The rising tide of medical graduates: how will postgraduate training be affected?

Gregory J Fox and Stephanie J Arnold

ABSTRACT

- Domestic medical graduate numbers will almost double between 2005 and 2012, necessitating substantial increases in supervision at prevocational and vocational levels.
- New approaches to resourcing and governance of training are needed to expand the capacity of the health system to deliver quality training; new settings will also be required to expand training capacity, while ensuring that trainees are exposed to a broad range of clinical experiences.
- With increasing demand for training placements, entry to specialty training is likely to become highly competitive; new vocational training positions must be created to ensure that bottlenecks in training do not occur and that training is not unnecessarily prolonged.
- Substantial increases in government funding will be required to employ the new prevocational workforce. The recent Modernising Medical Careers Inquiry in the United Kingdom offers important lessons for the workforce changes facing Australia, such as a "ring-fenced" budget that quarantines funding for medical education and training.
- Planning for the increasing cohorts must cover the training spectrum — from medical student to specialist.
- Students and trainees must be prospectively informed about how workforce changes will affect their career advancement.

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Australia's postgraduate medical training system is preparing for an era of major upheaval, as domestic graduate numbers increase from 1348 in 2005 to an estimated 2442 in 2012.[1] This period of steep growth follows almost two decades of relatively stable medical student numbers. The change was primarily designed to meet the health care needs of an ageing population at a time of worsening medical workforce shortages and maldistribution.[2,3] The availability of these new doctors creates exciting opportunities to improve clinical services across the country. However, it is increasingly apparent that training these new doctors will require major changes to the delivery of postgraduate medical education.[4]

Although often dubbed a "tsunami", the increase in graduate numbers more closely resembles a rising tide. The change is neither unexpected nor sudden. Here, we address the wide-ranging challenges that will arise from increasing graduate numbers, spanning supervision and clinical casemix to wage pressures and the need for new governance structures.

Impacts on training of junior doctors

Supervision and teaching

The supervision of prevocational and vocational trainees, from internship to completion of specialist training, is central to both patient safety and effective clinical learning.[5] Clinical supervisors are not only responsible for monitoring trainees' performance, setting term goals, teaching, guiding learning, and modelling professional behaviour,[6,7] but are also increasingly being asked to contribute to structured trainee assessments. A new comprehensive framework for prevocational training,[8] expanded college assessment requirements such as the mini clinical evaluation exercise (mini-CEX),[9,10] and the new workforce-based assessments for some international medical graduates[11] will further add to the workload. The steep rise in trainee numbers will only exacerbate the already substantial demands on supervisors.

In most settings, trainee supervision is largely driven by the enthusiasm and goodwill of senior clinicians. This is seldom remunerated directly (although some employment contracts stipulate teaching and supervisory duties) and often incurs a substantial opportunity cost for consultants. With the estimated growth in trainee numbers, this pro-bono system is unlikely to be sufficient. There is a real risk of supervisor disengagement and burnout, which could ultimately influence clinical outcomes.[12] A recent review by the Australian Government Productivity Commission echoed these concerns and proposed dedicated income streams to better support training.[13]

Although it is essential to reaffirm the pro-bono model on which most daily supervision depends, it is vital to provide other forms of recognition for teaching and training infrastructure. Conjoint university appointments are one form of recognition. Financial remuneration must also be addressed, such as session-based teaching payments for private practitioners who undertake teaching. Hospitals, colleges and postgraduate medical councils can engage frontline educators more effectively by offering appropriate financial incentives. The Australian General Practice Training[14] program exemplifies one such approach that is already in place, providing educational support and federal payments to supervisors in private practice settings.

Supervisors also need adequate administrative assistance to contribute to orientation sessions, trainee feedback and rostering. This would free them to spend more time teaching and supervising. Centralised medical training and education units already operate in many teaching hospitals, offering efficiencies by integrating administrative support for a range of training programs.[15] However, there is a pressing need for greater consistency and transparency in determining how much funding is provided for clinical educators and support staff at each site.

