workforce outside a training programme, it also provides a route by which they may progress and develop their careers. Finally, with explicit competences, it is possible to look at the whole clinical workforce and map skills across it, allowing suitable credentialed healthcare professionals to deliver appropriate care within a team context. The workforce of the future must have the skill mix to deal with complex situations and this will mean workforce planning on a much more integrated basis.

Undergraduate medical education

The numbers of students entering undergraduate medical education in the UK has increased significantly in recent years, following an appreciation in the mid 1990s that there was a growing and perhaps excessive reliance on an international medical workforce. Nonetheless, and despite the recommendations from the 1997 Medical Workforce Standing Advisory Committee¹ that there should be an increase of 1000 British medical graduates (subsequently increased by another 1000), currently 31% of all hospital medical staff are international medical graduates (HCHS census, 2004)⁷. The recommendations will bring the total number of UK medical graduates to 5,894 by 2005, an increase of 57% since 1997.⁸ Indeed, the Chief Medical Officer (England) has just announced a further review of the number of medical students required but in the interim, has increased the number of medical school places in England pro tem by another 100 places (about 2% increase).⁹ The increase of additional medical school places in English Universities is being achieved in 3 ways:

- increase in the number of medical schools in England by 4 from 23 to 27
- the development of new centres of medical education associated with existing medical schools
- an increase in the number of medical students attending existing medical schools
- creating graduate entry programmes to encourage entrants from other backgrounds who could undertake the course more rapidly.

A bidding process resulted in the Schools being cited in areas of England which traditionally had difficulties in recruiting and retaining doctors.

- School of Medicine Health Policy and Practice, University of East Anglia, Norwich
- Hull York Medical School
- Peninsula Medical School, Plymouth
- Brighton and Sussex Medical School, Brighton

These initiatives have been underlined by policy requirements to increase the range of students who have access to medical training, seeking to bring in students from groups not traditionally well represented in this sphere, as well as to encourage the development of curriculum which align more closely with the doctors required by the NHS.

What are the primary challenges facing medical schools in any planned expansion and what are some of the strategies for addressing them?

There are 3 broad challenges facing medical schools in planning such an expansion:

Capacity issues

Capacity issues are clearing high on this challenging agenda.

1. Teaching and educational capacity

This is a growing issue in the UK. A recent report¹⁰ indicated, “whilst clinical academic numbers in medicine have remained stable at the most senior levels numbers of clinical lecturers have declined by a further 17%.” The report indicated further that a number of academic specialties were in a “perilous” position with sharp declines in the number of clinical academics in a range of specialties. Given that it is this population who largely offer training in the medical schools, the report argues that failure to support good quality academics in all specialties in sufficient numbers will:

- “compromise patient care
- threaten the UK’S position as a world leader in medical research and
- remove our ability to education the doctors [and dentists] of tomorrow”

These issues are also reflected within general practice and primary care where the rapid expansion in the number of medical students, combined with an increasing focus in the curriculum on community based education has created tremendous strains. A Working Group of the Society for Academic Primary Care (SAPC) reviewed how Departments of Primary Care were responding to the challenge of increased activity and requirements for teaching and training.¹¹ They noted that these departments provide the leadership and much of the resource for community based undergraduate medical education and observe that between 1986 – 2001, the departments increased by 4-fold the number of educational sessions they delivered to undergraduates, with 9% of the undergraduate curricula being delivered by them! (and with <5% of the resources).

Under the new Modernising Medical Careers scheme, recognition of the need to explicitly develop the academic workforce, both for research and for education has been recognised. New funding has been designated to develop specialist training programmes which will enable postgraduate training to develop the researchers and the educators of the future.¹² This later aspect is a particularly new and important innovation since it explicitly recognises the need to develop educators with an expertise in postgraduate medical education.

2. Clinical placement capacity

Identifying sufficient clinical placements for increasing number of medical undergraduates continue to be a growing challenge. This is particularly true in the primary care setting where large numbers of medical trainees at both undergraduate and postgraduate level are requiring experience in general practice. With the start of foundation training programmes, it is anticipated that by 2008 all foundation trainees (approximately 6000) will require 3 or 4-month general practice placements. This is a new and significant pressure in the system which has yet to be addressed. It means that by 2008, general practice training practices will need to offer capacity for general practice training to 6000 undergraduate students, 4800 foundation trainees, approximately 2500 general practice trainees, as well as a range of other healthcare

professionals requiring clinical placements in primary care.