Senior trainees also have an important role in teaching and supervising junior trainees. A recent survey reported that prevocational trainees believe registrars often play a more substantive teaching role than senior consultants.[16] More can be done to engage this group in training junior doctors. Introduction of novel roles such as the "medical education registrar",[17] and crafting of longer-term career paths may increase the number of trainees who take on supervisory responsibilities.

1 Factors affecting progression through medical training

Transition from student to intern is affected by:

- Demand for positions — numbers of domestic Commonwealth-funded placements, numbers of overseas students studying at Australian universities, interstate workforce migration, and graduate specialty preferences
- Supply of positions — accredited intern positions in state health departments and extended settings such as the Pre-vocational General Practice Placements Program

Transition from prevocational to vocational training is affected by:

- Demand for positions — drop-out rate during prevocational training, availability of positions at Postgraduate Year 2 and above, trainee career preferences, and trainee completion of prerequisite terms
- Supply of positions — accredited training positions in public hospitals, private hospitals and other expanded settings, training infrastructure, and funding for training positions. ◆

Trainees' clinical experience

As trainee numbers increase, there will be increasing competition for access to some clinical experiences, a challenge typified by access to emergency department (ED) terms by interns. Most postgraduate medical councils regard ED terms during internship as "unsubstitutable", arguing that interns need graded increases in autonomy and must become familiar with undifferentiated and critically ill patients.[18] The steep rise in intern numbers will soon stretch the supervisory capacity of many EDs. This dilemma has inspired the More Learning for Interns in Emergency (MoLIE) project in Queensland, which delivers complementary "off-the-floor" teaching to interns during ED terms. MoLIE aims to maintain the quality of the learning experience, while minimising the burden on supervisors (Dr Victoria Brazil, Emergency Physician, Royal Brisbane Hospital, personal communication).

The quality and capacity of postgraduate training can also be enhanced through greater use of clinical simulation centres. Unfortunately, Australia lags behind Europe and North America in its uptake of these technologies,[19] which allow procedures and skills to be taught in safe, supervised settings. Substantial funding will be required for the great potential of clinical simulation to be realised.

Accreditation and governance of new training positions

The application of existing training standards to new training positions will be a central challenge for colleges, postgraduate medical councils and health departments. Although most states are at quite early stages of planning, it is likely that these new posts will be in expanded settings (such as private hospitals, general practice and community health services), or will involve greater use of public hospital opportunities (through shift splitting, reduced overtime and reduced average workload).[20] Accrediting bodies must ensure that the teaching, supervision and support available to new trainees through new training positions are consistent with existing posts.

New vocational training positions are already being introduced in private settings through the national Expanded Settings for Specialist Training Program.[21] As this scheme expands over the coming years, each post must be monitored closely by accrediting bodies. Importantly, private hospital patients must be clearly informed about the new role that trainees will have in their medical care in these settings.

Ultimately, we believe that the need for consistent standards across a diverse range of settings may be best served through robust, centralised governance and cross-disciplinary institutional accreditation of clinical training, as occurs in the United States under the powerful Accreditation Council for Graduate Medical Education.[22]

Employment issues

Rising trainee numbers and new training settings will have significant implications for average wages and working conditions. Overtime is likely to decrease, as hospitals use rostered shiftwork to contain wage costs and improve safe working hours, while funding new training placements. This will affect trainee wages. As more graduates percolate through the system, the locum workforce is also likely to shrink. The proliferation of non-award industrial arrangements in private settings will also require careful consideration. Undoubtedly, industrial organisations will be following these changes closely.

Bottlenecks in accessing training positions

As the number of graduates rises, the demand for training placements will increase substantially. When this demand exceeds supply and graduates begin to compete for placements, particularly in more popular specialties, training bottlenecks are likely to arise.

It is difficult to predict how soon these bottlenecks will occur and how significant they will be, given the numerous factors that influence progression through training (Box 1). Accurate predictions are also difficult as longitudinal workforce data are limited,[1] and the supply of new training placements has not yet been established. In some states, uncertainty remains about the guarantee of employment for foreign graduates of Australian universities.

Bottlenecks may arise as trainees wait to move from prevocational to vocational training, and are even more likely during the transition to advanced training in some disciplines. This is already the case for popular specialties such as gastroenterology. As graduate numbers peak after 2012, innovative solutions will be required to find training positions for these new medical cohorts, in both public and private sectors. A marked mismatch between applicants and positions would risk prolonging training and exacerbating job uncertainty among junior doctors. Although specialties that are currently less popular may benefit from increased numbers of applicants, it cannot be assumed that workforce growth will be a panacea. These specialties will still need to address real and perceived factors underlying their low recruitment rates. Without attractive training options, some trainees may choose to leave the system entirely.

The recent public outcry by junior doctors in the United Kingdom after the introduction of Modernising Medical Careers (MMC) illustrates the political consequences of poorly managed changes to the medical workforce.[23,24] MMC was launched in 2003 as a far-reaching government overhaul of postgraduate medical training throughout the UK. Concerns about inadequate consultation and job insecurity reduced its popularity, and when a new recruitment process left thousands of trainees unable to find work in 2007, the profession and the public lost confidence in the reform process. Recommendations from the subsequent MMC Inquiry provide important lessons for Australian medical workforce planners and political leaders contemplating the impacts of rapid changes to the medical workforce (Box 2).[24]

2 Recommendations from the UK Modernising Medical Careers Inquiry of relevance to Australia[24]

- Funding for education and training should accurately reflect training requirements.
- A new national medical education body should be created to improve continuity across the training spectrum; this national body should hold a "ring-fenced" budget that quarantines funding for medical education and training.
- Health authorities should demonstrate how increased numbers of graduates can be employed to the benefit of patients.
- Trainees and medical students should have access to data about their employment prospects, to help guide their decisions about the future of their careers.
- Education and training should be integrated into the performance reporting of health services to create incentives that prioritise training.
- Government should have a coherent model of medical workforce supply that is transparent and informs future planning.
- A database of trainees should be created to inform workforce planning. ◆

3 Recommendations from the 2007 National Trainees' Forum and National Junior Medical Officer Forum

- Medical students and trainees should be adequately informed about the impact of rising graduate numbers on their access to training positions.
- All Australian medical graduates should have access to intern positions.
- Additional resources should be available to ensure new vocational training positions are created in new and current settings.
- Trainees should be involved in planning of new training positions.
- Training progression should not be unduly prolonged by increased competition for jobs.
- Emergency department terms should be preserved as a core requirement of completing an internship.
- All state postgraduate medical councils should extend their role to accredit all prevocational training positions. ◆

Impacts on medical workforce

Will more interns lead to more doctors? Ironically, there are valid concerns that the growing graduate pool may not ease current workforce shortages. Although intern numbers will rise, constrained hospital budgets may tempt administrators to decrease the proportion of senior residents within their workforce. This must be monitored closely in the interests of patient safety. Also, reduced locum and overtime costs will partly offset increased wages, but state health authorities will ultimately need to increase their training budgets by tens of millions of dollars per year. In addition, vocational training will require considerable funding increases — the initial expansion into new settings for 10 specialties is likely to cost the Australian Government between $123 million and $132 million per annum.[15] The costs of training Australia's long-term medical workforce will clearly be considerable.

The trainee perspective

Trainees are justifiably concerned about how the rising tide of medical graduates will affect their careers. The issue was addressed at the inaugural National Trainees' Forum (chaired by one of us [GJF]) held in conjunction with the Australian Postgraduate Medical Education and Training Forum in Sydney on 28 October 2007. This was the largest cross-disciplinary meeting of Australian and New Zealand trainees ever held, with participants from all states and territories. The National Trainees' Forum, as well as the National Junior Medical Officer Forum (chaired by one of us [SJA]), generated a number of relevant recommendations (Box 3).