Plans to develop additional practices – in 2001 only 1/3 of general practices in England offered training to undergraduates – have increased, with funding designated for capital developments to improve physical capacity in practices and programmes to develop trainers. In hospitals there are increased numbers of postgraduate doctors requiring training and putting pressure at the undergraduate level where hospitals must continue to provide a good undergraduate learning environment.

There is also considerable expansion of undergraduate placements being developed to accommodate the expansion of undergraduate medical education. It has recently been reported that medical staff in district general hospitals both want to teach undergraduates and perceive that it is beneficial to patient care to do so.¹³ This said, there are real concerns about resources and time to fulfil both teaching and service commitments.

Widening access to medical education

Department of Health policy requires that

- people from a wider range of social backgrounds must have access into medicine on grounds of equity and fairness
- undergraduate curricula are relevant to the healthcare needs of the NHS⁸

In receiving and assessing bids for additional medical students and the new medical schools, part of the criteria included proposed plans to improve access to undergraduate medical placements, especially from social backgrounds not well represented in medicine. Proposals included:

- Graduate entry “fast-track” four year programmes to bring in graduate from other academic backgrounds
- Residential and non-residential summer schools and outreach initiatives to attract 13 – 16 year olds from a range of backgrounds
- Foundation degrees in Health and Medical Science to prepare for entry into medical programmes
- Widening access schemes through extended medical programmes for individuals who have not achieved the required exam results because of mitigating circumstances but who can demonstrate cognitive reasoning skills and an appropriate personality

Developing the doctor of the future – addressing curriculum issues

The General Medical Council has overall responsibility for medical education, including the undergraduate medical curriculum. It has recently published a new edition of *The New Doctor (2005)*¹⁴ which sets the standards and outcomes of the pre-registration house officer year, which builds on the curriculum objectives of the undergraduate curricula. These are set out in the revised edition of the GMC’s *Tomorrow’s Doctors (2002)*¹⁵, which encouraged continued innovation, emphasising acquisition of appropriate attitudes, skills and knowledge, a problem based approach to learning, early clinical experience and a clear move away from “experience” to the acquisition and demonstration of outcomes based on competence. Curricula therefore need to reflect an emphasis on the development of communication skills – a clear direction of travel over the last 10 years in developing the undergraduate medical curriculum - as well as ensuring that a public health perspective has a high profile in the curriculum. Another critical aspect of curriculum development has been an emphasis on developing both an understanding of research and also of research

skills. Special Study Modules (SSM) have been introduced in all undergraduate curriculum, and in some, an additional year is spent undertaking a BSc.

A crucial part of the context of undergraduate medical education is to ensure that it reflects the direction of travel of medical care and practice. *Medical Schools: delivering the doctors of the future*⁹ identifies that in the light of the expansion of undergraduate medical places:

“it is not just more doctors that we need: we need the doctors of the future to continue to put patients first, and to understand how their own professional practice affects the patient experience. Specifically, this means that from the start of their training, doctors, as all other health professionals, need to:

- *develop early skills in communication with patients, carers and other staff*
- *be able to learn and work flexibly in multi-professional teams*
- *develop the skills of continuous learning, based on problems, which they can apply throughout their career, so that they can develop their practice in response to the rapid pace of change in technology and the knowledge base”*

Postgraduate Medical Education

Is the lengthening of training through longer post-graduate programmes and the addition of fellowship training a positive trend? If not what are potential solutions?

Postgraduate medical education in the UK has been in a state of flux and development over the last 10 years. Since the introduction of specialist training in 1995¹⁶ to bring it into line with specialist training in Europe, there have been increasing efforts to rationalise, streamline, control and manage the process and output from it. The most important impetus for this has come from the review instigated by the Chief Medical Officer of the Senior House Officer (SHO) grade, *Unfinished Business* (2002)¹⁷ and the response to it, *Modernising Medical Careers* (2003).²

The new models of postgraduate medical education being introduced in the UK are designed to be responsive to the challenges of training doctors within a demanding service environment. Under the banner of the **Modernising Medical Careers** (MMC) programme which was introduced into the UK in August 2005, postgraduate education is supposed to be streamlined and reflect training which is:

- service based
- trainee centred
- competence assessed
- flexible
- quality assessed
- coached

Commencing with a 2-year foundation programme immediately after graduation from medical school, the first year of foundation training is an experiential year pre-registration year which has recently been re-defined in terms of outcomes by the General Medical Council (GMC).¹⁴ These will be competence assessed and subject to satisfactory outcomes, full registration with the GMC will be achieved. The second foundation year has been defined by the *Curriculum for Foundation Training*,⁵ which identifies 41 key competences, the achievement of which will should develop a doctor who:

- has robust clinical skills in the management and care of patients who are acutely ill

- can deliver care with well-honed professional skills
- has had the opportunity to explore a range of career opportunities (including primary care), before make a decision about specialty training
- been competency assessed in the acquisition of defined clinical and professional skills, attitudes and knowledge

A SWOT analysis of MMC

A “SWOT” analysis of specialist training demonstrates how MMC offers significant opportunities to improve it. The MMC programme will:

Structure for service

A new structure of postgraduate training is being developed which is aimed at increasing the effectiveness of training within a service context. In the UK, almost all secondary and tertiary NHS service providers (and increasingly, general practice) are also providers of postgraduate medical education. MMC is developing a structure of specialist training which will enable current tensions between service and education to be addressed. New specialist training curricula will need to reflect not only whether those who complete specialist training are likely to be employed in the future because they can deliver anticipated service requirements, but also whether the programmes of training are compatible with and support the way services are currently delivered. Given the current reliance of the service on those in specialist training the programmes will need to:

- be streamlined, with appropriate but not burdensome competitive hurdles
- reflect the size and range of generalist and specialist skills required of an effective medical workforce
- train doctors who can integrate effectively and flexibly with the rest of the healthcare workforce
- ensure that the overriding aims of safe and effective patient care underpin all aspects of specialist training
- be cost effective, efficient and yields sufficient capacity to meet the needs of the NHS and other healthcare providers

Workforce

Changes in the medical workforce will need to reflect the range and scope of specialist training required by the NHS and other healthcare providers by aligning the aspirations of postgraduate doctors with the needs of patients and the workforce requirements of the service for a consistently safe, effective and high performing medical workforce.

MMC offers an important opportunity to reflect formally and explicitly on the range and scope of the specialist workforce required by the NHS and other healthcare providers by developing strategies to align the aspirations of postgraduate doctors with the needs of patients and the service for a consistently safe, effective and high performing medical workforce. By developing programmes which efficiently produce well trained and accredited doctors, the NHS can choose how to employ these doctors to the benefit of patients and the service.

As a result the single most important long-term change that MMC will effect is in supporting the review and development of the 65 specialty curricula for presentation to the new Competent Authority for postgraduate medicine in the UK, the Postgraduate Medical and Training Education Board (PMETB).¹⁸ These curricula will determine much of the way in which UK medicine is currently delivered – given its

reliance on postgraduate trainees to deliver service – and on the shape and competences of the future medical workforce.

Outcomes

MMC initiatives will need to support the explicit and comprehensive development of competence based and assessed curricula to define the skills, competences and outcomes required to develop the specialist medical workforce to comply with the requirements of the Postgraduate Medical Education and Training Board (PMETB).

MMC has the opportunity to develop a strategy to engage the service to ensure that those who come out of training programmes have the skills required by future employers. Employers should be explicitly asked whether the curricula will produce doctors that the service will want to employ (**service test of employability**); equally, employers should be asked whether the training programmes themselves are deliverable within the current service environment (**service test of feasibility**). This will bring further convergence between the medical healthcare needs of the population and training of doctors.

Training

Clearly the overall aim of postgraduate medical education and the changes being developed through the MMC programme is to improve and document the clinical and professional competences of those undertaking specialist training. This starts with a foundation programme during the first 2 years of postgraduate medical education which is aimed at providing a smooth transition for those who can demonstrate the attainment of the outcomes and competences set out in the *Curriculum for Foundation Training*,⁵ into specialist training through an equitable and fair competitive process. A validated and national in-work assessment programme is being developed as an integral part of the curriculum. It is intended that the development of foundation training will also exploit the potential for e learning and support the development of a virtual learning environment for the NHS and the promotion of simulation and human factor learning as key learning strategies.

The generic foundation programme which marks the first 2 years of postgraduate training is aimed at producing a medical workforce early in its medical training which is well grounded in delivering safe acute clinical care by clinicians who understand and practice medicine professionally and effectively.¹⁹ It is the bedrock of specialist training since it establishes the values, principles and ways of working which prepares doctors for the rigours and requirements of training to be a specialist. By setting out a dedicated foundation curriculum, with specific areas of competence to be achieved, medical graduates who are selected for specialist training will have reached a demonstrable level of “quality-assured” performance that is the baseline for entry into further training.

Following on from foundation training postgraduate doctors will compete for entry into specialist training programmes (residency) programmes. The current process of local recruitment is likely to be replaced by national selection processes, relying on electronic recruitment and structured selection assessments. Another major change of current practice in the UK is that once accepted into a specialist training programme, postgraduate trainees will carry through their programmes until they reach accreditation, subject to satisfactory progress, without a further competitive hurdle.