Medical students[25] and trainees are seeking greater certainty about access to training positions, the quality of their supervision and the impact of potential bottlenecks on the duration of their training. A recent study showed that trainees place a high priority on the apprenticeship model of learning, value supervisor feedback and want to learn how to teach others.[16] Trainees comprise an important asset for policymakers, as they are able to provide feedback about the impact of these changes "on the ground". As trainees are the medical educators and leaders of the next generation, it is important that they are fully informed about the likely impact of workforce changes on their careers.

What are the priorities?

In training the rising tide of medical graduates, state and federal governments must be prepared to invest heavily in the next generation of skilled clinicians to meet the substantial challenges of Australia's ageing and growing population. We believe that:

- After years of requesting more medical graduates, it is time to fundamentally rethink how training is funded. One approach is for health departments to hold a quarantined budget to support education and training infrastructure, as proposed by the recommendations from the MCC Inquiry (Box 2).[24]
- There is an urgent need for better coordination across the full spectrum of training, from medical student to specialist. Postgraduate medical councils, which currently supervise training for the first 1 or 2 years, must expand their scope to cover all prevocational training and work more closely with vocational training providers. The NSW Institute of Medical Education and Training epitomises this approach, facilitating training across a number of prevocational and vocational training programs. Such an approach requires substantive collaborations between colleges, health departments, trainees and clinicians. At a local hospital level, more medical education and training units must be created to share educational expertise and improve efficiencies of training delivery. We should also look for opportunities to share educational resources with trainees from other health professions such as nursing and physiotherapy. Furthermore, new career paths must be crafted to encourage gifted senior trainees to take on dedicated roles as clinical educators.
- It is time to fundamentally reaffirm the high value of clinical teaching to the Australian health care system. Australia must learn from the UK experience and develop a national framework that incorporates training as a key performance indicator across the health sector — beyond just medical practitioners. The recently convened National Health Workforce Taskforce promises to achieve such reform, by proposing a cohesive approach to clinical training that covers medicine, nursing and allied health.[26]
- Australia's response to the rising tide of medical graduates must be underpinned by data. Foremost, future graduate numbers must be linked to an analysis of community needs over the coming

decades. Despite the inherent difficulties of modelling, a rigorous and transparent evaluation of future workforce demand is required. Medical workforce planning, although difficult, must transcend the political knee-jerk reaction.

The medical training system is facing its first major workforce increase in 20 years. There are immense opportunities created by this new generation of doctors, but the challenges of training them are just beginning. It is essential that government and educational leaders work together to anticipate these challenges and prepare Australia's health care system to train a world-class medical workforce for the future.

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Competing interests

Gregory Fox is a member of the Management Committee of the NSW Institute of Medical Education and Training.

Author details

Gregory J Fox, MB BS(Hons), MIPH, Respiratory Registrar
Stephanie J Arnold, BSc(Hons), MB BS(Hons), Dermatology Registrar
Royal Prince Alfred Hospital, Sydney, NSW.
Correspondence: foxsimile@hotmail.com

References

1 Joyce CM, Stoelwinder JU, McNeil JJ, et al. Riding the wave: current and emerging trends in graduates from Australian university medical schools. *Med J Aust* 2007; 186: 309-312.
2 Brooks PM, Lapsley HM, Butt DB. Medical workforce issues in Australia: "tomorrow's doctors — too few, too far". *Med J Aust* 2003; 179: 206-208.
3 Joyce CM, McNeil JJ, Stoelwinder JU. More doctors, but not enough: Australian medical workforce supply 2001–2012. *Med J Aust* 2006; 184: 441-446.
4 Nader C, Morton A. Emergency medicine. *The Age* (Melbourne) 2007; 14 Jul.
5 Cottrell D, Kilminster S, Jolly B, et al. What is effective supervision and how does it happen? A critical incident study. *Med Educ* 2002; 36: 1042-1049.
6 Kilminster S, Cottrell D, Grant J, et al. AMEE Guide No. 27: effective educational and clinical supervision. *Med Teach* 2007; 29: 2-19.
7 Kilminster SM, Jolly BC. Effective supervision in clinical practice settings: a literature review. *Med Educ* 2000; 34: 827-840.
8 Graham IS, Gleason AJ, Keogh GW, et al. Australian Curriculum Framework for Junior Doctors. *Med J Aust* 2007; 186 (7 Suppl): S14-S19.
9 Royal Australasian College of Physicians. Curriculum overview. Sydney: RACP, 2007. http://www.racp.edu.au/page/physician-education/curriculum (accessed Apr 2008).
10 Norcini JJ, Blank LL, Duffy FD, et al. The mini-CEX: a method for assessing clinical skills. *Ann Intern Med* 2003; 138: 476-481.
11 McLean R, Bennett J; Implementation and Technical Committees of the Australian Health Ministers' Advisory Council. Nationally consistent assessment of international medical graduates. *Med J Aust* 2008; 188:464-468.
12 Sox CM, Burstin HR, Orav EJ, et al. The effect of supervision of residents on quality of care in five university-affiliated emergency departments. *Acad Med* 1998; 73: 776-782.
13 Australian Government Productivity Commission. Australia's health workforce. Canberra: Productivity Commission, 2005.
14 General Practice Education and Training. About GPET. Canberra: GPET, 2007. http://www.agpt.com.au/GPETtheCompany/AboutGPET/ (accessed Oct 2008).
15 McGrath BP, Graham IS, Crotty BJ, et al. Lack of integration of medical education in Australia: the need for change. *Med J Aust* 2006; 184: 346-348.
16 Dent AW, Crotty BJ, Cuddihy HL, et al. Learning opportunities for Australian prevocational hospital doctors: exposure, perceived quality and desired methods of learning. *Med J Aust* 2006; 184: 436-440.
17 Foote AM. Medical education registrars: new thoughts on old problems [letter]. *Med J Aust* 2007; 186: 431-432.
18 Crotty BJ, Brown T. An urgent challenge: new training opportunities for junior medical officers. *Med J Aust* 2007; 186 (7 Suppl): S25-S27.
19 Scalese RJ, Obeso VT, Issenberg SB. Simulation technology for skills training and competency assessment in medical education. *J Gen Intern Med* 2008; 23 Suppl 1: 46-49.
20 McGrath B, Singh J. Clinical training in prevocational years: second report to the Clinical Training Subcommittee of the Medical Training Review Panel. Melbourne: Confederation of Postgraduate Medical Education Councils, 2008. http://www.cpmec.org.au/files/CPMEC%20Clinical%20Training%20in%20Prevocational%20Years%20Report.pdf (accessed Oct 2008).
21 Medical Specialist Training Steering Committee. Expanding settings for medical specialist training. Canberra: Australian Government Department of Health and Ageing, 2006. http://www.health.gov.au/internet/main/publishing.nsf/Content/work-edu-spectr-mstsc-rept-toc (accessed Apr 2008).
22 Dowton SB, Stokes ML, Rawstron EJ, et al. Postgraduate medical education: rethinking and integrating a complex landscape. *Med J Aust* 2005; 182: 177-180.
23 Kmietowicz Z. Tooke report proposes a new body to get postgraduate medical training back on track. *BMJ* 2008; 336: 61.
24 Tooke J, Ashtiany S, Carter D, et al. Aspiring to excellence: findings and final recommendations of the Independent Inquiry into Modernising Medical Careers. London: Aldridge Press, 2008. http://www.mmcinquiry.org.uk/Final_8_Jan_08_MMC_all.pdf (accessed Apr 2008).
25 Australian Medical Students' Association Submission to the Australian 2020 Summit 2008. Canberra: AMSA, 2008. http://www.amsa.org.au/docs/AMSA2020Submission.pdf (accessed Apr 2008).
26 National Health Workforce Taskforce. Education and Training. Melbourne: NHWT, 2008. http://www.nhwt.gov.au/training.asp (accessed Oct 2008).

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