Is the lengthening of training a positive trend?

In the UK, the implementation of MMC will reverse the trend that is occurring elsewhere of increasing the overall duration of postgraduate medical training. As

indicated in diagrams 1 and 2 above, this will mean that time in specialist training will fall from current training periods of between 7 –10 years following graduation from medical school, to 5 – 8 years. In career terms, this means that fully accredited doctors will be between 28 – 31 years of age, as opposed to the current situation of between 30 – 33 years. This change compares well for example, to current US models, but if additional fellowship programmes become the norm for residency programmes, this will, of course alter. The other pressure against shortening postgraduate programmes relates to the implementation of safer hours. Whilst in the USA where some states have implemented 80 hours of work, in the UK, 48 hours will be the maximum number of hours allowed by 2008.²⁰ There are no doubt concerns already being raised about whether this will allow sufficient experiential and training time, especially in the craft specialties.²¹ To counter this, and in recognition that life-long learning and development are at the heart of professional practice; there are serious discussions about how post-accreditation (perhaps including Fellowship schemes) will be developed.

What is the correct ratio of post-graduate: medical school positions?

The MMC programme will need to ensure that selection into specialty training is streamlined, fair and in accordance with the principles set out by the new regulator for postgraduate medical education in the UK, the Postgraduate Medical Education and Training Board (PMETB). E-recruitment technology for the receipt and short-listing of applications, rigorous national standards for the person specification and application for each specialty (and sub-specialty where appropriate) and an array of more professional assessment strategies, ranging from knowledge assessment to psychometrics and selection centre approaches, will be developed to assess the aptitude and abilities of applicants. This is a major departure from current practice, where there is no alignment between those who enter early specialist training (SHO training) and those who then go on to undertake full specialist training programme. The current pyramidal training structure in the UK relies on selecting only a proportion of doctors who commence postgraduate training through SHO training. Many of these doctors are international medical graduates (IMGs) who come to the UK at an early stage in their careers in the hopes of undertaking their full postgraduate medical specialist training programmes. At the current time there are far more IMGs at this early point in training than can be accommodated and no clear policy around recruitment into postgraduate medical education. This is causing difficulties both for these doctors and indeed for the training system in the UK. Whereas there is a need for IMGs to enter some specialist training programmes in a range of specialist training programmes the aspirations of IMGs do not always coincide with these opportunities. Further, as the increased output from UK medical schools appears and as the anticipated numbers of EEA applicants to enter into UK postgraduate training rises, it will be important to clarify how IMGs continue to access UK postgraduate medical training in line with medical workforce requirements. To support the overall changes to postgraduate training in the UK, it is intended that this issue be addressed as part of the alignment of training and workforce requirement.²²

Table 1 indicates the medical workforce numbers over the last 10 and looks forward to the next 5. The predicted ratio of medical graduates to SpRs (residents) increases as 2010 is approached, reflecting the increase in UK medical graduates, whilst the ratio of residents to accredited doctors falls as more accredited doctors come on stream.

Table 1

Medical Workforce Numbers in the UK, 1999 - 2010 (NHS Workforce Review Team [WRT]. August 2005)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	hc/fte														
Medical Intake (headcount – HC)	n/a	3794	3735	3972	4300	4713	5277	6082	6326	-	-	-	-	-	-
Medical Graduates (1) (HC)	2859	2983	3064	3149	3236	3276	3564	3558	3798	4079	4376	5060	5651	5772	5772
PRHOs/interns (3) (WTE)	3211	3349	3443	3494	3634	3676	3989	3994	4259	4589	4923	5693	6357	6494	6494
SHOs (2) (WTE)	13659	14433	14597	14433	14886	15210	16912	18419	20283	19 273	20283	21706	23379	25852	27410
SpRs/residents (3) (WTE)	10220	10829	11064	11558	11675	12097	13031	13989	16112	16112	16112	16112	16112	16112	16112
ratio medical graduates/SpRs	27.9%	27.5%	27.7%	26.9%	27.7%	27.0%	27.2%	25.4%	23.5%	25.3%	27.2%	31.4%	35.1%	35.8%	35.8%
Consultants (3) (WTE)	17605	18618	19379	20335	21076	21953	24585	26105	27914	28411	29128	29755	30271	32047	33265
ratio SpRs/consultants (WTE)	58.0%	58.2%	57.1%	56.8%	55.4%	55.1%	53.0%	53.6%	57.7%	56.7%	55.3%	54.1%	53.2%	50.3%	48.4%

(1) Data based on 12.5% headroom of PRHOs

(2) Data Source DH census, which will include Trust Docs

(3) Data Source DH Census to years 2004, 2005 and beyond WRT forecasts, assumes no SpR/residents growth beyond 2005

(4) MMC will affect these forecasts, but until clarity on transition is achieved, the modelling is based on current training mechanisms

Summary

There are major changes occurring in British undergraduate and postgraduate medical education. In a real effort to create a medical workforce that meets the requirements of the NHS and other service providers in response to patient needs and expectations, a root and branch overhaul of medical training is taking place through the Modernising Medical Careers programme. Given the reliance on postgraduate doctors for delivering patient care, it is critical that an appropriate model of professionally developing doctors integrates effectively and synergistically with service provision. In conjunction with major changes to service structures and funding mechanisms throughout the UK health services, the Modernising Medical Careers programme for postgraduate medical education should help deliver more capacity both now and in the future.

¹ Department of Health, *Planning the Medical Workforce Medical Workforce Standing Advisory Committee (MWSAC), Third Report, December 1997.*

² Department of Health, *Modernising Medical Careers: the response of the four UK Health Ministers to the consultation on Unfinished Business: Proposals for reform of the Senior House Officer Grade, 2003.*

³ www.dh.gov.uk (Publications)

⁴ Department of Health, *Modernising Medical Careers: The Next Steps. The Future shape of Foundation, Specialist and General Practice Training Programmes, 2004.*

⁵ *Curriculum for the foundation years in postgraduate education and training*, Foundation Programme Committee of the Academy of Medical Royal Colleges, in co-operation with Modernising Medical Careers in the Departments of Health, 2005. www.mmc.nhs.uk

⁶ European Specialist Medical Qualifications Order 1995 (as amended by the European Specialist Medical Qualifications Amendment Regulations 1997, the European Specialist Medical Qualifications Amendment Regulations 1999 and the European Specialist Medical Qualifications Amendment Regulations 2002).

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- ⁷ Hospital, Public Health Medicine and Community Health Services (HSCS) Medical and Dental Staff in England: 1994 – 2004.
http://www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsStatistics/PublicationsStatisticsArticle/fs/en?CONTENT_ID=4106747&chk=lfacUo
- ⁸ Department of Health. *Medical Schools: Delivering the Doctors of the Future*. 2004
- ⁹ *Opportunity to bid for additional medical undergraduate student places in England* Letter from the Chief Medical Officer to the Chief Executives of the SHAs. September 2005.
- ¹⁰ *Clinical Academic Staffing Levels in UK Medical and Dental Schools: data update 2004*. A survey by the Council of Heads of Medical Schools and Council of Heads and Deans of Dental Schools, 2005.
- ¹¹ *New Century, New Challenges. General Practice and Primary Care in the Medical Schools of the United Kingdom*. Report of A Working Group of the Society for Academic Primary Care
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- ¹² *Medically- and dentally-qualified academic staff: Recommendations for training the researchers and educators of the future*. Academic Careers Sub-Committee of Modernising Medical Careers and the UK Clinical Research Collaboration. March 2005.
- ¹³ Macdonald J. *A survey of staff attitudes to increasing medical undergraduate education in a district general hospital*. *Medical Education* 2005; 39:688-94
- ¹⁴ General Medical Council. *The New Doctor*. 2005 www.gmc-uk.org
- ¹⁵ General Medical Council *Tomorrow's Doctor*. 2002. www.gmc-uk.org
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- ¹⁷ Department of Health. *Unfinished Business: Proposals for reform of the Senior House Officer Grade*. 2003. www.dh.gov.uk
- ¹⁸ www.pmetb.org.uk
- ¹⁹ Hays R *Foundation programme for newly qualified doctors. Should improve specialist training in the UK but may lack capacity*. *BMJ* 2005;331:465-6
- ²⁰ www.dh.gov.uk/PolicyAndGuidance/HumanResourcesAndTraining/WorkingDifferently/EuropeanWorkingTimeDirective/fs/en
- ²¹ *Surgical Training Seriously Compromised By European Working Time Directive*
http://rcs.niss.ac.uk/public/pns/DisplayPN.cgi?pn_id=2005_0006
- ²² *International Medical Graduates: A fairer future*. Junior Doctors Committee of the BMA and the British International Doctors Association, August 2005.
<http://www.bma.org.uk/ap.nsf/Content/intmedgradfuture>
